



SEARCH OF TORRENS TITLE

VOLUME	FOLIO
140433	1
EDITION	DATE OF ISSUE
4	13-Sep-2021

SEARCH DATE : 22-Aug-2023 SEARCH TIME : 09.46 AM

#### DESCRIPTION OF LAND

Parish of ST ALBANS Land District of CUMBERLAND Lot 1 on Plan 140433 Derivation : Part of 83 Acres Located to William Clarke, Part of 103 Acres Gtd to J Clarke, Part of 341 Acres Gtd to William Clarke, Part of 84 Acres Gtd to G Piper and Part of 1,917 Acres Located to William Clarke Prior CT 124037/1

#### SCHEDULE 1

M895767 TRANSFER to DUNGROVE LAND COMPANY PTY LTD Registered 13-Sep-2021 at noon

#### SCHEDULE 2

Reservations and conditions in the Crown Grant if any

- C660407 NOTICE of Notified Corridor under Section 15 of the Major Infrastructure Development Approvals Act 1999 affecting the land therein described Registered 25-Jul-2005 at noon
- C869984 APPLICATION: BURDENING ELECTRICITY EASEMENT with the benefit of a restriction as to user of land in favour of Transend Networks Pty Ltd over the land marked Electricity Easement shown passing through the said land within described Registered 30-Jan-2009 at noon
- M277982 Application by Aurora Energy Pty Ltd for Noting of a Notable Interest pursuant to Section 12(1) (2) (a) & (b) of the Electricity Wayleaves and Easement Act 2000 Registered 14-Jul-2011 at noon
- E277392 MORTGAGE to Australia and New Zealand Banking Group Limited Registered 13-Sep-2021 at 12.01 PM

#### UNREGISTERED DEALINGS AND NOTATIONS

No unregistered dealings or other notations

**FOLIO PLAN** 

the

**RECORDER OF TITLES** 

Issued Pursuant to the Land Titles Act 1980





www.thelist.tas.gov.au





SEARCH OF TORRENS TITLE

VOLUME	FOLIO
140581	1
EDITION	DATE OF ISSUE
3	02-Dec-2020

SEARCH DATE : 27-Feb-2024 SEARCH TIME : 02.02 PM

#### DESCRIPTION OF LAND

Town of ST ALBANS Lot 1 on Plan 140581 Derivation : For grantees see plan Prior CTs 140432/1 and 140581/1000

#### SCHEDULE 1

C568873 TRANSFER to CLUNY PTY LTD

#### SCHEDULE 2

Reservat	ions and conditions in the Crown Grant if any
D151750	BURDENING WAYLEAVE EASEMENT with the benefit of a
	restriction as to user of land in favour of Tasmanian
	Networks Pty Ltd over the land marked Wayleave
	Easement 12.00 Wide on Plan 140581 Registered
	18-May-2015 at noon
E215426	BURDENING WAYLEAVE EASEMENT with the benefit of a
	restriction as to user of land in favour of Tasmanian
	Networks Pty Ltd over the land marked Wayleave
	Easement 'A' 12.00 wide on Plan 140581 Registered
	02-Dec-2020 at noon
C522534	MORTGAGE to English Scottish & Australian Bank
	Limited excepting out Lot 1 on Sealed Plan No.140432
	Registered 02-Mar-2004 at noon
C521971	ADHESION ORDER under Section 110 of the Local
	Government (Building and Miscellaneous Provisions)

Act 1993 Registered 10-Sep-2004 at noon

#### UNREGISTERED DEALINGS AND NOTATIONS

No unregistered dealings or other notations



Search Date: 27 Feb 2024 Search Time: 02:03 PM

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Volume Number: 140581





SEARCH OF TORRENS TITLE

VOLUME	FOLIO
104298	1
EDITION	DATE OF ISSUE
4	11-Mar-2014

SEARCH DATE : 16-Sep-2024 SEARCH TIME : 02.49 PM

#### DESCRIPTION OF LAND

Parish of MALMSBURY, Land District of CUMBERLAND Lot 1 on Plan 104298 Being the land described in Assent No. 65/2456 Excepting thereout PROC. 1/658, (68R/27 L.O.), 11A-2R-38Ps., NOTN. 15/5152, (106R/37 L.O.), 1A-3R-8PS., NOTN. 47/180, (94/13 D.O.), (98/21 D.O.) & (98/22 D.O.), Part of C.T. 4401/91, (D32560) Derivation : Part of Lots 413 & 414, 791-0-0 & Whole of Lot 148, 640-0-0 Gtd. to Robert Patterson, Whole of Lot 307, 1005-0-0 Gtd. to Robert Patterson & Edward Nicholas Jr. Derived from A11676

SCHEDULE 1

SCOTT HEDLEY REARDON

#### SCHEDULE 2

Reservations and conditions in the Crown Grant if any C949565 BURDENING ELECTRICITY INFRASTRUCTURE EASEMENT with the benefit of a restriction as to user of land in favour of Aurora Energy Pty Ltd over the Electricity Infrastructure Easement on Plan 104298 (Subject to Provisions) Registered 11-May-2011 at noon

- C660353 NOTICE of Notified Corridor under Section 15 of the Major Infrastructure Development Approvals Act 1999 affecting the land therein described Registered 25-Jul-2005 at noon
- C781729 BURDENING ELECTRICITY EASEMENT with the benefit of a restriction as to user of land in favour of Transend Networks Pty Ltd over the Electricity Easement shown passing through the said land within described. Registered 27-May-2008 at noon
- D98993 Mortgage to Rabobank Australia Limited Registered 11-Mar-2014 at 12.02 PM

UNREGISTERED DEALINGS AND NOTATIONS



#### **RESULT OF SEARCH**

**RECORDER OF TITLES** 

Issued Pursuant to the Land Titles Act 1980

151100 PLAN Lodged by TRANSEND 1-7 MARIA STREET, LENAH VALLEY on 11-May-2007 BP: 151100







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#### Weasel Solar Farm - DA 2024/55

#### Appendix B - Design Plans - Table of Contents:

- Site Overview Plan
- Topography Plan
- Site Analysis Plan
- Design Layout Plan
- Masterplan (A1)
- Masterplan Northern Section (A2)
- Masterplan Southern Section (A2)
- Internal Transmission Overview
- Access & Construction Laydown Overview
- Internal Tracks & Waterways Overview
- General arrangement BESS area
- Elevations (power station unit, pv trackers, switchyard, BESS units, security fencing, O&M buildings, 33kV internal transmission poles)

#### See separately, within Traffic Impact Assessment:

- Access Point Swept Paths
- Intersection Concept Designs
- Construction laydown and car parking [note: under preparation, due 22/05)

See separately, within Landscape & Visual Impact Assessment:

- Concept Landscape Plan

#### See separately within Appendix 2 of Bushfire Impact Statement:

- Bushfire Mitigation Plan (BMP) (containing additional details on bushfire risk design measures, including fire breaks, internal tracks, static water supply and grass management.)

#### **General notes:**

All design is indicative and subject to detailed design.

Due to the large scale of the Development Area, individual plans among this suite do not all contain the same level of detail (for legibility). Each plan addresses select focuses. The entire plan pack, including those contained within the Traffic Impact Assessment, should be read in conjunction with each other.





## Legend

#### **Proposed Features**

**Site Boundary** 



#### **Access Points**

- O Primary
- O Secondary / emergency
- O Tertiary / evacuation

- **Existing Features**
- 220 kV Transmission line
- ---- Title Boundary
- Cadastre
- Roads
- —— Vehicular Track





2212 - Weasel Solar Farm



#### <u>Legend</u>

Cadastre

- 🔺 Hills
- Contours (10m)
- Waterways
- **Proposed Infrastructure** 
  - Development Area

#### **Existing Infrastructure**

- = 220 kV Transmission Line
- Roads
- Dwellings
- Not Involved



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**Topography Plan** 

2212 Weasel Solar Farm



#### Legend

## Proposed Features Primary Access Secondary Access

Tertiary Access

Development Area

Site Boundary

#### Environmental Features

🔺 🛛 Hills

----- Waterways

Water Body

Wetland

Conservation Covenant

Forest

Woodland

#### Existing Infrastructure

- Electricity Easement
  - Cadastre
  - 220 kV Transmission Line
  - Vehicular Track
- C Access Road

#### Dwellings

Involved

Not Involved

## 0 1 2 km

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#### Site Analysis Plan

2212 Weasel Solar Farm





## Legend

## CO

#### **Proposed Features**

- Site Boundary
  - Study Area
  - **Development Area**
- Temporary Construction Compound BESS and Network Connection
  - Components

- Existing Features
- 220 kV Transmission line
- Title Boundary
- Waterways
- Roads
- Cadastre
- Water Body Wetland

- 🔺 Hills
- Dwellings
- Involved
- Not Involved



0

Tertiary / evacuation



## COGENCY Design Layout Plan

2212 - Weasel Solar Farm



Weasel Hills





#### **Proposed Features**

- Solar Arrays
- Main Electrical Infrastructure
- Temporary Construction Compound
- Access Tracks
- ----- Fence

600

- ----- Proposed TasNetworks Connection
- + 33 kV Internal Transmission Poles

#### Access Points

Primary
 Secondary / emergency / construction

- O Tertiary / evacuation
- Dwellings
- involved
- Not Involved

#### Existing Features

- uction Water Body
  - Wetland

  - ----- Roads
  - -- Tracks

Electricity Easement

Cadastre
Contours (10m)
Distance to security fence perimeter

0 250 500 m 1:14,000 @A1

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**Masterplan** 2212 - Weasel Solar Farm

#### Tertiary / Evacuation Access

#### Tertiary Access

Upgrade to rural sealed access.

Seal approx. 30m from edge of Highland Lakes Road to prevent mud/gravel tracking. See TIA.

#### Secondary Access

Upgrade to rural sealed access.

Seal approx. 30m from edge of Highland Lakes Road to prevent mud/gravel tracking. See TIA.

Secondary / Emergency / Construction Access

ana R

33kV Substation

Construction Compound



200m

#### **Proposed Features**

- Solar Arrays
- Main Electrical Infrastructure
- Temporary Construction Compound
- Access Tracks
- ----- Fence
- + 33 kV Internal Transmission Poles

#### Dwellings

Involved

- Existing Features
- 🔺 Hills
- 220 kV Tranmission Line
- Water Body
- Wetland
- --- Roads
- —— Tracks
- Electricity Easement
- Cadastre
- Contours (10m)

Distance from security fence perimeter

0 250 500 m





250

#### Masterplan - Northern Section 2212 - Weasel Solar Farm





#### **Proposed Features**

- Solar Arrays
- Main Electrical Infrastructure
- Temporary Construction Compound
- Access Tracks
- Hence

Gig .

- ----- Proposed TasNetworks Connection
- + 33 kV Internal Transmission Poles
- Dwellings

  - Not Involved
- = 220 kV Tranmission Line

**Existing Features** 

- Water Body
- Wetland Roads
- -- Tracks
- Electricity Easement
  - Cadastre
- Hills
   Contours (10m)
  - Distance to security fence perimeter





#### Masterplan - Southern Section 2212 - Weasel Solar Farm



## Legend

#### **Proposed Features**

Site Boundary

Study Area

Development Area

BESS & Network Connection Compunds

33 kV substation

- + 33 kV Internal Transmission Poles
- 33 KV Internal Transmission Line

— Internal Access Tracks

#### Existing Features

- 🔺 Hills
- = 220 kV Transmission Line
- Waterways
- ---- Vehicular Track
- Roads

Cadastre

Natural Assets Code

#### Dwellings

CO

Involved

Not Involved



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Internal Transmission Overview

2212 - Weasel Solar Farm



Upgrade to rural sealed access. Seal approx. 30m from edge of Highland Lakes Road to prevent mud/gravel tracking. See TIA.

#### Secondary Access

Waddamana Road

Upgrade to rural sealed access. Seal approx. 30m from edge of Highland Lakes Road to prevent mud/gravel tracking. See TIA.

Construction compound A: to be removed after completion of construction works. See TIA.

#### **General Notes:**

Wease/ Plains Cre

Weasel Hills

Construction compounds to include sufficient parking for staff and delivery vehicles. Loading area to be included.

Gravel construction (or similar) will include detailed drainage design to ensure no channelling or erosion is created by stormwater runoff.

Drainage, rehabilitation works and timeframes to be prepared within a Construction / Environment Management Plan as a condition of permit.

See Bushfire Mitigation Plan (BMP) (Appendix 2 of Bushfire Impact Statement) for additional details on bushfire risk design measures, including fire breaks, internal tracks, static water supply and grass management.

Construction compound B:

to form part of solar array

footprint post construction.

(

Primary Access

Upgrade to rural sealed access.

Seal approx. 30m from edge of Highland Lakes Road to prevent mud/ gravel tracking

Dungrove Road

Widen entrance, extend culverts at entrance and on the opposite side of highway, and relocate timber structure. See TIA.



Bark Hut C.

Weasel Plains Road

Construction compound C: to form part of solar array footprint post construction works.

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## Legend

Development

## $\mathbf{CO}$

#### **Proposed Features**

Site Boundary

BESS & Network Connection Components

**Temporary Construction Compound** 

Construction Compound

Development Area

Study Area

Primary Access

Secondary Access

Tertiary Access

#### **Existing Features**

🔺 Hills

435

13

220 kV Transmission Line

— Waterways

--- Vehicular Track

----- Roads

Cadastre

Natural Assets Code

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Access & Construction Laydown Overview

2212 - Weasel Solar Farm



Nease/ Plain

Weasel Hills

#### Internal access roads crossing waterways (Natural Assets Code)

As highlighted in red, the indicative layout for internal tracks includes numerous crossings of waterways. Exact routes will be confirmed in detailed design.

Design principle commitments include ensuring:

- Existing overland flow paths will be maintained (in a 1-in-100 RTA event). Exact crossing and culvert design will be completed post-approval, however, informed by hydrology/flood modelling.

All internal track waterway crossings will be designed with appropriate culverts, and construction techniques/sediment control will be in place to manage stormwater and runoff appropriately. Table 7 of the Ecological & Natural Assets Code Assessment presents recommended management measures to address, including:

- Minimise soil disturbance and sediment release.

- Control erosion and sedimentation risk.
- Avoid contaminant spills.
- Stabilise and rehabilitate banks.

Any large, impermeable surfaces will have drainage management for any runoff concentration, and will not allow direct, unfiltered discharge directly into waterways.

Design and works will reference the Derwent Estuary Program's "Erosion and sediment control" (2023) for additional measures.

Detailed design plans will be prepared (as a condition of permit) for all waterway crossings and hardstand areas , along with the Construction Management Plan (and/or Environment Management Plan) that addresses soil and water management and erosion risk.

#### General Note:

Waddamana Road

Internal access roads 4m-wide all-weather tracks for 20tonne vehicles.

Upgrade culvert at access point.

See TIA. Subject to detailed

design as condition of permit.

Include passing bays every 200m for two-way traffic.

Subject to detailed design as condition of permit.

Dungrove Road

Upgrade culvert at access point. See TIA. Subject to detailed design as condition of permit.

**Dungrove Hill** 

Upgrade culvert at access point. See TIA. Subject to detailed design as condition of permit.

#### Area (ha) Site Boundary 4221 683 Study Area 435 Development 13 **Temporary Construction Compound**

Cluny Hill

0

## Legend

Feature

## ()

Bark Hut Creat

#### **Proposed Features**

Site Boundary

BESS & Network Connection Components



**Construction Compound** 

**Development Area** 





Secondary Access

**Tertiary Access** 

#### **Existing Features**

🔺 Hills

= 220 kV Transmission Line

Waterways

- Vehicular Track
- Roads
- Cadastre
  - Natural Assets Code

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## **Internal Tracks & Waterways Overview**

2212 - Weasel Solar Farm



#### CO Legend 0 1 **Proposed Features** Water Body **Existing Features** Site Boundary Wetland 🔺 Hills BESS & Network Connection Components Natural Assets Code cogency = 220 kV Transmission Line Flood constraints (H2 and above) $\overline{V}$ **Construction Compound** Waterways

Development Area

Primary Access

Secondary Access 

**Tertiary Access** 

- Vehicular Track
- Roads
- Cadastre

**Internal Tracks & Flooding Overview** 

2212 - Weasel Solar Farm



#### NOTES:

- 1. DESIGN IS CONCEPT ONLY. NOT FOR CONSTRUCTION.
- 2. BATTERY ENERGY STORAGE SYSTEM INDICATIVE. ADEQUATE VENTILATION OF THE BESS CONTAINER/STORAGE AREA IS ALLOWED BASED IN COMPLIANCE WITH AS/NZS 5139-2017 AND
- MANUFACTURER'S REQUIREMENTS. 3. BATTERY ENERGY STORAGE SYSTEM TO BE IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION REQUIREMENTS AND RELEVANT AUSTRALIAN STANDARDS, INCLUDING REQUIREMENTS OF THE DANGEROUS GOODS ACT 1985.
- 4. BATTERY ENERGY STORAGE FACILITY AREAS TO BE KEPT FREE OF EXTRANEOUS MATERIALS AND
- COMBUSTIBLE MATERIALS OF ALL KINDS.
- 5. CONTAINERS/INFRASTRUCTURE FOR BATTERY INSTALLATIONS ARE TO BE PROVIDED WITH APPROPRIATE SPILL CONTAINMENT/BUNDING THAT INCLUDES PROVISION FOR FIRE WATER RUNOFF. 6. FOR THIS FACILITY, WITH A BATTERY ENERGY STORAGE SYSTEM AND WITH NO RETICULATED WATER
- AVAILABLE, THE FIRE PROTECTION SYSTEM MUST INCLUDE A FIRE WATER SUPPLY IN STATIC WATER STORAGE TANKS, WHERE THE STATIC WATER TANKS ARE TO:
- 6.1. COMPLY WITH AS 2419.1. AUSTRALIAN STANDARD FIRE HYDRANT INSTALLATIONS. 6.2. SHALL BE OF NOT LESS THAN 288,000L EFFECTIVE CAPACITY, OR AS PER THE PROVISIONS FOR OPEN YARD PROTECTION OF AS 2419.1-2005 FLOWING FOR A PERIOD OF NO LESS THAN FOUR HOURS AT 20L/s, WHICHEVER IS THE GREATER.
- 6.3. THE QUANTITY OF STATIC FIRE WATER STORAGE IS TO BE CALCULATED FROM THE NUMBER OF HYDRANTS REQUIRED TO FLOW FROM AS 2419.1-2005, TABLE 3.3.
- 6.4. FIRE HYDRANTS MUST BE PROVIDED AND LOCATED SO THAT EVERY PART OF THE BATTERY ENERGY STORAGE SYSTEM IS WITHIN REACH OF A 10m HOSE STREAM ISSUING FROM A NOZZLE AT THE END OF A 60m LENGTH OF HOSE CONNECTED TO A FIRE HYDRANT OUTLET.
- 6.5. THE FIRE WATER SUPPLY MUST BE LOCATED AT VEHICLE ENTRANCES TO THE FACILITY, AT LEAST 10m FROM ANY INFRASTRUCTURE (ELECTRICAL SUBSTATIONS, INVERTERS, BATTERY ENERGY STORAGE SYSTEMS, BUILDINGS).
- 6.6. THE FIRE WATER SUPPLY MUST BE REASONABLY ADJACENT TO THE BATTERY ENERGY STORAGE SYSTEM AND SHALL BE ACCESSIBLE WITHOUT UNDUE DANGER IN AN EMERGENCY. (E.G., FIRE WATER TANKS ARE TO BE LOCATED CLOSER TO THE SITE ENTRANCE THAN THE BATTERY ENERGY STORAGE SYSTEM.
- STATIC WATER TANK SHALL BE AN ABOVE-GROUND WATER TANK CONSTRUCTED OF CONCRETE OR 6.7. STEEL.
- 6.8. THE STATIC WATER STORAGE TANK(S) MUST BE CAPABLE OF BEING COMPLETELY REFILLED AUTOMATICALLY OR MANUALLY WITHIN 24 HOURS.
- HARDSTAND AND ACCESS ROAD TO BE KEPT CLEAR AT ALL TIMES. 6.9. 6.10. THE HARD-SUCTION POINT MUST BE PROVIDED, WITH A 150mm FULL BORE ISOLATION VALVE EQUIPPED WITH A STORZ CONNECTION, SIZED TO COMPLY WITH THE REQUIRED SUCTION HYDRAULIC PERFORMANCE. ADAPTERS THAT MAY BE REQUIRED TO MATCH THE CONNECTION ARE 125mm, 100mm, 90mm, 75mm, 65mm STORZ TREE ADAPTERS WITH A MATCHING BLANK END CAP TO BE PROVIDED.
- 6.11. THE HARD SUCTION POINT MUST BE POSITIONED WITHIN FOUR (4) METRES TO A HARDSTAND AREA AND PROVIDE A CLEAR ACCESS FOR EMERGENCY SERVICES PERSONNEL.
- 6.12. ALL-WEATHER ROAD ACCESS AND HARDSTAND SHALL BE PROVIDED TO THE HARD-SUCTION POINT. THE HARDSTAND SHALL BE MAINTAINED TO A MINIMUM OF 15 TONNES GVM, 8m LONG AND 6m WIDE OR TO THE SATISFACTION OF THE RELEVANT FIRE AUTHORITY.
- 6.13. THE HARD-SUCTION POINT MUST BE PROTECTED FROM MECHANICAL DAMAGE WHERE NECESSARY. 6.14. AN EXTERNAL WATER LEVEL INDICATOR MUST BE PROVIDED TO THE TANK AND BE VISIBLE FROM THE HARDSTAND AREA.
- 7. ASSUMED POWIN CENTIPEDE 750E BATTERY CONTAINERS AND SMA SCS 3600-UP-XT INVERTERS

WEASEL SOLAR FARM SITE GENERAL ARRANGEMENT - BESS LAYOUT SCALE: 1:1000

**REFERENCE DRAWINGS:** 

10500480 CI-010 10500480 CI-010 10500480 CI-010 10500480 CI-010 10500480 CI-010	00-01 WEASEL SITE GA - OVERALL 00-02 WEASEL SITE GA - AREA ONE 00-03 WEASEL SITE GA - AREA TWO 00-04 WEASEL SITE GA - AREA THR 00-05 WEASEL BESS LAYOUT	LAYOUT E LAYOUT D LAYOUT EE LAYOUT		
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	FLOOD ZONE			
	SUB CATCHMENT REFERNCE S	STREAM LIN	ES	
22014	EXISTING HIGH VOLTAGE TRA	NSMISSION	LINES	
33KV	PROPOSED INTERNAL OVERH	EAD CONNI	ECTION	
11/1/	EXISTING TAS NETWORK OVE	RHEAD POV	VFRLINF	S
220KV				
	SERVICE EASEMENTS BOUND	ARY		
			,	
	SECURITY FENCE (2.5m HIGH	MAXIMUM	)	
	CONTOUR LINES (I'M DEM)			
$\square$	EXISTING ROADS & TRACKS			
	SITE ACCESS ROADS (4m WIDE M	(INIMUM)		
	HABITAT BUFFER ZONE			
	EXISTING VEGETATION ZONE - R	ETAIN		
~	EXISTING DAMS TO BE RETAINED	)		
	INVERTER STATION (PCS)			
	EXISTING TREE WITH 10m FIRE B	REAK		
$\bigcirc$	TREE TO BE REMOVED 45.000L STATIC WATER TANK FO	DR SOLAR FA	ARM	
	288,000L STATIC WATER TANK F	OR BESS	G	
	SECURITY GATE			
VZZZZ	10m FIRE BREAK AND ASSET PRO	DTECTION Z	ONE (AP	Z)
	CONSTRUCTION LAY DOWN ARE	ÉA		
	SENSITIVE AREAS			
	P	V - 4 STRING	<b>TRACKI</b>	ER
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A 18/04/24	PRELIMINARY ISSUE		ΗL	SS
Rev Date	Comments		Dwn	Chkd
WEA	SEL SOLAR FARM		$  \oplus$	
CLIENT LOGO:			THIRD AND	GLE PROJECTIO

Dwg No: 10500480 CI-0001-05

BESS LAYOUT

PROJECT: WEASEL SOLAR FARM

DESIGNED BY: SS

DRAWN BY: JH

DNV

Scale:1:1000 Rev: D A1

metric

+613 8615 1515

www.dnv.com.au

ABN: 14 154 635 319

CHECKED BY: RC

APPROVED BY: RC

TASMANIA, AUSTRALIA (42°17'20"S, 146°57'29"E)

TITLE: SOLAR FARM SITE GENERAL ARRANGEMENT

W:





Full Size 1:50 ; Half Reduction 1:100 SCALE (m)

GENERAL NOTES: NOTES: **REFERENCE DRAWINGS:** SITE GENERAL ARRANGEMENT (WEASEL SOLAR FARM & BESS) 10500480 CI-0001-01 1. DRAWING PRELIMINARY ONLY. NOT FOR CONSTRUCTION. DRAWN TO AS1100
DO NOT SCALE FROM THIS DRAWING
ALWAYS CHECK DIMENSIONS ON SITE BEFORE USING ANY INFORMATION 2. ALL EQUIPMENT TO BE INSTALLED AS PER ALL RELEVANT MANUFACTU 3. ALL DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE SPECI 4. BASED ON SMA SUNNY CENTRAL 4200-UP MEDIUM VOLTAGE POWER S CONTAINED WITHIN THIS DRAWING. ALL DIMENSIONS SHOWN ARE INDICATIVE ONLY AND NEED TO VERIFIED ON-SITE, DNV ACCEPTS NO LIABILITY FROM ERRORS OR OMISSIONS SHOWN ON THIS DRAWING. CHECK THIS DRAWING IN THE LATEST VERSION. DO NOT REPRODUCE ALL OR PART OF THIS DRAWING WITHOUT PRIOR CONSENT.

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## MEDIUM VOLTAGE POWER STATION - ELEVATION VIEW SCALE 1:50

		PRELIMINAR	RY		CLIENT:
					CLIENT LOGO
В	05/08/24	PRELIMINARY ISSUE	GC/PD	SS	
А	19/04/24	PRELIMINARY ISSUE	GC/PD	SS	DESIGNED BY

## WEASEL SOLAR FARM

ED BY:	SS	CHECKED BY:	RC
BY:	GC/PD	APPROVED BY:	RC

+613 8615 1515  $\oplus \in$ www.dnv.com.au W: DNV ABN: 14 154 635 319 THIRD ANGLE PROJEC PROJECT: WEASEL SOLAR FARM AND BESS TASMANIA, AUSTRALIA (42°17'20"S, 146°57'29"E) TITLE: MEDIUM VOLTAGE POWER STATION  $\sim$  $\square$ PLAN AND ELEVATIONS metric Dwg No: 10500480 ME-0001-01 Scale: AS SHOWN Rev: B A1





0.5 1 Full Size 1:50 ; Half Reduction 1:100 SCALE (m)

0 0.25 0.5 1.0 1.5 Full Size 1:25 ; Half Reduction 1:50 SCALE (m)

**REFERENCE DRAWINGS:** 10500480 CI-0001-01 SITE GENERAL ARRANGEMENT (WEASEL SOLAR FARM & BESS)

GENERAL NOTES:

• •

DRAWN TO AS1100 DO NOT SCALE FROM THIS DRAWING ALWAYS CHECK DIMENSIONS ON SITE BEFORE USING ANY INFORMATION CONTAINED WITHIN THIS DRAWING.

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NOTES:

DRAWING PRELIMINARY ONLY. NOT FOR CONSTRUCTION.
 ALL EQUIPMENT TO BE INSTALLED AS PER ALL RELEVANT MANUFACT

3. ALL DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE SPEC

TYPICAL PV TRACKER SHOWN.
 MODULE WIDTH CALCULATED AT 1334mm ALLOWING FOR 2mm TOL

### <u>pv tracker (typ) – side elevation (max tilt)</u> SCALE 1:25

			PRELIMINARY			CLIENT:
IENTS.						CLIENT LOGO:
	B	05/08/24	PRELIMINARY ISSUE	GC/PD	SS	
	A	19/04/24	PRELIMINARY ISSUE	GC/PD	SS	DESIGNED BY

WEASEL SOLAR FARM

ED BY:	SS	CHECKED BY:	RC	
I BY:	GC/PD	APPROVED BY:	RC	

 $\oplus \subset$ +613 8615 1515 www.dnv.com.au W: DNV ABN: 14 154 635 319 THIRD ANGLE PROJEC PROJECT: WEASEL SOLAR FARM AND BESS TASMANIA, AUSTRALIA (42°17'20"S, 146°57'29"E) TITLE: TYPICAL ELEVATIONS PLAN AND ELEVATIONS metric Dwg No: 10500480 ME-0001-02 Scale: AS SHOWN Rev: B A1



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CTURER REQUIREMENTS.
PECIFIED.
RANGEMENT TO CONSIDER FUTUR

		PRELIMINARY			CLIENT: WEASEL
					CLIENT LOGO:
с	21/08/24	PRELIMINARY ISSUE	JH	SS	
_	05/08/24	PRELIMINARY ISSUE	JH	SS	
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## **AC-COUPLED BESS - TYPICAL FRONT ELEVATION**

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**AC-COUPLED BESS - TYPICAL SIDE ELEVATION** SCALE 1:200

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## SOLAR FARM & BESS SECURITY FENCING - TYPICAL SITE GATE SCALE 1:25

## SOLAR FARM & BESS SECURITY FENCING - TYPICAL FENCE PANEL SCALE 1:25

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WEASEL SOLAR FARM

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## FRONT ELEVATION 33kV DOUBLE CIRCUIT VERTICAL POST STRUCTURE

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## SIDE ELEVATION 33kV DOUBLE CIRCUIT VERTICAL POST STRUCTURE

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## LANDSCAPE AND VISUAL IMPACT ASSESSMENT

ADDRESS: 3236, 3415 AND 3759 HIGHLAND LAKES ROAD, BOTHWELL TAS PREPARED FOR: WEASEL SOLAR FARM PTY LTD C/O ROBERT LUXMOORE PTY LTD DATE: 26 SEPTEMBER 2024





#### **Document Information**

Issue Date	26 September 2024	Prepared for	Weasel Solar Farm Pty Ltd c/o Robert Luxmoore Pty Ltd
Prepared by	ТА	Reviewed by	PH
Project No.	14296	Project Name.	3236, 3415 and 3759 Highland Lakes Road, Bothwell, Tasmania

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#### 1 Introduction

#### 1.1 Overview

Weasel Solar Farm Pty Ltd, the applicant, intends to lodge a Planning Application for the establishment of a solar energy generation facility on Highland Lakes Road in Bothwell, Tasmania. The Weasel Solar Farm, referred to as The Project, is situated approximately nine kilometres north/north-west of the town (refer to Figure 1).

The project encompasses the installation of individual solar panels and spread across approximately 435 hectares (ha) of a total site area of 3840 ha. The project includes the installation of internal transmission infrastructure, connection point and associated substation, a new access track, construction compound area and Battery Energy Storage System (BESS).

The site is situated on the following properties:

- 'The Weasel' 3415 Highland Lakes Road, Bothwell TAS 7030
- 'Weasel Plains' 3236 Highland Lakes Road, Bothwell TAS 7030 and
- 'Rockford' 3759 Highland Lakes Road Bothwell TAS 7030

The development is planned to be located on the eastern side of Highland Lakes Road, on land designated entirely as Zone 21 (Agriculture).

This report, prepared by Human Habitats, provides a Landscape and Visual Impact Assessment (LVIA) to be included in the Planning Application



Figure 1 - Medium-range landscape view from Waddamana Road, looking across Highland Lakes Road toward north-central Project area.



#### 1.2 The Proposal

The project is situated along the eastern side of Highland Lakes Road (A5) in the Central Highlands area of Tasmania, 9 kilometres north of Bothwell and 72 kilometres north of Hobart. Across three adjacent addresses, the total site spans 3,840 hectares.

The key components, and associated areas proposed comprise approximately 435 hectares of the total site.



3759	PROPERTY 3759 HIGHLAND LAKES ROAD
3415	PROPERTY 3415 HIGHLAND LAKES ROAT
3236	PROPERTY 3236 HIGHLAND LAKES ROA

Figure 2 - High level context map showing property boundaries and main panel / infrastructure areas for reference



#### **1.3** Purpose and Scope of this Report

The Landscape and Visual Impact Assessment (LVIA) encompasses both landscape and visual assessments within the study area:

#### Landscape Assessment:

- Focuses on the potential effects on the character and quality of the landscape setting.
- Considers the landscape as an environmental resource, independent of specific views.
- Examines how proposed changes may impact the overall landscape context.

#### Visual Impact Assessment:

- Addresses potential effects on visual resources within the setting.
- Considers changes in view composition and quality.
- Considers people's responses to likely alterations to the landscape of their setting.
- Evaluates the overall effect on visual amenity.

#### 1.4 Structure of this report

Methodology - an overview of the methodology applied to the assessment of the project.

Description of the project - a description of the scale, form and materiality of the project.

**Relevant planning considerations** – a review of planning controls of relevance to landscape and visual matters

**Site context and landscape appraisal** – a description of the landscape attributes of the Subject Site and its surrounding context, and an assessment of landscape impacts.

Visual impact assessment - a detailed assessment of the visual impacts on key sensitive viewpoints.

Amelioration strategies - recommended actions to reduce the visual impact of the project.

Summary of findings - a brief summation of the key assessment findings


# 2 Methodology

The approach used to assess landscape and visual impacts of the existing landscape draws upon the principles outlined in the "Guidelines for Landscape and Visual Impact Assessment" (third edition) by The Landscape Institute and the Institute of Environmental Management & Assessment.

This comprehensive guide represents a "best practice" approach and has been extensively tested since 1995 across various project types, including extractive industry projects, wind farms, property developments, and road infrastructure. By adhering to these guidelines, practitioners can effectively evaluate the visual and environmental effects of proposed developments on the surrounding landscape.

# 2.1 Visual Impact

Visual assessment methodologies evaluate the viewer sensitivity of different land use types and their associated user groups. The level of sensitivity is considered in relation to the degree of visual change that a proposed development might bring to its setting. An impact level is then assigned based on this analysis.

This approach ensures a comprehensive understanding of how a development could alter the visual landscape and affect various stakeholders. It is a crucial step in planning and design, aiming to minimize negative visual impacts while enhancing the environment.

# 2.1.1 Viewer Sensitivity

The viewer sensitivity of a development depends on a range of visual characteristics. The primary characteristics used in this report includes:

- Land use;
- Distance of the development from viewers; and
- Level of visibility from visually sensitive land use areas

The assessment methodologies for visual impact consider the viewer sensitivity associated with different types of land use and their user groups. Uses that are considered to have higher viewer sensitivity include public parks, open spaces, residential areas, and major roadways, all of which are integral to the project area's setting.

The next consideration in rating the level of viewer sensitivity is the distance of the development from the identified visual use area. There are three viewing situations to consider:

- Foreground (0 1 km);
- Middleground (1 km 4 km); and
- Background (> 4 km)

As the distance increases from a proposed development to a sensitive land use area, the level of viewer sensitivity decreases based on a perceptual dis-association based on a reduction in relative proximity.

High viewer sensitivity uses include:

- Rural residences/townships;
- Designated tourist routes and major highways;
- National Parks and recreational areas; and
- Tourist accommodation and attractions

Low sensitivity uses include:

- Agricultural land uses;
- Plantations and forestry;
- Mining; and
- Service infrastructure.



	Foregr	ound	Midd	leground	Background		
Visual Use Area	Local Setting		Sub-Reg	ional Setting	Regional Setting		
	0 - 0.5 km	0.5-1 km	1-2 km	2-4 km	> 4 km		
Residences / Townships	Н	Н	Н	М	L		
Tourist Routes / Major Highways i.e. Highland Lakes Road	н	н	М	М	L		
Secondary Roads	М	L	L	L	VL		
Local Roads i.e. Waddamanna Road	L	L	L	VL	VL		
Agricultural Areas	L	L	L	VL	VL		
Forestry	VL	VL	VL	VL	VL		

Table 1 - Typical viewer sensitivity

## 2.1.2 Magnitude of Change

The determination of visual impact is not just based on visibility but also on how well an element visually integrates with its surroundings and meets the expectations of viewers for that environment.

Visual impacts occur when sensitive viewers encounter proposed elements that starkly contrast with or are incompatible with the landscape character of the setting.

The magnitude of change to views and visual amenity depends on several factors:

#### Size or Scale of Change:

Consider the extent of change within the view. This includes:

- Loss or addition of features in the view.
- Alterations in the composition of the view.
- How well new features integrate with the existing landscape (consider form, scale, mass, line, height, colour, and texture).
- The nature of the view itself (e.g., whether it's experienced continuously or in glimpses).

#### **Geographical Extent of Visual Effect:**

Different viewpoints contribute to the overall impact:

#### **Direction of View**:

The direction from which viewers observe the proposed development. Consideration is given to how the view aligns with the main activity of the receptor (person observing).

#### Distance from the Viewpoint to the Proposed Development:

- Closer viewpoints may experience more pronounced effects.
- Distant viewpoints might perceive changes differently.

### Visible Area:

- Evaluate the area over which the changes are visible.
- Some alterations may be localized, while others affect a broader landscape.

#### **Duration of view:**

- Static long for residences, moderate for recreational uses.
- Dynamic/ Moving moderate for walkers and cyclists, short for cars and public transport.



### Speed of moving viewpoint

• As the speed of the viewer increases, visual concentration on a smaller fixed area increases and the extent of peripheral vision diminishes, effectively reducing the visual field of view. Additionally, the ability to discern foreground detail diminishes.

Magnitude ratings can vary from High (significant change) to Negligible (minimal change).

## 2.1.3 Determination of Visual Impact

Visual impacts are assessed and graded as High, Moderate, Low, or Negligible. A matrix combines sensitivity and magnitude ratings to determine an overall 'Significance of Visual Effects' rating. This rating is described as High, High to Moderate, Moderate, Moderate to Low, Low, or Negligible in relation to the existing environment (see Table 1).

High and High to Moderate ratings are considered significant. Importantly, the rating itself does not imply a value judgment regarding whether the visual change is positive or negative for the landscape character or the views seen by receptors.

			Magnitude		
		High	Moderate	Low	Negligible
n	High	High	High to Moderate	Moderate	Negligible
sitivit	Moderate	High to Moderate	Moderate	Moderate to Low	Negligible
Ser	Low	Moderate	Moderate to Low	Low	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible



## 2.1.4 Residual Visual Impact

The efficacy of the suggested mitigation strategies in lessening the landscape and visual consequences arising from the Project is illustrated by contrasting the visual effect during the initial operation with the remaining impact when the proposed landscape strategies have largely matured, typically a decade after the initial establishment. As a rule of thumb, residual impacts are likely to be diminished by a minimum of one level where landscape strategies have been suggested and matured, as they filter or obstruct views towards the Project.

## 2.1.5 Mitigation Measures and Landscape Strategy Response

Potential actions to mitigate visual impacts on key sensitive viewpoints are recommended, and a landscape concept plan has been prepared in response to identified landscape character and visual impacts. The proposed planting will be shown in the photomontages at varying stages of maturity. Note these measures are intended to ameliorate the Project, but this does not mean it must be completely hidden from view.

### 2.1.6 Viewshed analysis

In the context of assessing the visual impact of a proposed project, a technique called Zone of Visual Influence (ZVI) modelling was employed utilising a digital terrain model (DTM). This method helps identify the potential viewshed and visual receptors and areas that might be subject to views of the Project.

The ZVI analysis process provides mapping which is worst case with regards to visibility, as only the screening effects of topography are considered, and not vegetation.



# 2.2 Landscape Assessment

### 2.2.1 Landscape Character Zones

A Landscape Character Assessment was conducted. This process discerns the unique attributes of a location, without necessarily attributing a value to it. It takes into account how various elements of the environment - both natural (such as the influences of geology, soils, climate, flora and fauna) and cultural (like the historical and current impact of land use, settlement, enclosure and other human interventions) - interact and are perceived to create a unique pattern, which imparts its specific sense of place.

To establish a framework that allows for a more detailed description of the area and an assessment of how the Project would impact the elements that constitute the landscape, the aesthetic and perceptual aspects of the landscape, and its unique character, distinct sections of the overall landscape have been individually defined and mapped as 'Landscape Character Zones' (LCZs).

### 2.2.2 Landscape scenic quality/values

A methodology for a prior investigation of Victorian landscapes, titled "Landscape character types of Victoria: with frames of reference for scenic quality assessment" (Leonard, 1984), has been utilized as a foundation for evaluating the scenic quality of the Site within the Study Area and the broader regional context. This study, grounded in the formal aesthetic model, characterizes landscape based on formal properties derived from expert evaluations. The descriptions are rooted in the diversity of landform, vegetation covers, and watercourses. A descriptive criterion for scenic values is developed for each landscape character type, outlining the relative range of scenic quality (high, moderate, and low) within each broad landscape character type.

According to the Visual Resource Management assumptions applied in this study (Leonard, 1984, p. 60), scenic quality escalates with:

- Increased uniqueness in rock outcropping, water, sub-alpine heathlands, and other natural features;
- Increased naturalness and decreased man-made alterations;
- Increased vegetative diversity and overall landscape variety;
- Increased vegetative diversity and green crop patchwork in agricultural landscapes; and
- Increased vegetative mixture and edge diversity in coniferous plantations.

This study provides a mapping of scenic quality and frames of reference for each character type and subtype. The high scenic quality classification is assigned where one or more of these elements (Landform, Vegetation, or Water form) are evaluated as high.

These same attributes are used to define landscape sensitivity and scenic quality values in the NSW Department of Planning and Environment, Solar Farm Technical Supplement - Landscape and Visual Impact Assessment (refer to Figure 3 and Figure 4).



Viewpoint type	Very low viewpoint sensitivity	Low viewpoint sensitivity	Moderate viewpoint sensitivity
Landform	Large expanses of flat or gently undulating terrain. Indistinct, dissected or unbroken landforms that provide little illusion of spatial definition or landmarks with which to orient	Steep, hilly and undulating ranges that are not visually dominant Broad shallow valleys Moderately deep gorges or moderately steep valley walls Minor rock outcrops	Isolated peaks, steep rocky ridges, cones or escarpments with distinctive form and/or colour contrast that become focal points Large areas of distinctive rock outcrops or boulders Well defined, steep sided valley gorges
Vegetation	Extensively cleared and cropped areas with very limited variation in colour and texture Pastoral areas, human created paddocks, pastures or grasslands and associated buildings typical of grazing lands	Predominantly open forest or woodland combined with some natural openings in patterns that offer some visual relief Vegetative stands that exhibit a range of size, form, colour, texture and spacing including human influenced vegetation such as vineyards, and orchards	Strongly defined patterns with combinations of native forest, naturally appearing openings, streamside vegetation and/or scattered exotics Distinctive stands of vegetation that may create unusual forms, colours or textures in comparison to surrounding vegetation
Waterbodies	Absence of natural waterbody Farm dams, irrigation canals or stormwater infrastructure	Intermittent streams, lakes, rivers, swamps and reservoirs	Visually prominent lakes, reservoirs, rivers, streams, wetlands and swamps Presence of harbour, inlet, bay or open ocean
Social / cultural	Places of worship, cemeteries/memorial parks, private open spaces	Local heritage sites Distinguishable entry ways to a regional city identified in the Transport and Infrastructure SEPP	Culturally important sites, world heritage areas, national parks/reserves, Commonwealth and state heritage sites
Human presence	Dominating presence of infrastructure, human settlements, highly modified landscapes and higher density populations such as regional cities, industrial areas, agricultural transport or electricity infrastructure	Dispersed yet evident presence of human settlement such as villages, small towns, isolated pockets of production and industry, lower scale and trafficked transport infrastructure	Natural/undisturbed landscape Minimal evidence of human presence and production

Table 3 - Frame of reference for scenic quality values (Source: NSW Department of Planning and Environment Technical Supplement - Landscape and Visual Impact Assessment)



Viewpoint type	Very low viewpoint sensitivity	Low viewpoint sensitivity	Moderate viewpoint sensitivity
Landform			
Vegetation			
Waterbodies	AND OF THE OWNER		
Social / Cultural			
Human Presence			

Table 4 - Visual reference for scenic quality values (Source: NSW Department of Planning and Environment Technical Supplement - Landscape and Visual Impact Assessment).

## 2.2.3 Glint and Glare Assessment

Photovoltaic (PV) panels are designed to absorb sunlight and convert it into electricity and therefore, a key goal in PV panel design, manufacturing, and installation is to minimize light reflection from the panels. The dark, non-reflective nature of solar arrays also helps to reduce their visual contrast with the surrounding landscape.

SLR Consulting have conducted a glare and glint assessment using *ForgeSolar's GlareGauge* software. The assessment focused on annual hours of green and yellow glare at identified observation points (typically roads and residences).

Green glare has a low potential to cause an after-image when observed before a typical blink response time.

Yellow glare, on the other hand, has the potential to cause an after-image when observed before a typical blink response time.



The analysis does not account for obstacles (such as trees, topography, or buildings) between observation points and the proposed solar array. Therefore, the assessment represents a worst-case scenario, assuming unobstructed views.

### 2.2.4 Lighting Impacts

The AS-NZS-4282-2019 standard is designed to control the intrusive effects of outdoor lighting by providing guidelines for assessing and limiting lighting impacts. This standard delineates four environmental zones for outdoor lighting, each categorised by the extent of artificial lighting present in the area. For instance, national parks, being intrinsically dark landscapes, fall under Category A1, while city centres with high levels of nocturnal activity are classified as high district brightness areas (Category A4).

The primary objective of this standard is to minimise light spill. It is a universally accepted principle that, irrespective of the existing brightness of a specific location, light spill, especially upward light spill, should be minimised as much as possible.



# **3** Description of the Project

The Weasel Solar Farm is a large-scale solar project, with a nameplate capacity of up to 250MWp. It will be accompanied by a battery energy storage system (BESS) and electricity infrastructure including inverters and a switchyard containing an electrical substation to feed into the existing 220kV transmission line. Total title area for the Subject site is approximately 3,840 Hectares.



Figure 3 - Design Layout Plan provided by Cogency



The proposal includes land for construction, maintenance, and operation, new access tracks and upgrades to existing tracks, laydown areas, security infrastructure, and landscaping. Development area within the total site area is approximately 435 Hectares. The Proposal infrastructure occupies around 11 percent of total site area.

The works and components associated with the project include the following:

Solar arrays: solar panels supported by a mounting system on piles, driven into the ground. The
dimensions will be approximately 4.8 in width for the panel surface, 4m high when fully tilted, and
around 3m when level (no tilt). The panel surface colour will be dark blue (refer Figure 1). The colour of
any other supporting elements such as structural supports, structures and fencing will nominally be
chosen to provide minimum colour contrast to their surroundings and reflectivity;

Hi-MO 🗗						LR5	5-72H	IBD	530~	·550M
21.5% 0~3 MAX MODULE POW EFFICIENCY TOLER	er NNCE	FIRST Y FIRST Y POWER DEGR	<b>%</b> EAR TADATION	POW	<b>0.45%</b> YEAR 2-30 ER DEGRADATK	DN	HAL Lower	F-CE	<b>LL</b> ting tem	perature
Additional Value				_						
30-Year Power Warranty										
100%										
**										
+2.75%			84.9	5%						
17.7%	+4.00%									
4.5%		1.95%						- 11		
1.7%			-							
1 5 30	15 20	25	80							Units: mm,
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Mechanical Parameters						ء ر	, Q			
Cell Orientation	144/6×24			_				1		
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Frame Anod	ized aluminum	all <b>o</b> y frame								
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Module Type	LR5-72	HBD-530M	LR5-72H	BD-535M	LR5-72H	BD-540M	LR5-72H	BD-545M	LR5-721	BD-550M
Testing Condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax/W)	530	396.2	535	399.9	540	403.6	545	407.4	550	411.1
Open Circuit Voltage (Voc/V)	49.20	46.26	49.35	45.40	49.50	46.54	49.65	46.68	49.80	46.82
Short Circuit Current (Isc/A)	13.71	11.07	13.78	11.12	13.85	11.17	13.92	11.23	13.99	11.29
/oltage at Maximum Power (Vmp/V)	41.35	38.58	41.50	38.72	41.65	38.85	41.80	39.00	41.95	39.14
Current at Maximum Power (Imp/A)	12.82	10.27	12.90	10.33	12.97	10.39	13.04	10.45	13.12	10.51
Module Efficiency(%)	2	0.7	2	0.9	2	1.1	21	.3		15
Operating Parameters					Machanic	al Loadin	~			
Operating Farameters	_4(	11° ~ +85%		_	Eront Side Maxi	inum Statie I	arding		54000+	
Power Output Tolerance	-46	0-3%		_	Rear Side Maxin	num Static L	sading		2400Pa	
Voc and Isc Tolerance		±3%		_	Hailstone Test		6	25mm Ha	ailstone at the	speed of 23m/s
Maximum System Voltage	DC15	OOV (IEC/UL)		_						
Maximum Series Fuse Rating		30A		_						
Nominal Operating Cell Temperature		45±2°C								
Protection Class		Class II			Temperate	ure Ratin	gs (STC)			
Bifaciality		70±5%		_	Temperature Ce	pefficient of I	sc		+0.050%6/*	°C
Fire Rating	U	IL type 29		_	Temperature Co	pefficient of \	/oc		-0.265%/"	с
and a second	B	EC Class C			Temperature Co	pefficient of F	<sup>2</sup> max		-0.340%/*	с



No.8369 Shangyuan Road, Xi'an Economic And Technological Development Zone, Xi'an, Shaanxi, China. Web: en.longi-solar.com Specifications included in this datasheet are subject to change without notice. LONGI reserves the right of final interpretation. (20211101V14)

Figure 4 - Proposed Photovoltaic (PV) Module Datasheet



• The panels will be installed on a north to south orientated single axis tracking system that tilts the panels from east to west throughout the day. Maximum height is 4.5m when fully tilted.



Figure 5 - Proposed tracking system specifications

Central inverter units as required throughout the panel areas and associated with BESS infrastructure



Figure 6 - Proposed inverter unit plan and elevation



- Cabling and electrical connections;
- Onsite access tracks (gravel) generally to 4m wide;
- A switchyard facility 122m long by 98m wide. Facility averages 10m in height



Figure 7 - Proposed switchyard facility

• A switch room and control room facility – approximately 9.5m long by 2.6m wide by 3m in height



SWITCH ROOM AND CONTROL ROOM - PLAN VIEW SCALE 1:50

Figure 8 - Proposed switch room and control facility



• A BESS facility occupying approximately 275m long by 115m wide by 3m in height



- LEFT POLE RIGHT OPGW STRAIN CLAMP 雟 OPGW 1 1 33kV SURG 1 N GROUND STAY (IF REQUIRED) é, 33kV SHEATH VOLTAGE LIMITER aficitian LEVEL EARTH GRID FRONT ELEVATION 33kV DOUBLE CIRCUIT TERMINAL STRUCTURE NTS SIDE ELEVATION 33kV DOUBLE CIRCUIT TERMINAL STRUCTURE
- Terminal structure and posts related to grid connection infrastructure. Typical height 18.5m

Figure 9 - Circuit terminal structure





Figure 10 -33kv vertical post structures for grid connection

• Operations and Maintenance Building - 40m long by 20m wide, 9m in height



Figure 11 - Proposed Operations and Maintenance Building



• Chain mesh perimeter fence and gates (security fence up to approximately 2.5 m high with colour to be determined); and





Figure 12 - Typical gate and fence diagrams

 Perimeter landscaping to sensitive frontages (refer Landscape Concept Plan provided in lodgement documentation)





Figure 13 - South Site detailed layout plan, demonstrating particular infrastructure described and considered in report



# **4** Relevant Planning Considerations

# 4.1 State and Local Planning Policy

# 4.1.1 Zoning

The Project is located within the Central Highlands Council area. The entirety of the Subject Site is defined as Zone 21.0 – Agriculture Zone under the Tasmanian Planning Scheme. Highland Lakes Road is zoned Utilities. The site also sits within the Central Highlands Renewable Energy Zone (T3) AEMO.



Figure 14 - Zoning Map (Source: Tasmanian Planning Scheme, via LISTMap)



# 4.1.2 Overlays

The site has several overlays which apply either in part or wholly across the site. These are as follows:

- C4.0 Electricity Transmission Infrastructure Protection (partial)
- C7.0 Natural Assets (partial)
- C10.0 Bushfire-prone Area (whole)
- C15.0 Landslip Hazard Code (partial)

Of these, only the Natural Assets overlay is relevant to landscape values as it's stated objectives for Priority Vegetation Areas (the only sub-category of overlay that is relevant to the properties) are to provide protection of:

- Threatened native vegetation communities listed under the Nature Conservation Act 2002;
- Threatened flora species
- Significant habitat for threatened fauna species; and
- Other locally important native vegetation

Note that the Project almost exclusively is to be constructed within the open grazing land areas of the site, and predominantly not within areas of native vegetation, as per the provided context and layout maps.



Figure 15 - View from Highland Lakes Road, looking south toward southern portion of Subject Site





Figure 16 - Photograph looking south-east toward southern portion of north region of Project



Figure 17 - View from Highland Lakes Road, looking north toward southern boundary of Subject Site



# 5 Site Context and Landscape Appraisal

# 5.1 Site Context

### 5.1.1 Land Use

The site, as with much of the surrounding area, is predominantly utilised for broadacre grazing purposes. Some areas of irrigated cropland are located to the east of the development area. The Project intends for agrisolar principles to be utilised within the development, allowing sheep grazing to be continued within the solar panel areas into the future.

As per Figure 6 below, there is a significant area of forestry located to the east and north-east of property 3236. The overall property area itself falls into the same categories prevalent throughout a large portion of the surrounding area, these being mainly grazing related, with smaller zones of pivot irrigated cropland. Some areas are noted as 'other minimal uses', and appear to align with areas observed on site and via aerial photography as being tracts of native vegetation.



Figure 18 - Generalised Land Use 2021 (Source: Department of Natural Resources and Environment Tasmania, via LISTMap)



Existing electrical infrastructure elements are often visually prominent in the landscape. The largest elements within the area surrounding the site are the electrical transmission lines which cut across many properties, including two properties which are part of the Project site. There are also above-ground electrical distribution lines running along Highland Lakes Road itself. (refer to Figure 9 and 10)

Highland Lakes Road is classified Category 5 in the Tasmanian State Road Hierarchy, the lowest listed level in the hierarchy, denoting it as 'primarily access roads for private properties, low-frequency heavy vehicle transport such as logging or farm access'. Despite this, the road does have a role as part of a broader tourism route through the Central Highlands region. As such, it has been assessed with regular tourist driving usage in consideration.



Figure 19 - View from Highland Lakes Road, showing existing high voltage transmission lines transiting through the properties containing the Project





Figure 20 - View from Highland Lakes Road, showing existing high voltage transmission lines transiting through the properties containing the Project. Also visible along the right-hand side of Highland Lakes Road in the middleground of the photo are above-ground electrical distribution lines.

## 5.1.2 Landscape Character Zones (LCZ)

For the purposes of this report, we have referenced Chapter 7 of the document 'A Manual for Forest Landscape Management' by the Forest Practices Authority (FPA), republished October 2006 by the Forest Practice Board, Tasmania. This document discusses very clearly the different landscape character zones across Tasmania and provides a clear and succinct methodology for ascertaining the various scenic qualities, and quality of such, across sites located within each zone.

As per Figure 6 below, the site is located within *Zone 5 - Eastern Hills and Plains* character zone, and we have used the analysis related to this zone as the basis for analysis and visual assessment.





Figure 21 - Landscape Character Types of Tasmania (p. 160, 'A Manual for Forest Landscape Management', FPA Tasmania, 2006)

As per page 163 of that document, in describing Zone 5 the author provides the following:

"This low-rainfall region includes most of the drier parts of the State. The dry grasslands of the extensive low plains to the north-west change to dry, regularly burnt woodlands and forests on mountain tiers and sugarloaves to the east and south. Forestry and wool growing are major industries. The broad river drainages of the Derwent and Tamar are flooded estuaries indented deeply into the coastline."

As a further measure and consideration of landscape character designation, we have reviewed the site and surrounding area as it pertains to classifications within the Interim Biogeographic Regionalisation Australia (IBRA) system. The system applies 89 subregions across Australia, with 9 of those subregions located within Tasmania. The site is situated within the Tasmanian South East Subregion, near the boundary with the adjacent



Tasmanian Central Highlands Subregion.



Figure 22 - Extract Map demonstrating Tasmanian biogeographic subregions. (from: A Surrogate Model for Rapidly Assessing the Size of a Wildfire, KC, Ujjwal & Aryal, Jagannath & Hilton, J.E. & Garg, Saurabh, 2021)

The description for this subregion is described as follows:

"The Tasmanian South East bioregion encompasses much of coastal eastern Tasmania, the Midlands, and the lower Derwent Valley. It has large areas of open slopes, plains and hills. Prominent features include a highly indented coastline, broad expanses of hilly country and mountain ranges capped with dolerite rock. The vegetation of the bioregion is dominated by eucalypt woodlands, eucalypt open forests, tall open forests and native grasslands, some of which have been derived from grassy woodland communities by tree clearing."

Between these two assessment methods, we can derive some commonalities which are representative of the local area of the site and reinforce the in-person observations made during our visit to the area. These include a predominance of gently rolling grassland ecosystem, with scattered patches of native woodland, especially clustered around the ridgelines and below rocky outcrops near the tops of hills.



Figure 23 - View from Highland Lakes Road to the north of the site, looking south-east. Representative of typical character of grazing pasture with gently rolling hills and scattered patches of trees



Figure 24 - Distant view from Waddamana Road, to the west of the Subject site, looking east. Note the native vegetation and open woodland character in the foreground – this is typical of the woodland character found in the area



# 5.2 The Subject Site

# 5.2.1 Topography and Hydrology

The landform of the Subject site is primarily made up of rolling hills divided by shallow downslope areas, with ephemeral creek lines capturing drainage from higher elevations.

When the topographic elevation map is analysed against the particulars of the Project, it is evident that the areas of infrastructure are located primarily in areas of either relatively flat ground or gently rolling landscape, avoiding steep embankments and sharp topographical features which would exaggerate or unduly highlight the Project, as can be seen in Figure 20.

There is less than 200 metres of topographic variation across the total site area, including land which is not being utilised for the Project.

Largely this variation is accommodated across significant distances and the site generally does not contain very precipitous or sharp inclines, apart from the more southerly and far eastern extents of property 3236 – an area of the Subject Site which is not included in the Project.



Figure 25 - General view of part of the Subject Site looking south along Highland Lakes Road





 PROPERTY
 3759
 PROPOSED SOLAR PANELS

 3415
 PROPERTY
 3415 HIGHLAND LAKES ROAD

 3236
 PROPERTY

 3236
 PROPERTY

 3236
 HIGHLAND LAKES ROAD

Figure 26 - Topography tint and Contour map for site and surrounding area. Red tint - More intensity = higher elevation Contours - Standard contours at 10m intervals, Bold contours at 100m





Figure 27 - Detail view of Subject Site and Project components with topography. From this, we can see the relatively smooth undulating land utilised for the arrays, and the avoidance of high elevation or particularly steep areas for the Project



## 5.2.2 Vegetation

A Flora and Fauna assessment has been undertaken for the Subject Site, including areas of remnant vegetation and agricultural land. The assessment identified three key vegetation types, each of which are summarised and described below.

Eucalyptus pauciflora Forest and Woodland Not on Dolerite: This vegetation category is dominated by a canopy of *Eucalyptus pauciflora* (Snow Gum) which is the key endemic tree species to this area. Generally growing less that 25m in height, this category consists of dry sclerophyll vegetation in an open canopy forest or woodland typology. *Eucalyptus rubida* (Candlebark) is also present within these forests, and listed as sub-dominant in the assessment. The midstorey is described as sparse with scattered smaller trees such as *Exocarpos cuppressiformis* (Native Cherry), *Acac ia melanoxylon* (Blackwood) and *Acacia dealbata* (Silver Wattle). *Banksia marginata* (Silver Banksia) and *Pittosporum bicolor* (Tallowwood) were also noted on site but scarce.



Figure 28 - Example of Open Forest / Woodland category to background of image, with areas of Agricultural Land, along with Regenerating Cleared Land along creek line and in the upper left area of the view

Agricultural Land: This category identifies land which has been used and managed for agricultural purposes. The Ecological Assessment notes the prevalence of pasture grasses across the site with a smaller proportion of other exotic grass species. Some native grasses and herbs were also observed in the Ecological consultant's site inspection.

Regenerating Cleared Land: The assessment notes some areas of Regenerating cleared land in the subject area, mainly confined to valley flats, along watercourses, depressions, agricultural drains and surrounding dams. This type of land often consists to a large extent of native pioneer species, including *Juncus* and *Carex* sp.

## 5.2.3 Landscape Scenic Quality

Landscape Scenic Quality can be somewhat subjective, but generally is derived by an analysis of a series of factors that contribute to the human appreciation of a landscape.

Agricultural landscapes are subject to diverse opinions about the constitution of scenic values for a landscape. In reviewing the subject area and its associated scenic quality, we can assess the site against the three key factors, comprising:



Topographic variation and ruggedness

**Discussion:** The subject area does contain significant topographic variation but not a high degree of ruggedness. The topography would best be described as rolling hills, rarely forming a mountainous element in the landscape. No observed landmarks or key features for orientation or scenic recognition. **Outcome:** Low – moderate

Strong patterning of vegetation

**Discussion:** Vegetation patterns are sparse and inconsistent across the subject area and surrounds. Minimal variation in texture and colour, extensive areas of pasture grass for broadacre grazing. **Outcome:** Low - moderate

The presence of water
 Discussion: Waterforms largely absent, save for some ephemeral creek lines and small scattered farm dams across the Subject Site.
 Outcome: Low

**Scenic Quality assessment -** Low to moderate scenic quality. Land is broadly representative of much of the pasture grazing land in the region. Devoid of major landmarks which would attract the eye or be memorable to a passing viewer

## 5.3 Assessment of Landscape Impacts

Given the relatively low level of scenic quality, the low-profile form of the majority of the components, and the lack of opportunities for overlooking, the project will have a limited and relatively isolated impact on the landscape character of the broader setting.

Being a solar energy development, certain considerations with regard to aspect and layout must be taken into account when arranging the photovoltaic panels and tracker alignments, but in this case the proposed layout works naturally with the landforms and creates a largely unobtrusive effect within the landscape setting.



# **6** Assessment of Visual Impacts

# 6.1 Identification of Sensitive Receptors

The assessment includes viewpoints from receptors deemed to be of a higher level of visual sensitivity, such as Highland Lakes Road (refer to Figure 18). The majority of residences within the study area radius have not been assessed given their owners are involved with the Project. However, the few residences that are not involved in the Project have been assessed.

Given the Project's typically low-profile design, the detailed evaluation of viewpoints is limited to visually sensitive locations within a 2km radius of the Project that have a view. 2km is the distance within which receptors will be of a higher level of visual sensitivity and where the Project will be most noticeable.

The selected viewpoint for the closest non-involved property is located at the nearest publicly accessible location on Highland Lakes Road, at the driveway entrance to the property. No other non-involved dwellings are present within the study area.

The chosen locations for photography and assessment are in the public domain, close to either sensitive, privately-owned visual use areas, or key locations.

# 6.2 Visual catchment / Viewshed analysis

The viewshed refers to the area from which a proposed development might be visible. Given the relatively low height of the project's components above ground level, the visual catchment will be restricted.

Figure 17 shows the theoretical viewshed of the project and is solely based on topography and doesn't consider the screening effects of vegetation. Consequently, it essentially portrays a worst-case scenario.

Areas of vegetation across the landscape and surrounding rural residences will further aid in obscuring views towards the Project from most vantage points.

Viewshed analysis was undertaken for:

- Solar panels and BESS units, at a maximum height of 4.5m; and
- The substation and HV poles, at a maximum height of 18.5m.

See Figure 23 for the TZVI (Theoretical Zone of Visual Influence) analysis map for the Project based on this methodology.





Figure 29 - Theoretical Zone of Influence (TZVI) for the Project, overlayed with context, key roads and property boundaries for reference. White = Project visible from given location gradually increasing in visibility up to the very dark red which indicates the maximum visibility of Project (extent of analysis 5km)



From the analysis it is evident that the locations from where the Project would be most visible are located at higher elevations, such as ridge lines and the upper slopes of high hills. However, these areas do not typically contain any public roads and are largely located within primary-industry land use areas including forestry and backcountry pasture for grazing.

To the western side of Highland Lakes Road, opposite the Project, visibility will be mostly limited with only some isolated areas of higher visibility, again restricted to the upper slopes of a small number of higher hills, none of which have residential dwellings present.

# 6.3 Viewpoint Selection

Highland Lakes Road (A5) traverses the full length of the Project, with the closest distance from the road to the Project components varying from approximately 50m to the powerlines, to approximately 150m to 200m to the solar array and BESS.

Despite the proximity, the TZVI shows the relatively limited degree of visibility which results due to intervening topography. With existing vegetation considered, the extent of visibility is further reduced.

However, there are a number of locations where the Project is visible and detailed viewpoint analysis is required, including onsite verification, reverse TZVI testing as well as visibility testing within a digital model.

Working from north to south, Viewpoint 1 was selected due to the relatively uninterrupted view (albeit in the middle-ground, sub-regional visual scale), of the far north-western area of the Project.

Viewpoint 2 represents the most visually exposed and/or proximate location along the road alignment.

Viewpoint 3 represents the nearest publicly accessible viewpoint location to the only non-involved dwelling within the study area.

# 6.4 Detailed Viewpoint Assessment

This section presents a comprehensive evaluation of the Project from the selected high visual sensitivity viewpoints. Each viewpoint is assigned a rating based on the level of visual magnitude and sensitivity. These two factors are then combined to determine the overall visual impact for each viewing location. Refer to Figure 24 for the location of each viewpoint.





_	DDODEDT/		
3759	3759 HIGHLAND LAKES ROAD	•	VIEWPOINT
3415	PROPERTY 3415 HIGHLAND LAKES ROAD		
3236	PROPERTY 3236 HIGHLAND LAKES ROAD		

Figure 30 - Detailed viewpoint location plan



# **VIEWPOINT 1**

#### SUMMARY

. ..

Location	Northern approach toward the Project on Highland Lakes Road
Coordinates	42°14'39.42"S, 146°55'33.68"E
Distance to project	1.7km
Elevation	548m
Viewing direction to project	Southwest
Land use	Transportation (Roadway)
Duration	Moving (100km/h)
Viewer sensitivity	MODERATE
Visual magnitude	LOW
Relative visibility (Reverse TZVI)	LIMITED EXTENT
Visual impact	MODERATE TO LOW
Proposed Amelioration	<b>PERIMETER PLANTING -</b> along the north-western perimeter of the project.
Residual Impact	LOW

### DESCRIPTION

The viewpoint is a location on Highland Lakes Road.

The surrounding landscape is generally undulating and comprised of open pasture with scattered trees along roadsides and paddock boundaries. An area of denser woodland type vegetation is located along Highland Lakes Road to the south-east of the viewpoint, between the viewpoint and the project, which provides partial screening of the Project.

There is, however, a clear view toward of the northwestern most edge of the Project, visible when a vehicle is travelling south along the roadway in this general location. The visibility of this northern edge of the solar panel arrays at an angle just to the side of the central field of view for a vehicle in this area makes it relevant for analysis, even at this location more distant from the subject area.

The viewer sensitivity is moderate, due to the distance from the Project. The level of visual magnitude is low given the relatively small field of view taken up with the infrastructure from this location.

#### POTENTIAL VISUAL IMPACT

#### **Initial Visual Impact**

From this viewpoint, the visible components of the project will be the solar panels. However, they will be partially screened by existing vegetation between the viewpoint and the Project and occupy a small area of the angle of view

The low level of visual magnitude, considered in the context of a moderate level of viewer sensitivity, will result in a moderate to low level of visual impact.

#### **Residual Visual Impact**

A strip of amelioration buffer planting along the security fence perimeter in front of the Project infrastructure will reduce the residual impact to low.



Figure 31 - Key Plan: Viewpoint 1





Figure 32 - Viewpoint 1 - Existing view south southeast from Highland Lakes Road to the Project, 1.7km distant.



# **VIEWPOINT 2**

#### SUMMARY

Location	Central project area, looking north-northeast toward the Project on Highland Lakes Road
Coordinates	42°16'6.31"S, 146°56'28.32"E
Distance to project	300m
Elevation	485m
Viewing direction to project	North-northeast
Land use	Transportation (Roadway)
Duration	Moving (100km/h)
Viewer sensitivity	HIGH TO MODERATE
Visual magnitude	MODERATE
Relative Visibility (Reverse TZVI)	LIMITED EXTENT
Visual impact	MODERATE
Proposed Amelioration	<b>BUFFER PLANTING -</b> zones to western side of subject area in front of PV panel infrastructure
Residual Impact	LOW

#### DESCRIPTION

The viewpoint is located on Highland Lakes Road.

The surrounding landscape is relatively open in this area, with areas of open forest / woodland mainly restricted to the upper reaches of distant hills, and sparse individual trees on the gently undulating hills in the background. In the fore to midground, the landscape is mainly flat. Limited screening of the Project is present from this viewpoint as it is representative of the experience by a road user of the wide-open valley in this area.

There is a clear view of a section of panels in the north-western zone of the Project, visible when a vehicle is travelling north along the roadway in this general location. The low elevation of a proposed 33kv switchyard in the foreground means visibility will be low to negligible from the roadway.

The viewer sensitivity is considered moderatehigh, due to the proximity and unimpeded view to the Project.

The level of visual magnitude is considered moderate given the limited amount of the Project visible. Additionally, viewers will be moving at 100km/h and the Project will be located offset to the direction of travel.

#### POTENTIAL VISUAL IMPACT

From this viewpoint, the main visible components of the project will be experienced at a slight angle, offset from the direction of travel, and at speed. While this reduces the duration that the view of the Project is experienced, the landscape of the setting is open and offers a relatively clear view of Project infrastructure from the roadway.

Given these considerations, the visual impact will be of a moderate level.

With amelioration buffer planting located between the road and the Project infrastructure, the residual visual impact will reduce to low.



Figure 33 - Key Plan: Viewpoint 2




Figure 34 - Viewpoint 2 - Existing view northeast from Highland Lakes Road to the Project, 300m distant.



## **VIEWPOINT 3**

### SUMMARY

Location	Southern approach, looking north toward the Project on Highland Lakes Road	Th to Ro
Coordinates	42°19'2.70"S, 146°57'47.36"E	tro
Distance to project	800m from viewpoint on road	in co
	600m from residence	loo th
Elevation	430m for both road and residence	tro
Viewing direction to project	North-northeast	wi ac
Land use	Transportation (Roadway)	Th
	Residential	wł
Duration	Moving (100 km/h) – Roadway Extended – Residence)	To
Viewer sensitivity	MODERATE (Roadway)	a 31
	HIGH (Residence)	slo
Visual magnitude	LOW (Roadway)	Fo
	NEGLIGIBLE TO LOW (Residence)	vis
Relative Visibility (Reverse TZVI)	LIMITED EXTENT	ar of
Visual impact	LOW TO MODERATE(Roadway)	FC ne
	LOW TO MODERATE (Residence)	th vis
Proposed Amelioration	<b>BUFFER PLANTING -</b> zones to southern side of subject area in front of PV panel infrastructure	
Residual Impact	LOW (Roadway and Residence)	

### DESCRIPTION

The viewpoint is located within the roadway, adjacent o the driveway for 'East Cluny', 2908 Highland Lakes Road and this assessment is representative of the view rom both the roadway and the residence.

The surrounding landscape is highly undulating and is comprised of a mixture of scattered exotic trees ocated closer to and along the roadway. Higher up on the hillsides, the landscape opens up further, and ransitions to an open pastural/grazing landscape with a small number of individual trees scattered across the grassland.

The residence is surrounded by large cypress trees which limit views towards the southern part of the Project.

Toward the top of the hill to the centre-left of the view, a section of solar panels is proposed (refer to Figure 31) which will be partly visible covering the upper slopes and extending along the ridgeline.

For road users, the level of visual magnitude is considered low given the limited amount of the Project visible. Additionally, viewers will be moving at 100km/h and the Project will be located offset to the direction of travel.

For residents, the level of visual magnitude will be negligible to low, given dense screening surrounding he residence and the limited amount of the Project *v*isible on the upper slopes and ridgeline.

### POTENTIAL VISUAL IMPACT

For road users, the visible components of the Project will be mostly screened by a combination of topography and roadside vegetation, offset from the direction of travel, and at speed. The moderate level of viewer sensitivity, combined with a low level of visual magnitude, will result in a low to moderate visual impact.

For residents, whose views of the Project are mostly screened, the negligible to low level of visual magnitude, combined with a high level of visual sensitivity will result in a low to moderate visual impact.

Amelioration buffer planting along the southwestern corner of the Project will reduce the residual visual impact to low.



Figure 35 - Key Plan: Viewpoint 3





Figure 36 - Google Earth aerial photograph showing significant screening trees to the dwelling at 2908 Highland Lakes Road





Figure 37 - Viewpoint 3 - Existing view north from Highland Lakes Road to the Project, 800m distant, from near the driveway entry to the property at 2908 Highland Lakes Road.



## 6.5 Cumulative impact

The Project is in an area without adjacent existing infrastructure. As a result, the sequential and simultaneous cumulative impacts will be negligible to very low.

## 6.6 Lighting Impacts

The applicable environmental lighting zone for the Project area based on AS-NZS-4282-2019 is Category A2, which is a low district lighting area, which applies to rural residential areas and areas with secondary and local roads.

It is likely that the batteries, switch room and substation will require security lighting. However, typically this will be shielded and directional. As a result, hot spots and light spill are likely to be minimised.

Within the Category A2 area the Project will result in a localised area of increased light intensity, but this will not result in adverse impacts to surrounding residential viewpoints.

## 6.7 Glint and Glare Assessment

## 6.7.1 Summary of Results

A Glint and Glare Assessment was undertaken for the Project, and after a process of modelling and refining the location and nature of the elements proposed, a result was achieved that meant no remaining potential glare conditions being present for the Project.

Further, SLR Consulting examined the topography and existing vegetation, finding that shielding would be enhanced by the large areas of natural bushland between the Project arrays and many of the surrounding roads and residential dwellings.

## 6.7.2 Recommendations

For light sources required for the Project, these should be shielded and directional, limiting light spill and adverse effects on surrounding areas.



## **Amelioration Strategies**

## 6.8 **Project Components**

### 6.8.1 Colour and Materiality

Although most of the Project is low-profile with a partially reflective finish out of necessity, BESS units and taller elements such as transformers and switching substations should be clad with non-reflective materials and finished in natural or neutral colours, as found in the surrounding landscape.

## 6.9 Landscape

### 6.9.1 Onsite Amelioration

On-site actions involve initiatives within the Project area boundaries

### **Perimeter Screen Planting**

While existing vegetation significantly screens views from most sensitive viewpoints, additional perimeter screen planting is proposed along the far north-west corner of the Project area (VP1 visibility area), a strip of vegetation proposed inboard of the security fence boundary in front of a bank of panel infrastructure facing south (VP2 visibility area), and some areas of perimeter screen planting to the southern south-western boundaries of site and panel infrastructure (VP3 visibility area and closest adjacency to Highland Lakes Road itself).

A 2.5m high chain mesh security fence will be installed inside the Project boundary perimeter. The low-profile form of most of the Project, primarily the solar array, which is approximately 4m in height at full tilt, will ensure that planting can provide screening within a relatively short period. Tubestock tree planting has been proposed for this purpose, as this form of installation has the best chance of successful establishment and healthy plant growth in such environments.

Please refer to the Landscape Concept Plan provided as an Appendix to this document, for reference and further information regarding the on-site amelioration proposal.

## 6.9.2 Off-Site Amelioration

These actions involve initiatives outside the Project area and require consent from relevant landowners, utilities, or authorities. However, the assessment has found that all necessary amelioration can be achieved on the Subject Site, and no off-site actions are required.

## 6.9.3 Powerlines

Given their relatively slim profile and low visibility, no amelioration is recommended for the powerlines.



## 7 Summary of Impacts

## 7.1 Landscape Impacts

The Project will have a limited, localised impact on the landscape character of the broader landscape setting. Due to the low profile form of the majority of proposed infrastructure, the limited overlooking opportunities and relatively low level of scenic quality for the Subject Site, the landscape impacts are projected to be low to negligible in nature.

## 7.2 Visual Impacts

Table 5 - Viewpoint Visual Impact Summary Table

Viewpoint No.	Distance from Project	Sensitivity	Visual Magnitude	Initial Impact	Residual Impact
Viewpoint 1 - Highland Lakes Road Northern Approach	1.65km	Moderate	Low	Moderate to Low	Low
Viewpoint 2 - Highland Lakes Road Central Project Area	300m	High to Moderate	Moderate	Moderate	Low
Viewpoint 3 - Highland Lakes Road Southern Approach (Roadway)	800m	Moderate	Low	Moderate to Low	Low
Viewpoint 3 - Highland Lakes Road Southern Approach (Residence)	800m	High	Negligible to Low	Moderate to Low	Low

## 7.2.1 Lighting Impacts

Minor, localised impacts with regard to lighting, restricted to areas associated with intensive infrastructure such as BESS, switchyard and substation. These light sources will be shielded and directional, minimising any impact to surrounding area.

## 7.2.2 Glint and Glare Impacts

The SLR Glint and Glare Assessment report conveys that there are 'no remaining potential glare conditions' for the Project, after a process of analysis and refinement to the Proposal. We are satisfied that Glint and Glare impacts are negligible as a result of this process being undertaken.

## 7.2.3 Amelioration Measures

Landscape plantings to perimeter in specific locations to ameliorate and soften particular moments within the Project and critical viewlines which are more sensitive to and affected by the Project visually.

As discussed earlier in the report, the aim of this proposed landscape measures for amelioration is not to fully hide the Project from the surrounding landscape, but rather to soften and blend the Project with its context. A more recessive presentation is the preferred outcome, rather than an approach to fully hide the solar farm.

With the proposed strategies for Amelioration, we contend that the resultant Project will be recessive and comfortable within its surrounding landscape and will be an acceptable addition to the context of the area when experienced by road users on Highland Lakes Road – identified as the critical route of sensitivity for this project.

Refer to Landscape Concept Plan provided with submission for further information regarding landscape response to localised visual impacts.



## APPENDIX A - Landscape Concept Plan



Landscape Key Plan - Overall Human Habitats





3236 + 3415 HIGHLAND LAKES RD, BOTHWELL - WEASEL SOLAR FARM Landscape Concept Plan - North Area

**REV DESCRIPTION** A FOR LODGEMENT







3236 + 3415 HIGHLAND LAKES RD, BOTHWELL - WEASEL SOLAR FARM Landscape Concept Plan - South Area

**REV DESCRIPTION** A FOR LODGEMENT



DATE 26.09.24

0 10 20

DWG NO: LCP-003 REV: A

30

## TUBESTOCK PLANTING NOTES: TUBESTOCK SHALL BE SUPPLIED IN QOCC. FORESTRY TUBES, OR AS SPECIFIED IN THE PLANT SCHEDULE, AND WHERE THE SPECIES ARE INDIGENOUS TO THE LOCAL REGION THEY SHALL BE PROPAGATED FROM LOCAL PROVENANCE SFFD ONLY. SPECIES SHALL BE TRUE TO FORM AND SHALL NOT BE TALLER THAN S00mm ABOVE THE TUBE.



-TUBESTOCK PLANTING AS SPECIFIED IN PLANT SCHEDULE. ALL PLANTS ARE TO BE HEALTHY SPECIMENS FREE OF ANY PESTS OR DISEASES AND MUST NOT BE POT BOUND

-3no. 750x25x25mm HARDWOOD OR BAMBOO STAKES DRIVEN MIN. 300mm INTO GROUND AS SPECIFIED TREEGUARD PLASTIC SLEEVE

-TOP OF ROOTBALL PLANTED LEVEL WITH SOL -TOPSOL BERNENG FORMING A WATER SAUCER -APPROVED MULCH TO AS4454 TO BE KEPT CLEAR OF STEM SOmm MINIMUM -MAXUITE - THICK HEAVY DUTY WEED MAT, OR SMILAR INSTALLED TO MANUACTURERS'S RECOMMENDATION INCLUDING TRENCHING, PINNING AND OVERLAP

BACKFILL WITH 200mm QUALITY IMPORTED TOPSOIL TO AS4419 OR STOCKPILED LOCAL TOPSOIL, TESTED AND IMPROVED AS PER SPECIFICATION, TESTED AND TO THE APPROVAL OF SUPERINTENDENT. APPROVAL OF SUPERINTENDENT: DO NOT TESSE OUT ROOTBALL PRIOR TO PLANTING. EXCAVATE HOLE TWO TIMES AS WIDE AS THE ROOTBALL AND NO DECERT THEN THE ROOTBALL BREAK UP SIDES OF HOLE PRIOR TO PLANTING. WATER EACH PLANT IN THOROUGHLY IMMEDIATELY FOLLOWING PLANTING (REFER TO SPECIFICATION)

CULTIVATE EXISTING SUBGRADE TO 100mm DEPTH. APPLY SOIL ENHANCER ADDITIVE AS PER INSTRUCTIONS FOLLOWING SOIL TESTING.

SOFT LANDSCAPE PLANTING TUBESTOCK - TYPICAL DETAIL SCALE 1:10

### LANDSCAPE GENERAL NOTES

### PRELIMINARIES

NOTE: THIS LANDSCAPE PLAN MUST BE READ IN CONJUNCTION WITH THE APPROPRIATE STATUTORY APPROVALS AND AUSTRALIAN STANDARDS

- STATUTORY APPROVALS AND AUSTRALIAN STANDARDS GENERAL GENERAL GENERAL FILE ANDSCAPE PLANS SHOULD BE READ IN CONJUNCTION WITH THE CIVIL PLANS STRUCTURAL PLANS SERVICE PLANS AND SURVEY PREPARED FOR THE PROPOSED DEVELOPMENT. ALL SERVICES INCLUDING EXISTING DRAINAGE SHOULD BE ACQUARTELY LOCATED PRIOR TO THE COMMENCEMENT OF PREPARED FOR THE PROPOSED DEVELOPMENT. ALL SERVICES INCLUDING EXISTING DRAINAGE SHOULD BE ACQUARTELY LOCATED PRIOR TO THE COMMENCEMENT OF HALS SCHOOL TO SERVICES WILL BE RELOCATED ON SITE UNDER THE INSTALLATION OF OTHEL LANDSCAPE ARCHITECT. INSTALLATION OF CONDUCT POR REQUIRED BRIGATION, ELECTRICAL AND OTHER SERVICES SHALL BE COMMENTED PRIOR TO THE INSTALLATION OF CONDUCT PRESE PLANS SHOULD BE BRIOGHT TO OUR IMMEDIATE ATTENTION. WHERE AN AUSTRALIAN STANDARD APPLIES FOR ANY LANDSCAPE MATERIAL TESTING OR INSTALLATION TECHNIQUE, THAT STANDARD DUCATIONS WILL REQUIRE COMFIRMATION ON SITE BY THE SUPERINTENENT. ANY OHANGES TO BE MADE TO HILL ENDESCAPE PLANTING BOMM REFLECTS THE DESIGN INSTEL FLANT TO DURINGENT. ANY OHANGES TO BE MADE TO THE LANDSCAPE PLANTING BOMM REFLECTS THE DESIGN INSTEL FLANT STANDARD PLANTING HOWN REFLECTS THE DESIGN INSTEL FLANT TO THE LANDSCAPE PLANTING HOWN REFLECTS THE DESIGN INSTEL FLANT TO THE LANDSCAPE PLANTING HOWN REFLECTS FOR ANY LANDSCAPE PLANTING HOWN REFLECTS THE DESIGN INSTEL FLANT TO THE LONGCAPE PLANTING HOWN REFLECTS FOR ANY LANDSCAPE ARCHITECT AND BODING FOR THE ANY PLANT ANY DAND HAT AND HAR FOR AND PLANTING HOWN REFLECTS FOR ANY PLANT ANT

- PLAN MUST BE APPROVED BY THE LANUSCAPE ARCHITECT AND SUPERITENDENT. ALL LANDSCAPE PLANS PRESENTED ASSUME THAT ALL BASE AND SURVEY INFORMATION IS ACCUMATE AND TO SCALE. THE CONTRACTOR SHALL DIECK LANDSCAPE AND FRESENTED FOR ANY DOSCREPANCIES WITH HE EXSTING SEP LANG PRESENT PLACE. I DISCREPANCIES DO OCCUR THESE SHALL BE HIGHLIGHTED AT ONCE TO THE SUPERIMINEDATE PRIOR TO ANY CONSTRUCTION WORK TAKING PLACE. DIMENSIONS TAKE PRECEDENCE.

EROSION AND POLLUTION CONTROL THE ENDOWLOF DIAL TATAL REPORT PRECAUTIONS TO PREVENT THE STROMOUTOR STATULE TATAL REPORT PRECAUTIONS TO PREVENT INSTALL EROSIONS ON SEMINARY CONTROL RAPROFERS AND AS REPOURED BY COUNCIL, AND MAINTAIN THESE BARRIERS THROUGHOUT THE CONSTRUCTION PRIOD. NOTE THAT THE SEMINARY CONTROL REPORTS ADOPTED SHOULD REFLECT THE SOIL TYPE AND EROSION OHARACTERSTICS OF THE STIE.

EROSION & POLLUTION CONTROL MEASURES SHALL INCORPORATE THE FOLLOWING:

- LOWING: CONSTRUCTION OF A SEDIMENT TRAP AT THE VEHICLE ACCESS POINT TO THE SUBJECT SITE SEDIMENT FENOTION USING A GEOTEXTILE FILTER FABRIC IN THE LICACION INDICATED ON THE EROSION CONTROL PLAN OR AS INSTRUCTED ON SITE YTHE LANGSAGEA REATHER EARTH BAWKS TO PREVENT SCOUR OF STOCKPILES SANDBAG KERS BEDIMENT TRAPS STRAW BALE & GEOTEXTILE SEDIMENT FILTER EXPORED BANKS SHALL BE FEGORED WITH AN APPROVED JUTE F

- EXPOSED BANKS SHALL BE PEGGED WITH AN APPROVED JUTE MATTING IN PREPARATION FOR MASS PLANTING

### SOIL WORKS

MATERIALS SPECIFIED SOIL CONDITIONER (GENERALLY TO IMPROVE SITE SOIL) THE SPECIFIED SOIL CONDITIONER FOR SITE TOP-SOIL IMPROVEMENT SHALL BE AND GEGANIC MK, EDUAL TO BOTTAM FUNDES' AS SUPPTIED BY SHALL BE AND GEGANIC MK, EDUAL TO BOTTAM FUNDES' AS SUPPTIED INICIATES TOXING EXTENSES IN PLP, OR SOILS THAT ARE EXTERMELY POOR, ALLOW TO EXCAVATE AND SUPPLY 300MM OF IMPORTED SOIL MIX.

NEW GARGENS & PROPOSED FLAMINO NEW GARGEN AND DRAMING, FARES SGALL CONSIST OF A SOISO MIX OF NEW GARGEN AND DRAMING, FARES SGALL CONSIST OF A SOISO MIX OF SUPPLIED BY AN APROVED SUPPLIER ALL INKES ARE TO COMPLY WITH 4419 SOLIS FOR LANDSCAPINO & GARDEN USE. & AS 4454 COMPOSTS, SOIL CONDITIONERS & MULCHES.

H AS

SITE TOPBOIL. SITE TOPBOIL STO BE CLEAN AND FREE OF UNWANTED MATTER SUCH AS GRAVEL, CLAY LUMPS, GRASS, WEEDS, TREE ROOTS, STICKS, RUBBISH AND PLASTICS, AND ANY DELETEROUS MATERIALS AND MATERIALS TONG PLAYTS. THE TOPSOL MUST HAVE A PH OF BETWEEN S.S.AND. 7. USE 100% IMPORTED SOLI, MUST HAVE A PH OF BETWEEN S.S.AND. 7. USE 100%

INSTALLATION a) TESTING b) TESTING B) TESTING B) TESTING B) TESTING SOLS FOR ENGINEERING PURPOSES SITE SOL SHALLE G VIEN A PH TEST PRIOR TO MODIFYING TO ENSURE CONDITIONS BAC APPROPRIATE FOR FLATING AS STATED ABOVE TESTS SHALL BE TAKEN IN SEVERAL AREAS WHERE PLANTING IS PROPOSED, AND THE PH SHALL BE ADJUSTED ACCORDINGLY WITH SULPHUR OR LIME TO SUIT.

SET OUT OF INDIVIDUAL TREES & MASS PLANTING AREAS INDIVIDUAL TREE PLANTING POSITIONS AND AREAS DESIGNATED FOR IS PLANTING SHALL BE SET OUT WITH STARKED OR MOTHER FORM OF IKING, READY FOR INSPECTION AND APPROVAL. LOCATE ALL SERVICES b) SE

MARKING, REAUT FOR INSPECTION AND APPROVAL COOLE ALL CLAUDED OF ESTABLISHING SUBGRADE LEVELS SUBGRADE LEVELS ARE DEFINED AS THE FINISHED BASE LEVELS PRIOR TO THE PLACEMENT OF THE SPECIFIED MATERIAL (LE, SOL CONDITIONER), THE FOLLOWING SUBGRADE LEVELS SHALL APPLY: MASS PLANTING BEDS - JOINT BELOW EXISTING LEVELS WITH SPECIFIED INFORTED SOL IMA. UNER AREAS - JOINT BELOW FINISHED SURFACE LEVEL

NOTE THAT ALL SUBGRADES SHALL CONSIST OF A RELATIVELY FREE DRAINING NATURAL MATERIAL, CONSISTING OF SITE TOPSOIL PLACED PREVIOUSLY BY THE CIVIL CONTRACTOR. NO BUILDERS WASTE MATERIAL

### SHALL BE ACCEPTABLE.

d) SUBGRADE CULTIVATION CULTIVATE ALL SUBGRADES TO A ININIUM DEPTH OF 150MM IN ALL PLAYTING BEDS AND ALL TURE AREAS, ENSURING A THOROUGH BREAKUP OF THE SUBGRADE INTO A REASONABLY COARSE TILTH. GRADE SUBGRADES TO PROVIDE FALLS TO SUBFACE AND SUBSURFACE DRAINS, PRIOR TO THE PLACEMENT OF THE FINAL SPECIFIED SOIL MIX.

OF THE FINAL SPECIFIED SOIL MIX
 OF THE FINAL SPECIFIED SOIL MIX
 OF THE ORIGINAL SUBSURFACE DRAINAGE WHERE REQUIRED AND AS
DETAILED ON THE ORIVING DRAIN SUBSURFACE DRAINS TO OUTLETS
PROVIDED, WITH A MINIMUM FALL OF 1:100 TO OUTLETS AND / OR SERVICE
PTS.

- f) PLACEMENT AND PREPARATION OF SPECIFIED SOIL CONDITIONER & MIXES.
- CES. TREES IN TURF & BEDS HOLES SHALL BE TWICE AS WIDE AS ROOT BALL AND MINIMUM TOMA DEEPER- BACKFILL HOLE WITH 5050 MX OF ADPROVED SUPPLIER. MASS FLANTING BEDS INSTALL SPECIFIED SOIL CONDITIONER TO A COMPACTED DEPTH OF TOMM.

PLACE THE SPECIFIED SOIL CONDITIONER TO THE REQUIRED COMPACTED DEPTH AND USE A ROTARY HOE TO THOROUGHLY MIX THE CONDITIONER NITO THE TOP SOMM OF GARDEN BED SOIL. ENDURE THOROUGH MIXING AND THE PREPARATION OF A REASONABLY FINE TILTH AND GOOD GROWING MEDIUM IN PREPARATION FOR PLANTING.

TURF AREAS - INSTALL SPECIFIED SOIL MIX TO A MINIMUM COMPACTED DEPTH OF 50-150MM, PLACE THE SPECIFIED SOIL MIX TO THE REQUIRED COMPACTED DEPTH AND GRADE TO REQUIRED FINISHED SOIL LEVELS, IN PREPARATION FOR PLANTING AND TURFING.

### PLANTING GRASS

KIKUYU SHALL BE USED WHERE EVER NEW TURF IS NEEDED, UNLESS OTHERWISE ADVISED BY LANDSCAPE ARCHITECT.

TURF SHALL BE 'A' GRADE, TYPICAL OF SPECIES, FREE FROM AII PESTS, DISEASES, WEEDS AND OTHER PLANT MATTER.

- GRASS NOTES: 1. PREPARATION REMOVE ANY EXISTING TURF, WEEDS, RUBBISH STONES OR DEBRIS FROM AREA TO BE TURFED. 2. FERTUISER IS TO BE APPLIED AS PER MANUFACTURERS SPECIFICATION TO ENSURE HEALTHY LOOK TERM GROWTH. 3. A TURF ROLL HAS A MINIMUM SOIL THICKNESS OF ZOMM. 4. THE TURF IS DELIVERED TO THE PREMISES OF ZOMM. 5. THE TURF IS LAID WITHIN 38 HOURS OF BEING CUT. 6. WHERE THE LAVING OF THE URF IS DELAVED. TO TURF IS: A. PROTECTED AND WATERED TO MAINTAIN ITS CONDITION: B.-NOT ALLOWED TO DRY OUT AT ANY STAGE FROM CUTTING TO LAVING. 1. THE TURF IS LAID WITH THE BUTT FUNS OF THE PREMISES IN STAGGERED ROWS WITH THE BUTT FUNS OF THE PREMISES IN STAGGERED ROWS WITH THE BUTT FUNS OF THE PREMISES IN STAGGERED ROWS WITH THE BUTT FUNS OF THE TURF ROLLED TOGETHER.

- TOGETHER. LAY TURE FUEN WITH GRADIENT, FREE FROM LUMPS AND DEPRESSIONS AND ABILITY TO POND WATER. THE EDGES OF THE FINISHED GRADE OF THE TURF ARE BEVELLED DOWN A MAXIMUM SISTING ELONA ABUTTING HARD SURFACE SUCH AS A KERB, A PATH, A MOWING STRIP OR OTHER HARD PAVED SURFACE.
- 10. 11.
- 12. 13.
- 14.
- ASIA RERE, A PATH, A MOWING SIRP OR OTHER HARD PAYED ASIA RERE, A PATH, A MOWING SIRP OR OTHER HARD PAYED THE TURF IS ROLLED TO ENSURE CONTACT BETWEEN THE ROOTS OF THE TURF AND THE TOPSOL BED. LOAMY SAND IS WORKED INTO THE JOINTS AND DEPRESSIONS IN A TURFED AREA ASIA OF A DOWNERS IN THE SURFACE OF THE TURFED AREA. AND A SUBJECT AND A LODE STEEPER THAN I IN 4 A NEWLY TURFED AREA IS PROTECTED FROM TRAFFIC BY THE ERECTION OF BARRIERS. A FAILED TURFED AREA IS IMMEDIATELY REPAIRED BY RAVING, THE RELAYING OF TURFE AND WATER ON AND FROM ESSAULKED TOP DRESSING. WHEN TURFED AREA AND THE PAYED BY RAVING. TOP DRESSING. WHEN TURFED AREA THROUGH ESS WITH TOMELAYER OF TOP DRESSING TO AS 4449 BO NOT TOP DRESS WITH TOMELAYER OF TOP DRESSING TO AS 4449 BO NOT TOP DRESSING UNING WINTER MONTHS UNLESS DIRECTED BY LANDSCAPE ARCHITECT. 15.

### TREES:

CULTIVATE AREA TO 200mm DEPTH.

APPLY 300mm DEPTH ORGANIC TOPSOIL, AS SPECIFIED TO ALL PLANTING AREAS, CENTRALLY MOUNDED TO ALLOW RUNOFF, MOUND SOIL IN GARDEN BED TO ENABLE WATER RUNOFF. ENSURE MOUNDING TRANSITIONS ARE SMOOTH.

WHERE REQUIRED, INSTALL ROOT BARRIER TO MANUFACTURER'S SPECIFICATION.

APPLY 500gim' OF GRANULAR DYNAMIC LIFTER (OR APPROVED EQUIVALENT). THOROUGHLY MIX TO A DEPTH OF 200mm.

EXCAVATE PLANT HOLE TO 300mm DEPTH. FILL PLANT HOLES WITH WATER AND LET DRAIN THOROUGHLY PRIOR TO PLANTING.

- APPLY A SLOW RELEASE FERTILISER SUCH AS MULTICOTE 8 (OR APPROVED EQUIVALENT) AT THE RATE OF 30g/PLANT TO MANUFACTURERS SPECIFICATIONS. DO NOT APPLY FERTILSER TO DRY SOIL.
- SET SHRUB OR GROUNDCOVER VERTICALLY ON MOUNDED SOIL WITH SMALL WELL AROUND STEM.
- SPREAD 100mm DEPTH ORGANIC MULCH AS SPECIFIED. ENSURE MULCH STAYS 25mm CLEAR OF PLANT STEM.

REQUIRED STANDARDS AS 2303/2018 • TREE STOCK FOR LANDSCAPE USE. AS 4070, 2008 • PROTECTION OF TREES ON DEVELOPMENT SITES. AS 4192003 • SOLIS FOR LANDSCAPING AND GARDEN USE. AS 1280.0214 • METHODS OF TESTING SOLIS FOR RENNIERERIR PURPOSES DEFINITIONS AND GENERAL RECURRENTS. AS 4445/2012 • COMPOSTS, SOLIC CONDITIONERS AND MULCHES

### DATE REV DESCRIPTION FOR LODGEMENT

26.09.24







# WEASEL SOLAR FARM, BOTHWELL

Photosimulations

Human Habitats: Urban Planning and Design Studio

Date: October 2024



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> NOTE: THIS DOCUMENT IS TO BE READ IN CONJUNCTION WITH AND IS AN APPENDIX OF 'LANDSCAPE AND VISUAL IMPACT **ASSESSMENT', REVISION A DATED 26 SEPTEMBER 2024**

# 03

# **VIEW LOCATIONS**

Highland Lakes Road (A5) traverses the full length of the Project, with the closest distance from the road to the Project components varying from approximately 50m to the powerlines, to approximately 150m to 200m to the solar array and BESS.

Despite the proximity, the TZVI shows the relatively limited degree of visibility which results due to intervening topography. With existing vegetation considered, the extent of visibility is further reduced. However, there are a number of locations where the Project is visible and detailed viewpoint analysis is required, including onsite verification, reverse TZVI testing as well as visibility testing within a digital model.

Working from north to south, Viewpoint 1 was selected due to the relatively uninterrupted view (albeit in the middle-ground, sub-regional visual scale), of the far north-western area of the Project.

Viewpoint 2 represents the most visually exposed and/ or proximate location along the road alignment.

Viewpoint 3 represents the nearest publicly accessible viewpoint location to the only non-involved dwelling within the study area.

LEG	END		
1.	VIEWPOINT 1 (VP1)		
2.	VIEWPOINT 2 (VP2)		
3.	VIEWPOINT 3 (VP3)		



# 04

# **PHOTOMONTAGES**

The potential viewpoints identified within this study and represented within the photo images were identified through the preliminary ZVI modelling process, and confirmed through the site visit, as being the most likely areas of possible visual impact, the most representative visual impact locations and the likely 'worst case' visual impact scenarios. Access to private properties during the LVIA process was not possible, therefore representative views from publicly accessible locations have been selected. The criteria and rationale for selection of viewpoints are further explained in the Accompanying Landscape and Visual Impact Assessment document, with which this document is to be read in conjunction.

As the initial step in the process, several photo locations were recorded during the site visit, specifically related to sensitive viewpoints. Images were captured using a full-frame DSLR camera (Canon 6D) with a 50mm lens focal length at an aperture value of f8. The camera's internal GPS receiver provided the viewpoint locations, which were then utilized in 3D software to align the virtual camera with the on-site photos.

Next, a 3D virtual model was created, incorporating the 3D model of the proposed design. The photo point locations were added to this base model, configuring virtual cameras for camera matching. Once the views were aligned, two output variations were generated: wireframe/point cloud and rendered images.

These outputs were then superimposed onto existing condition photos. Finally, the rendered 3D software outputs showing the material proposal were overlaid with the photos to create before-and-after visualizations.

Additionally, any visual amelioration measures considered during the design process (such as buffer planting) were incorporated into the views to demonstrate their effects.

The following pages display and provide high level assessment and analysis of the visual modification for the chosen viewpoints and are ordered as follows:

- Original Photo demonstrating existing conditions
- Original with proposal rendered into scene demonstrating proposed built form within the view
- Original with proposal rendered into scene with screening • vegetation (Amelioration depicted at two-thirds mature size)
- This Sequence will continue for all viewpoints.

## DOCUMENTS REFERENCED IN ASSEMBLY OF PHOTOMONTAGES:

- Engineering Plans by DNV (REV C, DATED 21/08/2024) •
- Landscape and Visual Impact Assessment by Human • Habitats (REV A, DATED 26/09/2024)
- Landscape Concept Plan (REV A, DATED 26/09/2024)

## SOFTWARE UTILISED IN THE ASSEMBLY OF PHOTOMONTAGES:

- GeoSetter
- QGIS
- Google Earth •
- Rhinoceros 3D
- Lumion 2023 •
- AutoCAD 2024
- Adobe Photoshop 2024

# **VIEWPOINT 1**

## ORIGINAL PHOTO



NOTE: Please refer to Landscape and Visual Impact Assessment, Revision A dated 26 September 2024 (Page 37) for further information and discussion of Project and Viewpoint

06 VIEWPOINT 1

TECHNICAL DETAILS	
LOCATION DESCRIPTION	NORTHERN APPROACH TOWARD THE
	PROJECT ON HIGHLAND LAKES ROAD
DATE & TIME TAKEN	19/04/2024, 11:22 AM LOCAL TIME
HEIGHT FROM GROUND	APPROXIMATELY 1.7M
DISTANCE TO SITE	APPROXIMATELY 1.7KM
FOCAL LENGTH	50MM
ASPECT RATIO	CAMERA NATIVE 3:2



## ORIGINAL WITH PROPOSAL RENDERED INTO SCENE



## ORIGINAL WITH PROPOSAL RENDERED + SCREENING VEGETATION (YEAR 10)



Vegetation Size: Depicted at generally two-thirds of mature size (10 year timeframe estimate) Vegetation Species: Exocarpus cuppressiformis and Eucalyptus pauciflora, as per current Landscape Concept Plan Revision A (Appendix A in Landscape and Visual Impact Assessment Revision A, Dated 26 September by Human Habitats)

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# **VIEWPOINT 2**

## **ORIGINAL PHOTO**



NOTE: Please refer to Landscape and Visual Impact Assessment, Revision A dated 26 September 2024 (Page 39) for further information and discussion of Project and Viewpoint

TECHNICAL DETAILS	
LOCATION DESCRIPTION	CENTRAL PROJECT AREA, LOOKING NORTH-
	NORTHEAST TOWARD THE PROJECT ON
	HIGHLAND LAKES ROAD
DATE & TIME TAKEN	19/04/2024, 11:08 AM LOCAL TIME
HEIGHT FROM GROUND	APPROXIMATELY 1.7M
DISTANCE TO SITE	APPROXIMATELY 300M
FOCAL LENGTH	50MM
ASPECT RATIO	CAMERA NATIVE 3:2



## ORIGINAL WITH PROPOSAL RENDERED INTO SCENE



## ORIGINAL WITH PROPOSAL RENDERED + SCREENING VEGETATION



Vegetation Size: Depicted at generally two-thirds of mature size (10 year timeframe estimate) Vegetation Species: Eucalyptus pauciflora, as per current Landscape Concept Plan Revision A (Appendix A in Landscape and Visual Impact Assessment Revision A, Dated 26 September by Human Habitats)

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# **VIEWPOINT 3**

## **ORIGINAL PHOTO**



NOTE: Please refer to Landscape and Visual Impact Assessment, Revision A dated 26 September 2024 (Page 41) for further information and discussion of Project and Viewpoint

14 VIEWPOINT 3

TECHNICAL DETAILS	
LOCATION DESCRIPTION	SOUTHERN APPROACH, LOOKING NORTH
	TOWARD THE PROJECT ON HIGHLAND LAKES
	ROAD
DATE & TIME TAKEN	19/04/2024, 2:11 PM LOCAL TIME
HEIGHT FROM GROUND	APPROXIMATELY 1.7M
DISTANCE TO SITE	APPROXIMATELY 800M - VIEWPOINT ON ROAD
	APPROXIMATELY600M FROM RESIDENCE
FOCAL LENGTH	50MM
ASPECT RATIO	CAMERA NATIVE 3:2



## ORIGINAL WITH PROPOSAL RENDERED INTO SCENE



## ORIGINAL WITH PROPOSAL RENDERED + SCREENING VEGETATION



Vegetation Size: Depicted at generally two-thirds of mature size (10 year timeframe estimate) Vegetation Species: Eucalyptus pauciflora, as per current Landscape Concept Plan Revision A (Appendix A in Landscape and Visual Impact Assessment Revision A, Dated 26 September by Human Habitats)



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