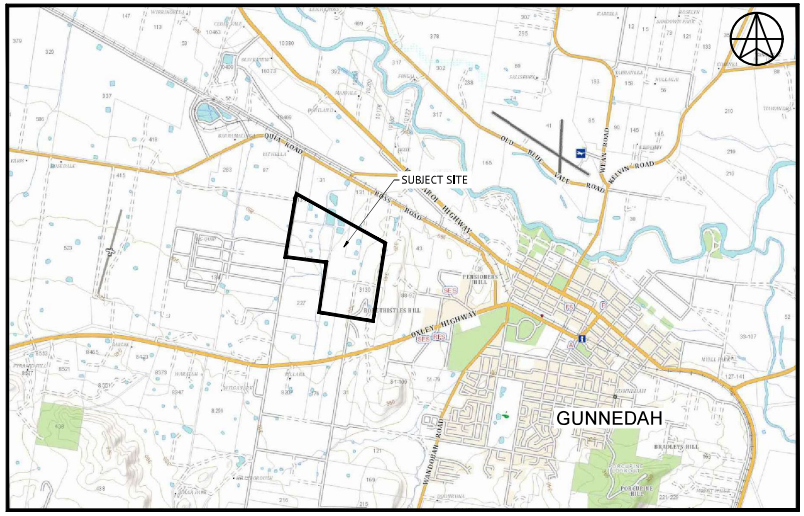
PROPOSED STAGE 3 SOLAR ENERGY SYSTEM INCLUDING SUBDIVISION

GUNNEDAH, NSW

IRONBARK ENERGY PTY LTD

SCHEDULE OF DRAWINGS	
SHEET	TITLE
TP01	TITLE SHEET, DRAWING LIST, AND SITE LOCALITY
TP02	CURRENT LOT LAYOUT
TP03	PROPOSED COMMUNITY TITLE SUBDIVISION PLAN & MODULE LAYOUT
TP04	PROPOSED SOLAR MODULE AND LOT LAYOUT
TP05	PROPOSED FENCING PLAN
TP06	PROPOSED FENCING DETAILS
TP07	PROPOSED SUBSTATION/COMPOUND PLAN
TP08	EROSION & SEDIMENT CONTROL PLAN
TP09	EROSION & SEDIMENT CONTROL DIAGRAMS
TP10	SUBSTATION GENERAL LAYOUT-BY OTHERS
TP11	PROPOSED SOLAR PANELS DETAILS



SITE LOCALITY

NOT TO SCALE

FOR APPROVAL

Premise
ORANGE OFFICE
SUITE 3, LEVEL 1
60-62 McNAMARA STREET
ORANGE, NSW 2800
PH: (02) 6393 5000
WEB: www.premise.com.au

No	DATE	DRAFTING CHECK	APPROVED BY	DETAILS
A	21/12/22	GT	DW	FOR APPROVAL
B	13/01/23	RB	DW	SOLAR MODULE LOT LAYOUT
C	31/10/23	GT	DW	EX. TREE NOTE ADDED. ESCP ADDED
D	27/2/24	GT	DW	TYPICAL PANEL DETAILS ADDED TP11

PROJECT: PROPOSED STAGE 3 SOLAR ENERGY SYSTEM INCLUDING SUBDIVISION

FILE REFERENCE: 221311_01D_TP01-TP11.dwg

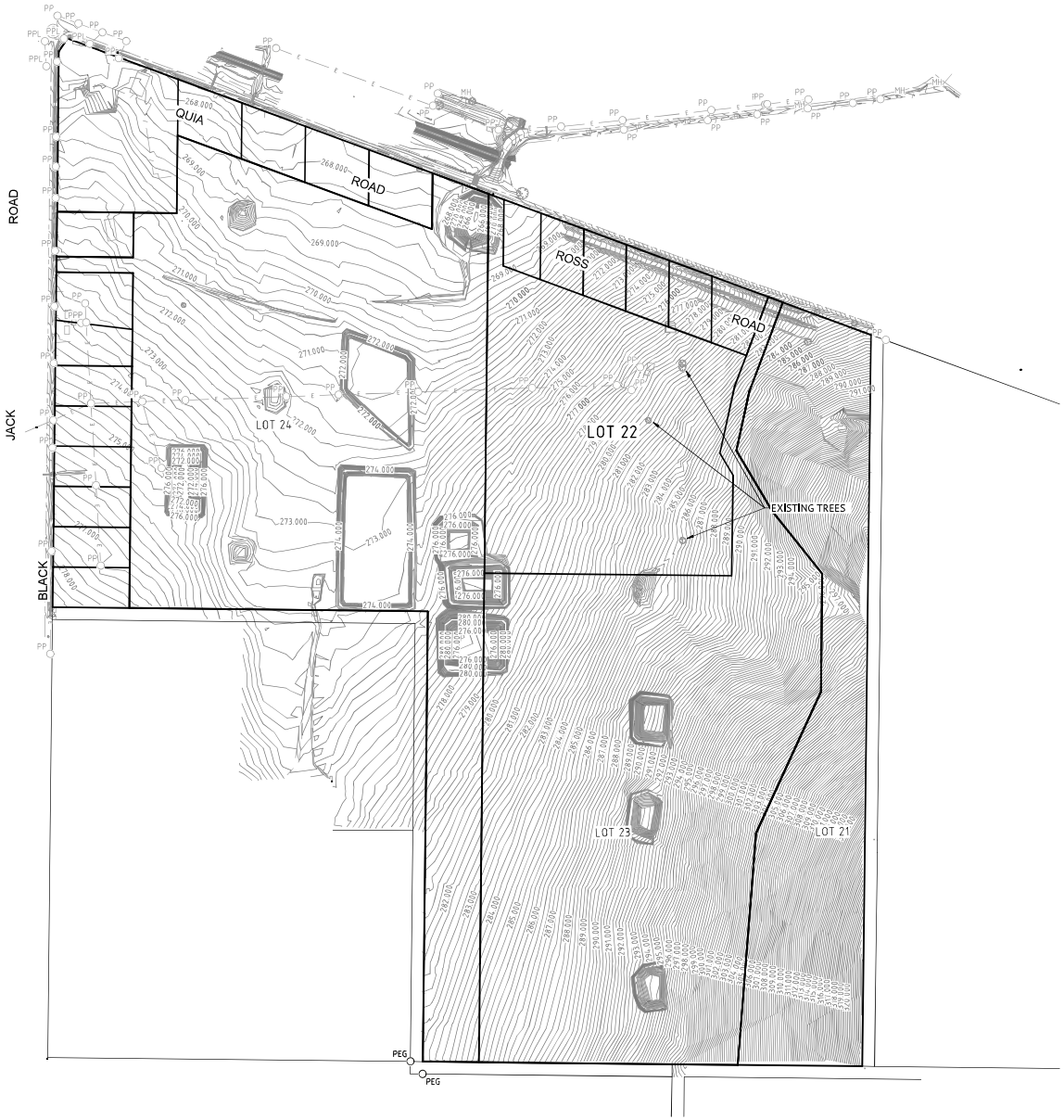
APPROVAL AUTHORITY: GUNNEDAH SHIRE COUNCIL

CLIENT: IRONBARK ENERGY PTY LTD

DRAWING: TITLE SHEET & SITE LOCALITY

PROJECT NUMBER: 221311 DRAWING NUMBER: 01D_TP01 REV: D

SOURCE: INTERNAL



NOTE
TORRENS LOT DIMENSIONS AND AREAS ARE SUBJECT TO CADASTRAL GROUND SURVEY.

LEGEND:

NATURAL CONTOURS (0.25m INTERVALS)

LOT BOUNDARIES

SCALE 1:4000 (A1)

0 80 160 240 320

0 80 160 240 320

SCALE 1:8000 (A3)

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PROJECT
PROPOSED STAGE 3 SOLAR ENERGY SYSTEM INCLUDING SUBDIVISION

FILE REFERENCE: 221311_01D_TP01-TP11.dwg

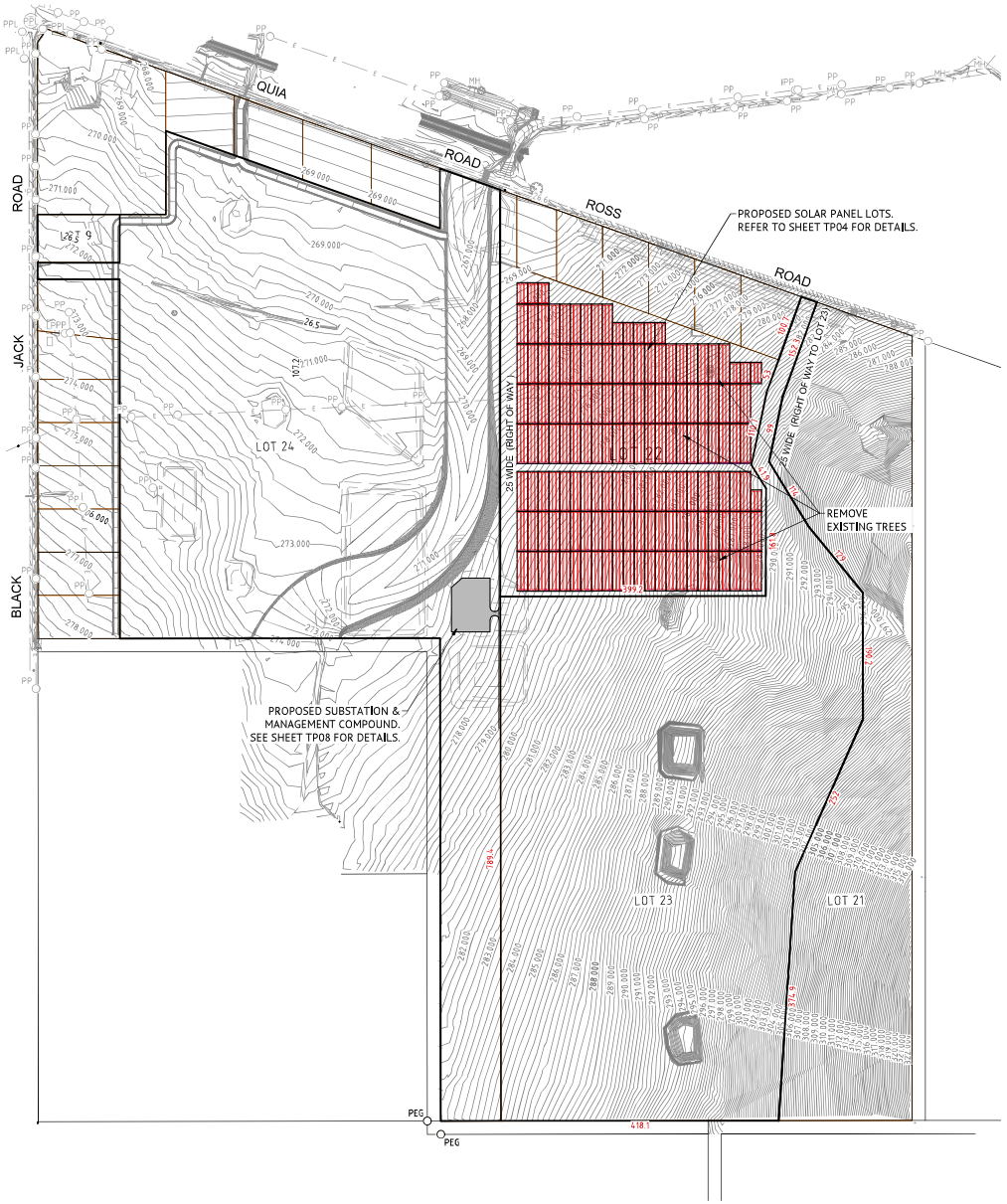
APPROVAL AUTHORITY
GUNNEDAH SHIRE COUNCIL

CLIENT
IRONBARK ENERGY PTY LTD

DRAWING
CURRENT LOT LAYOUT

PROJECT NUMBER: 221311
DRAWING NUMBER: 01D_TP02
REV. D

SOURCE: INTERNAL



NOTE

TORRENS LOT DIMENSIONS AND AREAS ARE SUBJECT TO CADASTRAL GROUND SURVEY.

LEGEND

270.000 — NATURAL & DESIGN CONTOURS (0.25m INTERVALS)

SOLAR MODULES

LOT BOUNDARIES

SCALE 1:4000 (A1)

0 80 160 240 320

0 80 160 240 320

SCALE 1:8000 (A3)

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PROJECT
PROPOSED STAGE 3 SOLAR ENERGY SYSTEM INCLUDING SUBDIVISION

FILE REFERENCE: 221311_01D_TP03-TP11.dwg

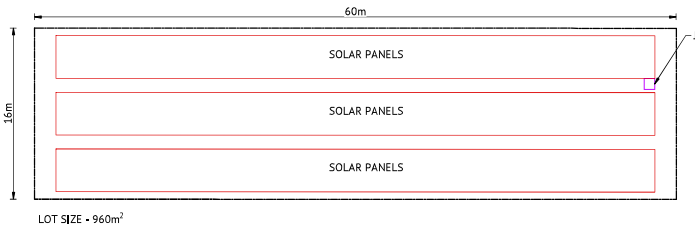
APPROVAL AUTHORITY
GUNNEDAH SHIRE COUNCIL

CLIENT
IRONBARK ENERGY PTY LTD

DRAWING
PROPOSED COMMUNITY TITLE SUBDIVISION PLAN & MODULE LAYOUT

PROJECT NUMBER: 221311 DRAWING NUMBER: 01D_TP03 REV. D

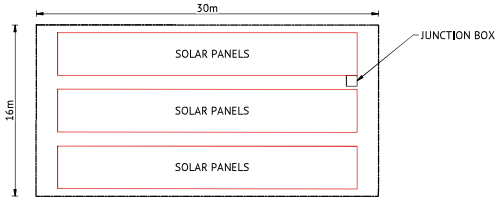
SOURCE: INTERNAL



LOT SIZE - 960m²

3 ROW MODULE & LOT LAYOUT

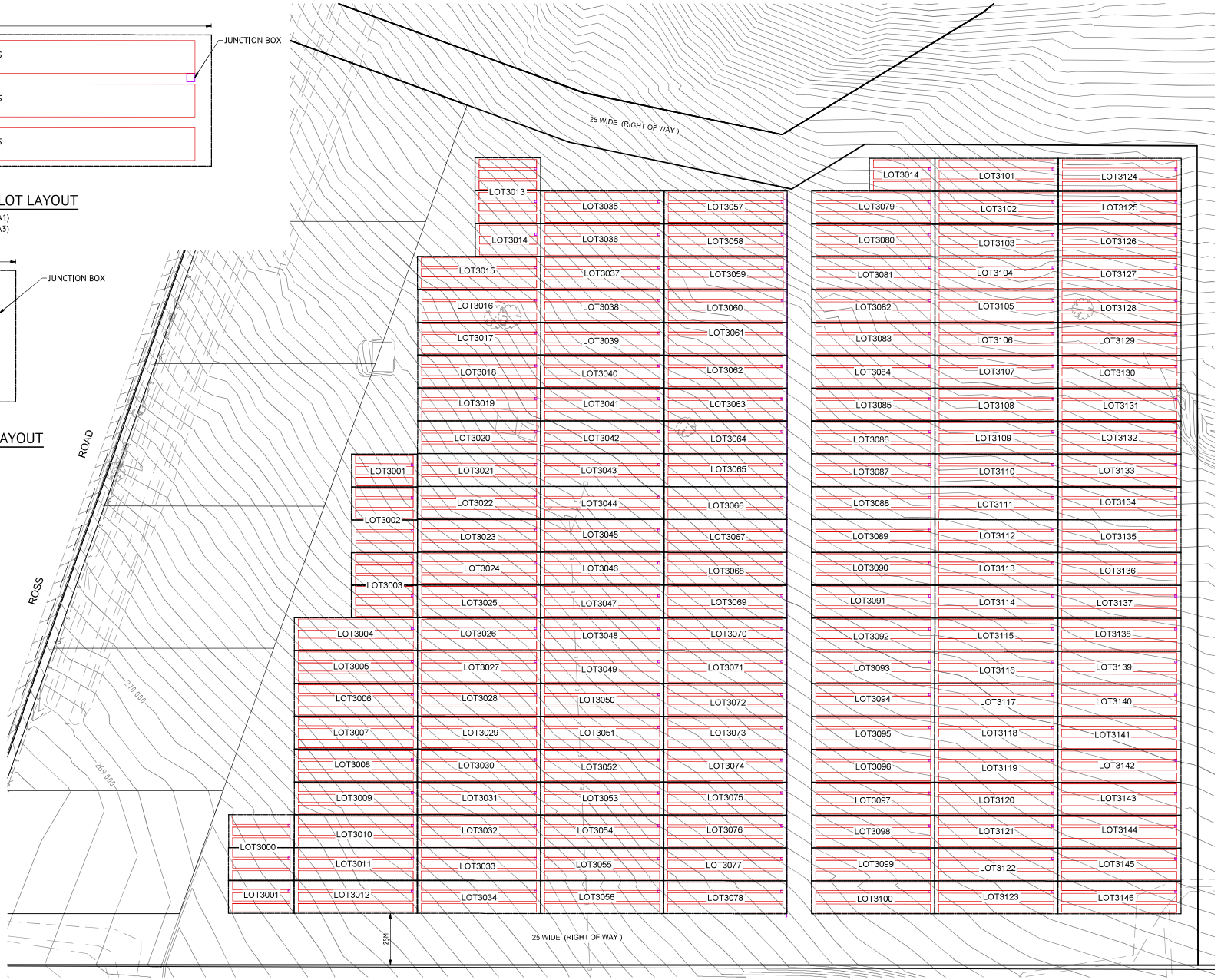
SCALE 1:250 (A1)
SCALE 1:500 (A3)



LOT SIZE - 2 X 480m²

HALF LENGTH - 3 ROW MODULE & LOT LAYOUT

SCALE 1:250 (A1)
SCALE 1:500 (A3)



NOTE

1) FOR MODULE LAYOUT REFER TO SHEET TP04 FOR DETAILS.
2) PANEL DESIGN BY OTHERS

NOTE

TORRENS LOT DIMENSIONS AND AREAS ARE SUBJECT TO CADASTRAL GROUND SURVEY.

LEGEND

- NATURAL & DESIGN CONTOURS (0.25m INTERVALS)
- SOLAR MODULES
- LOT BOUNDARIES

SCALE 1:1000(A1)

0 10 20 40 60 80 100

SCALE 1:2000(A3)

0 10 20 40 60 80 100

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PROJECT
PROPOSED STAGE 3 SOLAR ENERGY SYSTEM INCLUDING SUBDIVISION

FILE REFERENCE: 221311_01D_TP01-TP11.dwg

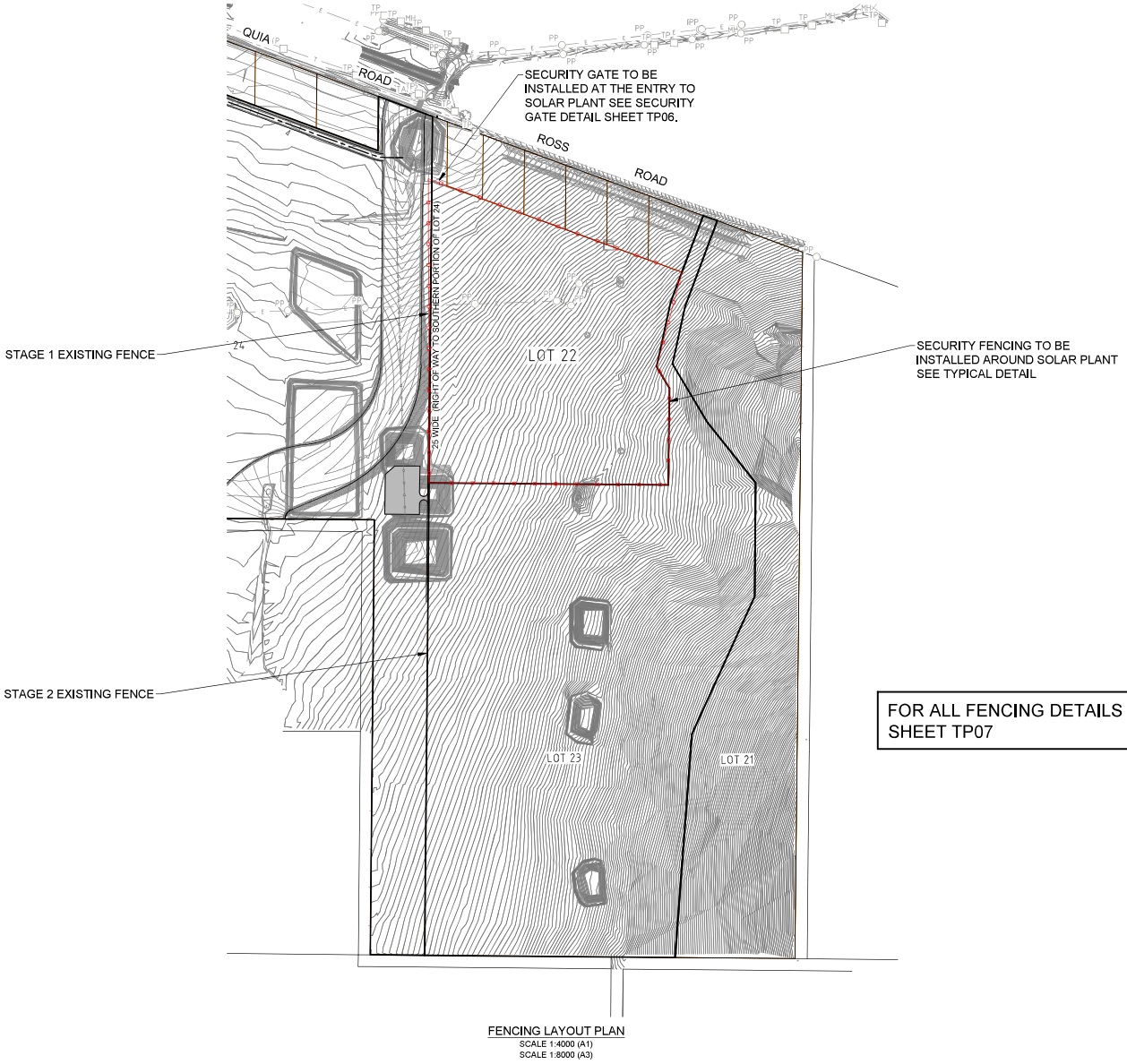
APPROVAL AUTHORITY
GUNNEDAH SHIRE COUNCIL

CLIENT
IRONBARK ENERGY PTY LTD

DRAWING
PROPOSED SOLAR MODULE & LOT LAYOUT

PROJECT NUMBER: 221311 DRAWING NUMBER: 01D_TP04 REV. D

SOURCE: INTERNAL



FOR ALL FENCING DETAILS SEE SHEET TP07

FENCING LAYOUT PLAN
SCALE 1:4000 (A1)
SCALE 1:8000 (A3)

LEGEND

PROPOSED SECURITY FENCE

LOT BOUNDARIES

SCALE 1:4000 (A1)

0 80 160 240 320

0 80 160 240 320

SCALE 1:8000 (A3)

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PROJECT
PROPOSED STAGE 3 SOLAR ENERGY SYSTEM INCLUDING SUBDIVISION

FILE REFERENCE: 221311_01D_TP01-TP11.dwg

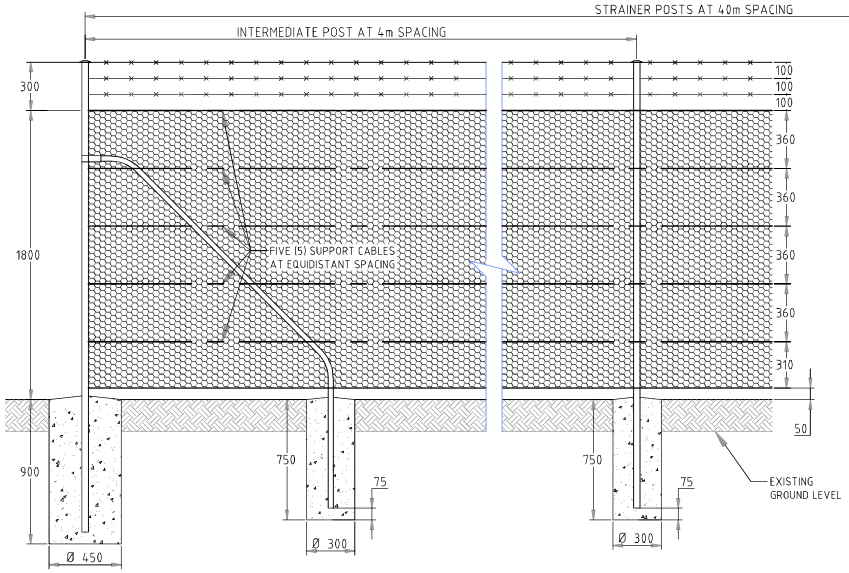
APPROVAL AUTHORITY
GUNNEDAH SHIRE COUNCIL

CLIENT
IRONBARK ENERGY PTY LTD

DRAWING
PROPOSED FENCING PLAN

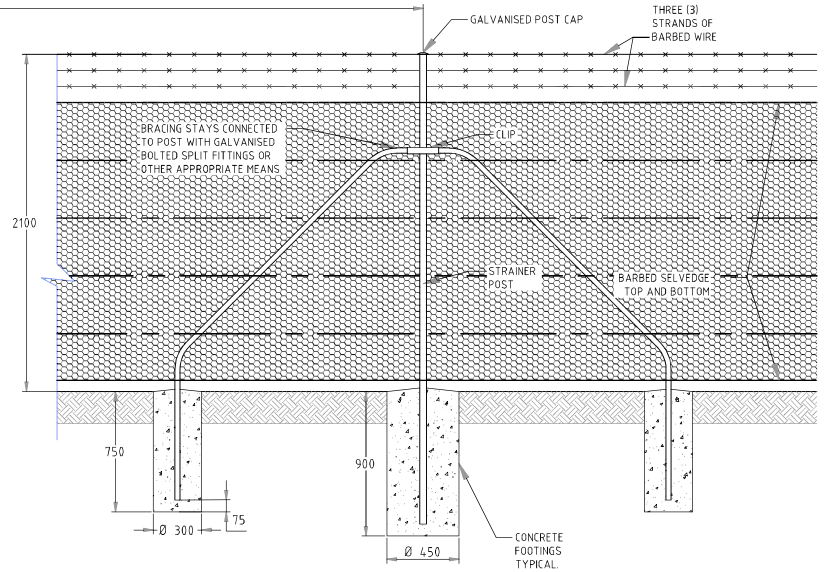
PROJECT NUMBER: 221311 DRAWING NUMBER: 01D_TP05 REV: D

SOURCE: INTERNAL



CORNER POST

REQUIRED AT EACH CORNER

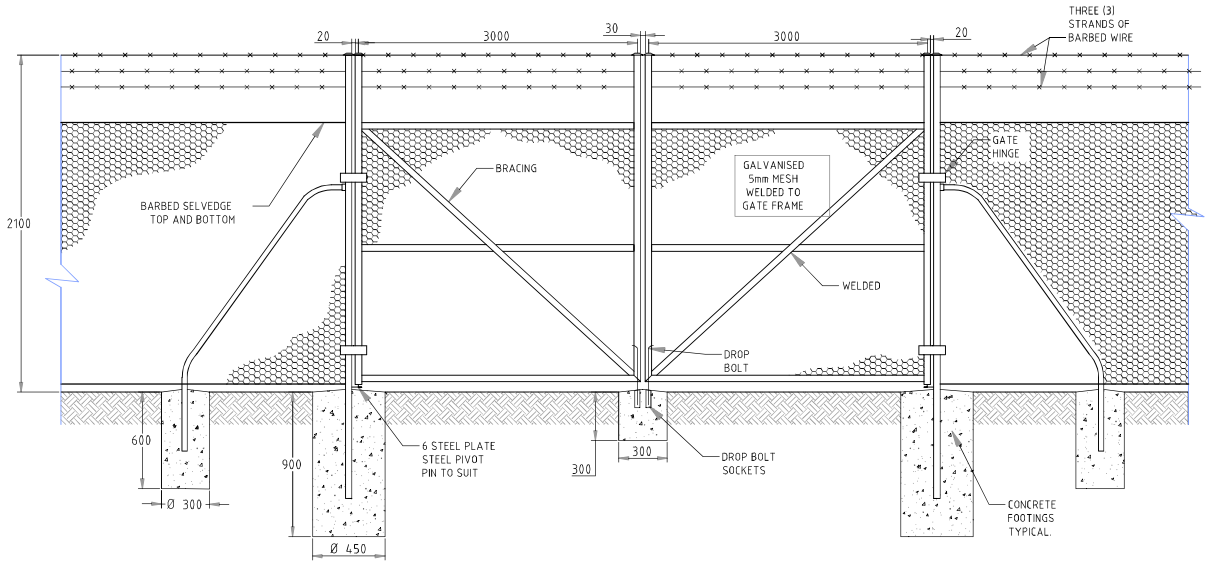


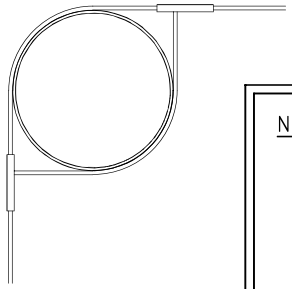
INTERMEDIATE POST

REQUIRED AT 4m SPACING

STRAINER POST

REQUIRED AT EACH CHANGE OF DIRECTION OR GRADE GREATER THAN 10 DEGREES OR AT 400m SPACING





TUBULAR POST FIXING DETAIL

ALL PLAIN WIRES FIXED TO TUBULAR FENCE POSTS WITH WIRE TIES CAN BE WRAPPED AND TWISTED AROUND ITSELF TO SECURE

NOTES

1. CORNER, INTERMEDIATE AND GATE POSTS: DN 40 MEDIUM STEEL GALVANISED.
2. CHAINWIRE MESH 1800 HIGH 50 X 3.15 HEAVY DUTY GALVANISED.
3. BARBED WIRE DOUBLE STRAND 2.5mm 'IOWA' PATTERN WITH 2mm FOUR POINT BARBS AT 90 CENTRES.
4. SUPPORT CABLE STRANDS OF 3.15mm WIRE GALVANISED.
5. ALL STEEL SECTIONS TO BE HOT DIP GALVANISED

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PROJECT
PROPOSED STAGE 3 SOLAR ENERGY SYSTEM INCLUDING SUBDIVISION

FILE REFERENCE: 221311_01D_TP01-TP11.dwg

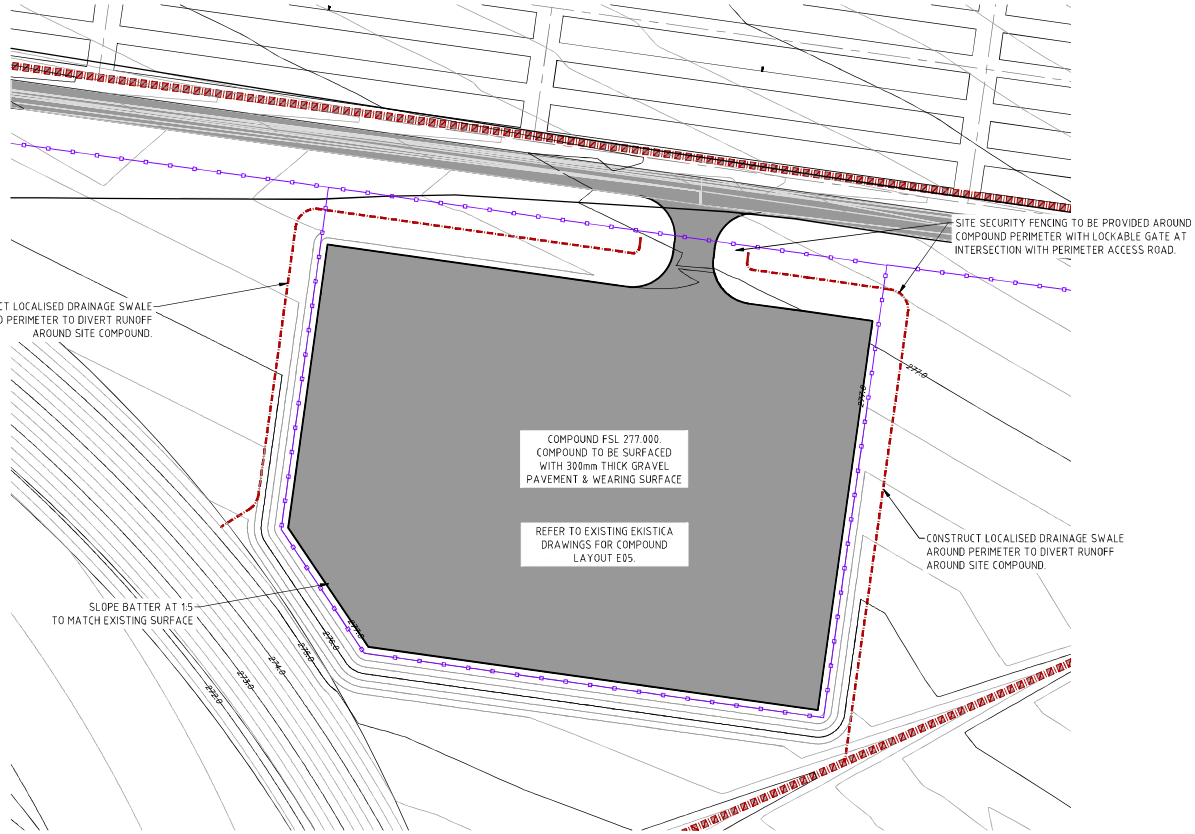
APPROVAL AUTHORITY
GUNNEDAH SHIRE COUNCIL

CLIENT
IRONBARK ENERGY PTY LTD

DRAWING
PROPOSED FENCING DETAILS

PROJECT NUMBER: 221311
DRAWING NUMBER: 01D_TP06
REV. D

SOURCE: INTERNAL



SCALE 1:400(A1)

0 5 10 20 30 40

0 5 10 20 30 40

SCALE 1:800(A3)

FOR APPROVAL

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PROJECT
PROPOSED STAGE 3 SOLAR ENERGY SYSTEM INCLUDING SUBDIVISION

FILE REFERENCE: 221311_01D_TP01-TP11.dwg

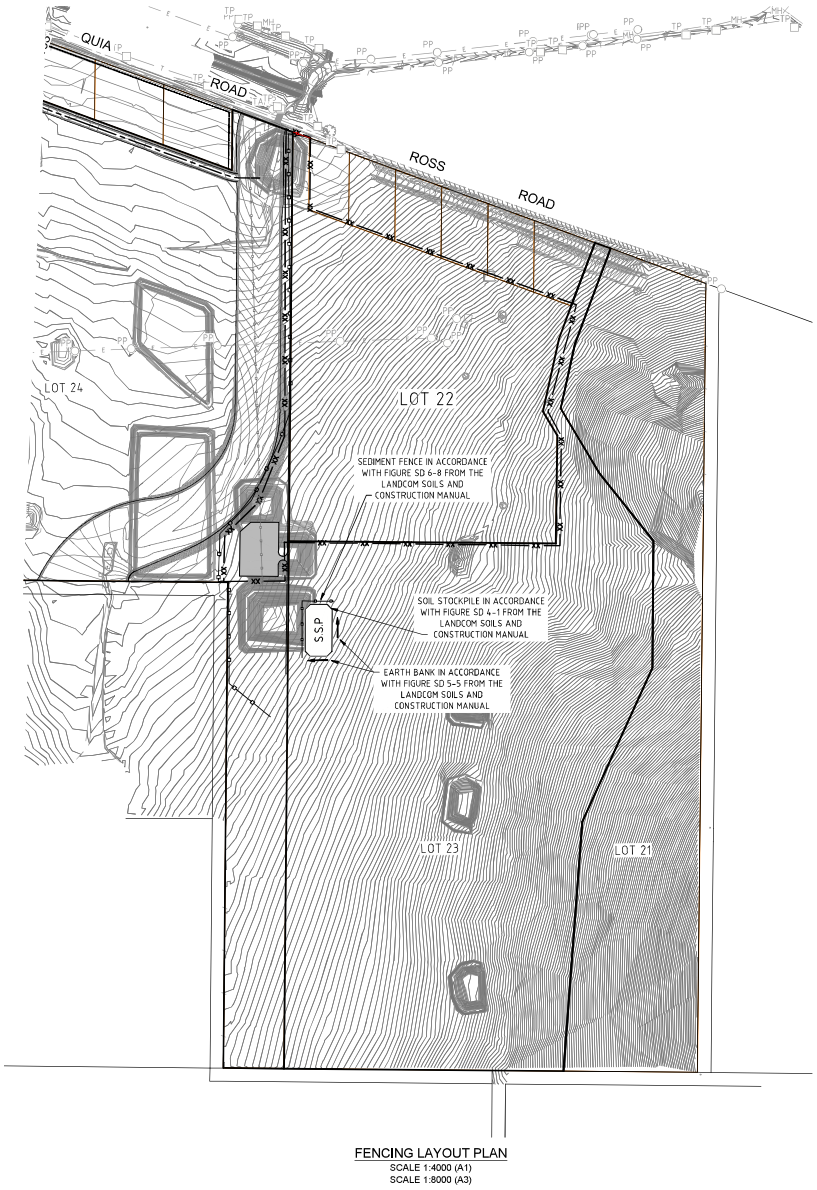
APPROVAL AUTHORITY
GUNNEDAH SHIRE COUNCIL

CLIENT
IRONBARK ENERGY PTY LTD

DRAWING
PROPOSED SUBSTATION & COMPOUND PLAN

PROJECT NUMBER: 221311 DRAWING NUMBER: 01D_TP07 REV. D

SOURCE: INTERNAL



FENCING LAYOUT PLAN
SCALE 1:4000 (A1)
SCALE 1:8000 (A3)

LEGEND:

- LIMIT OF DISTURBANCE
- SEDIMENT FENCE IN ACCORDANCE WITH FIGURE SD 6-8 FROM THE LANDCOM SOILS AND CONSTRUCTION MANUAL
- S.S.P — SOIL STOCKPILE IN ACCORDANCE WITH FIGURE SD 4-1 FROM THE LANDCOM SOILS AND CONSTRUCTION MANUAL
- EARTH BANK IN ACCORDANCE WITH FIGURE SD 5-5 FROM THE LANDCOM SOILS AND CONSTRUCTION MANUAL

SCALE 1:4000 (A1)

0 80 160 240 320

0 80 160 240 320

SCALE 1:8000 (A3)

FOR APPROVAL

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D	27/2/24	GT	DW	TYPICAL PANEL DETAILS ADDED TP11

PROJECT
PROPOSED STAGE 3 SOLAR ENERGY SYSTEM INCLUDING SUBDIVISION

FILE REFERENCE: 221311_01D_TP01-TP11.dwg

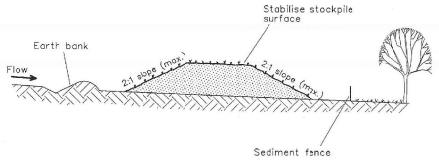
APPROVAL AUTHORITY
GUNNEDAH SHIRE COUNCIL

CLIENT
IRONBARK ENERGY PTY LTD

DRAWING
EROSION AND SEDIMENT CONTROL PLAN

PROJECT NUMBER: 221311 DRAWING NUMBER: 01D_TP08 REV: D

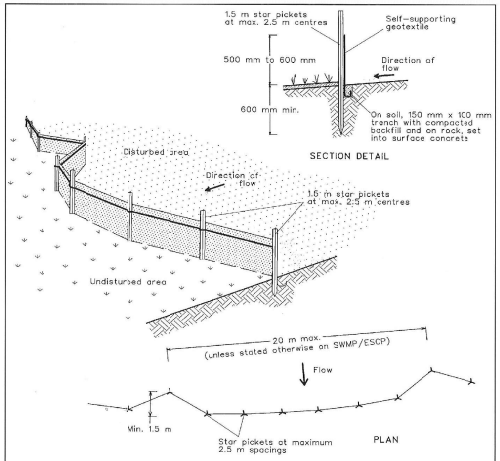
SOURCE: INTERNAL



Construction Notes

1. Place stockpiles more than 2 (preferably 5) metres from existing vegetation, concentrated water flow, roads and hazard areas.
2. Construct on the contour as low, flat, elongated mounds.
3. Where there is sufficient area, topsoil stockpiles shall be less than 2 metres in height.
4. Where they are to be in place for more than 10 days, stabilise following the approved ESCP or SWMP to reduce the C-factor to less than 0.10.
5. Construct earth banks (Standard Drawing 5-5) on the upslope side to divert water around stockpiles and sediment fences (Standard Drawing 6-8) 1 to 2 metres downslope.

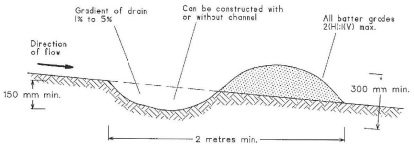
STOCKPILES **SD 4-1**



Construction Notes

1. Construct sediment fences as close as possible to being parallel to the contours of the site, but with small returns as shown in the drawing to limit the catchment area of any one section. The catchment area should be small enough to limit water flow if concentrated at one point to 50 litres per second in the design storm event, usually the 10-year event.
2. Cut a 150-mm deep trench along the upslope line of the fence for the bottom of the fabric to be entrenched.
3. Drive 1.5 metre long star pickets into ground at 2.5 metre intervals (max) at the downslope edge of the trench. Ensure any star pickets are fitted with safety caps.
4. Fix self-supporting geotextile to the upslope side of the posts ensuring it goes to the base of the trench. Fix the geotextile with wire ties or as recommended by the manufacturer. Only use geotextile specifically produced for sediment fencing. The use of shade cloth for this purpose is not satisfactory.
5. Join sections of fabric at a support post with a 150-mm overlap.
6. Backfill the trench over the base of the fabric and compact it thoroughly over the geotextile.

SEDIMENT FENCE **SD 6-8**



NOTE: Only to be used as temporary bank where maximum upslope length is 80 metres.

Construction Notes

1. Build with gradients between 1 percent and 5 percent.
2. Avoid removing trees and shrubs if possible - work around them.
3. Ensure the structures are free of projections or other irregularities that could impede water flow.
4. Build the drains with circular, parabolic or trapezoidal cross sections, not V shaped.
5. Ensure the banks are properly compacted to prevent failure.
6. Complete permanent or temporary stabilisation within 10 days of construction.

EARTH BANK (LOW FLOW) **SD 5-5**

FOR APPROVAL

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PROJECT: PROPOSED STAGE 3 SOLAR ENERGY SYSTEM INCLUDING SUBDIVISION

FILE REFERENCE: 221311_01D_TP09-TP11.dwg

APPROVAL AUTHORITY: GUNNEDAH SHIRE COUNCIL

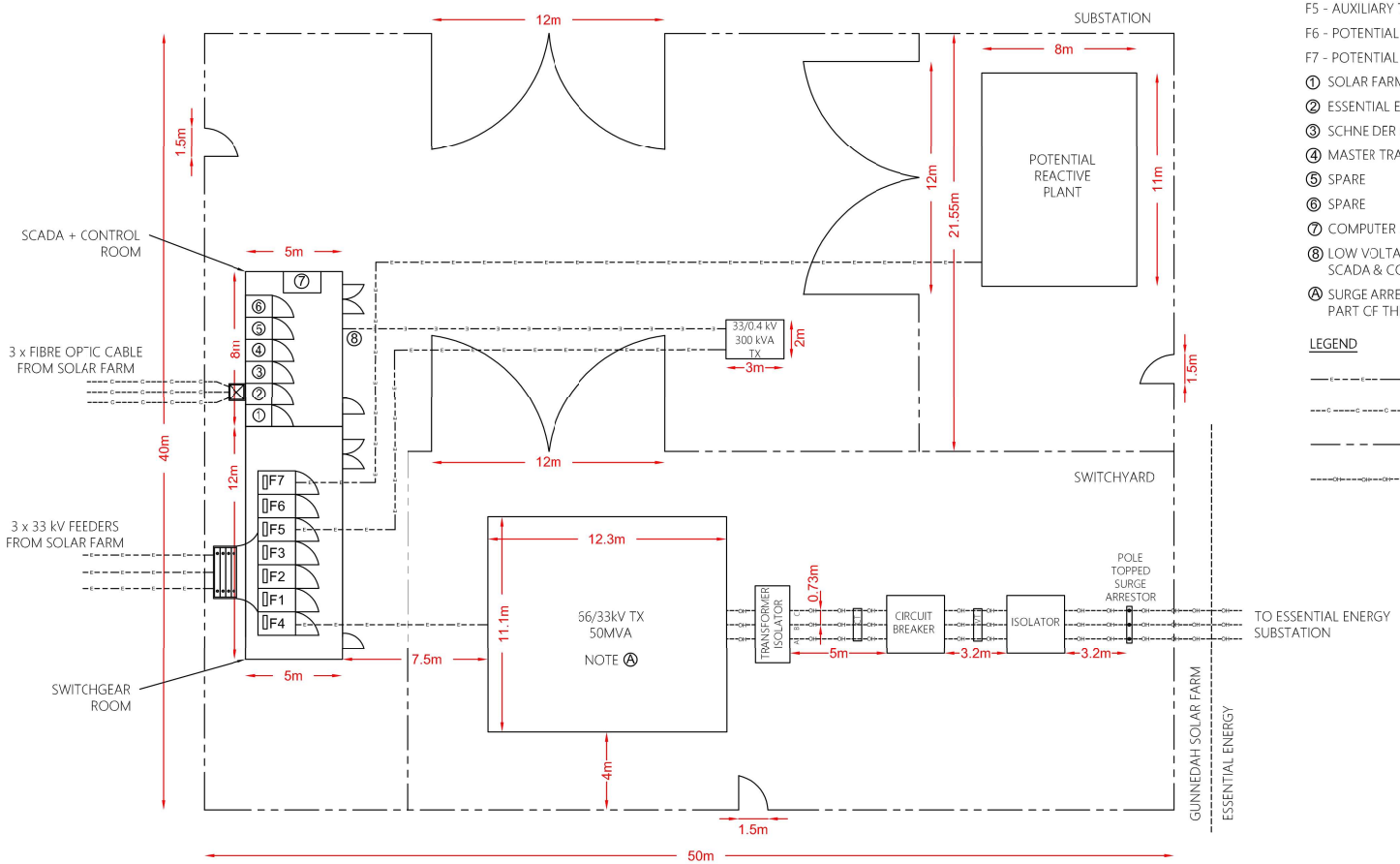
CLIENT: IRONBARK ENERGY PTY LTD

DRAWING: EROSION AND SEDIMENT CONTROL DIAGRAMS

PROJECT NUMBER: 221311 DRAWING NUMBER: 01D_TP09 REV: D

SOURCE: INTERNAL

PRELIMINARY - NOT FOR CONSTRUCTION



NOTES:

F1, F2, F3 - 33 kV FROM SOLAR FARM
F4 - FEEDER TO MAIN TRANSFORMER
F5 - AUXILIARY TRANSFORMER
F6 - POTENTIAL BESS (NOT SHOWN)
F7 - POTENTIAL REACTIVE PLANT
① SOLAR FARM SCADA RACK
② ESSENTIAL ENERGY SCADA RACK
③ SCHNE DER GRID BOX MCC
④ MASTER TRACKER CONTROLLER
⑤ SPARE
⑥ SPARE
⑦ COMPUTER AND DESK
⑧ LOW VOLTAGE AC SUPPLY TO SCADA & CONTROL ROOM
Ⓐ SURGE ARRESTOR IS INCLUDED AS PART OF THE TRANSFORMER

LEGEND

HIGH VOLTAGE UNDERGROUND CABLE
COMMS CABLE
FENCE
OVERHEAD TRANSMISSION LINE

ISSUE			
B	PRELIMINARY - NOT FOR CONSTRUCTION	04-09-18	DP
A	PRELIMINARY - NOT FOR CONSTRUCTION	17-08-18	DP

Ekistica
EKISTICA
ABN 74 126 787 853
South Stuart Highway, Alice Springs
PO Box 8044, Alice Springs, NT 0871
Phone: 08 8959 6244 Fax: 08 8959 6111
Contact: enquiries@ekistica.com.au

DRAWING TITLE: SUBSTATION GENERAL LAYOUT

GUNNEDAH SOLAR FARM
CLIENT: energySEA

PROJECT No: 2750

SCALE:	DRAWING No:
N/A	E05
DRAWN: DP	
CHECKED: RN	ISSUE: B

FOR APPROVAL

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FILE REFERENCE: 221311_01D_TP01-TP11.dwg

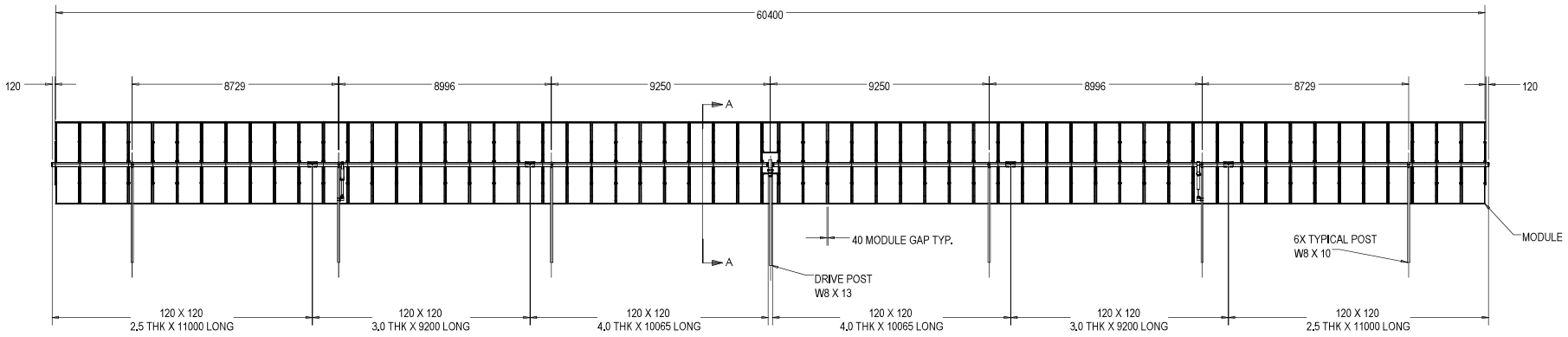
APPROVAL AUTHORITY: GUNNEDAH SHIRE COUNCIL

CLIENT: IRONBARK ENERGY PTY LTD

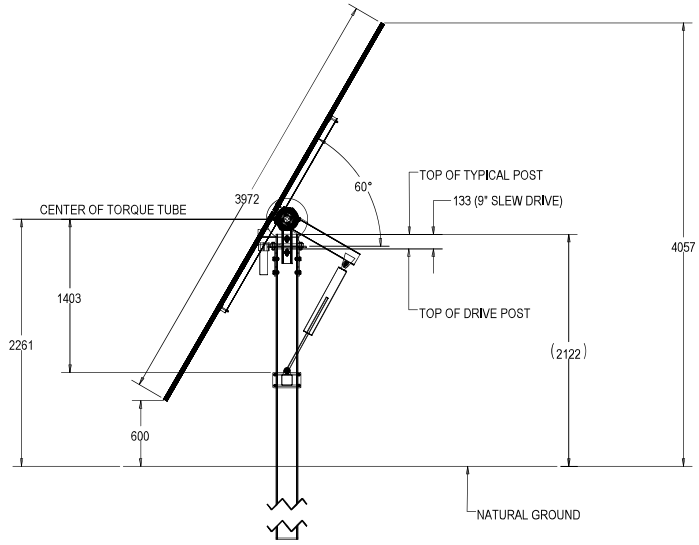
DRAWING: SUBSTATION GENERAL LAYOUT-BY OTHERS

PROJECT NUMBER: 221311 DRAWING NUMBER: 01D_TP10 REV: D

SOURCE: INTERNAL



ELEVATION



SECTION A-A

FOR APPROVAL

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D	27/2/24	GT	DW	TYPICAL PANEL DETAILS ADDED TP11

PROJECT
PROPOSED STAGE 3 SOLAR ENERGY SYSTEM INCLUDING SUBDIVISION

FILE REFERENCE: 221311_01D_TP01-TP11.dwg

APPROVAL AUTHORITY
GUNNEDAH SHIRE COUNCIL

CLIENT
IRONBARK ENERGY PTY LTD

DRAWING
PROPOSED SOLAR PANEL DETAILS

PROJECT NUMBER: 221311 | DRAWING NUMBER: 01D_TP11 | REV. D

SOURCE: INTERNAL

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Our Ref: 221311_LET_002A

01/03/2024

Prashanth Van Houten
Gunnedah Shire Council
PO Box 63 (63 Elgin Street)
Gunnedah NSW 2380

Dear Prashanth

RESPONSE TO REQUEST FOR ADDTIIONAL INFORMATION – DA 2023/26

Premise have prepared this letter on behalf of Ironbark Energy Pty Ltd to respond to two requests for additional information issued by Gunnedah Shire Council (GSC) via the NSW planning portal on 31 January 2024 and the 23 February 2024. The request is made in respect of development application (DA) 2023/26 in relation to the proposed development of Gunnedah Solar Farm at 131 Quia Road, Gunnedah.

It is noted that the current request is provided following council's detailed review of information submitted to respond to a previous request for information dated 16 November 2023.

The table contained in this letter has been prepared to respond to GSC's request and seeks to assist GSC's evaluation of the proposed development. We trust that the information included provides a sufficient response to the questions raised.

Please contact the undersigned with any questions.

Yours sincerely,

David Walker
General Manager – Central NSW

No. of Attachments – 4

1. Tabular response to points within Council's RFI letter
2. Updated Waste Management Plan
3. Essential Energy approved drawings
4. Updated project drawings showing solar panel elevations

Table 1 – Response to Additional Information Requested

Additional Information Requested	Comments
Additional information request dated 31 January 2024	
1. *The Statement of Environmental Effects (SEE) dated 13 April 2023 indicates that the total output capacity of the solar farm is to be 14.7MW. The submitted Quantity Surveyor's Report (QSR) dated 13 November 2023 is inconsistent as it indicates that the estimated Capital Investment Value (CIV) is based on an estimated capacity of 13MW. However, within the project information breakdown the capacity is reduced to 12MW. Council require confirm of the total output capacity of the proposed solar farm*	Premise note that the plans of the solar farm were amended following the initial issue of the SEE dated 13 April 2023 and the previous response for further information (RFI). The proposed capacity has been reduced from the initial 14.7 MW assessed by the SEE and 13 MW detailed in the Quantity Surveyors Report. For the avoidance of doubt, the amended output capacity of the proposed solar farm, as reflected in the amended project drawings, is currently 12 Megawatts.
2. *It is noted, that the QSR denotes the Commercial Civil Area (CCA) to be 78,133m2 on the Trade Summary Table for S7.12 Levy and 141,113m2 for the CIV and Cost of Construction Trade Summary. Provide clarification on the differing CCA figures.*	The 7.12 levy estimate has been prepared in accordance with the requirements of Section 208 of the *Environmental Planning and Assessment Regulation 2021* (EP&A Regulations), on which basis the value of energy efficiency measures and fittings and furnishings, in this case including the solar panels, have been excluded. The area of the solar panels has therefore been excluded from the report. The CIV estimate has been prepared in accordance with the definition of CIV as per the EP&A Regulation and the value of the panels has been included. As the solar panels and trackers were not included in the Section 7.12 report, they were also not included in the area calculation. The full area was used for the CIV calculation, hence the difference in the areas.
3. *Section 5.13 Noise and Vibration assessment within the SEE dated 13 April 2023 does not discuss potential noise emitted by the tracking mechanism for solar modules in line with Environmental Protection Authority's Noise Policy for Industry. Provide additional information as an addendum to Section 5.13 of the SEE and discuss the operational noise and potential vibration impacts as a result of the tracking mechanism.*	Section 1.4 of the Environment Protection Authority's (EPA) Noise Policy for Industry (EPA, 2017) states that: *"The policy applies to industrial noise sources from activities listed in Schedule 1 of the POEO Act and regulated by the EPA. All scheduled activities require an environment protection licence issued under the POEO Act. The policy is also an appropriate reference document for DP&E when assessing major development proposals under the EP&A Act.* *Local government is an independent regulator for noise under the legislation, and has discretion in dealing with noise within its area of responsibility."*

Additional Information Requested	Comments
	Solar farms are not listed as a scheduled activity under Schedule 1 of the POEO Act, including under Section 17 which relates to electrical generation. Notwithstanding this, Premise appreciate councils' reference to the policy as an established means to assess the potential noise and vibration impacts of a development proposal. Premise note that the current SEE (221311_SEE_001A) references previous noise and vibration assessments provided as part of other development applications for earlier stage solar farms established within the site. The previous noise and vibration assessment, provided within 214358_SEE_001E, determined that the other solar farms within the site were unlikely to result in significant noise and vibration impacts. This assessment was approved under DA 2015/062. We note that a condition of consent was imposed on this DA (condition F20) that provided noise limits. There is no objection to a similar condition in relation to this application. It is noted, however, that the previous assessment was prepared to assess static arrays of panels with no mechanical noise generated from drive systems. The proposed solar farm development assessed by the current SEE will implement a single axis solar tracking system and a consideration of the noise and vibration impacts of this system is therefore required. The potential for the tracking and tilting of the solar panels to result in noise and vibration impacts is considered negligible for the following reasons: • The locality is already substantially impacted as a consequence of passenger and goods movements along the Mungindi Railway Line, light and heavy vehicle movements along the Kamilaroi and Oxley Highways and other roadways, together with nearby industry and agricultural activities; • The most significant impacts are anticipated to occur during the construction phase of the project, resulting from site preparation activities and pile driving for solar panel support pole installation; • As outlined in the SEE for the project, the development is anticipated to comply with relevant criteria with no significant impacts to nearby receivers. • The potential for noise and vibration impacts to be generated during the operation of the project would be substantially less than those generated by the construction phase; and,

Additional Information Requested	Comments
	• Given the nature of solar tracking, noise generated from the solar panels is expected to be extremely intermittent given the small amount of movement required to track the sun over the period of a day. Given the existing assessment and list of mitigation measures provided in the SEE, no significant operational noise and vibration impacts are expected to occur during the operation of the proposed development. In respect of Council's comment, no addendum to the existing SEE is considered necessary.
4. *Council acknowledges the inclusion of the Substation as part of this development application for further assessment. However, additional information is required in the form of section and elevation plans; including, but not limited to, heights of earth mounds and heights of the transformers and plants contained within proposed substation area. Additionally, provide confirmation on how the substation area would be accessed?*	Detailed design and procurement of project components has not yet occurred and therefore specific details of the proposed arrangement is not available. It is however noted that the substation proposed has been approved by Council twice previously on the basis of the same information provided, and is only reflected via this DA to ensure that the substation can be provided regardless of which solar farm is built first. As detailed via drawing 01B_TP07 the substation will be accessed via a lockable gate at the intersection with a perimeter access road. The perimeter access road will extend north of the substation, along the 25 m wide right of way and through Lot 23 and Lot 22, connecting to the new driveway installed from Quia/Ross Road. A security gate will be installed at the entry to the solar plant along the northern boundary of Lot 22 as per drawing 01B_TP05.
5. *Confirm that this proposal does not involve the installation of Battery Energy Storage System (BESS).*	The proposed development does not include the installation of a Battery Energy Storage System (BESS) as part of the proposed works. Should a future decision be made to include a BESS an assessment of its potential impacts would be required.
6. *Council acknowledges the submitted draft Waste Management Plan (WMP). The response to request for additional information letter dated 16 November 2023; specifically the tabular response denotes that the WMP includes volumes generated and disposal arrangements. From review of the draft WMP, volumes of waste generated during the construction, operational, and decommissioning stages were not*	The WMP for the project has been updated to include indicative waste volumes based on the approaches implemented by approved solar projects. It should be noted that the WMP would be implemented as a living document, with subsequent reviews and updates provided throughout the construction, operation and decommissioning phases of the project, particularly as detailed design progresses. Refer to the updated WMP provided as **Attachment 2**. Further consultation with Council and additional updates to waste quantities within the WMP would be

Additional Information Requested	Comments
identified. Provide additional information on estimated volumes of waste material to be disposed for each of the subsequent stages and corresponding to waste types.	provided prior to the commencement of the construction, operation and decommissioning phases, reflecting additional information provided by suppliers and contractors for each stage of the solar farm.
7. *Section 5.5 of the draft WMP indicates waste management procedures for various types of waste. Provide additional details on the hazardous waste type, particularly the quantities of Diesel and Petrol to be stored on site during each phase of the proposed development. Note, that should the quantities of diesel and petrol exceed the screening threshold as stated within the Hazardous and Offensive Development Application Guidelines – Applying SEPP 33 document, a preliminary hazard analyses maybe required. Additionally, confirm whether the storage of diesel and petrol on site would be considered as hazardous development pursuant to the Chapter 3 of the State Environmental Planning Policy (Resilience and Hazards) 2021.*	The WMP has been updated to include additional detail relating to hazardous substances (refer to **Attachment 2**). The proposed development does not exceed the relevant screening thresholds for any dangerous goods and therefore is not considered potentially hazardous development.
8. *The Fill Material Validation report dated December 2017 concludes that fill material from Zone 1 –near the former boiler- was used to reinstate the former settlement ponds within Zone 3. Can a clarification be provided with reference to identifying the exact location of the fill and whether there are considerations required for the proposed substation site? Additionally, confirm that aesthetically unsuitable material did not contain any asbestos.*	Premise has not been informed of the specific location(s) of where 'aesthetically unsuitable material' from Zone 1 has been relocated. A requirement of relocation of this material was capping using at least 0.5 m of virgin soil. On the basis of this material not being accessible at ground level due to a minimum of 0.5 m capping material, it is considered to be suitable in its buried state. The material had been deemed to be 'aesthetically unsuitable' based on the presence of odorous and stained soils associated with weathering of the source chemical (e.g. petroleum hydrocarbons) and was considered to be non-hazardous and presenting a negligible risk. The 'aesthetically unsuitable material' is not considered to contain any asbestos based on the following: • As documented in the Geolyse 2016 (Version 2) Detailed Site Investigation (DSI), surface soils were not impacted by asbestos (fragments, fibres or fines) based on soil sampling and analysis. • The P. Clifton & Associates (PC&A) Visual Asbestos Removal Clearance Certification of September 2017

Additional Information Requested	Comments
	confirmed that asbestos material previously identified in the PC&A 2016 Survey Report had "been satisfactorily removed". This included "pieces of asbestos cement sheet debris … in random locations on the ground areas within the site". • The remediation / relocation of 'aesthetically unsuitable material' has been documented as occurring in October 2017, subsequent to the PC&A Clearance Certification.
Additional information requested 23 February 2024	
9. *It is requested that you refer to the attached agency response received from Essential Energy with reference to potential safety risks arising as a result of the development proposed occur near electrical infrastructure. In addition to the currently pending request for information, Council requests that a review of the site be undertaken to identify any potential safety risks and clarify how the potential safety risk will be overcome?*	All low voltage power lines have been approved for removal by Essential Energy in conjunction with the overarching subdivision development consent applying to the site – refer attached approved Essential Energy drawings **(Attachment 3)**
10. *Further, can elevations of the solar panels be provided as the submitted development plans only contain the module layout?*	See attached updated drawings (**Attachment 4**) providing indicative solar panel elevations.

Premise

IRONBARK ENERGY

Gunnedah Solar Farm

WASTE MANAGEMENT PLAN

Report No: 221311/REP
Rev: 001B
1 March 2024

DOCUMENT AUTHORISATION					
Revision	**Revision Date**	**Report Details**			
A	16/11/23	For issue			
B	01/03/24	Response to Council Comments.			
Prepared By		**Reviewed By**		**Authorised By**	
Hugh Shackcloth-Bertinetti		David Walker		David Walker	

CONTENTS

TABLES

APPENDICES

1. INTRODUCTION

1.1 Overview

Premise has been commissioned by Ironbark Energy to prepare a Waste Management Plan (WMP) to support the construction, operation and decommissioning of a solar farm development at 131 Quia Road, Gunnedah (Lot 24 in DP 1235089). The site is located in the Gunnedah Shire Council (GSC) Local Government Area (LGA).

1.1 Scope

This WMP has been prepared as a draft to respond to a request by Council for provision of a WMP at DA stage. As conditions of consent have not been issued, this plan is a draft only and will need to be updated and adopted prior to works commencing on site.

1.2 Purpose

This WMP seeks to provide suitable procedures for managing waste during the construction, operation and decommissioning phases of the project.

The objectives of this WMP are to

- Minimise the production of waste materials and maximise reuse and recycling in accordance with the waste hierarchy.
- Maintain the site in a clean and tidy state to reduce the attraction of pest species, impacts on the local environment and negative impacts on visual amenity.
- Provide measures requiring the dispose of regulated wastes in accordance with NSW and Australian legislative requirements and environmental best practice.

The WMP is to be reviewed and updated in consultation with relevant regulatory agencies prior to work commencing on site and as required in response to the refinement of detailed design. It is a living document and is to be updated on a continual basis, ensuring that procedures for managing waste remain relevant to the proposed development.

2. PROJECT DESCRIPTION

The proposed solar farm represents electricity generating works and is to be located in the approximately 17.6 hectare, approved but unregistered Lot 22 in the north-eastern portion of the site, approved under DA 2015/062 and modified under DA 2015/062.004. The solar farm is to have an output of approximately 14.7 megawatts (MW).

A Statement of Environmental Effects (SEE) for the proposed development was prepared pursuant to the relevant provisions of the *Environmental Planning and Assessment Act 1979* (the EP&A Act) and *Environmental Planning and Assessment Regulation 2021* (the EP&A Regulation). The SEE assesses the potential impacts of the proposed development and provides further detail of the project's layout and appropriate mitigation measures.

3. LEGISLATIVE CONTEXT

3.1 Protection of the Environment Operations Act 1997

The *Protection of the Environment Operations Act 1997* (The POEO Act) aims to protect, restore and enhance the quality of the environment in NSW, while still having regard to ecologically sustainable development.

With respect to waste management, the POEO Act seeks to reduce risks to human health and to prevent degradation of the environment by the use of mechanisms that promote:

(i) pollution prevention and cleaner production,

(ii) the reduction to harmless levels of the discharge of substances likely to cause harm to the environment,

(iii) the elimination of harmful wastes,

(iv) the reduction in the use of materials and the re-use, recovery or recycling of materials,

(v) the making of progressive environmental improvements, including the reduction of pollution at source,

(vi) the monitoring and reporting of environmental quality on a regular basis,

The POEO Act further provides requirements for the management of waste and details offences related to the pollution. Section 148 of the POEO Act notably provides a duty for persons carrying on activity to immediately notify the relevant authority, NSW Environmental Protection Authority (EPA), after they are aware of an incident that material harm to the environment is caused or threatened. Material harm is defined under section 147 of the POEO act as follows:

(a) harm to the environment is material if—

(i) it involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial, or

(ii) it results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding $10,000 (or such other amount as is prescribed by the regulations), and

(b) loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment.

Offenses apply under Section 152 of the POEO Act for failing to notify pollution incidents in accordance with the provisions under Part 5.7.

Section 143 of the POEO Act additionally requires waste to be transported to a place that can lawfully accept it. It is an offence under Section 115 to negligently dispose of waste that may cause harm to the environment, unlawfully transport and deposit waste (e.g., if waste is transported to a place that cannot be used as a waste facility for the waste).

Waste classifications are also defined in Section 49 of the POEO Act. Further detail on waste classification with respect to the EPA Waste Classification Guidelines 2014 (refer to **Section 3.4**).

3.2 Protection of the Environment Operations (Waste) Regulation 2014

The *Protection of the Environment Operations (Waste) Regulation 2014* (The POEO Waste Regulation) aims to protect human health and the environment and provides the framework for the waste industry in NSW, including the details of the licencing, reforms and the waste levy system. The POEO Waste Regulation prescribes the wastes (hazardous waste, restricted solid waste etc) that are automatically deemed to be land pollution and the person is guilty of an offence if the waste is illegally dumped.

3.3 Waste Avoidance and Resource Recovery Act 2001

The *Waste Avoidance and Resource Recovery Act 2001* aims to encourage the efficient use of resources and to reduce environmental harm. Waste management for the project must be conducted in accordance with the Act. The project waste management program needs to consider the hierarchy outlined in the Act:

(c) Avoidance of unnecessary resource consumption;

(d) Resource recovery (including reuse, reprocessing, recycling and energy recovery); and

(e) Disposal

This WMP seeks to implement measures to minimise the potential for material harm to the environment resulting from the construction, operation and decommissioning of the project. Waste management principles and tracking measures, contained in **Appendix A** and **Appendix B** of this Plan, seek to ensure that waste produced by the project is appropriately managed and disposed of,

3.4 EPA Waste Classification Guidelines 2014

The EPA Waste Classification Guidelines 2014 (The Waste Classification Guidelines) is comprised of four parts:

- Part 1: Classifying waste;
- Part 2: Immobilisation of waste;
- Part 3: Waste containing radioactive material; and
- Part 4: Acid sulphate soils.

Part 1 of the guidelines provide details on the classification of waste in accordance with the definitions provided under Section 49 of Schedule 1 of the (POEO Act) including:

- Special waste;
- Liquid waste;
- Hazardous waste;
- Restricted solid waste;
- General solid waste (putrescible); and
- General solid waste (non-putrescible).

The types of waste likely to be produced by the proposed project is detailed in **Appendix A** of this WMP. Waste is to be tracked in accordance with the waste tracking register in **Appendix B,** which includes a determination of its classification under the Waste Classification Guidelines.

3.5 Gunnedah Local Environmental Plan 2012

The *Gunnedah Local Environmental Plan 2011* (LEP) provides standards for the carrying out of development in the Gunnedah LGA consistent with the standard instrument environmental planning instrument. The LEP specifies the types of development that are prohibited and permitted within the local area. Some types of development are also regulated by particular State environmental planning policies.

The Plan provides additional provisions for earthworks to ensure that earthworks for which development consent is required will not have a detrimental impact on environmental functions and processes, neighbouring uses, cultural or heritage items or features of the surrounding land.

3.6 State Environmental Planning Policy (Transport and Infrastructure) 2021

State Environmental Planning Policy (Transport and Infrastructure) 2021 (the ISEPP) provides the approval process for the proposed solar farm as electricity generating works. Electricity generating works may be carried out within a prescribed rural, industrial or special use zone under Section 2.36(1)(b) of the Infrastructure SEPP which prevails over any other environmental planning instrument (EPI) to the extent of any inconsistency via Section 2.7. As the definition of a prescribed rural zone includes Zone E4 General Industrial, development for the purposes of electricity generating works is permitted with consent in the zone.

4. ROLES & RESPONSIBILITIES

The Site Manager (or other suitably qualified site management representatives as their replacement) with the authority to make immediate decisions, must be available during all hours of operation to ensure appropriate responses to incidents and emergencies are implemented.

The roles and responsibilities for site management representatives and workers at the development are detailed in **Table 1**

Table 1 – Roles and Responsibilities

Role	Responsibility
Site management representatives (i.e project/site/construction manager, environmental advisor and supervisors)	• Overall responsibility for site management and compliance with the Development Consent and relevant legislation; • Coordinate routine environmental site inspections and maintenance; • Coordinate necessary reporting and regulatory authority liaisons; • Record, notify, investigate and respond to any complaints and/or enquiries and, where necessary, develop and implement corrective actions; • Record, notify, investigate and respond to any environmental incidents and, where necessary, develop and implement corrective actions; • Oversee the implementation of this plan and provide adequate resources to enable implementation of this plan and • Provide adequate environmental inductions/training to Workers regarding their requirements under this plan.

Role	Responsibility
	• Ensure compliance with measures and requirements of applicable management plans.
Workers (Including all employees, personnel, contractors and subcontractors)	• Ensure familiarity, implementation and compliance with this plan; • Work in a manner that will not harm the environment or impact on surrounding receptors; • Report all environmental incidents and complaints to Site Management without delay; and • Report any inappropriate operational and/or site management practices to site management representatives without delay.

5. WASTE MANAGEMENT

The following sections outline measures to control waste associated with the proposed development, including nearby waste segregation, handling and storage, expected waste types and classifications, disposal arrangements, and procedures implemented with respect to each expected waste type together with responsibilities and monitoring requirements.

A draft set of Waste Management Principles for the proposed development is contained in **Appendix A.** The principles identify the types of waste expected to be generated from each phase of the proposed development together with the intended methods for treatment, reuse, recycling and disposal.

5.1 Waste Segregation and Separation

The segregation and separation of waste during each phase of the project will support appropriate disposal arrangements and facilitate opportunities to reuse and recycle appropriate waste types, aligning with the EPA's waste hierarchy:

- Waste Segregation will involve processes whereby waste is be segregated within the site, being placed into dedication bins (e.g., recycling bins) or laydown areas (e.g., spoil), prior to being either reused onsite or collected and transported by a waste contractor to an appropriately licenced facility.
- Waste Separation will involve processes whereby wastes will be deposited into a single bin (i.e., where space is not available for placement of multiple bins), prior to being transported offsite by a contractor, sorted and disposed of at an appropriately licenced facility.

5.2 Waste Handling and Storage

During the construction and decommissioning phase waste would be stored temporarily on-site in secure covered skips prior to removal to an appropriately licensed waste facility for recycling or disposal to landfill. No routine generation of waste, waste storage or disposal is expected during the operation of the project. There is, however, potential for occasional maintenance activities to generate some waste during the operation.

The following measures will apply to the handling and storage of waste within the site:

- Recyclable or non-recyclable wastes - to be stored in appropriate covered receptacles (e.g. bins or skips) in appropriate locations onsite and contractors commissioned to regularly remove/empty the bins to approved disposal or recycling facilities.

- Liquid wastes - to be stored in appropriate containers in bunded areas until transported offsite. Bunded areas will have the capacity to hold 110 per cent of the liquid waste volume for bulk storage or 120 per cent of the volume of the largest container for smaller packaged storage.

5.3 Waste Classification

Where waste cannot be avoided, reused or recycled it will be classified and appropriate disposal will then occur.

The classification of waste is undertaken in accordance with the Waste Classification Guidelines. This document identifies six classes of waste in Part 1 including: Special, Liquid, Hazardous, Restricted Solid, General Solid (putrescible) and General Solid (non-putrescible) and describes a six-step process to classifying waste.

The six-step process for classifying waste is summarised in **Table 2** below.

The generation of waste during the construction operation and decommissioning of the project is expected to be predominantly classified as general (non-putrescible) waste. An assessment of the likely types of waste is provided via the Waste Management Principles contained in **Appendix A.**

Table 2 – Waste Classification, Six Step Process

Step	Description
Step 1: Is the waste 'special waste'?	Establish whether the waste is classified as special waste, including: • clinical and related waste • asbestos waste • waste tyres • anything classified as special waste under an EPA gazettal notice
Step 2: Is the waste 'liquid waste'?	Determine whether the waste is classified as liquid waste meaning any waste (other than special waste) that: • has an angle of repose of less than 5 degrees above horizontal • becomes free-flowing at or below 60 degrees Celsius or when it is transported • is generally not capable of being picked up by a spade or shovel • is classified as liquid waste under an EPA gazettal notice.
Step 3: Is the waste pre-classified?	If the waste is neither special nor liquid waste, establish whether the waste has been pre-classified by the EPA. Some commonly generated waste types have been pre-classified as hazardous waste, general solid waste (putrescible) or general solid waste (non-putrescible). These pre-classifications are contained in the definitions of those classifications in Schedule 1 of the POEO Act.
Step 4: Does the waste possess hazardous characteristics?	If the waste is not classified under steps 1 through 3 establish whether it has hazardous characteristics. Examples of hazardous wastes includes explosives, flammable solids, substances liable to spontaneous combustion, oxidizing agents, toxic substances and corrosive substances.

Step	Description
	Note: Waste must be classified as hazardous if it is a dangerous good under the classes or divisions of the Transport of Dangerous Goods Code.
Step 5: Determining a waste's classification using chemical assessment	If the waste does not have hazardous characteristics, undertake chemical assessment to determine classification.
Step 6: Is the general solid waste putrescible or non-putrescible?	Where chemical assessment of a waste under Step 5 results in classification of the waste as general solid waste, further assessment may be undertaken to determine whether the waste can be classified as 'general solid waste (putrescible)' or 'general solid waste (non-putrescible)'.Otherwise (for example, if the waste generator does not wish to undertake this chemical assessment), the waste must be classified as 'general solid waste (putrescible)'.

5.4 Waste Disposal and Facilities

Waste generated during each phase of the development is to be disposed of in accordance with the requirements of the POEO Act and the *Waste and Resources Recovery Act 2001.* Following classification all waste generated will be disposed of offsite at an appropriately approved and licensed waste management facility.

It is anticipated that the majority of waste generated by the development would be disposed of at Gunnedah Waste Management Depot at 418 Quia Road, Gunnedah. Where practicable the Applicant will use local facilities to minimise transportation and to ensure the regular removal of waste from site.

The availability of disposal arrangements and the forms of waste accepted by contractors and licenced facilities will be reviewed on a continual basis and at each stage of the project, ensuring that facilities are available to accept and appropriately dispose of the types of waste generated. Waste tracking including records of the types of waste generated, quantities and disposal arrangements will be implemented during each stage of the development and inform reviews on the availability of disposal arrangements (refer to **Section 5.5**).

The likely types of waste generated by each stage of the development and their disposal arrangement is outlined via the Waste Management Principles contained in **Appendix A.**

Future decommissioning of the project would require the removal of all associated infrastructure. Opportunities for recycling of this equipment would be investigated at the time of decommissioning. If recycling of specific elements is not available, disposal at an approved waste management facility would be undertaken.

5.5 Waste Tracking

All wastes, including recyclable materials from the project, will be tracked during each stage of the project.

The transfer and disposal of waste from the development site including the waste type, volume and destination is to be recorded in the waste tracking register provided in **Appendix B.**

This register will record the following information:

- Date and time waste departed the site.
- The waste classification (special waste, general solid waste, liquid waste, hazardous waste etc.).
- A description of the waste/recyclable material leaving the site.
- The quantity of material (either tonnage or volume)
- The company or contractor transporting the waste.
- The destination and receiving facility for the waste.
- Clarification on the use of the waste and whether the material is to be recycled, stored, treated or disposed.
- Reference material including receipts documenting the completion of transfer to a receiving facility.

5.6 Estimated Waste Generation

The quantity and type of waste generated would be dependent on the extent of works required for each stage of the project and vary according to any additional changes made throughout the lifespan of the project.

A review of extent of works for each of the project, the proposed design and the methods established by other renewable energy projects in NSW has been undertaken to estimate the quantity of each type of waste generated during the construction, operation and decommissioning of the project.

Indicative waste volumes for each stage of the project are presented in **Table 3**. The following assumptions have been made when estimating waste quantities:

- The construction program for the project anticipates 40 workers attending the site 6 days per week for a total of 16 weeks.
- Projected waste volumes associated with excavated material, packaging materials and general waste including food water and other miscellaneous items have been informed and estimated based on a review of quantities recorded for other solar farm projects in NSW. Indicative waste volumes reported by other projects have been scaled to the 14.7 MW capacity of the Gunnedah Solar farm and averaged to provide an indication of potential waste volumes at each stage of the project (Refer to **Appendix B**).
- The National Waste Report 2022, prepared by the Department of Agriculture, Water and Environment (2020), provides additional guidance on general waste volumes for the proposed development with a general allowance of 2.95 tonnes per person per year based on data collected between 2020 and 2021. Based on 40 workers attending the site over a 16-week period this equates to approximately 36.31 tonnes of general waste over the construction period.
- The EPA State of the Environment Report 2020 provides estimates urban water demand across NSW. The per capita water demand for regional NSW averaged 212 litres per person per day during 2019-2020.
- The National Water Quality Management Strategy 1997, Australian guidelines for Sewerage Systems Effluent Management details a wastewater production of approximately 70,000 litres per person per year, equivalent to 191.78 litres per day.
- To provide a conservative estimate it has been assumed that wastewater will be generated based on a general allowance of 200 litres per person per day. Based on 40 workers attending the site 6 days a week this equates to approximately 48,000 litres of water per week and approximately 768,000 litres of wastewater during the 16-week construction period.
- The actual quantity of waste generated by the project is dependent on the refinement and finalisation of detailed design. Tracking of waste during the construction operation and decommissioning of the project shall be used to inform reviews of this WMP and the ongoing availability of disposal arrangements.

Subsequent updates to this WMP are to be made following the refinement of project design with changes to estimates for resource use and waste generation.

Table 3 – Indicative Only Waste Volumes

Phase	Waste Type	Indicative Quantity
Construction	General Waste [1 and 2]	13.57 tonnes[1] - 36.31 tonnes[2]
	Excavated Material[1]	1.37 m^3
	Packaging (Cardboard) [1]	35.81 tonnes
	Packaging (Foam) [1]	0.03 tonnes
	Packaging (Metal Ferrous) [1]	0.33 tonnes
	Packaging (Metal Non-Ferrous) [1]	7.12 tonnes
	Packaging (Plastic) [1]	2.22 tonnes
	Packaging (Polystyrene) [1]	3.41 tonnes
	Packaging – (Timber / Wooden Pallets – PV Packaging) [1]	61.44 tonnes
	Packaging – (Timber / Wooden Pallets – Cable Drums) [1]	10.47 tonnes
	Surplus Construction Waste[1]	3.53 tonnes
	Plant and Machinery and Other Miscellaneous items (piling machines, plant & equipment, workshops, etc.)[1]	16.30 tonnes
	Wastewater [1 and 2]	0.555 ML[1] - 0.768 ML[2]
Operation	Operation Food and General Waste (annual)[1]	44 litres
	Operation Recyclable Waste (annual)[1]	44 litres
Decommissioning (Based on typical use of construction material's).	Gravel[1]	806.30 m^3
	Sand[1]	762.93 m^3
	Concrete[1]	126.79 m^3
	Metal[1]	342.95 m^3
	Glass[1]	12.64 m^3

[1] Waste volumes are based on other solar farm projects in NSW (refer to **Appendix C**).

[2] Waste volumes are based on the assumptions made with respect to the National Waste Report 2022, The EPA State of the Environment Report 2020 and the National Water Quality Management Strategy 1997, Australian guidelines for Sewerage Systems, Effluent Management.

5.7 Waste Management Procedures

Table 4 outlines procedures for the management of various types of wastes with the potential to be generated by the project.

Table 4 – Waste Management Procedures

Waste Type	Management Procedures
General Waste	• All site personnel will be advised of the Waste Management Plan during inductions and training. • All site personnel will be encouraged to separate waste streams to maximise recycling opportunities. • No waste burnt or buried on site. • Combustible fuel loads (if required) (e.g. diesel fuel tanks) will be managed onsite to minimise fire risks ensuring compliance with other procedures provided via other management plans. • Securely covered, clearly labelled segregated waste and recycling bins would be provided at strategic locations adjacent to the site construction site office(s) and amenities area. • Site bins will be routinely inspected to ensure there is capacity to contain waste generate by construction and decommissioning activities. • Waste and recycling bins will be emptied as required. • Onsite general waste and recycling bins will be appropriately covered minimising the potential for pollution and impacts to surrounding amenity. • Specialist waste bins (e.g. steel, timber) will be emptied as required. • All waste leaving the site (e.g. regulated waste) will be entered into a site waste register to track relevant details of the waste being removed from the site.
Spoil	• Topsoil will be stockpiled and reused on-site for rehabilitation. Excess topsoil generated during the construction activities will be retained for use in rehabilitation. • Any excess subsoil that requires removal from the site will be appropriately disposed of at licenced waste facility.
Liquid Waste	• It is anticipated that chemical port-a-loo's will be provided at strategic locations around the site for use by personnel during the construction and decommissioning phases. Where possible these port-a-loo's will be located on a trailer to allow for easy redistribution. Waste from port-a-loo's will be disposed of offsite at a licensed treatment facility. • Regulated liquid waste, if generated, will be disposed of at an appropriately licenced facility.
Hazardous Waste	• The waste classification guidelines will be continually reviewed to determine whether waste generated during each phase of the project is classed as hazardous. • With respect to the waste generated the hazardous substances considered likely to be used be onsite for the development include: – Diesel (Class 3). – Petrol (Class 3). • **Section 5.8** provides further context on hazardous waste management and includes an assessment of several other hazardous substances with

Waste Type	Management Procedures
	the potential to be used during construction operation and decommissioning of the proposed project including: – PVC Priming Fluid (Class 3). – PVC Pipe Cement (Class 3) – Pesticides (herbicides) (Class 6) – Gold Galvanising Paint (Class 2) – Marking Paint (Class 2) • Fuel containers will be reused as far as practicable. • Fuel containers will be disposed of in accordance with EPA guidelines for hazardous waste as required. • Dangerous or hazardous materials, if stored onsite, would be stored and handled in accordance with *AS1940-2004: The storage and handling of flammable and combustible liquids.*

5.8 Hazardous Waste Management

Section 3.7 of the *State Environmental Planning Policy (Resilience and Hazards) 2021* (The Hazards SEPP) requires the consideration of current circulars or guidelines prepared by the Department of Planning in determining whether a development is:

- hazardous storage establishment, hazardous industry or other potentially hazardous industry; or
- offensive storage establishment, offensive industry or other potentially offensive industry.

The current and most recent guidelines prepared by the Department of Planning, the *Hazardous and Offensive Development Application Guidelines – Applying SEPP 33* (Applying SEPP 33 Guideline; Department of Planning 2011), includes the screening tests to be used to determine whether a development is potentially hazardous development. If the screening tests indicate that a development is potentially hazardous development, a preliminary hazard analysis (PHA) is required to be provided as part of the DA. The type of screening test to be used is dependent upon the class, as categorised under the Australian Dangerous Goods Code (the ADG code; National Transport Commission 2020) of dangerous goods proposed to be accommodated on-site. The ADG code lists the following classes of dangerous goods:

- Class 1 Explosive.
- Class 2 Gases.
- Class 3 Flammable liquids.
- Class 4 Flammable solids.
- Class 5 Oxidising substances and organic peroxides.
- Class 6 Toxic and Infectious substances.
- Class 7 Radioactive material.
- Class 8 Corrosive substances.
- Class 9 Miscellaneous dangerous substances and articles, including environmentally hazardous substances.

Minor quantities of potentially hazardous materials will be stored and used on-site. A list of potentially hazardous materials associated with the development and the maximum quantity of each is provided in **Table 5.**

Table 5 – Indicative Only Hazardous Substances List

Substance	Indicative Maximum Quantity Stored On-site
Diesel	3,000 L
PVC Priming Fluid	20 L
Unleaded petrol	120 L
PVC Pipe Cement	20 L
Pesticides (herbicides)	2 t
Gold Galvanising Paint	5 L
Marking Paint	5 L

Screening thresholds for identified classes of hazardous materials with the potential to be associated with the proposed development are further summarised in **Table 6**, including the relevant UN Code and ADG Code classification, together with the general storage and transportation thresholds. The proposed development does not exceed the relevant screening thresholds for any dangerous goods and therefore is not considered potentially hazardous development.

All hazardous substances will be stored in secure containers/pallet bunds, with appropriate signage. The location of these storage areas will be clearly marked on a site plan and copies of Safety Data Sheets (SDS) will be held on-site. Refuelling of plant will be undertaken in designated and appropriately bunded areas minimising the potential for runoff and contamination. Hazardous goods and combustible liquids associated will be stored and handled in accordance with:

- all relevant Australian Standards;
- a minimum bund volume requirement of 110% of the volume of the largest single stored volume within the bund; and
- the EPA's Environment Protection Manual Technical Bulletin Bunding and Spill Management.

Further detail on the provision of appropriate refuelling areas, bunding and hazardous material storage and handling is to be provided following the completion of detailed design and outlined within the developments construction environmental management plan (CEMP).

The dangerous goods proposed by the development including indicative quantities and procedures provided in management plans is to be reviewed on a continual basis during the construction operation and decommissioning phases of the project, ensuring that the relevant screening thresholds are not exceeded and that appropriate management procedures for dangerous goods are in place.

Table 6 – Potential Dangerous Goods and Screening Thresholds

Hazardous Substance	Indicative Maximum Quantity Stored Onsite	Australian Dangerous Goods Code Classification				Applying SEPP 33 Thresholds					Exceeds Screening Threshold?
		UN No.	Hazardous Material Description	Class	Packing Group	Screening Method and General Screening Thresholds (Table 1 and Table 3)	Transportation Thresholds (Table 2)				
							Vehicle Movements		Minimum quantity per load (tonne)		
							Cumulative Annual	Peak Weekly	Bulk	Packages	
Diesel	3,000 L	1202	GAS OIL or DIESEL FUEL or HEATING OIL, LIGHT	Class 3 – Flammable liquid	III	5 tonnes (Figure 9 Graph if greater)	>1000	>60	10	No limit	No
PVC Priming Fluid	20 L	1993	FLAMMABLE LIQUID, N.O.S.	Class 3 – Flammable liquid	II	5 tonnes (Figure 9 Graph if greater)	>750	>45	3	10	No
Unleaded petrol	120 L	1203	MOTOR SPIRIT or GASOLINE or PETROL (see 3.2.5 for relevant [AUST.] entries)		II						
PVC Pipe Cement	20 L	1133	ADHESIVES containing flammable liquid	Class 3 – Flammable liquid	II						
Pesticides (herbicides)	2 t	2588	PESTICIDE, SOLID, TOXIC, N.O.S.	Class 6.1 – Toxic substances	I	0.5 tonnes	All	All	1	3	No
					II	2.5 tonnes					No
					III						
Gold Galvanising Paint	5 L	1950	AEROSOLS	Class 2.1 – Flammable Gases	N/A	100kg (Figure 6 Graph if greater)	>500	>30	2	5	No
Marking Paint	5 L	1950	AEROSOLS	Class 2.1 – Flammable Gases	N/A						

APPENDIX A

DRAFT WASTE MANAGEMENT PLAN, WASTE MANAGEMENT PRINCIPLES

Gunnedah Solar Farm Waste Management Plan

Waste Management Principles

Construction phase

Table 7 – Construction phase

Materials on site		Treatment/reuse/recycling		Disposal
Type of Material	**Description**	**Onsite**	**Offsite**	**Residual**
Excavated material	Excess soil	Stockpile at a suitable location and re-use on site as fill. Stockpiles have suitable temporary erosion and sediment control measures installed.	Any excess to be re-used off-site	None
Concrete – construction wastes	Surplus pours	Ensure that quantities are correctly estimated prior to pour. Use pre-cast concrete as far as practicable. Crush and use any surplus as fill where possible.	Concrete waste to be separated and collected by concrete recycling contractor	Dispose any surplus to concrete crushing facility for recycling
Timber	Packaging from materials delivered	Nil	Recyclable timber to be separated and collected for recycling by recycling contractor	Any non-recyclable timber
Metals	Wiring off-cuts, packing straps, steel off-cuts, aluminium off-cuts	Nil	Recyclable metal to be separated and collected for recycling by recycling contractor	Nil

Materials on site		Treatment/reuse/recycling		Disposal
Plastic/HDPE	Wrap from materials delivered and packaging	Nil	Collection by recycling contractor for recycling	Dispose non-recyclable material to licensed waste disposal facility
Cardboard	Packaging from materials delivered	Nil	Collection by recycling contractor for recycling	Nil
General Waste	Contractors/work force	All waste streams to be separated and recycled	Collection by recycling contractor for recycling	Dispose non-recyclable material to licensed waste disposal facility

Operational phase

Table 8 – Operational phase

Type of waste to be generated	Proposed on site storage and treatment facilities	Destination
Cardboard packaging / Office paper	Paper and Cardboard to be separated for recycling at source. Paper and Cardboard to be reused where possible, or compacted for recycling	Recycling contractor for recycling
Plastic packaging	Bale up on-site. Storage in waste storage and recycling area(s)	Recycling contractor for recycling. Non-recyclable plastics to be disposed as general waste
Pallets from spare parts	Stored on-site in designated areas suitably screened from public areas	Supplier for reuse
Waste/reject product	Storage in waste storage and recycling area(s) or in racks	Returned to supplier
Recyclable glass, aluminium, metal, and plastic containers	To be separated at source as far as practicable for recycling by recycling contractor	Recycling contractor for recycling
General waste	To be stored in designated bin(s) screened from public areas	Disposed by licenced waste contractor to licenced waste disposal facility

Type of waste to be generated	Proposed on site storage and treatment facilities	Destination
Waste storage and recycling receptacles to be located nearby all generation sources. Waste storage and recycling bins to be clearly labelled. The site manager or representative would be responsible for maintaining the waste storage and recycling area, for ensuring bins are emptied and collected as required, and for ensuring that no contamination of waste streams is occurring.		

Decommissioning phase

Table 9 – Decommissioning phase

Type of waste to be generated	Proposed on site storage and treatment facilities	Destination
Inverter and Transformer	The inverter and transformer will be removed from the site via a crane onto a semitrailer for e-waste dismantling, recycling, scrapping and safe disposal at an appropriate waste disposal facility. If possible, the transformer can be reconditioned and refurbished for additional service life at another site	A number of opportunities for recycling PV are currently emerging (including the Reclaim PV facility in SA) and it is expected that by the end of life of the SF that other options will have been developed (noting the significant amount of facilities currently in delivery with similar lifespans as the project site).
Concrete foundations	The concrete foundations of the inverter, transformer will be excavated and the concrete recycled.	Either recycled/reused off site or disposal to a suitable waste facility.
Recyclable glass, aluminium, metal, and plastic containers	To be separated at source as far as practicable for recycling by recycling contractor	Recycling contractor for recycling
General waste	To be stored in designated bin(s) screened from public areas	Disposed by licenced waste contractor to licenced waste disposal facility
Waste storage and recycling receptacles to be located nearby all generation sources. Waste storage and recycling bins to be clearly labelled. The site manager or representative would be responsible for maintaining the waste storage and recycling area, for ensuring bins are emptied and collected as required, and for ensuring that no contamination of waste streams is occurring.		

APPENDIX B

DRAFT WASTE MANAGEMENT PLAN, WASTE TRACKING REGISTER

Gunnedah Solar Farm Waste Management Plan

Waste Tracking Register

Table 10 – Waste Tracking Register

Date /Time	**Waste Classification** (Special waste, general solid waste, liquid waste etc.)	**Waste Description** (concrete, steel, spoil etc.)	**Quantity**	**Transporter** (company / contractor, contact information of person(s) who transported waste, waste vehicle registration)	**Receiving Facility** (name and address)	**Waste Use** (recycled, stored, treated, disposed)	**Reference** (Receipt /docket)

APPENDIX C

GUNNEDAH SOLAR FARM INDICATIVE WASTE QUANTITIES

WMP Waste Quantity Estimates

Ref	Waste Source	Reference Project	Phase	Waste Source /Type	Quantitiy Reported	Quantity/MW (if possible)	Scaled Waste for Gunnedah Solar Farm (14.7 MW | 6 Day, 16 week Construction Period)	Collated Waste Types	Total Quanities of Scaled Waste by Project and Collated Waste Type	Averages Quantities for Each Waste Type		Comments	Recyclable
1	General Waste	Stubbo Solar Farm	Construction	General waste (office, domestic other packaging)	1,200 tonnes per year	3 tonnes/year/MW	13.57 tonnes over 16 weeks	General Waste	13.57 tonnes	13.57	tonnes		NO
2	Excavated Material	West Wyalong Solar Farm	Construction	Excavated Material <10m3	<10m3	0.093m3/MW	1.37 m3	Excavated	1.37 m3	1.37	m3		NO
3	Packaging Waste -Cardboard	Manildra Solar Farm	Construction	Packaging cardboard	150 tonne	3 tonnes/MW	44.1 tonnes	Packaging (Cardboard)	44.1 tonnes 27.518 tonnes	35.81	tonnes		YES
3	Packaging Waste -Cardboard	Sapphire Solar Farm	Construction	PV Panel - cardboard box	336960 kg	1872 kg/MW	27518 kg						
4	Packaging Waste - Foam	Sapphire Solar Farm	Construction	Torque Tubes - foam long banding	77.9976 kg	0.43332 kg/MW	6 kg	Packaging (Foam)	0.025 tonnes	0.03	tonnes		NO
4	Packaging Waste - Foam	Sapphire Solar Farm	Construction	Torque Tubes - foam short banding	233.9928 kg	1.29996 kg/MW	19 kg						
5	Packaging Waste - Metal ferrous	Sapphire Solar Farm	Construction	Metal ferrous	2.7 tonne	0.025 tonnes/MW	0.37 tonnes	Packaging (Metal Ferrous)	3.198 tonnes	0.33	tonnes		YES
5	Packaging Waste - Metal ferrous	Sapphire Solar Farm	Construction	Cable Drums - steel cable drums	34628.021 kg	192.38 kg/MW	2828 kg						
6	Packaging Waste - Metal non ferrous	Sapphire Solar Farm	Construction	Metal Non ferrous	<1 tonne	0.009 tonnes/MW	0.13 tonnes	Packaging (Metal Non Ferrous)	7.119 tonnes	7.12	tonnes		YES
6	Packaging Waste - Metal non ferrous	Sapphire Solar Farm	Construction	PV Panel - alluminium straps	66268.8 kg	368.16 kg/MW	5412 kg						
6	Packaging Waste - Metal non ferrous	Sapphire Solar Farm	Construction	Torque Tubes - alluminimum long banding	1371.996 kg	7.62 kg/MW	112 kg						
6	Packaging Waste - Metal non ferrous	Sapphire Solar Farm	Construction	Torque Tubes - alluminimum short banding	2285.97552 kg	12.70 kg/MW	187 kg						
6	Packaging Waste - Metal non ferrous	Sapphire Solar Farm	Construction	Torque Tubes - alluminium banding to piers	3657.9384 kg	20.32 kg/MW	299 kg						
6	Packaging Waste - Metal non ferrous	Sapphire Solar Farm	Construction	Cable Drums - alluminuim banding	739.68 kg	4.11 kg/MW	60 kg						
6	Packaging Waste - Metal non ferrous	Sapphire Solar Farm	Construction	Cable Drums - alluminuim casing	11256 kg	62.53 kg/MW	919 kg						
7	Packaging Waste - Plastic Bag	Manildra Solar Farm	Construction	Packaging Plastic	5-6 tonne	0.1-0.12 tonnes/MW	1.47-1.764 tonnes	Packaging (Plastic)	1.764 tonnes 2.679 tonnes	2.22	tonnes		NO (potential recylability of plastic corner pieces
7	Packaging Waste - Plastic Bag	Sapphire Solar Farm	Construction	PV Panel - plastic bags	19543.68 kg	108.576 kg/MW	1596 kg						
7	Packaging Waste - Plastic (Torque Tube)	Sapphire Solar Farm	Construction	Torque Tubes - plastic wrap ends	238.464 kg	1.3248 kg/MW	19 kg						
7	Packaging Waste - Plastic (Corner Pieces)	Sapphire Solar Farm	Construction	PV Panel -plastic corner pieces	13029.12 kg	72.384 kg/MW	1064 kg						
8	Packaging Waste - Polystryrene Sheets	Sapphire Solar Farm	Construction	PV Panel - polystyrene sheets	41783.04 kg	232.128 kg/MW	3412 kg	Packaging (Polystyrene)	3.412 tonnes	3.41	tonnes		NO
9	Packaging - Timber / Wooden Pallets	Stubbo Solar Farm	Construction	Wooden Pallets	2000 units per week during peak delivery	5 pallets/MW	1176 pallets over 16 weeks	Packaging - Timber / Wooden Pallets (PV Packaging)	-	61.44	tonnes	No weight provided	NO
9	Packaging - Timber / Wooden Pallets	Manildra Solar Farm	Construction	Packaging Soft wood	80-100 tonne	1.6-2 tonnes/MW	23.52-29.4 tonnes		147 tonnes				
9	Packaging - Timber / Wooden Pallets	Manildra Solar Farm	Construction	Packaging hard wood	350-400 tonne	7-8 tonnes/MW	102.9-117.6 tonnes						
9	Packaging - Timber / Wooden Pallets	West Wyalong Solar Farm	Construction	Packaging Wood	35 tonne	0.327 tonnes/MW	4.81 tonnes		4.81 tonnes				
9	Packaging - Timber / Wooden Pallets	Sapphire Solar Farm	Construction	PV Panel - pallet timber	673920 kg	3744 kg/MW	55037 kg		5.5 tonnes				
10	Packaging - Timber / Wooden Pallets	Sapphire Solar Farm	Construction	Cable Drums - timber bracing	6120.45 kg	34.0025 kg/MW	500 kg	Packaging - Timber / Wooden Pallets	10.472 tonnes	10.47	tonnes		NO
10	Packaging - Timber / Wooden Pallets	Sapphire Solar Farm	Construction	Cable Drums - timber cable drums	122107.972 kg	678.378 kg/MW	9972 kg						
11	Surplus Construction Waste	Stubbo Solar Farm	Construction	Surplus Construction Waste	N/A - Dependent on detailed design	N/A	N/A	Surplus Construction Waste	N/A	3.53	tonnes	No weight provided	NO
11	Surplus Construction Waste	Manildra Solar Farm Solar Farm	Construction	Offcuts from cabling	8-12 tonne insulated copper cabliong	0.16-0.24 tonnes/MW	2.35-3.53 tonnes		3.53 tonnes				
12	Plant and Machinery and Other Miscellanious items	Stubbo Solar Farm	Construction	Fuels, Liquid Hazardous waste form cleaning, repairing and maintenenace of construction equuipment	N/A - Dependent on detailed design	N/A	N/A	Plant and Machinery and Other Miscellanious items	N/A	16.30	tonnes	No weight provided	NO
12	Plant and Machinery and Other Miscellanious items	Manildra Solar Farm Solar Farm	Construction	Packaging containers (previously containing dangerous goods)	N/A	N/A	N/A		N/A			No weight provided	
12	Plant and Machinery and Other Miscellanious items	Sapphire Solar Farm	Construction	Miscellanious items (piling machines site buildings plant & equipment workshops switchroom)	200 tonne	1.11 tonnes/MW	16.3 tonnes		16.3 tonnes				
13	Water Amenities Workforce and Site Management	Stubbo Solar Farm	Construction	wastes from toilets and bathrooms	80,000 litres per day	200 litres/day/MW	0.282 ML over 16 weeks	Water Use	0.282 ML	0.555	ML		NO
13	Water Amenities Workforce and Site Management	Wellington Solar Farm	Construction	water during construction	9000ML per annum	30ML/year/MW	135.69 ML over 16 weeks		135.69 ML			Excluded Outlier	
13	Water Amenities Workforce and Site Management	Wellington North Solar Plant	Construction	water during construction	55ML pa (approximately 110ML in total)	0.183/year/MW	0.828 ML over 16 weeks		0.828 ML				

14 Operation General Waste	West Wyalong Solar Farm	Operation	Food and General waste	20L per week	0.187 litres/week/MW	44 litres over 16 weeks	Operation General Waste	44 litres	44.00	litres		NO
15 Operation Recylable Waste	West Wyalong Solar Farm	Operation	Reclycable Waste	20L per week	0.187 litres/week/MW	44 litres over 16 weeks	Operation Recyclable Waste	44 litres	44.00	litres		YES
16 Gravel	Wellington Solar Farm	Decomissioning	Gravel Access tracks	6900m3	23m3/MW	338.1 m3	Gravel	338.1 m3	806.30	m3		NO
16 Gravel	Wellington North Solar Plant	Decomissioning	Gravel Access tracks	26,000m3	86.7m3/MW	1274.49m3		1274.49m3		m3		
17 Sand	Wellington Solar Farm	Decomissioning	Sand bedding for cables	2800m3	87.1m3/MW	1280.37 m3	Sand	1280.37 m3	762.93	m3		NO
17 Sand	Wellington North Solar Plant	Decomissioning	Sand bedding for cables	5,000m3	16.7m3/MW	245.49m3		245.49m3		m3		
18 Concrete	Wellington Solar Farm	Decomissioning	Concrete	3980 m3	13.26m3/MW	194.775 m3	Concrete	194.775 m3	126.79	m3		NO
18 Concrete	Wellington North Solar Plant	Decomissioning	Concrete	1,200m3	4m3/MW	58.8m3		58.8m3		m3		
19 Metal	Wellington Solar Farm	Decomissioning	Metal	7000t	23.33tonnes/MW	342.951 tonnes	Metal	342.951 tonnes	342.95	tonnes		POTENTIAl
20 Glass	Wellington Solar Farm	Decomissioning	Glass	258t	0.86 tonnes/MW	12.642 tonnes	Glass	12.642 tonnes	12.64	tonnes		NO

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IRONBARK ENERGY

Gunnedah Solar Farm

DRAFT DECOMMISSIONING MANAGEMENT PLAN

Report No: 221311/REP
Rev: 001A
16 November 2023

DOCUMENT AUTHORISATION					
Revision	**Revision Date**	**Report Details**			
A	16/11/23	For issue			
Prepared By		**Reviewed By**		**Authorised By**	
Hugh Shackcloth-Bertinetti		David Walker		David Walker	

CONTENTS

TABLES

1. INTRODUCTION

1.1 Overview

Premise has been commissioned by Ironbark Energy to prepare a Decommissioning and Rehabilitation Management Plan (DMP) to support the decommissioning of a solar farm development and rehabilitation of land at 131 Quia Road, Gunnedah (Lot 24 in DP 1235089), being located within the boundaries of approved Lot 22 in an unregistered plan of subdivision. The site is located in the Gunnedah Shire Council (GSC) Local Government Area (LGA).

1.2 Scope

The DMP has been prepared to respond to the request by GSC for a DMP prior to grant of consent. By virtue of necessity, this DMP is a draft only as it will need to be updated upon issue of development consent to reflect the specific conditions of consent (currently unknown).

It is expected that the consent will require provision of the final DMP 12 months prior to the cessation of the operation of the solar farm for Council approval at that time. Given the anticipated life of the solar farm (25 years) this approach is rational as it is expected matters such as approaches to recycling and methods of waste disposal of solar infrastructure will have progressed significantly from the current situation.

1.3 Purpose and Objectives

This DMP seeks to provide suitable procedures for managing the decommissioning of the solar farm project and rehabilitation of the solar farm site.

The objectives of this DMP are to

- Ensure measures are identified and implemented to minimise waste, manage waste and conserve energy during the decommissioning of the Project Facility.
- Ensure the preferred waste management hierarchy of avoidance, minimisation, reuse, recycling and finally disposal is followed by staff and contractors during decommissioning.
- Provide staff with an increased level of understanding and awareness of waste and resource use management issues for the decommissioning phase.
- Ensure appropriate measures are implemented to address relevant approval conditions (as yet unknown).
- Ensure appropriate measures are implemented to comply with all relevant legislation and other requirements as described in this DMP.

The DMP is to be finalise and adopted in consultation with relevant regulatory agencies prior to decommissioning activities commencing. It is a living document and is to be updated on a continual basis, ensuring that procedures for managing waste remain relevant to the proposed development.

2. PROJECT DESCRIPTION

The proposed solar farm represents electricity generating works and is to be located in the approximately 17.6 hectare, approved but unregistered Lot 22 in the north-eastern portion of the site. Lot 22 was approved under DA 2015/062 and modified under DA 2015/062.004. The solar farm is to have an output of approximately 14.7

megawatts (MW), comprising 147 modules each with an output of up to 100 kilowatts (kW). Each module is to be located within its own Community Title lot.

A Statement of Environmental Effects (SEE) for the proposed development was prepared pursuant to the relevant provisions of the *Environmental Planning and Assessment Act 1979* (the EP&A Act) and *Environmental Planning and Assessment Regulation 2021* (the EP&A Regulation). The SEE assesses the potential impacts of the proposed development and provides further detail of the project's layout and appropriate mitigation measures.

3. LEGISLATIVE CONTEXT

3.1 Protection of the Environment Operations Act 1997

The *Protection of the Environment Operations Act 1997* (POEO Act) aims to protect, restore and enhance the quality of the environment in NSW, while still having regard to ecologically sustainable development.

With respect to waste management, the POEO Act seeks to reduce risks to human health and to prevent degradation of the environment by the use of mechanisms that promote:

(i) *pollution prevention and cleaner production,*

(ii) *the reduction to harmless levels of the discharge of substances likely to cause harm to the environment,*

(iii) *the elimination of harmful wastes,*

(iv) *the reduction in the use of materials and the re-use, recovery or recycling of materials,*

(v) *the making of progressive environmental improvements, including the reduction of pollution at source,*

(vi) *the monitoring and reporting of environmental quality on a regular basis,*

The POEO Act further provides requirements for the management of waste and details offences related to the pollution. Section 148 of the POEO Act notably provides a duty for persons carrying on activity to immediately notify the appropriate regulatory authority, either the local Council or the NSW Environmental Protection Authority (EPA), after they are aware of an incident that material harm to the environment is caused or threatened. Material harm is defined under section 147 of the POEO act as follows:

(a) *harm to the environment is material if—*

(i) it involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial, or

(ii) it results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding $10,000 (or such other amount as is prescribed by the regulations), and

(b) *loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment.*

Offenses apply under Section 152 of the POEO Act for failing to notify pollution incidents in accordance with the provisions under Part 5.7.

Section 143 of the POEO Act additionally requires waste to be transported to a place that can lawfully accept it. It is an offence under Section 115 to negligently dispose of waste that may cause harm to the environment,

unlawfully transport and deposit waste (e.g., if waste is transported to a place that cannot be used as a waste facility for the waste).

Waste classifications are also defined in Section 49 of the POEO Act. Further detail on waste classification with respect to the EPA Waste Classification Guidelines 2014 (refer to **Section 3.4**).

3.2 Protection of the Environment Operations (Waste) Regulation 2014

The *Protection of the Environment Operations (Waste) Regulation 2014* (The POEO Waste Regulation) aims to protect human health and the environment and provides the framework for the waste industry in NSW, including the details of the licencing, reforms and the waste levy system. The POEO Waste Regulation prescribes the wastes (hazardous waste, restricted solid waste etc) that are automatically deemed to be land pollution and the person is guilty of an offence if the waste is illegally dumped.

3.3 Waste Avoidance and Resource Recovery Act 2001

The *Waste Avoidance and Resource Recovery Act 2001* aims to encourage the efficient use of resources and to reduce environmental harm. Waste management for the project must be conducted in accordance with the Act. The projects' waste management program needs to consider the hierarchy outlined in the Act:

(c) Avoidance of unnecessary resource consumption;

(d) Resource recovery (including reuse, reprocessing, recycling and energy recovery); and

(e) Disposal

This DMP seeks to implement measures to minimise the potential for material harm to the environment resulting from the construction, operation and decommissioning of the project. Waste management principles and tracking measures, contained in Appendix A and Appendix B of the project waste management plan (WMP), seek to ensure that waste produced by the project is appropriately managed and disposed of.

3.4 EPA Waste Classification Guidelines 2014

The EPA Waste Classification Guidelines 2014 (The Waste Classification Guidelines) is comprised of four parts:

- Part 1: Classifying waste;
- Part 2: Immobilisation of waste;
- Part 3: Waste containing radioactive material; and
- Part 4: Acid sulphate soils.

Part 1 of the guidelines provide details on the classification of waste in accordance with the definitions provided under Section 49 of Schedule 1 of the (POEO Act) including:

- Special waste;
- Liquid waste;
- Hazardous waste;
- Restricted solid waste;
- General solid waste (putrescible); and
- General solid waste (non-putrescible).

The types of waste likely to be produced by the proposed projects is detailed in Appendix A of the project WMP. Waste is to be tracked in accordance with the waste tracking register in Appendix B of the WMP, which includes a determination of its classification under the Waste Classification Guidelines.

3.5 Gunnedah Local Environmental Plan 2012

The *Gunnedah Local Environmental Plan 2011* (the LEP) provides local environmental planning provisions for land in Gunnedah and is based on the standard environmental planning instrument. The LEP provides development standards together with outlined the types of development that are prohibited and permitted within the local area. Some types of development are also regulated by particular State environmental planning policies.

Via the LEP, approved Lot 22 is zoned E4 – General Industrial.

Among other things, the LEP also provides standards to ensure that earthworks for which development consent is required will not have a detrimental impact on environmental functions and processes, neighbouring uses, cultural or heritage items or features of the surrounding land.

3.6 State Environmental Planning Policy (Transport and Infrastructure) 2021

State Environmental Planning Policy (Transport and Infrastructure) 2021 (the ISEPP) provides that electricity generating works, including solar farms, are permitted with consent in certain prescribed zones, including the E4 zone. The relevant provisions of the ISEPP prevail over any other environmental planning instrument (EPI) to the extent of any inconsistency via Section 2.7.

4. ROLES & RESPONSIBILITIES

The Site Manager (or other suitably qualified site management representatives as their replacement) with the authority to make immediate decisions, must be available during all hours of operation to ensure appropriate responses to incidents and emergencies are implemented.

The roles and responsibilities for site management representatives and workers at the development are detailed in **Table 1**

Table 1 – Roles and Responsibilities

Role	Responsibility
Site management representatives (i.e project/site/construction manager, environmental advisor and supervisors)	• Overall responsibility for site management and compliance with the Development Consent and relevant legislation; • Coordinate routine environmental site inspections and maintenance; • Coordinate necessary reporting and regulatory authority liaisons; • Record, notify, investigate and respond to any complaints and/or enquiries and, where necessary, develop and implement corrective actions; • Record, notify, investigate and respond to any environmental incidents and, where necessary, develop and implement corrective actions; • Oversee the implementation of this plan and provide adequate resources to enable implementation of this plan and

Role	Responsibility
	• Provide adequate environmental inductions/training to Workers regarding their requirements under this plan. • Ensure compliance with measures and requirements of applicable management plans.
Workers (Including all employees, personnel, contractors and subcontractors)	• Ensure familiarity, implementation and compliance with this plan; • Work in a manner that will not harm the environment or impact on surrounding receptors; • Report all environmental incidents and complaints to Site Management without delay; and • Report any inappropriate operational and/or site management practices to site management representatives without delay.

5. DECOMISSIONING MANAGEMENT

5.1 Operational Life of the Development

The operational lifespan for the development is currently expected to be approximately 25 years.

There is potential for the final operational life of the development to extend beyond this period, but this will likely be dependent on the timeframe of leasing arrangements, the lifespan of project equipment and infrastructure and subsequent requirements to attain approval for continued operation.

Other internal and external factors in the future may also result in a requirement to refine and modify the design of the project or require the project to cease operation prior to the operational lifespan being reached.

Although the operational lifespan of the development has the potential to change, it is expected that a condition of consent will require the preparation and finalisation of a DMP not less than 12 months before operations cease, to the satisfaction of Council. This approval process ensures that the DMP adequately captures decommissioning and rehabilitation requirements for the development and remains relevant to the state of the development at the time of decommissioning.

5.1 Decommissioning Hours and Employment

Except with the written agreement of GSC, decommissioning activities would be restricted to standard day time hours consistent with the Interim Construction Noise Guideline. That is, activities would be limited to:

- Monday to Friday 7.00 am to 6.00 pm
- Saturday 8.00 am to 1.00 pm
- No work on Sundays or Public Holidays

All employees and contractors would be informed of applicable decommissioning hours prior to commencing decommissioning activities.

It is anticipated that a maximum of approximately 20 workers will be located on-site during decommissioning. Workers would be sourced from the local area where practical with any non-local specialised contractors likely to be sourced from other areas of NSW.

5.2 Public Safety

Fencing of the project site will be maintained to prevent accidental intrusion into the subject site during decommissioning or rehabilitation works, noting that the application seeks approval for the installation of security fencing to control site access.

All personnel involved in the decommissioning phase will be required to complete a site induction prior to commencement of works to ensure the safety of workers and the public is prioritised.

The induction would address applicable Work Health and safety requirements applying at the time of the works and will ensure that personnel are aware of appropriate measure to minimise potential impacts to public safety. The induction would additionally address measures identified in associated management plans including the waste management plan and traffic management plan. Management plans together with codes of conduct would be reviewed and approved prior to commencing the decommissioning phase. This would ensure that personnel are aware of appropriate procedures to manage incidents and emergencies, together with appropriate measures to minimise harm resulting from decommissioning activities, including the potential for accidents involving vehicles, machinery, workers and pedestrians

5.3 Other Management Plans

As detailed in **Section 4** site management is responsible for ensuring compliance with measures and requirements of applicable management plans. This includes the implementation of this DMP together with measures outlined in other relevant management plans applying to the site.

Compliance with separate management plans such as the Traffic Management Plan and Waste Management Plan, will be required to minimise the potential for adverse impacts during the decommissioning phase of the project. It is anticipated that other subplans applicable to the decommissioning phase would be updated as required by conditions of consent, prior to decommissioning activities commencing.

5.4 Decommissioning Schedule

The following sections provide a preliminary outline of the decommissioning phase for the proposed development. The scope and requirements of the decommissioning scheduled is to be clarified following any future refinement of the project's design, any conditions of consent and further refined in accordance with the final approval of this DMP. This includes updates to the timeframes in response to detailed design of the development at construction certificate stage and any changes to statutory obligations made following the commencement of this plan. The DMP would be finalised and issued for approval 12 months prior to the cessation of operations providing additional detail to decommissioning activities and ensuring compliance with relevant regulatory requirements.

As detailed in **Section 5.1**, the project is anticipated to be operational for a period of 25 years. While it is considered unlikely that decommissioning of the site will be required prior to the completion of this period circa 2048 (i.e during the construction or early period of operation), the decommissioning process is anticipated to include the following steps:

1. Notification of project decommissioning, including the Distributed Network Service Provided and Council.

2. Deployment of Decommissioning plant and equipment

3. Grid Disconnection and De-energisation of the Solar plant
4. Disconnection of transformers and inverters.
5. Removal of PV modules and associated mounting structures.
6. Removal of electrical wiring.
7. Retainment of ancillary infrastructure.
8. Remediation of land.
9. Demobilisation of decommissioning plant and equipment.
10. Future Improvements and the decommissioning process.

These steps are further detailed in the following sections.

5.4.1 NOTIFICATION OF PROJECT DECOMMISSIONING

5.4.1.1 Distributed Network Service Provider

Essential Energy is the relevant electricity supply authority ((otherwise referred to as Distributed Network Service Provider (DNSP)) in the context of the project and has been involved in discussions with the developer prior to DA lodgement, together with notification of the project by Council at the point of DA lodgement, as required by Section 2.48 of ISEPP.

Notification would be provided to Essential Energy prior to the commencement of decommissioning activities. Notification is expected to occur prior to the approval of the final decommissioning plan which is to occur 12 months prior to the cessation of operations. Any comments received from Essential Energy would be taken into consideration and used to inform the scope and requirements of decommissioning activities.

5.4.1.2 Regulatory Authorities

It is expected that conditions of consent will require the final approval from Council for the decommissioning plan 12 months prior operations ceasing on site.

Consultation with any other regulatory body deemed relevant to the decommissioning phase will be completed prior to the completion of the final decommissioning plan. Comments and mitigation measures stipulated by regulatory authorities would be implemented as required and used to inform the scope and requirements of decommissioning activities.

Any permits, approvals and certificates necessary to complete the decommissioning phase would be obtained prior to the commencement of decommissioning activities.

5.4.2 DEPLOYMENT OF DECOMMISSIONING PLANT AND EQUIPMENT

The following plant and equipment have the potential to be used for decommissioning activities:

- Standard heavy vehicles for the transport of decommissioning plant and equipment and reusable project infrastructure (if required) (i.e. transformers for retrofitting).
- Excavators for completing earthworks and site stabilisation (if required).
- Loaders and skid steers for the movement of materials.

- Rollers and Compactors
- Water carts for dust suppression.
- Skip bins for storing waste during decommissioning.
- Truck and dog for the delivery of materials for rehabilitation (where required) and removal of waste, materials for recycling and / or reuse.
- Mobile cranes for the lifting of loads, dismantling of steel, and movement of heavy plant.
- Portable generator for temporary site power (if required).
- Hand power tools and equipment.
- Temporary portable infrastructure and amenities to support decommissioning activities (i.e site office, first aid and ablution facilities)

The scope of plant and machinery required would be determined and confirmed in consultation with relevant regulatory authorities and the landowner closer to the time of decommissioning.

There is potential for portable amenities including a site office, first aid and portable ablution facilities (i.e. chemical port-a-loo's) to be temporarily installed onsite for the duration of decommissioning works. These facilities (if required) would remain on site until the removal of all other project infrastructure preserving their use for workers onsite as far as practical. Where possible ablution facilities will be located on a trailer to allow for easy redistribution with accumulated waste disposed of offsite at an approved waste management facility.

5.4.3 GRID DISCONNECTION AND DE-ENERGISATION OF THE SOLAR PLANT

It is anticipated that Essential Energy crews will be brought to the site to assist with disconnecting mains cables and to isolate the grid connection to the site.

To ensure the safety of workers during decommissioning, all aspects of the project will be switched off in accordance with technical shut down instructions specified in operational manuals.

The steps for decommissioning would be confirmed in respect of applicable operational manuals and in consultation with Essential Energy but are anticipated to generally involve the following:

- High voltage (HV) alternating currents (AC) will be de-energised first, isolating project infrastructure from the grid before progressively shutting down each AC circuit.
- Breakers in any Ring Main Units (RMU) would be disconnected to isolate inverters and other connected infrastructure.
- Following the disconnection of AC, the DC connections can be safely isolated down to the string level by turning off DC isolator followed by removing fuses from cartridges located in each of combiner & inverter.
- Solar panels would then be individually disconnected along with associated monitoring and data circuits

5.4.4 DISCONNECTION OF TRANSFORMERS AND INVERTERS

Electrical cabling terminations made between the inverters, transformers and any combiners would be isolated and removed form the site following grid disconnection and de-energisation.

It is anticipated that inverters and transformers would be removed via crane onto a flatbed semi-trailer, prior to being transferred offsite for reuse or disposal. There is potential for the transformer to be reconditioned and refurbished for additional service life at another site for a separate development. Where the disposal of transformers and inverters is required, disposal arrangements would involve e-waste dismantling, recycling, scrapping and safe disposal by appropriately approved facilities confirmed at the time of decommissioning.

Concrete foundations used for the inverter and transformer would be excavated following their removal and transported offsite for recycling or disposal.

5.4.5 REMOVAL OF PV MODULES AND ASSOCIATED MOUNTING STRUCTURES.

Once the photo-voltaic modules are safely isolated, workers will remove them from the site. Where possible PV module removal would be undertaken progressively with panels removed in a reverse order from which they were installed. Panels would be collected and transferred onto flat-bed semi-trailers for transport to appropriately licenced facilities for PV module recycling.

Mounting structures including operating motors and PV support structures would be disassembled following the removal of PV modules, piling structures used to install the solar farm would be removed utilised hydraulic pile pull out machines where possible or otherwise excavated out. Mounting and piling structures would be collected and transferred offsite for recycling and disposal.

5.4.6 REMOVAL OF ELECTRICAL WIRING.

Trenches used for electrical wiring would be located using as built diagrams. Excavation surrounding the wiring would be undertaken to enable collection of buried underground cabling. Underground and Overhead cabling identified for removal would be collected and bound into coils for offsite disposal reuse or recycling.

Following the removal of wiring, trenches would be backfilled with excavated material. Backfilling would aim to fill excavated material in the reverse order to which it was extracted (i.e. backfilling of subsoil and then topsoil) to minimise disturbance. Ground moving and leveling equipment would be used for backfilling activities with compaction returning the ground level as close as possible to its pre-existing state.

5.4.7 RETAINMENT OF ANCILLARY INFRASTRUCTURE.

The retainment of ancillary features of the development would be discussed in consultation with the landowner and relevant regulatory authorities prior to the completion of decommissioning activities. Consultation would identify whether there is potential for some ancillary features of the development (e.g., site fencing) to be retained and reused within the site. Measures to minimise the potential impact of any retained infrastructure, including the visual impact of any above ground ancillary infrastructure retained, would be determined in consultation with relevant regulatory authorities and council.

5.4.8 REMEDIATION OF LAND

Given the relatively flat nature of the site, the need for large scale bulk earthworks is minimal. The installation and construction of project infrastructure will not require any significant land leveling or grading.

It is therefore anticipated that there would be relatively minor changes to the elevations and existing topography of the site resulting from decommissioning activities. The removal of mounting infrastructure and other project infrastructure is expected to have some minor impact on ground conditions during decommissioning. Rehabilitation of the site will include the use of earth moving equipment remediating the site through levelling and compact. The capability of the land would be restored during remediation to its original state suitable for its pre-existing agricultural use.

There are no existing utility services located within the project site and therefore no servicing reconnection requirements are considered necessary.

5.4.9 DEMOBILISATION OF DECOMMISSIONING PLANT AND EQUIPMENT

Following the completion of decommissioning and rehabilitation of the project site, all plant and equipment will be removed from the site. When all plant and equipment has been demobilised, the land utilised for the project will be returned back to its original form. The landowner at the time of decommissioning will take over management of the site, concluding the project.

5.4.10 FUTURE IMPROVEMENTS AND THE DECOMMISSIONING PROCESS.

The methodology, procedures and technology available at the time of preparing this DMP is subject to change in response to future improvements for managing decommissioning. Given the recent expansion of renewable energy projects it is anticipated that by the time decommissioning takes place, circa 2048, many other solar farm developments would have reached the end of the operational lifespan. Future improvements in the machinery, plant and methodology of decommissioning are anticipated to result from the decommissioning of other solar farm projects.

When the operational lifespan of the project is reached it is anticipated that such improvements would have been incorporated into the development of decommissioning plans, improving the efficiency of work and processes compared to the methods contained within this report. Compliance with the anticipated conditions of consent, including a final DMP approval 12 months prior to the cessation of operations, will provide flexibility to incorporate any relevant future improvements into this DMP.

5.4.11 REPAIR OF PUBLIC INFRASTRUCTURE

It is anticipated that dilapidation survey would be conducted following the cessation of operations to identify any public infrastructure damaged during the operation and decommissioning of the facility. Any damaged infrastructure identified would be repaired in consultation with local council.

Premise

premise.com.au

DENARY
QUANTITY SURVEYING

14 Bryson Avenue
KOTARA NSW 2289
P: (02) 4952 1087
M: 0423 605 647
E: info@denary.net.au
W: denary.net.au

13 November 2023

Ironbark Energy
C/- Premise
154 Peisley Street
ORANGE NSW 2280

Job Number: 863
Attention: David Walker

Dear David

RE: Stage 3 Solar Energy System Gunnedah NSW 2380

Please find attached the Cost Summary Report for the New Construction at the above mentioned property.

The Estimate total is $670,103 inclusive of GST but exclusive of Contingency, Land, Financial costs and Staging.

The estimate was based on the drawings prepareded by Premise. Please note that no Structural elements have been advised, therefore the estimate has been based on Denary's assumption of what will be required.

Disclaimer: This report is only intended for use as a NSW Council Cost Summary Report Development Application requirement only. Denary do not except any responsibility for use of this report other then it's intended purposes.

This report and any attachments are confidential and is intended solely for the attention and use of the named addressee(s).

If you have any queries regarding the Cost Summary Report please contact the undersigned.

Best Regards

Ryan Thomson
Principal
Denary
Bachelor of Construction Management
AAIQS - 6507

Trade Summary

DENARY QUANTITY SURVEYING

Project: Commercial
Details: COST OF CONSTRUCTION
Building: STAGE 3 SOLAR ENERGY SYSTEM

Description	Total
TRADE ELEMENTS	
SITE PREPARATION	20,056
COMMERCIAL CIVIL WORKS	247,863
PV PANELS & TRACKERS	7,899,763
SUBSTATION	5,880,600
SITE ACCESS INFRASTRUCTURE	379,524
SUB TOTAL	**14,427,806**
PROFESSIONAL FEES	216,417
CAPITAL INVESTMENT VALUE	**14,644,223**
PROFESSIONAL FEES - % OF CAPITAL INVESTMENT VALUE	0.0148
AREAS (m2)	
SITE	219,246
COMMERCIAL CIVIL AREA	141,113
DRIVEWAY & CAR PARKING	4,840
COST PER SQUARE METRE	
SITE PREPARATION	0.083
COMMERCIAL CIVIL WORKS	1.60
SITE ACCESS INFRASTRUCTURE	71.28

Trade Summary

DENARY QUANTITY SURVEYING

Project: Commercial **Details:** S7.12 LEVY
Building: STAGE 3 SOLAR ENERGY SYSTEM

Description	Total
TRADE ELEMENTS	
SITE PREPARATION	20,056
COMMERCIAL CIVIL WORKS	247,863
SITE ACCESS INFRASTRUCTURE	379,524
SUB TOTAL	**647,443**
PROFESSIONAL FEES	22,661
DEVELOPMENT COST	**670,103**
GST	**60,918**
CONSTRUCTION COST	627,387
PROFESSIONAL FEES - % OF DEVELOPMENT COST	0.0338
PROFESSIONAL FEES - % OF CONSTRUCTION COST	0.0361
AREAS (m2)	
SITE	219,246
COMMERCIAL CIVIL AREA	78,133
DRIVEWAY & CAR PARKING	4,840
COST PER SQUARE METRE	
SITE PREPARATION	0.09
COMMERCIAL CIVIL WORKS	3.17
SITE ACCESS INFRASTRUCTURE	78.41

Registered Quantity Surveyor's* Detailed Cost Report
Development Cost in excess of $1,000,000
*A member of the Australian Institute of Quantity Surveyors or a person who can demonstrate equivalent qualifications.

Development Application No: _____ Date: _____

Complying Development Application No: _____

Applicant's Name: Ironbark Energy C/- Premise

Applicant's Address: 154 Peisley Street ORANGE NSW 2800

Development: Stage 3 Solar Energy Systemk Development

Development Address: Ross Road GUNNEDAH NSW 2380

ESTIMATE DETAILS:

Professional Fees	$22,661	Excavation	$
% of Development Cost	3.38 %	Cost per m^3 or tonne of excavated area	$/m3
% of Construction Cost	3.61 %	Driveway/Carparking	$379,524
Demolition and Site Preparation	$20,056	Cost per square metre of driveway	$78.41 /m2
Cost per square metre of site area	$0.09 m2	Cost per square metre	$
Construction — Civil Works	$247,863	Fit-out- Commercial	$
Cost per square metre of area	$3.17/m2	Cost per m^2 of commercial area	$/m2
Construction .... Residential	$	Fit-out-Residential	$
Cost per square metre of residential area	$/m2	Cost per m^2 of residential area	$/m2
Construction – Retail	$	Fit-out – Retail	$
Cost per square metre of retail area	$/m2	Cost per m^2 of retail area	$/m2
Construction – Industrial	$	Fit-out-Industrial	$
Cost per square metre of floor area	$/m2	Cost per m^2 of industrial area	$/m2

DEVELOPMENT DETAILS:

Gross Floor Area-Civil Works	78,133 m2	Gross Floor Area - Fitout	m2
Gross Floor Area – Industrial	m2	Total Gross Floor Area	m2
Gross Floor Area – Residential	m2	Total Site Area	219,246 m2
Gross Floor Area – Driveway/Carparking	4,840 m2	Total Car Parking Spaces	
Total Development Cost	$670,103		
Total GST	$60,918		

I certify that I have:

- Inspected the plans the subject of the application for development consent or construction certificate.
- Prepared and attached an elemental estimate generally prepared in accordance with the Australian Cost Management Manuals from the Australian Institute of Quantity Surveyors.
- Calculated the development costs in accordance with the definition of development costs in S94A Development Contributions Plan of the Council of Gunnedah Shire at current prices.
- Included GST in the calculation of development cost.
- Measured gross floor areas in accordance with the Method of Measurement of Building Area in the AIQS Cost Management Manual Volume 1, Appendix A2.

Signed: 

Name: Ryan Thomson

Position and Qualifications: Principal – Denary Quantity Surveying, B. Con Mngt, AAIQS

Date: 13/11/2023

Contact Number: 0423605647

Premise Australia Pty Ltd
ABN: 82 620 885 832
154 Peisley St, Orange NSW 2800
PO Box 1963, Orange NSW 2800
(02) 63935000
orange@premise.com.au
premise.com.au

Our Ref: 221311_LET_001A.docx

16 November 2023

Prashanth Van Houten
Gunnedah Shire Council
PO Box 63 (63 Elgin Street)
Gunnedah NSW 2380

Dear Prashanth

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION – DEVELOPMENT APPLICATION NO.2023/026

Premise have prepared this letter on behalf of Ironbark Energy Pty Ltd to respond to a request for additional information issued by Gunnedah Shire Council (GSC) on 9 October 2023 in respect of development application 2023/026 in relation to the proposed development of Gunnedah Solar Farm at 131 Quia Road, Gunnedah.

The table contained in this letter has been prepared to respond to GSC's request and seeks to assist GSC's evaluation of the proposed development. We trust that the information included provides a sufficient response to the questions raised.

Please contact the undersigned with any questions.

Yours sincerely,

DAVID WALKER
General Manager – Central NSW

No. of Attachments – 7

1. Tabular response to points within Council's RFI letter
2. Cost Summary Report
3. Project Drawings
4. Waste Management Plan (WMP)
5. Decommissioning Management Plan (DMP)
6. Hygienist Clearance Certificate
7. Fill Material Validation Report

Table 1 – Response to Additional Information Requested

Additional Information Requested	Comments
1. *Confirm the estimated cost of development for the scope of works within the Development Application. The provided cost breakdown is inconsistent with Gunnedah Solar Farm Cost Estimate and section 4.5.2.2 of the Statement of Environmental Effects (SEE). It is noted that should the proposed development exceed $5 million it is considered as a regionally significant development.*	Cost Summary Reports (CSR) are provided as **Attachment 2**. These provide the estimated capital investment value (CIV), the estimated cost of construction (for the purpose of determining DA fees) and the cost of carrying out works (for the purposes of determining 7.12 contributions). The CSR confirms that the CIV of the proposed development exceeds $5 million. The SEE (221311_SEE_001A) details in Section 4.5.2.2 that the project is considered regionally significant development pursuant to clause 2.19(1) of *State Environmental Planning Policy (Planning Systems) 2021* together with Section 4.5(b) and Schedule 6 of the *Environmental Planning and Assessment Act 1979.* For the avoidance of doubt the development is considered as regionally significant development, representing electricity generating works with a CIV of more than $5 million. The consent authority for the project is therefore the applicable regional panel being the Northern Regional Planning Panel (NRPP).
2. *Provide clarification to the proposed setback of solar arrays from the indicated 25m Right of Carriage Way indicated along the western allotment boundary of Lot 22. It is noted that the side boundary setbacks of the proposed solar modules proposed for this application occur within the nominated 25 metres Right of Carriage Way.*	The attached amended project drawings (**Attachment 3**) provide a 25-metre wide Right of Carriage Way along the western boundary of unregistered Lot 22. The location of the proposed solar modules has been amended to ensure that adequate clearance is provided.
3. *Provide justification of the suitability of the Forge solar Glare Analysis results to confirm that the development does not generated any glare from the development from the southern array modules. The modelling for this area indicated zero data output to all receptors.*	DPE's Large-Scale Solar Energy Guideline provides detail for the consideration of glare in the assessment of solar projects. It should be noted that this guiding document states the following with respect to potential glare and glint impacts: *"However, significant glint and glare impacts are uncommon with large-scale solar energy developments for several reasons. Firstly, solar panels are designed to absorb light and typically reflect less than 2% of incoming sunlight. Secondly, glint and glare typically occur for short periods of time and require very specific geometric and atmospheric conditions. Lastly, many solar energy projects are now fitted with tracking panels that can be adjusted to avoid or minimise the geometric conditions required."* Notwithstanding the above, Appendix C of the guideline outlines requirements for preparing a glint and glare assessment including the use of results provided via a glint and glare analysis for each assessable receiver. Section 5.1.2 of the SEE details the completion of a Glare Assessment utilising Forge Solar's 'GlareGauge' Solar Glare Hazard Analysis Tool in accordance with the guideline requirement. The

Additional Information Requested	Comments
	tool was calibrated to reflect relevant details for each PV Array (Northern and Southern) including inputs and assumptions relating to axis tracking, backtracking, tracking axis orientation, max tracking angle, resting angle, ground coverage, ratio panel material and reflectivity together with the location of nearby receivers. With respect to the entire project, including both the northern and southern arrays, the analysis tool predicts that the following receptors have the potential to be impacted: • Quia and Ross Road (yellow Glare) • OP12, OP13 and OP 14 'Green Glare' • OP 14 with 'Green Glare' It should be noted that all of these receptors are situated to the north of the entire development and the results indicate that the potential for impact is restricted to the operation of the northern array. With respect to the southern array the tool does not predict any glare impacts to surrounding receivers (i.e zero data output for all receivers). The absence of predicted glare impacts for the southern array is likely a result of this arrays placement further south of the northern array, providing a greater separation distance to northern receivers.
4. *Development Application and Plans are to be updated to include the construction of the Electrical Substation as it is Council's understanding is that this structure is required for the operation of the proposed Solar Farm. Development plans are to be updated to include the location of the Substation and any Floor, Section and Elevation Plans for the proposed substation and amenities building(s) are to be submitted to Council, in accordance with Section 24 of the Environmental Planning and Assessment Regulations 2021;*	The project drawings (**Attachment 2**) detail the location of the proposed Electrical Substation and Management Compound in relation to the proposed solar farm. The layout of the substation is provided within the existing Ekistica Drawings included in the drawing set as drawing 01B_TP10.
5. *Address Clause 6.5 Essential Services of the Gunnedah Local Environmental Plan 2012, with reference to the proposed Ablution Block and it requirement for Service connection such as Water and Sewer. Water and Sewer Services to be provided with DA2015/062, which have not been vested with Council, are not considered to be part of the public network and cannot be used for the servicing of the development*	Section 4.5.1.6 of the SEE details that the proposed development has suitable vehicle access from the Southern side of Quia Road. No servicing connections with respect to the supply of water, the supply of electricity or the disposal and management of sewage is anticipated as a requirement for the project. As noted via the DCP compliance table in Appendix B of the SEE, in respect of clause 4.3 - Utilities and Services, the proposed solar farm does not generate a demand for water or sewer services. Notwithstanding the above, Premise acknowledge an inconsistency within Section 5.4 of the SEE which states *"Service connections for the solar farm would be limited to water and sewer connections to service ablution facilities for one staff member*

<table>
<tr><th>Additional Information Requested</th><th>Comments</th></tr>
<tr><td></td><td>together with an arrangement for connection of the system into the energy grid."

For the avoidance of doubt, no permanent ablution facility requiring water and sewer servicing connections is included as part of the proposed development.

It is anticipated that chemical port-a-loo's, as temporary portable ablution facilities, will be provided at strategic locations around the site for use by personnel during the construction and decommissioning phases of the project. Where possible these port-a-loo's will be located on a trailer to allow for easy redistribution. Waste from port-a-loo's will be disposed of offsite at a licensed treatment facility.

No ablution facilities are proposed for the operational phase of the project. During Operation visitors to the site would be limited to occasional maintenance staff.</td></tr>
<tr><td>6. Confirm Site access and Boundary Fence details with reference to Proposed Fencing Plan Drawing No. 01A_TP05, Revision A dated 13 January 2023. It is noted that access to Solar Plan is along Ross Road and from the unregistered Lot 23 – despite there being an access handle for the unregistered Lot 22.</td><td>As shown in the project drawings (Attachment 3) the proposed site access arrangement is located within the northwestern extent of the site near the intersection of Quia Road and Ross Road.

No fencing along the road frontage and northern boundary of unregistered Lot 22 is proposed.

Fencing of the solar farm footprint is setback within Lot 22 and is over 10 metres from Quia Road in compliance with the DCP.

A separate right of carriageway access arrangement exists to the northeast of the site via unregistered Lot 23. No access to the solar farm via unregistered Lot 23 is proposed.</td></tr>
<tr><td>7. Provide a justification for the Security Fence proposed to enclose the access handle for the unregistered Lot 22 from Quia / Ross Road. It is noted that in accordance with Clause 4.7 Gunnedah Development Control Plan 2012, Council's preference is that the barbed wire fence is not included in the fence design within the building setback.</td><td>Section 4, Clause 4.7 of the DCP states the following requirements with respect to fencing:

• Open work or storage areas visible from a public place or street must be fenced by masonry materials or pre-coloured metal cladding of minimum 2m height. Fencing is to be located behind the building setback.
• Security fencing must also be located behind the building setback area except when of a decorative nature to be integrated in the landscaped area.

Section 4 Clause 4.1 of the DCP provides the following requirements with respect to building setbacks:

<table>
<tr><th>Street</th><th>Minimum Setback (Primary and Secondary Frontage)</th><th>Side/Rear (non-street frontage)</th></tr>
<tr><td>Mullaley Road (Oxley Highway)</td><td>10m</td><td>BCA</td></tr>
<tr><td>Farrar Road</td><td>10m</td><td>BCA</td></tr>
<tr><td>Quia Road</td><td>10m</td><td>BCA</td></tr>
<tr><td>Blackjack Road</td><td>10m</td><td>BCA</td></tr>
<tr><td>Other</td><td>7.5m</td><td>BCA</td></tr>
</table>
NB. The street setback must be landscaped.

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8. *Provide a Waste Management Plan (WMP) for construction and decommissioning of the proposed Solar Farm. The WMP should include, but not be limited to, the estimated construction waste types and volumes and method of material disposal post decommission. This should include consideration of disposal to an appropriate Waste Management Facility and capacity of such facility to accommodate the potential waste volumes.*	A draft WMP for the project has been prepared for the project and is provided as (**Attachment 4**). The WMP includes measures to manage the potential types, volumes generated and disposal arrangements for waste generated by the project. The WMP will remain as a living document and be revised as required, including in response to any consent conditions later issued. This will ensure the WMP remains relevant to any given state of the proposed project and that waste continues to be appropriately managed.
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10. *Provide confirmation for Section 5.2.2 of the Statement of Environmental Effects, that the development may generate up to 255 heavy vehicle movements during construction based on the 50 heavy vehicles for solar panel deliveries (plus 10% contingency) and 100 additional vehicle movements indicated (plus 100% contingency). Please provide details of the nature of the 100 additional vehicles movements anticipated.*	Section 5.2.2 of the SEE has provided conservative estimates for the number of vehicle movements required for the proposed development. It is estimated that approximately 150 heavy vehicle deliveries to the site will be required for the proposed development. Based on the request provided by GSC, Premise note the potential for misinterpretation resulting from the use of 'contingency' and the content to which the percentage increases refer to. Relevant content of this section is reproduced below: *"The predicted figures in Table 4 are derived based on the following assumptions:* • *150 heavy vehicle deliveries to the site based on:* – *50 heavy vehicle solar panel deliveries based on:* • *14.7 MW requiring approximately 48,951 panels with a 10% contingency equating to 53,846 panels;* • *Each panel having a weight of 23.2 kilograms, equating to a total weight of 1,249,230 kg, or 1,249 tonnes;*

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	• *Standard semi-trailer with a capacity of 25 tonnes, each carrying 1,077 solar panels with a weight of 23.2 kilograms each; and* – *100 vehicles based on a similar amount of infrastructure as panels with a contingency of 100%."* To clarify the above estimations: • The use of contingency in the third dot point is made with respect to the amount of infrastructure requiring installation and does not refer to any additional vehicle movements required for the proposed development. It is anticipated that less than 50 heavy movements will be required for delivering 48,951 panels, but the assessment has conservatively estimated 50 movements, allowing for a 10% contingency where an additional 10% or 4,895 panels (totalling 53,846 panels) are required. • The use of contingency in the sixth dot point is made with respect to the number of movements required to install a similar amount of infrastructure to solar panel deliveries. The assessment has conservatively estimated that 100 vehicles (100% more than the 50 vehicles required for the solar panel deliveries), will be required to install the remainder of infrastructure within the site. For the avoidance of doubt the content of Section 2.2.2 does not estimate or stipulate the requirement for 255 heavy vehicle movements. It is anticipated that approximately 150 heavy vehicle movements, are required for the proposed development. No further information detailing the nature of an additional 100 vehicles is therefore required.
11. *Provide a Development Plan which indicates the location, number and species type of all tree and vegetation removal from the site. Page 2 of the Pre-Lodgement Application Form indicates that the proposal is for the tree removal. Note that should vegetation clearing exceed the thresholds within Section 7.2 of the Biodiversity Conservation Regulation 2017, the development application will require the inclusion of a Biodiversity Assessment Report (BDAR).*	Trees to be removed to enable the proposed development are identified within TP03 and TP04 of the amended project drawings (**Attachment 3**). Section 4.2 of the SEE provides a consideration of relevant provisions under Section 1.7 of the EP&A Act, including the application of Section 7.2 of the *Biodiversity Conservation Regulation 2017*. Vegetation removal is restricted to clearing of minimal grass and some scattered paddock trees. As outlined in the SEE the removal of vegetation is not anticipated to significantly affect threatened species or ecological communities. State Vegetation Type Mapping and ecological assessments prepared in support of previous DAs relating to the site have indicated that the footprint of the proposed solar farm is dominated by exotic grasses with scattered paddock trees. The minimum lot size of the site is 40 hectares pursuant to the LEP and the applicable clearing threshold is 1 hectare. As detailed in Section 4.2 of the SEE the development does not involve removal of vegetation on land identified on the Biodiversity Values Map and the extent of vegetation removal does not exceed one hectare.

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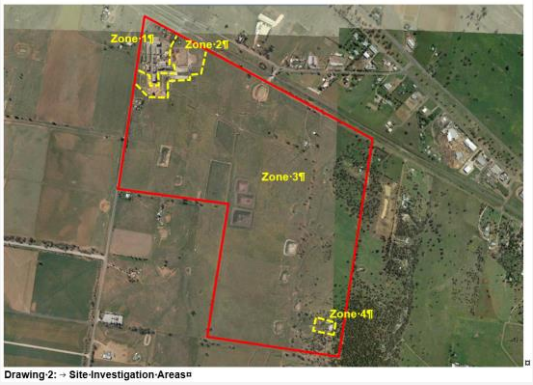
	Accordingly, a BDAR is not required to support the proposed development.
12. *Provide a detailed assessment of the contamination of the site in accordance with Chapter 4 of the State Environmental Planning Policy (Resilience and hazard) 2021. With reference to Section 4.5.2.3 of the SEE, Council have not been provided with a site validation report for the entire site (Lot 24) as referenced in Detailed Site Investigation, prepared by Geolyse, dated 10 March 2016, ref: 214358_REP _006C.docx, Version 2-Final, which was submitted as part of DA2015/062 and Condition F30 of the Development Consent.*	A detailed assessment of the contamination of the site was previously provided for determining the subdivision application to create Lot 24. Zone 3 as shown in the below figure contains portions of Lot 24, together with the entirety of Lot 21 22 and 23. Lot 22 forms the subject of the proposed solar farm application and is mapped within Zone 3 of the contamination assessment.  Drawing 2: Site Investigation Areas While the contamination assessment noted that the entire site, prior to subdivision (i.e Zone 1 through 4), contained residual contamination, no contamination has been identified as impacting Zone 3. As concluded by the contamination assessment: *"Overall, the majority of the site including the whole of Zone 3 is considered to be suitable for commercial / industrial land use(s) with respect to contamination impacts. Completion of recommended remedial and validation works to manage localised contamination impacts in Zones 1, 2 and 4 (described in Section 7.2 of this P2 DSI) will render the remainder of the site as suitable for commercial / industrial land uses."* In the context of clause 4.6(1) of the *State Environmental Planning Policy (Resilience and Hazards) 2021,* the conclusion of the contamination assessment provides that the land of Zone 3, is suitable for the proposed development. The project drawings (**Attachment 2**) identify that the extent of the proposed development is entirely contained within Zone 3 such that no further consideration of contamination impacts for the proposed development is required. Notwithstanding the above, it is understood that contamination in Zone 1, 2 and 4, situated in the northwestern extent of Lot 24 and southeastern extent of Lot 22 has been already been addressed through the completion of remediation and delivery of construction certificates. It is anticipated that Councils reference to a 'site validation report' may reflect requirements for a 'clearance certificate' and a report validation the completion of remediation. To dismiss the potential for this requirement: • A hygienist clearance certificate prepared by P. Clifton & associates 14 September 2017, was provided as part of a

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	previous development application and details the completion of a visual inspection certifying the removal of asbestos contamination from the former abattoir site. (**Attachment 6**). • A fill material validation report prepared by Geolyse (now Premise) in December 2017 was provided as part of a previous development application and details a review of site contamination following remediation (**Attachment 7**).
13. *Provide details of sediment and erosion controls that will be implemented for the life of the development to prevent scaring from concentrated water runoff from solar panels and module arrays.*	The project drawings (**Attachment 3**) detail the implementation of appropriate sediment and erosion controls for the proposed development. The following is noted with respect to the potential for scaring as a result of concentrated water runoff from solar panels and module arrays: • Investigations into hydrological response of solar farms, have determined negligible impacts to total runoff volumes and peak discharge rates when grass cover beneath panels is maintained (Cook and McCuen, 2013). • During operating hours, the constant movement of panels would lower the potential formation of stationary driplines and erosion risk, minimising the concentration of flow and allowing stormwater to be distributed over a widespread area. Notwithstanding the above there remains potential for the concentration of run off flow from panels to occur during non-operational periods, (i.e. at night, during extreme weather events or as a result of extensive maintenance activities). Consistent with the description provided in Section 5.12.2 of the SEE, ongoing maintenance of the site would minimise the potential for any significant erosion to occur. Maintenance would include inspections of site infrastructure and surface conditions of the site (i.e groundcover and erosion) and appropriate mitigation measures would be implemented as required. The sediment and erosion controls identified in the project drawings (**Attachment 3**) would assist to minimise the potential for adverse impact.
14. *Provide an assessment of the entirety of Lot 24 DP 1235089, being the whole development site, not limited to the location of the solar arrays and associated infrastructure, in accordance with State Environmental Planning Policy (Biodiversity and Conservation) 2021, Chapter 4, as the development site is greater than 1 hectare in size.*	Chapter 4 of the Biodiversity SEPP provides development assessment processes with respect to Koala Habitat protection and any 'approved koala plan of management'. The comment provided by GSC with reference to the assessment of the entirety of Lot 24 DP1235089 is taken to reference Clause 4.9 of the Biodiversity SEPP, which outlines the development assessment process where no approved koala plan of management for land applies: *(1) This section applies to land to which this Chapter applies if the land—* *(a) has an area of at least 1 hectare (including adjoining land within the same ownership), and* *(b) does not have an approved koala plan of management applying to the land.*

Additional Information Requested	Comments
	Subclause 4.9(2) through to 4.9(4) further provide the following provisions: *(2) Before a council may grant consent to a development application for consent to carry out development on the land, the council must assess whether the development is likely to have any impact on koalas or koala habitat.* *(3) If the council is satisfied that the development is likely to have low or no impact on koalas or koala habitat, the council may grant consent to the development application.* *(4) If the council is satisfied that the development is likely to have a higher level of impact on koalas or koala habitat, the council must, in deciding whether to grant consent to the development application, take into account a koala assessment report for the development.* With reference to Clause 4.9 of the Biodiversity SEPP, the land consists of an area of greater than 1 hectare. As such Clause 4.9 applies and Council must assess whether the development is likely to have any impact on koalas or koala habitat. In respect of Council's comment, Premise note that a Koala Assessment was previously submitted to address the application of Chapter 4 to the extent of the development contained Lot 23. While Lot 22 was excluded from the previous assessment, the content provided within Section 4.5.2.1.2 of the SEE is considered sufficient for GSC to make an assessment of potential impacts to koalas and koala habitat resulting from development within Lot 22. The assessment within the SEE concludes that impacts to koalas or koala habitat are unlikely given the limited extent of vegetation removal required to enable the proposed development.
15. Provide a Stormwater Management Plan (SMP) which addresses the 1 in 20 year storm event run off and the 1 in 100 year surface water runoff. Post development flows are not to exceed pre-development flows. The SMP should identify how Stormwater from the development will be managed;	Council has previously approved the construction of a stormwater management channel as part of the subdivision of the development site. As detailed in Section 5.12.2 of the SEE the proposed development is not anticipated to result in additional stormwater impacts to the site or locality. Rainfall on Lot 22 would continue to soak into the ground during the solar farm's operation and overland flows from the site form part of the mapped catchment for the approved stormwater channel. Accordingly, the proposal is not anticipated to require any revision or amendment to the current approved stormwater infrastructure.

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Our Ref: 221311_LET_001A.docx

16 November 2023

Prashanth Van Houten
Gunnedah Shire Council
PO Box 63 (63 Elgin Street)
Gunnedah NSW 2380

Dear Prashanth

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION – DEVELOPMENT APPLICATION NO.2023/026

Premise have prepared this letter on behalf of Ironbark Energy Pty Ltd to respond to a request for additional information issued by Gunnedah Shire Council (GSC) on 9 October 2023 in respect of development application 2023/026 in relation to the proposed development of Gunnedah Solar Farm at 131 Quia Road, Gunnedah.

The table contained in this letter has been prepared to respond to GSC's request and seeks to assist GSC's evaluation of the proposed development. We trust that the information included provides a sufficient response to the questions raised.

Please contact the undersigned with any questions.

Yours sincerely,

DAVID WALKER
General Manager – Central NSW

No. of Attachments – 7

1. Tabular response to points within Council's RFI letter
2. Cost Summary Report
3. Project Drawings
4. Waste Management Plan (WMP)
5. Decommissioning Management Plan (DMP)
6. Hygienist Clearance Certificate
7. Fill Material Validation Report

Table 1 – Response to Additional Information Requested

Additional Information Requested	Comments
1. *Confirm the estimated cost of development for the scope of works within the Development Application. The provided cost breakdown is inconsistent with Gunnedah Solar Farm Cost Estimate and section 4.5.2.2 of the Statement of Environmental Effects (SEE). It is noted that should the proposed development exceed $5 million it is considered as a regionally significant development.*	Cost Summary Reports (CSR) are provided as **Attachment 2**. These provide the estimated capital investment value (CIV), the estimated cost of construction (for the purpose of determining DA fees) and the cost of carrying out works (for the purposes of determining 7.12 contributions). The CSR confirms that the CIV of the proposed development exceeds $5 million. The SEE (221311_SEE_001A) details in Section 4.5.2.2 that the project is considered regionally significant development pursuant to clause 2.19(1) of *State Environmental Planning Policy (Planning Systems) 2021* together with Section 4.5(b) and Schedule 6 of the *Environmental Planning and Assessment Act 1979.* For the avoidance of doubt the development is considered as regionally significant development, representing electricity generating works with a CIV of more than $5 million. The consent authority for the project is therefore the applicable regional panel being the Northern Regional Planning Panel (NRPP).
2. *Provide clarification to the proposed setback of solar arrays from the indicated 25m Right of Carriage Way indicated along the western allotment boundary of Lot 22. It is noted that the side boundary setbacks of the proposed solar modules proposed for this application occur within the nominated 25 metres Right of Carriage Way.*	The attached amended project drawings (**Attachment 3**) provide a 25-metre wide Right of Carriage Way along the western boundary of unregistered Lot 22. The location of the proposed solar modules has been amended to ensure that adequate clearance is provided.
3. *Provide justification of the suitability of the Forge solar Glare Analysis results to confirm that the development does not generated any glare from the development from the southern array modules. The modelling for this area indicated zero data output to all receptors.*	DPE's Large-Scale Solar Energy Guideline provides detail for the consideration of glare in the assessment of solar projects. It should be noted that this guiding document states the following with respect to potential glare and glint impacts: *"However, significant glint and glare impacts are uncommon with large-scale solar energy developments for several reasons. Firstly, solar panels are designed to absorb light and typically reflect less than 2% of incoming sunlight. Secondly, glint and glare typically occur for short periods of time and require very specific geometric and atmospheric conditions. Lastly, many solar energy projects are now fitted with tracking panels that can be adjusted to avoid or minimise the geometric conditions required."* Notwithstanding the above, Appendix C of the guideline outlines requirements for preparing a glint and glare assessment including the use of results provided via a glint and glare analysis for each assessable receiver. Section 5.1.2 of the SEE details the completion of a Glare Assessment utilising Forge Solar's 'GlareGauge' Solar Glare Hazard Analysis Tool in accordance with the guideline requirement. The

Additional Information Requested	Comments
	tool was calibrated to reflect relevant details for each PV Array (Northern and Southern) including inputs and assumptions relating to axis tracking, backtracking, tracking axis orientation, max tracking angle, resting angle, ground coverage, ratio panel material and reflectivity together with the location of nearby receivers. With respect to the entire project, including both the northern and southern arrays, the analysis tool predicts that the following receptors have the potential to be impacted: • Quia and Ross Road (yellow Glare) • OP12, OP13 and OP 14 'Green Glare' • OP 14 with 'Green Glare' It should be noted that all of these receptors are situated to the north of the entire development and the results indicate that the potential for impact is restricted to the operation of the northern array. With respect to the southern array the tool does not predict any glare impacts to surrounding receivers (i.e zero data output for all receivers). The absence of predicted glare impacts for the southern array is likely a result of this arrays placement further south of the northern array, providing a greater separation distance to northern receivers.
4. *Development Application and Plans are to be updated to include the construction of the Electrical Substation as it is Council's understanding is that this structure is required for the operation of the proposed Solar Farm. Development plans are to be updated to include the location of the Substation and any Floor, Section and Elevation Plans for the proposed substation and amenities building(s) are to be submitted to Council, in accordance with Section 24 of the Environmental Planning and Assessment Regulations 2021;*	The project drawings (**Attachment 2**) detail the location of the proposed Electrical Substation and Management Compound in relation to the proposed solar farm. The layout of the substation is provided within the existing Ekistica Drawings included in the drawing set as drawing 01B_TP10.
5. *Address Clause 6.5 Essential Services of the Gunnedah Local Environmental Plan 2012, with reference to the proposed Ablution Block and it requirement for Service connection such as Water and Sewer. Water and Sewer Services to be provided with DA2015/062, which have not been vested with Council, are not considered to be part of the public network and cannot be used for the servicing of the development*	Section 4.5.1.6 of the SEE details that the proposed development has suitable vehicle access from the Southern side of Quia Road. No servicing connections with respect to the supply of water, the supply of electricity or the disposal and management of sewage is anticipated as a requirement for the project. As noted via the DCP compliance table in Appendix B of the SEE, in respect of clause 4.3 - Utilities and Services, the proposed solar farm does not generate a demand for water or sewer services. Notwithstanding the above, Premise acknowledge an inconsistency within Section 5.4 of the SEE which states *"Service connections for the solar farm would be limited to water and sewer connections to service ablution facilities for one staff member*

<table>
<tr><th>Additional Information Requested</th><th>Comments</th></tr>
<tr><td></td><td>together with an arrangement for connection of the system into the energy grid."

For the avoidance of doubt, no permanent ablution facility requiring water and sewer servicing connections is included as part of the proposed development.

It is anticipated that chemical port-a-loo's, as temporary portable ablution facilities, will be provided at strategic locations around the site for use by personnel during the construction and decommissioning phases of the project. Where possible these port-a-loo's will be located on a trailer to allow for easy redistribution. Waste from port-a-loo's will be disposed of offsite at a licensed treatment facility.

No ablution facilities are proposed for the operational phase of the project. During Operation visitors to the site would be limited to occasional maintenance staff.</td></tr>
<tr><td>6. Confirm Site access and Boundary Fence details with reference to Proposed Fencing Plan Drawing No. 01A_TP05, Revision A dated 13 January 2023. It is noted that access to Solar Plan is along Ross Road and from the unregistered Lot 23 – despite there being an access handle for the unregistered Lot 22.</td><td>As shown in the project drawings (Attachment 3) the proposed site access arrangement is located within the northwestern extent of the site near the intersection of Quia Road and Ross Road.

No fencing along the road frontage and northern boundary of unregistered Lot 22 is proposed.

Fencing of the solar farm footprint is setback within Lot 22 and is over 10 metres from Quia Road in compliance with the DCP.

A separate right of carriageway access arrangement exists to the northeast of the site via unregistered Lot 23. No access to the solar farm via unregistered Lot 23 is proposed.</td></tr>
<tr><td>7. Provide a justification for the Security Fence proposed to enclose the access handle for the unregistered Lot 22 from Quia / Ross Road. It is noted that in accordance with Clause 4.7 Gunnedah Development Control Plan 2012, Council's preference is that the barbed wire fence is not included in the fence design within the building setback.</td><td>Section 4, Clause 4.7 of the DCP states the following requirements with respect to fencing:

• Open work or storage areas visible from a public place or street must be fenced by masonry materials or pre-coloured metal cladding of minimum 2m height. Fencing is to be located behind the building setback.
• Security fencing must also be located behind the building setback area except when of a decorative nature to be integrated in the landscaped area.

Section 4 Clause 4.1 of the DCP provides the following requirements with respect to building setbacks:

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NB. The street setback must be landscaped.

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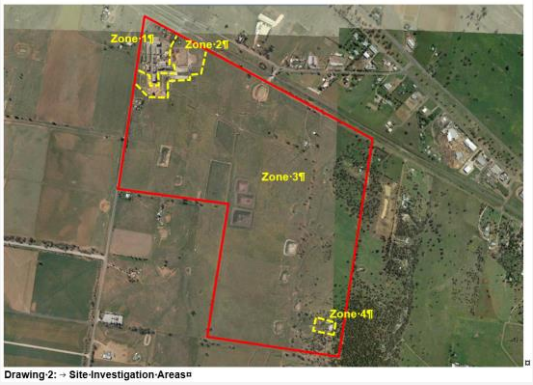
12. *Provide a detailed assessment of the contamination of the site in accordance with Chapter 4 of the State Environmental Planning Policy (Resilience and hazard) 2021. With reference to Section 4.5.2.3 of the SEE, Council have not been provided with a site validation report for the entire site (Lot 24) as referenced in Detailed Site Investigation, prepared by Geolyse, dated 10 March 2016, ref: 214358_REP _006C.docx, Version 2-Final, which was submitted as part of DA2015/062 and Condition F30 of the Development Consent.*	A detailed assessment of the contamination of the site was previously provided for determining the subdivision application to create Lot 24. Zone 3 as shown in the below figure contains portions of Lot 24, together with the entirety of Lot 21 22 and 23. Lot 22 forms the subject of the proposed solar farm application and is mapped within Zone 3 of the contamination assessment.  Drawing 2: Site Investigation Areas While the contamination assessment noted that the entire site, prior to subdivision (i.e Zone 1 through 4), contained residual contamination, no contamination has been identified as impacting Zone 3. As concluded by the contamination assessment: *"Overall, the majority of the site including the whole of Zone 3 is considered to be suitable for commercial / industrial land use(s) with respect to contamination impacts. Completion of recommended remedial and validation works to manage localised contamination impacts in Zones 1, 2 and 4 (described in Section 7.2 of this P2 DSI) will render the remainder of the site as suitable for commercial / industrial land uses."* In the context of clause 4.6(1) of the *State Environmental Planning Policy (Resilience and Hazards) 2021,* the conclusion of the contamination assessment provides that the land of Zone 3, is suitable for the proposed development. The project drawings (**Attachment 2**) identify that the extent of the proposed development is entirely contained within Zone 3 such that no further consideration of contamination impacts for the proposed development is required. Notwithstanding the above, it is understood that contamination in Zone 1, 2 and 4, situated in the northwestern extent of Lot 24 and southeastern extent of Lot 22 has been already been addressed through the completion of remediation and delivery of construction certificates. It is anticipated that Councils reference to a 'site validation report' may reflect requirements for a 'clearance certificate' and a report validation the completion of remediation. To dismiss the potential for this requirement: • A hygienist clearance certificate prepared by P. Clifton & associates 14 September 2017, was provided as part of a

Additional Information Requested	Comments
	previous development application and details the completion of a visual inspection certifying the removal of asbestos contamination from the former abattoir site. (**Attachment 6**). • A fill material validation report prepared by Geolyse (now Premise) in December 2017 was provided as part of a previous development application and details a review of site contamination following remediation (**Attachment 7**).
13. *Provide details of sediment and erosion controls that will be implemented for the life of the development to prevent scaring from concentrated water runoff from solar panels and module arrays.*	The project drawings (**Attachment 3**) detail the implementation of appropriate sediment and erosion controls for the proposed development. The following is noted with respect to the potential for scaring as a result of concentrated water runoff from solar panels and module arrays: • Investigations into hydrological response of solar farms, have determined negligible impacts to total runoff volumes and peak discharge rates when grass cover beneath panels is maintained (Cook and McCuen, 2013). • During operating hours, the constant movement of panels would lower the potential formation of stationary driplines and erosion risk, minimising the concentration of flow and allowing stormwater to be distributed over a widespread area. Notwithstanding the above there remains potential for the concentration of run off flow from panels to occur during non-operational periods, (i.e. at night, during extreme weather events or as a result of extensive maintenance activities). Consistent with the description provided in Section 5.12.2 of the SEE, ongoing maintenance of the site would minimise the potential for any significant erosion to occur. Maintenance would include inspections of site infrastructure and surface conditions of the site (i.e groundcover and erosion) and appropriate mitigation measures would be implemented as required. The sediment and erosion controls identified in the project drawings (**Attachment 3**) would assist to minimise the potential for adverse impact.
14. *Provide an assessment of the entirety of Lot 24 DP 1235089, being the whole development site, not limited to the location of the solar arrays and associated infrastructure, in accordance with State Environmental Planning Policy (Biodiversity and Conservation) 2021, Chapter 4, as the development site is greater than 1 hectare in size.*	Chapter 4 of the Biodiversity SEPP provides development assessment processes with respect to Koala Habitat protection and any 'approved koala plan of management'. The comment provided by GSC with reference to the assessment of the entirety of Lot 24 DP1235089 is taken to reference Clause 4.9 of the Biodiversity SEPP, which outlines the development assessment process where no approved koala plan of management for land applies: *(1) This section applies to land to which this Chapter applies if the land—* *(a) has an area of at least 1 hectare (including adjoining land within the same ownership), and* *(b) does not have an approved koala plan of management applying to the land.*

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	Subclause 4.9(2) through to 4.9(4) further provide the following provisions: *(2) Before a council may grant consent to a development application for consent to carry out development on the land, the council must assess whether the development is likely to have any impact on koalas or koala habitat.* *(3) If the council is satisfied that the development is likely to have low or no impact on koalas or koala habitat, the council may grant consent to the development application.* *(4) If the council is satisfied that the development is likely to have a higher level of impact on koalas or koala habitat, the council must, in deciding whether to grant consent to the development application, take into account a koala assessment report for the development.* With reference to Clause 4.9 of the Biodiversity SEPP, the land consists of an area of greater than 1 hectare. As such Clause 4.9 applies and Council must assess whether the development is likely to have any impact on koalas or koala habitat. In respect of Council's comment, Premise note that a Koala Assessment was previously submitted to address the application of Chapter 4 to the extent of the development contained Lot 23. While Lot 22 was excluded from the previous assessment, the content provided within Section 4.5.2.1.2 of the SEE is considered sufficient for GSC to make an assessment of potential impacts to koalas and koala habitat resulting from development within Lot 22. The assessment within the SEE concludes that impacts to koalas or koala habitat are unlikely given the limited extent of vegetation removal required to enable the proposed development.
15. Provide a Stormwater Management Plan (SMP) which addresses the 1 in 20 year storm event run off and the 1 in 100 year surface water runoff. Post development flows are not to exceed pre-development flows. The SMP should identify how Stormwater from the development will be managed;	Council has previously approved the construction of a stormwater management channel as part of the subdivision of the development site. As detailed in Section 5.12.2 of the SEE the proposed development is not anticipated to result in additional stormwater impacts to the site or locality. Rainfall on Lot 22 would continue to soak into the ground during the solar farm's operation and overland flows from the site form part of the mapped catchment for the approved stormwater channel. Accordingly, the proposal is not anticipated to require any revision or amendment to the current approved stormwater infrastructure.