



COUNCIL ASSESSMENT REPORT

WESTERN REGIONAL PLANNING PANEL

PANEL REFERENCE & DA NUMBER	PPSWES-165 – DA2022/50
PROPOSAL	Electricity generating works in the form of a 3MW solar photovoltaic farm coupled with energy storage systems (battery energy storage, thermal energy storage and hydrogen energy storage), as well as tank-based aquaculture (fish farm) and greenhouse horticulture. The proposal also includes demolition of existing electricity generating works and ancillary buildings.
ADDRESS	Lot 3 DP 858374, 210 Lake Cargelligo Road & Lot 102 DP 1253582 8427 Wyalong Road
APPLICANT	GRAPHITE ENERGY PTY LTD
OWNER	Peter and Elizabeth Skipworth
DA LODGEMENT DATE	09/11/2022
APPLICATION TYPE	Development Application Integrated Development - NPWS Act 1974 – Section.90
REGIONALLY SIGNIFICANT CRITERIA	Clause 2.19, Schedule 6 of <i>State Environmental Planning Policy (Planning Systems) 2021</i> : 5(a) <i>5 Private infrastructure and community facilities over \$5 million Development that has a capital investment value of more than \$5 million for any of the following purposes—</i> <i>(a) electricity generating works</i>
CIV	\$29,276,500.00 Inc. GST per QS Report
CLAUSE 4.6 REQUESTS	Nil
KEY SEPP/LEP	<ul style="list-style-type: none"> SEPP (Resilience and Hazards) 2021 SEPP (Transport and Infrastructure) 2021 SEPP (Planning Systems) 2021 SEPP(Primary Production) 2021 Lachlan Local Environmental Plan 2013;
TOTAL & UNIQUE SUBMISSIONS ISSUES KEY IN SUBMISSIONS	None (0)
DOCUMENTS SUBMITTED FOR CONSIDERATION	<ul style="list-style-type: none"> Combined Plan Set – Nettletontribe – Lake Sustainable Energy Precinct – 12543_DA-0001 – DA-0023. 06/10/2022 Statement of Environmental Effects - Currajong – Rev B – CA22015 - 04/11/2022

Attachment 1 - Development Application Assessment Report

Development Application No. 2022/50 – Lot: 3 DP: 858374 & Lot: 102 DP: 1253582, 120 Lake Cargelligo Road & 8247 Wyalong Road Lake Cargelligo

	<ul style="list-style-type: none"> • Aboriginal Cultural Heritage Impact Assessment Report – OzArk Environment and Heritage - Lake Sustainable Energy Precinct – V3.0 – 08/03/2023 • Biodiversity Assessment Report – OzArk Environment & Heritage - Lake Sustainable Energy Precinct – V3.0 – 26/10/2022 • Civil Engineering Package Development Application – Northrop – Lake Sustainable Energy Precinct - 220844 • DA Cost Estimate Report – GHQS Quantity Surveying & Project Management – 07/11/2022 • Water Services Strategy – Lake Sustainable Energy Precinct - GE109-RPT-58003 – Rev B - 07/07/2023 • Services Strategy – Lake Sustainable Energy Precinct – GE109-RPT-58002 – 22/07/2022 • Traffic Impact Assessment – PTC - Lake Sustainable Energy Precinct - Issue 2 – 12/10/2022 • DA2022/50 – Response to Additional Information Request – Graphite Energy - 7 July 2023 • Review of the Lake Cargelligo Bush Fire Management Plan and HV Installation Safety Management Plan - Rev C - 13 September 2021 • Geotechnical Investigation – Jeffery and Katauskas Pty Ltd – Ref 22606VTrpt – 22 January 2009 • Geotechnical Investigation – Aitken Rowe Geotechnical Engineering – 20 February 2023
SIC (S7.24)	N/A
RECOMMENDATION	Approval subject to Conditions
DRAFT CONDITIONS TO APPLICANT	Yes
SCHEDULED MEETING DATE	17 July 2023
PREPARED BY	Bryce Koop – Manager Town Planning – Lachlan Shire Council
DATE OF REPORT	13 July 2023

EXECUTIVE SUMMARY

- The proposal is for electricity generating works in the form of a 3MW solar photovoltaic farm covering 4 hectares, coupled with energy storage systems (battery energy storage, thermal energy storage and hydrogen energy storage), as well as tank-based aquaculture (fish farm) and greenhouse horticulture. The proposal also includes demolition of existing electricity generating facility including heliostat field and workshop building.
- The development is permitted with consent under Transport & Infrastructure SEPP Division 4 - Clause 2.36 and Lachlan Local Environmental Plan 2013.
- The subject site is legally described as Lot 3 DP 858374, 210 Lake Cargelligo Road & Lot 102 DP 1253582 8427 Wyalong Road and contains an existing energy generating facility per DA2008/63, operated by the applicant Graphite Energy identified by them as "*Lake Sustainable Energy Facility*". Vehicles access is to be retained from Lake Cargelligo Road.
- DA lodged 9 November 2022. Public exhibition finalised 20 December 2022 with no (0) submissions. Panel briefing held 11 April 2023. GTA's obtained from Heritage NSW 19 June 2023.

- No major issues with all matters dealt with in application or via recommended conditions of consent.
- No outstanding agency concerns. Recommended conditions have been provided and applied.
- The proposal is consistent with the public interest
- The relevant matters have been addressed in s4.15(1) of the assessment report with no issues of concern that are not able to be satisfactorily addressed.
- The application is recommended for approval the reasons outlined in the assessment report.

1. The Site and Proposal

a. Context

The development site falls 3.5km to the east of Foster Street (the main street of Lake Cargelligo). The site is approximately 235 hectares and has been used partly for electricity generating purposes through a Solar Thermal Power Generation and Research Facility that was established following approval in 2008 (DA2008/63) and the remaining for cropping and grazing agricultural undertakings.

The site is zoned RU1 – Primary Production, under *Lachlan Local Environmental Plan 2013*.

The development site is surrounded by a number of rural properties of similar size, some of which have dwellings and ancillary farm buildings. The nearest residences to the subject site are located a minimum 1.25km to the west with frontage to Lake Cargelligo foreshore.

b. Site Description

The subject site is legally described as Lot 3 DP 858374, 210 Lake Cargelligo Road & Lot 102 DP 1253582 8427 Wyalong Road and is known as “Burnlea” with a total area of 235.57 hectares.

The site currently has existing electricity generating infrastructure which was completed in 2011 and the site is being operated by Graphite Energy. This includes a grid connection point for exporting power and a 22KV underground transmission line. It also has number of farm buildings associated with primary production. It only has a small amount of scattered vegetation over the site as well as a number of farm water storage dams.

According to the applicant the following buildings and infrastructure are currently in place:

- *Grid connection to the Essential Energy network.*
- *Electrical plant buildings.*
- *Steam turbine generator plant building.*
- *Electrical transformers and equipment.*
- *Mechanical storage sheds and workshop.*
- *Office and amenities.*
- *Car port (open sided awning).*
- *Water storage tanks (500,000 litres).*
- *Laydown areas.*
- *Security fencing (2.5m high) around the perimeter of the existing site.*

An electricity transmission line was installed as part of the original solar thermal project and after it was built its ownership was transferred to Essential Energy as part of the

Network Connection Agreement. The current Network Connection Agreement runs up until March 2031 and can be extended at the request of Graphite Energy.

Activities at Graphite Energy's Lake Cargelligo Solar Thermal Power Generation and Research Facility have been ongoing since 2009, however the heliostat fields have been decommissioned and removed from the site in preparation for a more efficient solar PV farm and more advanced energy storage systems which will be integrated into the existing electricity generating facilities.

c. The Proposal

The Development Application seeks consent for demolition to including heliostat field and workshop building the approved under DA2008/63 to include a solar photovoltaic farm coupled with energy storage systems (battery energy storage, thermal energy storage and hydrogen energy storage), as well as tank-based aquaculture and greenhouse horticulture. Agricultural produce industry components are also proposed at the site (which is identified throughout the proposal as Lake Sustainable Energy Precinct), to connect sustainable energy production and agricultural systems.

The proposal includes new electricity generating works including a 3MW PV field at a height of 4 metres above the ground. Underneath the PV panels a high value crop is also proposed to be regularly grown and harvested to ensure there is no impact to ongoing primary production on the land. This method of PV construction and ongoing agriculture is known as Agri-voltaics.

Also proposed is a greenhouse, growing high value vegetable products (23t/ annum) and a tank-based fish farm growing local Lachlan River Murray Cod (50t/ annum) along with associated cold stores and processing facilities (The Applicant has chosen not to tick the integrated box for permit and has stated it will be obtained prior to use).

At any one time during the construction a maximum of 20 workers will be on site and during normal operations 10 full time equivalent staff positions will be employed.

Excess electricity will be exported into the network through the existing 22 kV underground connection (established as part of DA 2008/63), feeding into Essential Energy's Lake Cargelligo Zone Substation located to the west of the property. Essential Energy and Transgrid were contacted as part of the DA assessment process and their comments are included later in this report.

The existing gravel access track that provides access to the site from Lake Cargelligo Road will be retained and upgraded. A condition is recommended to address the upgrades.

The capital investment value of the project is \$29,276,500.00 as detailed by QS Report.

The proposed development layout is shown in Figure 1 below:

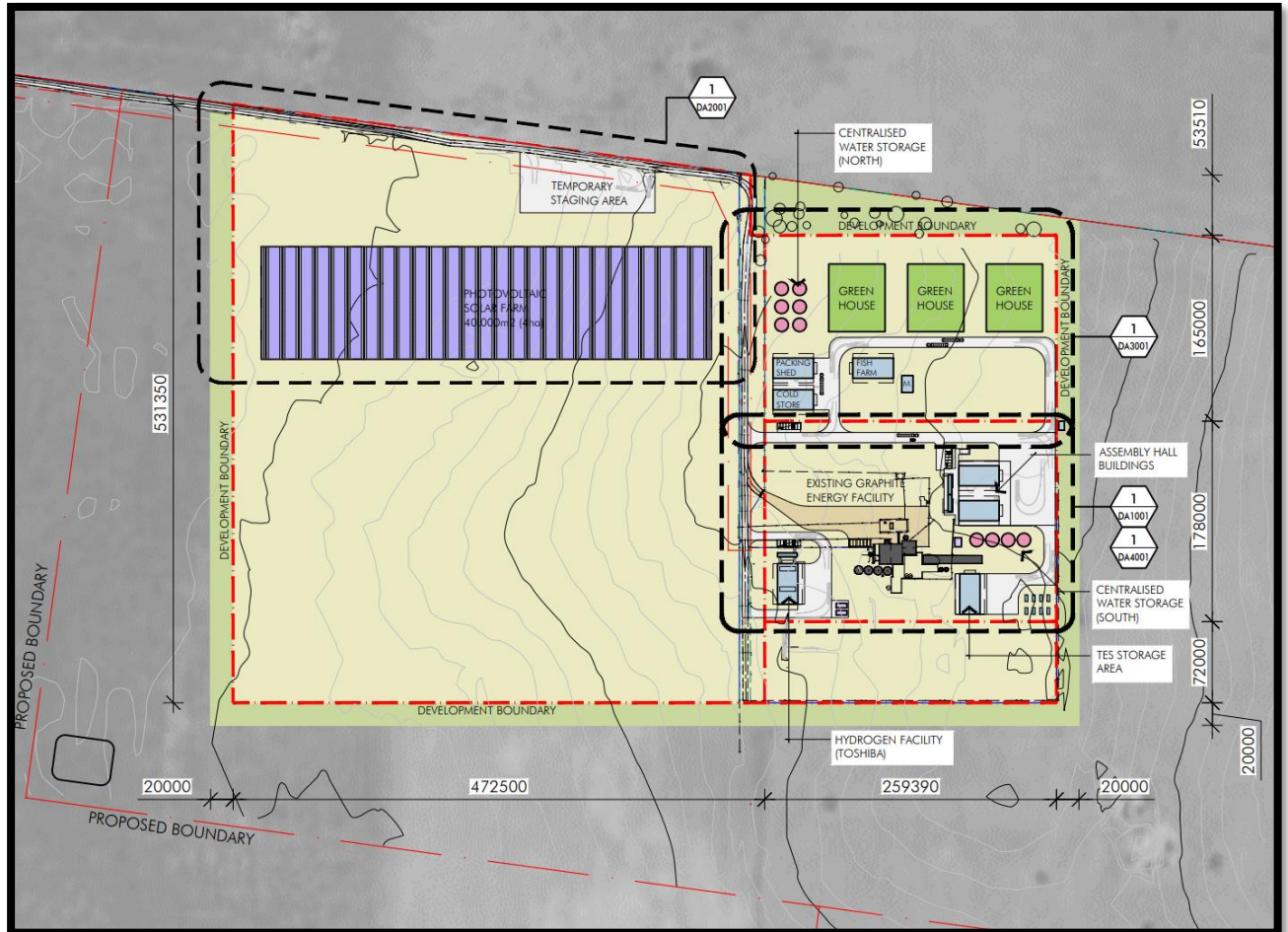


Figure 1 – Proposed Development Layout

The development is proposed to be undertaken in four (4) main construction stages. For clarification the proposal is not a Concept DA with Staging. The applicant is seeking consent for all aspects of the proposal, which will likely be broken down into a number of Construction Certificates.

- Stage 1 Works – Supporting infrastructure and buildings. Including:
 - Retention of existing Graphite Energy buildings, including electrical plant buildings, steam power generator plant building, electrical transformers and equipment shed, mechanical storage sheds and workshop, office and amenities, car port (open sided awning), laydown areas and water tanks capable of storing 550,000 litres.

- Demolition of remnant heliostat field and workshop (see demolition plan in Figure 2 below).

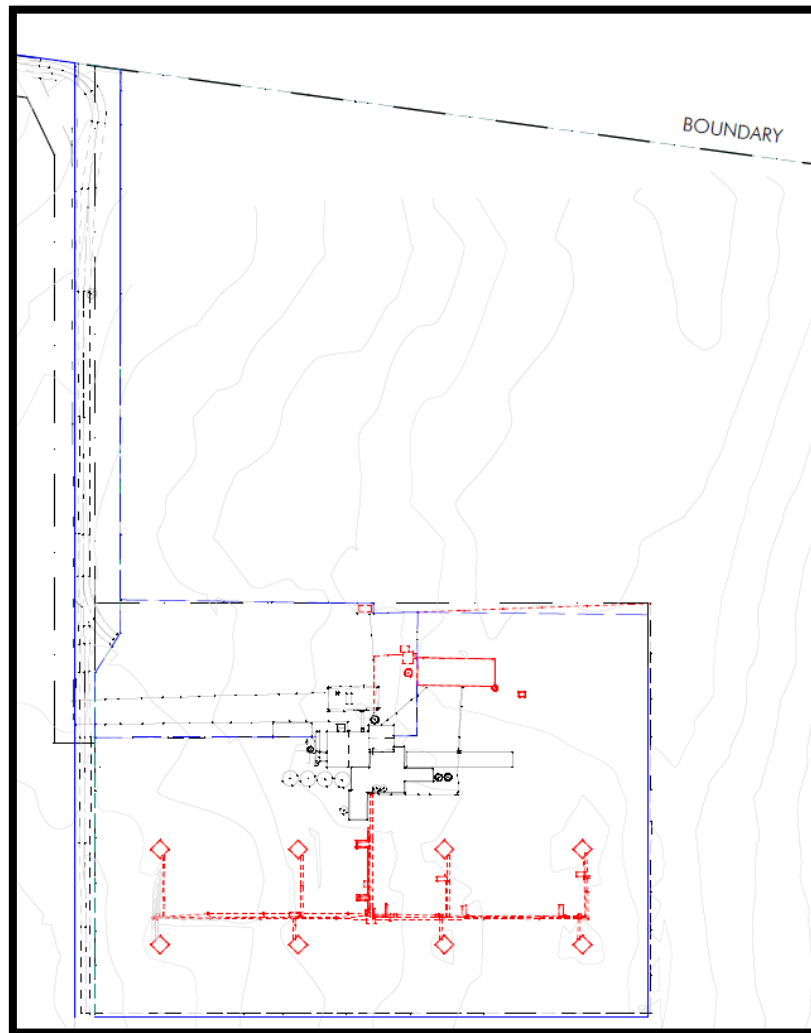


Figure 2 – Demolition Plan

- Erection of two (2) maintenance and assembly sheds, each comprising a gross floor area of 650m² GFA.
 - Internal road upgrades to connect buildings / operations.
 - Water storage upgrades, including four (4) x 250,000 litre above ground water tanks to capture rainwater generated from existing / new roof areas.
 - Security fencing around the perimeter of the PV field.
 - CCTV - At various points around the PV field.
 - Rehabilitation of disturbed areas.
- Stage 2 Works – PV solar field. Including:
 - Establishment of temporary staging area for the solar farm construction program to house temporary depot, administration and storage buildings / areas.
 - Site preparation for solar arrays (earthworks, access driveways and drainage), covering an area of approximately 4 hectares.
 - Installation of initial 3MW PV solar field, including steel post foundation system anchored into the ground and attached to approximately 12,000 x 300W PV panels.
 - Installation of new electrical connections to PV panels, large utility size inverters and step-up connectors / transformers and monitoring systems.

- DC and AC cabling - Underground cabling and electrical connections to be installed between solar arrays, panel inverters and linking the PV field to existing / proposed electrical switchboards and administration buildings on the site.
 - Upgrades and alterations to HV switchgear within existing / proposed electrical and administration buildings.
 - Connection of buildings to utilities (electricity, stormwater).
 - Internal electrical connections to connect PV to TES storage and hydrogen storage facility areas.
- Stage 3 Works – Greenhouse and fish farm. Including:
 - Greenhouse, comprising a new building with a gross floor area (GFA) of 9,000m2.
 - Fish farm, comprising a shed 650m2 GFA.
 - Packing shed, comprising 650m2 GFA.
 - Cold store, comprising a shed 650m2 GFA.
 - Additional water storage upgrades, including 6 x 250,000 litre above ground water tanks to capture rainwater generated from new roof areas.
 - Internal road upgrades to connect buildings / operations and internal electrical connections.
- Stage 4 Works – Energy storage facilities. Including:
 - Hydrogen generation facility, comprising a gross floor area of 650m2.
 - Thermal Energy System (TES) storage building, comprising a shed 650m2 GFA.
 - Outdoor hardstand area (approximately 1,000m2) for outdoor TES storage.
 - Internal road upgrades to connect buildings / operations.
 - Additional water storage upgrades, including 1 x 50,000 litre above ground water tank to capture rainwater from the hydrogen storage shed.

The proposed staged construction of the development is shown in Figure 3 below:

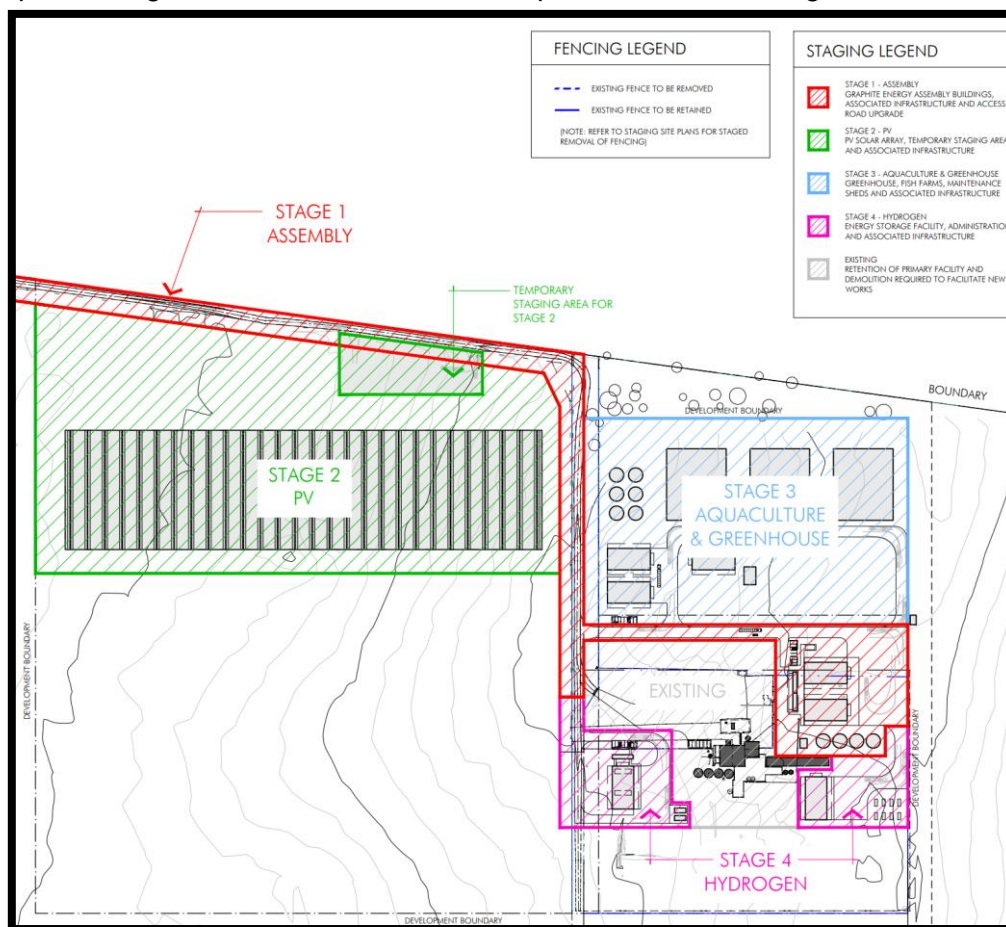


Figure 3 – Proposed Staged Construction Plan

Property Attributes

Property attributes detail the characteristics and any restrictions on the property. **Table 1** below outlines the property attributes of the development site.

Table 1 - Property Attributes

Attribute	Comment
Easements, restrictions or fill affected. List applicable attribute and how dealt with.	<p>Lot 3 DP 858374 & Lot 102 DP 1253582: The site has the following identified easements:</p> <p>A – Easement to flood, inundate & submerge “D406203”. Which is understood to be associated with the highest recorded containment of water within Lake Cargelligo. The development is outside this easement –</p> <p>B – Easement to flood, inundate & submerge “D406202” “The easement for flooding allows the authority administering water resources for Lake Cargelligo the right to flood, inundate and submerge that area of land from time to time as flow accumulates.” The development footprint is outside the flood footprint and is in a similar location to the existing development on the site.</p> <p>C – Ex. Minerals None of the above easements and restrictions raise concern with the development area as discussed further in the report.</p>
Ground Water	No
Indigenous Heritage	Yes – Aboriginal Heritage Impact Permit required.
Flood Prone under Council's mapping	No
Bushfire Prone under Council's mapping (BFPL)	Yes - Since BFPL Map was certified on 30 May 2023.
Geotechnical Issues	No
Contamination	No
Council reserves – site adjoins?	No
Improvements:	Electricity generating infrastructure and grid connection. Farm buildings and infrastructure.
Current Use:	Electricity Generating Works per 2008 approval and Primary Production
Prior Determinations:	<p>DA2008/63 – Solar Thermal Power Generation. Including erection of 16 towers, each with 140 tracking heliostats (mirrors). Each of these heliostats track the sun and transfer sunlight down the towers to a steam turbine which generates electricity. Electricity generated by the proposal transferred to the Lake Cargelligo power grid to be utilised by the Lake Cargelligo community.</p> <p>DA2021/25 – Two Lot Torrens Title Subdivision. Resizing the two lots. Lot 1 – 91.5 Hectares and Lot 2 – 129 Hectares.</p>
Surrounding Environment:	Predominately rural primary production and large lot residential.

d. Background

A pre-lodgement meeting was held in regards to the development site and future development prior to the lodgement of the application.

The development application was lodged on **9 November 2022**. A chronology of the development application since lodgement is outlined below including the Panel's involvement (briefings, deferrals etc) with the application:

Date	Event
9 November 2022	DA lodged – PAN-278415
22 November 2022	Exhibition of the application commenced. Exhibition of the application closed 20 December 2022
15 November 2022	DA referred to external agencies per CNR-48277
11 April 2023	Panel on-site briefing
05 May 2023	Applicant provided response to matters raised during briefing
27 June 2023	Determination meeting date (Deferred)
17 July 2023	Supplementary determination meeting date

Table 2: Chronology of the DA

2. Assessment – Statutory Considerations

Integrated Development

The following outlines which other approvals are required which would constitute “integrated development” for the purpose of Section 4.46 of the EP&A Act.

Issue	Yes	No	Issue	Yes	No
Coal Mine Subsidence Compensation Act 2017	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Petroleum (Onshore) Act 1991	<input type="checkbox"/>	<input checked="" type="checkbox"/>
*Fisheries Management Act 1994	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	POEO Act 1997	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Heritage Act 1977	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Roads Act 1993	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Mining Act 1992	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Rural Fires Act 1997	<input type="checkbox"/>	<input checked="" type="checkbox"/>
*NPWS Act 1974 – S.90	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Water Management Act 2000	<input type="checkbox"/>	<input type="checkbox"/>

Fisheries Management Act 1994

The applicant is not seeking (not ticked in application) Integrated Development Approval under *Fisheries Management Act 1994* and will be required to obtain a permit under Section 144 of the Fisheries Management Act 1994 to undertake aquaculture. The applicant provided the following statement when the matter was raised by Council:

“On Graphite Energy’s behalf, Adam Kerezsy (PhD Freshwater Ecology) has held a number of meetings with Fisheries NSW about the tank-based aquaculture facilities proposed at the Lake Sustainable Energy Precinct, with advice being received that a licence can be issued following the granting of Development Consent under the Environmental Planning and Assessment Act 1979. It is our understanding that Fisheries NSW generally wishes to receive the approved stamped plans issued as part of the Development Consent process showing the design and siting of tanks within buildings, in order to be in a position to issue the Aquaculture Permit.”

National Parks and Wildlife Act 1974

The applicant has engaged a suitably qualified consultant (OzArk Environment and Heritage) to assist with the preparation of the required matter. OzArk have provided a detailed Archaeological Heritage Report to address the requirements of the Clause 5.10, including a heritage impact assessment and the completion of required community engagement.

The AHIP Report has been reviewed by Heritage NSW and General Terms of Approval have been issued dated 19 June 2023.

Other Matters for Considerations

Issue	Yes	No
Is the development Designated Development (check schedule3 of EP&A Regs)? <u>Comment:</u> The proposal is not identified as Designated Development. The amount of hydroelectric power generated is not about listed thresholds in Schedule 3 – Designated Development – 24 Electricity generating stations.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Is the development Crown Development (check Division 4.6 EP&A Act)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is the development for a Concept DA (check Division 4.4 EP&A Act)? <u>Comment:</u> The matter has been clarified by the applicant.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is the development Regional Development (check PS SEPP)? <u>Comment:</u> The proposal has been referred to Western Regional Planning Panel for determination.	<input type="checkbox"/>	<input type="checkbox"/>
Is the development State Significant Development (check SEPP)? <u>Comment:</u> The cost of the proposal has been assessed in detail by a quantity surveyor and is not above the threshold. The proposal is not known to be SSD for any other reason.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is the development for an existing use (check Division 4.11 EP&A Act)? <u>Comment:</u> The applicant is not relying on the existing use for permissibility.	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Under Part 3 of Schedule 3 of the *Environmental Planning and Assessment Regulation 2021* certain “Electricity generating stations” are considered designated development:

“24 Electricity generating stations

(1) Development for the purposes of an electricity generating station is designated development if the station supplies or is capable of supplying—

(a) electrical power where—

(i) the associated water storage facilities inundate land identified as wilderness under the Wilderness Act 1987, or

(ii) the temperature of the water released from the generating station into a natural waterbody is more than 2 degrees centigrade from the ambient temperature of the receiving water, or

- (b) more than 1 megawatt of hydroelectric power requiring a new dam, weir or inter-valley transfer of water, or
 - (c) more than 30 megawatts of electrical power from other energy sources, including coal, gas, wind, bio-material, hydroelectric stations on existing dams or co-generation, but excluding solar powered generators.
- (2) Development for the purposes of an electricity generating station is designated development if the station supplies or is capable of supplying more than 30 megawatts of electrical power from a thermal solar powered generator.
- (3) Development for the purposes of an electricity generating station is designated development if the station—
 - (a) supplies or is capable of supplying more than 30 megawatts of electrical power from a photovoltaic solar powered generator, and
 - (b) is located on a floodplain.
- (4) This section does not apply to a power generation facility used exclusively for stand-by power purposes for less than 4 hours per week averaged over a continuous 3-month period.
- (5) In this section—
electricity generating station includes associated water storage, ash or waste management facilities.”

The proposed development involves both solar and hydroelectricity. However the Applicant has advised that the maximum capacity of power produced will be only 5MW. As such a condition will be imposed to ensure that this is the case.

In regards to hydrogen production the applicant has provided the following clarification to make it clear that the proposal is not identified as Designated Development or State Significant Development:

It is maintained throughout the Currajong SEE that hydrogen gas production and storage at the Lake Sustainable Energy Precinct is not of a type that triggers criteria for Designated Development or State Significant Development.

Section 3.3 of the Currajong SEE and Drawing SK0003 prepared by the Nettletontribe provides a description of the hydrogen facility at the Lake Sustainable Energy Precinct. It is important to note the hydrogen facility is relatively small-scale, commensurate with its Research and Development (R & D) purpose. The hydrogen facility is being designed to produce a maximum of one (1) tonne of hydrogen gas per day with typical production more likely to be 250kg / day. Based on the continual consumption of hydrogen gas at the Lake Sustainable Energy Precinct it is estimated that total hydrogen gas present at the site would be a maximum of 10 tonnes present on the site at any one time.

Having regard to the DPE Hydrogen Guideline 2023, the hydrogen components of the Lake Sustainable Energy Precinct are small-scale and do not present a risk to worker or public safety or any significant environmental risks for the following reasons:

- *Hydrogen gas storage will not exceed the 50 tonnes present threshold quantity in Schedule 15 of the Work Health and Safety Regulation 2017 that would quantify the premises as a major hazard facility under State Environmental Planning Policy (Planning Systems) 2021.*
- *The proposal is not a heavy industry and hydrogen production is ancillary to electricity generating works, extensive agriculture and aquaculture which are all permitted in the RU1 Primary Production zone.*
- *The proposal does not involve heavy industry storage and hydrogen storage is ancillary to electricity generating works, extensive agriculture and aquaculture which are all permitted in the RU1 Primary Production zone.*

- *The proposal does not involve the operation of a service station, highway service centre, freight transport or port facility.*

The maximum volume of hydrogen transported from the site via semi-trailer/tanker truck is approximately 1 tonne with up to 3 movements per week. This is reasonable given the facility is likely to produce between 250kg and 1 tonne per day and not store more than 10 tonnes at any one time.

Under Part 3 of Schedule 3 of the *Environmental Planning and Assessment Regulation 2021* certain “Aquaculture” is considered designated development:

- (1) Development for the purposes of aquaculture is designated development if it involves supplemental feeding in a tank or artificial waterbody that—*
 - (a) is located in an area of high watertable or acid sulfate soil, or*
 - (b) has a total water storage area of more than 10 hectares, or*
 - (c) has a total water volume of more than 400 megalitres.*
- (2) Development for the purposes of aquaculture is designated development if it involves supplemental feeding in a tank or artificial waterbody that—*
 - (a) has a total water storage area of more than 2 hectares or total water volume of more than 40 megalitres, and*
 - (b) is located on a floodplain or release effluent or sludge into a natural waterbody or wetland or into groundwater.*
- (3) Development for the purposes of aquaculture is designated development if it involves supplemental feeding in a natural waterbody, unless the development is a trial project that—*
 - (a) operates for a maximum period of 2 years, and*
 - (b) is approved by the Secretary of Regional NSW.*
- (4) Development for the purposes of aquaculture is designated development if it—*
 - (a) involves farming of species not indigenous to New South Wales, and*
 - (b) is located—*
 - (i) in or within 500 metres of a natural waterbody or wetland, or*
 - (ii) on a floodplain.*
- (5) Development for the purposes of aquaculture is designated development if it—*
 - (a) involves the establishment of new areas for lease under the Fisheries Management Act 1994 with a total area of more than 10 hectares, and*
 - (b) in the consent authority’s opinion, is likely to cause significant impacts—*
 - (i) on the habitat value or the scenic value, or*
 - (ii) on the amenity of the waterbody by obstructing or restricting navigation, fishing or recreational activities, or*
 - (iii) because another lease is within 500 metres.*
- (6) Development for the purposes of aquaculture is designated development if it involves the establishment of new areas for lease under the Fisheries Management Act 1994 with a total area of more than 50 hectares.*
- (7) This section does not apply to—*
 - (a) aquaculture development to which State Environmental Planning Policy (Primary Production) 2021, Part 2.5, Division 3 applies, or*
 - (b) artificial waterbodies located on relevant irrigation land.*
- (8) In this section—*

aquaculture means the commercial breeding, hatching, rearing or cultivation of marine, estuarine or fresh water organisms, including aquatic plants or animals such as fin fish, crustaceans, molluscs or other aquatic invertebrates.

Note—
State Environmental Planning Policy (Primary Production) 2021, section 2.26 declares—
 - (a) Classes 1 and 2 aquaculture development are not designated development, and*
 - (b) Class 3 aquaculture development is designated development.*

Tank based aquaculture is proposed as part of the development and is expected to produce up to 50 tonnes per annum of Murray Cod (native species to New South Wales). The volume of water in the tank will be below the listed thresholds. The site is not located in an area of high water table or on acid sulfate soils.

Under Part 3 of Schedule 3 of the *Environmental Planning and Assessment Regulation 2021* certain “Battery Storage Facilities” are considered designated development:

“7 Battery storage facilities

Development for the purposes of a battery storage facility is designated development if the facility supplies or is capable or supplying more than 30 megawatts of electrical power.”

The proposed development includes battery energy storage as well as thermal energy storage and hydrogen energy storage. The battery energy storage is a 650kWh Toshiba Lithium Titanium oxide battery. This is well below the threshold for designated development.

Section 4.14 – Bush Fire Prone Land

Under section 4.14(1) of the Act, the consent authority must be satisfied prior to making a determination for development on bush fire prone land, that the development complies with the document Planning for Bush Fire Protection (PBP) 2019.

In this regard, Section 8.3.5 of PBP 2019 contains requirements for solar farms and includes:

- A minimum 10m APZ for the structures and associated buildings/infrastructure.
- The APZ must be maintained to the standard of an IPA for the life of the development.
- Essential equipment should be designed and housed in such a way as to minimise the impact of bush fires on the capabilities of the infrastructure during bush fire emergencies. It should also be designed and maintained so that it will not serve as a bush fire risk to surrounding development.
- A Bush Fire Emergency Management and Operations Plan should identify all relevant risks and mitigation measures associated with the construction and operation of the wind or solar farm

Under Section 8.3.9, the development is identified as Hazardous industry (power generating works) and consultation is required with the NSW RFS, which can potentially require a bush fire design brief (BFDB) to be created.

The matter was referred to NSW RFS who appropriately considered the matter and requested that the development considers the requirements of *Planning for Bushfire Protection 2019* (PFBP 2019).

The NSW RFS have said on 15 November 2023:

“The development includes solar farm/s and power generating works (battery energy storage, thermal energy storage and hydrogen energy storage) which are considered as hazardous industries and must be addressed against the provisions of Planning for Bush Fire Protection (PBP 2019) and in particular Section 8.3.5 and Section 8.3.9.”

The applicant has provided the following comments on the matter:

It is understood the Lachlan Shire BFPLM has been updated to include Category 3 Grasslands, with the Graphite Energy Lake Sustainable Energy Precinct shown to be affected by the new grassland category.

Having regard to the RFS Planning for Bushfire Protection Guideline 2019, the Lake Sustainable Energy Precinct is located on predominantly cleared grassland with minimal slope and adequate asset protection zones already existing between bush fire hazard areas and existing / proposed buildings. No residential accommodation aspects are proposed at the Lake Sustainable Energy Precinct and the proposal is assessed as 'Other Development' as per Chapter 8 of the guideline.

The electricity generating works at the Lake Sustainable Energy Precinct are identified as a hazardous industry in Section 8.3.9 of the Planning for Bushfire Protection Guideline 2019 and all existing / proposed buildings are to be provided with safe access for emergency evacuation. A minimum of 250,000 litres of water is to be reserved at the premises for firefighting purposes. The primary access from the Lake Sustainable Energy Precinct to the public road network comply with Section 3.4 of the guideline and there are perimeter roads and property access roads existing / proposed that provide access for emergency vehicles.

Graphite Energy has developed bushfire management procedures in various corporate documents in order to achieve compliance with IPART and Essential Energy's requirements for high voltage electricity installations. A review of these bushfire management procedures has been undertaken by CNF and Associates dated 13 September 2021.

NSW RFS have since reviewed the proposal following re-referral and on 13 July 2023 provided response with general conditions.

Subject to compliance with NSW RFS conditions and PBP 2019 the development is satisfactory in regards to Section 4.14.

a. Planning Assessment

The consent authority is required to take into consideration the matters referred to in section 4.15 of the *Environmental Planning and Assessment Act 1979* as are of relevance to the development the subject of the application.

Relevant matters for consideration under s4.15 are:

- *State Environmental Planning Policy (Resilience and Hazards) 2021*
- *State Environmental Planning Policy (Transport and Infrastructure) 2021*
- *State Environmental Planning Policy (Planning Systems) 2021*
- *State Environmental Planning Policy (Primary Production) 2021*
- *Lachlan Local Environmental Plan 2013;*
- *Lachlan Development Control Plan 2013;*
- *Lachlan Shire 7.12 Contributions Plan 2015;*
- *Lachlan Shire Community Participation Plan 2019;*
- The likely impacts of the development, including environmental impacts on the natural and built environment and social and economic impacts in the locality;
- The suitability of the site for the development;
- Any submissions made in accordance with the *Environmental Planning and Assessment Act & Environmental Planning and Assessment Regulation (the Regulation)*, and
- The public interest.

a. Section 4.15(1)(a) The Provisions Of Any Environmental Planning Instrument

i. State Environmental Planning Policy (Resilience and Hazards) 2021

The aim of SEPP R&H is to provide for the remediation of contaminated land for the purpose of reducing the risk of harm to human health or environment and requiring that any remediation work meet certain standards and notification requirements.

The proposed hydrogen generation and storage does not trigger additional agency approval and does not raise any concerns as offensive or hazardous development under SEPP R&H.

The site is not identified on Council's contaminated land register and there is no noticeable sign on site of any historical farming contamination given the area was used for cropping and more recently through the development for energy generating facilities.

Under Chapter 4 SEPP R&H contamination and remediation must be considered in the determination of a development application.

4.6 Contamination and remediation to be considered in determining development application

- (1) *A consent authority must not consent to the carrying out of any development on land unless—*
 - (a) *it has considered whether the land is contaminated, and*
 - (b) *if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out, and*
 - (c) *if the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.*
- (2) *Before determining an application for consent to carry out development that would involve a change of use on any of the land specified in subsection (4), the consent authority must consider a report specifying the findings of a preliminary investigation of the land concerned carried out in accordance with the contaminated land planning guidelines.*
- (3) *The applicant for development consent must carry out the investigation required by subsection (2) and must provide a report on it to the consent authority. The consent authority may require the applicant to carry out, and provide a report on, a detailed investigation (as referred to in the contaminated land planning guidelines) if it considers that the findings of the preliminary investigation warrant such an investigation.*
- (4) *The land concerned is—*
 - (a) *land that is within an investigation area,*
 - (b) *land on which development for a purpose referred to in Table 1 to the contaminated land planning guidelines is being, or is known to have been, carried out,*
 - (c) *to the extent to which it is proposed to carry out development on it for residential, educational, recreational or child care purposes, or for the purposes of a hospital—land—*
 - (i) *in relation to which there is no knowledge (or incomplete knowledge) as to whether development for a purpose referred to in Table 1 to the contaminated land planning guidelines has been carried out, and*
 - (ii) *on which it would have been lawful to carry out such development during any period in respect of which there is no knowledge (or incomplete knowledge).*

The land is identified as having had development carried out for a purpose referred to in Table 1 of the Contaminated Land Planning Guidelines being agricultural/horticultural activities and

electrical works. Pursuant to SEPP R&H there is therefore reason to consider that the land could be disturbed and the development could be undertaken on potentially contaminated land.

The applicant addressed the matter in the SEE stating:

The proposal does not involve hazardous or offensive development for the following reasons:

- *The property “Burnlea” is isolated from existing or likely future urban development in the locality.*
- *The electricity generating works are surrounded by broad-acre farming operations, which will not be significantly impacted upon by any agricultural or sustainable energy storage activities carried out on the site.*
- *The existing / proposed facilities on the site will generally not emit any polluting discharge, including noise, odour or surface water contamination on other land.*
- *The existing / proposed facilities on the site generally do not pose a significant risk in the locality to human health, life or property, or to the biophysical environment.*
- *There are no activities proposed to be conducted on the site that are considered to impact human health, life or property, or the biophysical environment.*

Further clarification has been sought from the applicant regarding contamination matters given previous and current uses, with the following response provided:

That part of the Burnlea property that accommodates the Lake Sustainable Energy Precinct was historically used for broadacre cropping. Prior to the occupation of the site by Graphite Energy there were no farm buildings on the site, including sheep shearing sheds, dips or other activities that could have caused contamination at the site.

From around 2009 the site was improved by Graphite Energy with new buildings and modern facilities. No buildings or structures comprise asbestos or other toxic materials. The existing towers comprise concrete footings and galvanised mild steel frames, with the contents of the energy storage boxes on top of the towers being graphite, which is inert and non-toxic. The diesel fuel area is the only area that has potential to have caused contamination of soils. Inspection of this area shows a concrete bunded surfaced refuelling area with no evidence of contamination from spills.

Graphite Energy has undertaken extensive soil sampling taken across two separate geotechnical reports for the site which are attached. In addition to the results of previous soil testing, 50 excavation pits associated with ACHAR investigations and site inspections were undertaken over the site which did not reveal any evidence of site contamination.

Whilst a Phase 1 investigation document has not been provided, the relevant matters have been addressed through the proponent’s additional documentation which includes the Geotechnical Report pre the original development (2009) on the site and another undertaken in preparation for the stage 1 construction works (2023). The applicant has clearly considered the required matters and there is a record of on-site soil investigations which show no items of concern.

Appropriate conditions will be applied in regards to potentially hazardous or dangerous material on-site.

Based on the above the development satisfies the objectives of SEPP R&H and the development is fit for purpose, subject to conditions being imposed to ensure all works cease in the event of unexpected findings during development phase. At this time (if unexpected findings were encountered) testing would be required and compliance with the recommended remediation works by the developer.

ii. State Environmental Planning Policy (Transport and Infrastructure) 2021

Division 4 - Clause 2.36 of the SEPP applies to the development;

*Division 4 Electricity Generating Works and Solar Energy Systems - 2.36
Development permitted with consent*

(1) Development for the purpose of electricity generating works may be carried out by any person with consent on the following land—

(a) in the case of electricity generating works comprising a building or place used for the purpose of making or generating electricity using waves, tides or aquatic thermal as the relevant fuel source—on any land,

(b) in any other case—any land in a prescribed non-residential zone.

prescribed non-residential zone means any of the following land use zones or a land use zone that is equivalent to any of those zones—

(a) RU1 Primary Production,

By virtue of the SEPP development for the purpose of electricity generating works is permitted with consent on any land in a prescribed non-residential zone, by any person. The RU1 zone is a prescribed non-residential zone. As the SEPP is a State document the legislation within it overrides any legislation within a Local Environmental Plan with which it may conflict, in this case being Lachlan Local Environmental Plan 2013 which prohibits electricity generating works in the zone.

No further parts of the SEPP apply as the existing development and site contain an electricity grid connection and existing vehicle access approved per DA2008/63.

iii. State Environmental Planning Policy (Planning Systems) 2021

Clause 2.19 of SEPP Planning Systems applies to the development:

2.19 Declaration of regionally significant development:

section 4.5

(b) (1) Development specified in Schedule 6 is declared to be regionally significant development for the purposes of the Act.

(2) However, the following development is not declared to be regionally significant development—

(a) complying development,

(b) development for which development consent is not required,

(c) development that is State significant development,

(d) development for which a person or body other than a council is the consent authority,

(e) development within the area of the City of Sydney.

Schedule 6 of SEPP Planning Systems identifies the following:

5 Private infrastructure and community facilities over \$5 million Development that has a capital investment value of more than \$5 million for any of the following purposes—

*(a) air transport facilities, **electricity generating works**, port facilities, rail infrastructure facilities, road infrastructure facilities, sewerage systems, telecommunications facilities, waste or resource management facilities, water supply systems, or wharf or boating facilities,*

(b) affordable housing, childcare centres, community facilities, correctional centres, educational establishments, group homes, health services facilities or places of public worship.

The development proposal meets the criteria for regionally significant development as outlined in the Planning Systems SEPP (PS SEPP) under Section 2.19(1) and Schedule 6.5. According to this section, development listed in Schedule 6 is considered regionally significant if it has a capital investment value (CIV) of more than \$5 million, and the Project's CIV is detailed as \$29,276,500.00 (Including GST). This has been confirmed through the submission of a quantity surveyors report. The proposed development has a capital investment value of less than \$30 million and is not located in an environmentally sensitive area of State significance. Therefore the proposed development is not considered State Significant Development.

iv. State Environmental Planning Policy (Primary Production) 2021

Chapter 2 – Primary production and rural development

The aims of this Chapter are as follows—

(a) to facilitate the orderly economic use and development of lands for primary production,

(b) to reduce land use conflict and sterilisation of rural land by balancing primary production, residential development and the protection of native vegetation, biodiversity and water resources,

(c) to identify State significant agricultural land for the purpose of ensuring the ongoing viability of agriculture on that land, having regard to social, economic and environmental considerations,

(d) to simplify the regulatory process for smaller-scale low risk artificial waterbodies, and routine maintenance of artificial water supply or drainage, in irrigation areas and districts, and for routine and emergency work in irrigation areas and districts,

(e) to encourage sustainable agriculture, including sustainable aquaculture,

(f) to require consideration of the effects of all proposed development in the State on oyster aquaculture,

(g) to identify aquaculture that is to be treated as designated development using a well-defined and concise development assessment regime based on environment risks associated with site and operational factors.

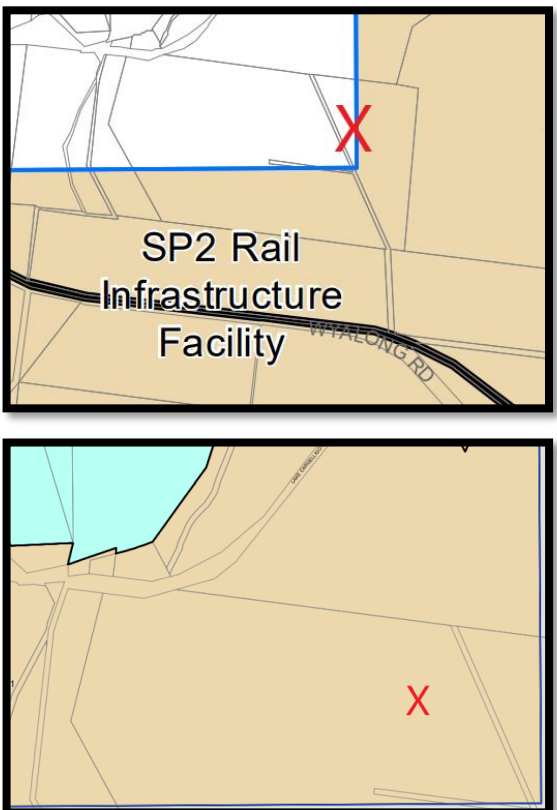
In Section 2.8, it is established that land is deemed State significant if it is included in Schedule 1. However, as of time of lodgement of the Development Application, Schedule 1 to this SEPP has yet to be finalised. Therefore, the development is not located on State significant agricultural land.

The proposed use of the site will aid a well-established energy generation and innovative business by providing a first class facility, expanding the area that the existing development has established, whilst also incorporating intensive agriculture (greenhouse and under PV) and aquaculture (fish farm) within the new development.

As a result, it will greatly expand on the Lake Sustainable Energy Precinct, which will support the longevity and viability of the business including agricultural produce (fish, fruit, vegetables and grains/seeds) undertakings on site and support the wider agricultural industry through the development of leading edge products such as hydrogen batteries as an alternative fuel supply.

v. Lachlan Local Environmental Plan (LLEP) 2013

Part 2 Permitted or prohibited development & Land Use Table

Development Characterisation	<p>electricity generating works means a building or place used for the purpose of— (a) making or generating electricity, or (b) electricity storage.</p> <p>Tank-based aquaculture means aquaculture undertaken exclusively in tanks, but not including natural water-based aquaculture.</p> <p>Intensive agriculture – Horticulture means the cultivation of fruits, vegetables, mushrooms, nuts, cut flowers and foliage and nursery products for commercial purposes, but does not include a plant nursery, turf farming or viticulture.</p>
Land Use Zone	<p>The site is identified on Land Zoning Map – Sheet LZN_1A and Sheet LZN_1 as RU1 Primary Production:</p> 
Zone Objectives	<ul style="list-style-type: none"> • To encourage sustainable primary industry production by maintaining and enhancing the natural resource base. • To encourage diversity in primary industry enterprises and systems appropriate for the area. • To minimise the fragmentation and alienation of resource lands.

	<ul style="list-style-type: none"> <i>To minimise conflict between land uses within this zone and land uses within adjoining zones.</i>
Land Use Table - Is Proposal Permissible In Zone?	<p><i>Electricity generating works (EGW)</i> are prohibited within the RU1 Primary Production Zone, as it is not a use listed as permitted with consent is not listed in Item 2 (permitted without consent) or Item 3 (permitted with consent) of the Land Use Table, therefore prohibited.</p> <p>This component of the proposal is however permitted with consent under Section 2.36 <i>State Environmental Planning Policy (Transport & Infrastructure) 2021</i> and the site is already developed with electricity generating works under DA2008/63.</p> <p>There a number of ancillary components to EGW to be undertaken as part of the development being Battery storage system, Thermal storage system and Hydrogen storage system. This has been addressed by the applicant:</p> <p style="padding-left: 40px;"><i>To be clear, TES assembly is to be regarded as an ancillary component of the electricity generating works being carried out at the Lake Sustainable Energy Precinct as well as the ongoing R&D components being trialled in relation to sustainable powering of farming systems, all of which are permitted on land zoned RU1 Primary Production.</i></p> <p><i>Tank-based aquaculture, which is a form of aquaculture, is permitted with consent within the RU1 Primary Production Zone under LLEP 2013.</i></p> <p><i>Intensive plant agriculture – Horticulture</i> is permitted within the RU1 Primary Production Zone under LLEP 2013.</p>
Is Proposal Consistent With Zone Objectives? (Clause 2.3(2))	<p>Under clause 2.3(2) of LLEP 2013, the consent authority must have regard to the objectives for development in the zone.</p> <p>The following comments are made regarding each zone objectives;</p> <ul style="list-style-type: none"> <i>To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.</i> <p>Part of the site currently being used for cropping production and grazing will be used for the expansion to the Lake Sustainable Energy Precinct in the form of tank-based aquaculture and greenhouse horticulture. Agricultural produce industry components are also proposed at the site</p> <p>As the development will also incorporate primary production on the site through plantings underneath PV panels it will not reduce the natural resource base and it will actually increase the amount of agricultural outputs due to the intensive nature.</p> <p>There is also scope for grazing and cropping to continue on parts of the subject site that are not part of the development.</p>

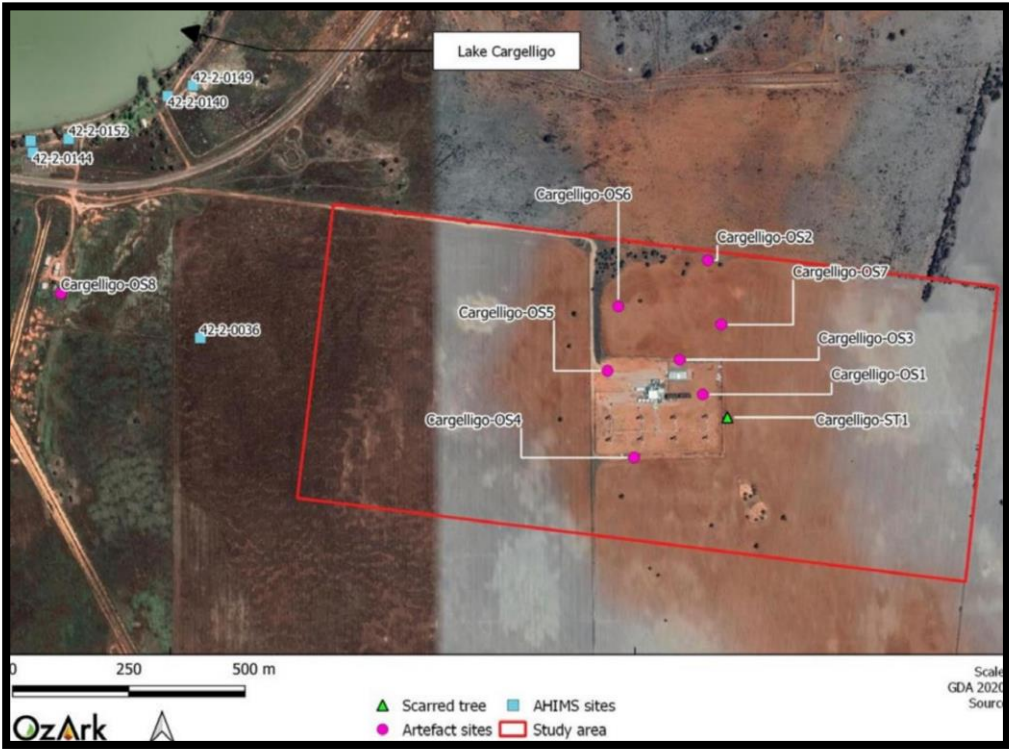
	<ul style="list-style-type: none"> • <i>To encourage diversity in primary industry enterprises and systems appropriate for the area.</i> <p>The proposed development as a whole is considered to be a primary industry enterprise use, which is encouraging diversity of primary industry enterprises or systems for the local area and NSW wide.</p> <ul style="list-style-type: none"> • <i>To minimise the fragmentation and alienation of resource lands.</i> <p>The proposed Lake Sustainable Energy Precinct will not result in the fragmentation of land or minimise the ability for the land to be used for appropriate forms and types of agriculture.</p> <ul style="list-style-type: none"> • <i>To minimise conflict between land uses within this zone and land uses within adjoining zones.</i> <p>The proposed development has the potential to conflict with other land uses in terms of visual and environmental impacts. The potential impacts of the development and proposed mitigation methods are discussed in more detail later in this report.</p> <p>The suitability of the use being located away from densely populated areas and upon an area of rural land where the development is expanding on an existing built form and use is considered appropriate.</p> <p>If the proposed development is managed and operated in an appropriate manner the impacts on existing land uses in the locality can be mitigated to a suitable and acceptable level.</p> <p>Compliance with conditions of consent will ensure the development will have minimal adverse effects on other land surrounding permitted land uses, including residential.</p> <p>The development as whole will not undermine land use objectives and is considered to be consistent with the zone objectives.</p>
2.7 - Demolition requires development consent The demolition of a building or work may be carried out only with development consent.	Existing structures identified on proposed plans at the existing facility will be demolished for the undertaking of the new development. By identifying those to be demolished in the application and requesting consent the applicant has satisfied the requirements of this clause.

Principal Development Standards (Part 4)

Part 4 Principal Development Standards		
Part 4	Local Provisions Applicable To Development And/Or Site	How Does The Development Comply (Where Applicable)

There are no Principal Development Standards that apply under part 4.

Miscellaneous Provisions (Part 5)

Part 5 Miscellaneous Provisions		
Part 5	Local Provisions Applicable To Development And/Or Site	How Does The Development Comply (Where Applicable)
Clause 5.10 – Heritage	<p>The objectives of this clause are as follows:</p> <ul style="list-style-type: none"> (a) to conserve the environmental heritage of Lachlan, (b) to conserve the heritage significance of heritage items and heritage conservation areas, including associated fabric, settings and views, (c) to conserve archaeological sites, (d) to conserve Aboriginal objects and Aboriginal places of heritage significance. 	<p>Development consent is required for demolition, disturbance, moving or alterations to identified Heritage Items.</p> <p>Previously unrecorded aboriginal sites have been identified on the site as part of the applicant's investigations as shown in Figure 4 below and the provisions of Clause 5.10 LLEP 2013 are deemed to apply.</p> <p>The applicant has engaged a suitably qualified consultant (OzArk Environment and Heritage) to assist with the matter. OzArk have provided a detailed Archaeological Heritage Report to address the requirements of the Clause 5.10, including a heritage impact assessment and the completion of required community engagement.</p> <p>The AHIP Report has been reviewed by Heritage NSW and General Terms of Approval have been issued. Refer to referrals below.</p>
 <p>Figure 4 – Location of newly recorded Aboriginal Sites</p>		
Clause 5.19 – Pond-based agriculture	<p>(1) Objectives The objectives of this clause are as follows—</p> <ul style="list-style-type: none"> (a) to encourage sustainable oyster, pond-based and tank-based aquaculture in the State, namely, aquaculture development that uses, conserves and enhances 	<p>Aquaculture is defined under the Fisheries Management Act 1994 as:</p> <p><i>“(a) cultivating fish or marine vegetation for the purposes of harvesting the fish or marine vegetation or their progeny with a view to sale, or</i></p>

	<p>the community's resources so that the total quality of life now and in the future can be preserved and enhanced,</p> <p>(b) to set out the minimum site location and operational requirements for permissible pond-based and tank-based aquaculture development.</p> <p>(2) Pond-based or tank-based aquaculture—matters of which consent authority must be satisfied before granting consent The consent authority must not grant development consent to carry out development for the purpose of pond-based aquaculture or tank-based aquaculture unless the consent authority is satisfied of the following—</p> <p>(a) that the development complies with the site location and operational requirements set out in Part 1 of Schedule 6 for the development,</p> <p>(b) in the case of—</p> <p>(i) pond-based aquaculture in Zone RU5 Village, Zone RU6 Transition, Zone R1 General Residential, Zone R2 Low Density Residential, Zone R3 Medium Density Residential, Zone R4 High Density Residential, Zone R5 Large Lot Residential, Zone E1 Local Centre, Zone E2 Commercial Centre, Zone E3 Productivity Support, Zone E4 General Industrial, Zone E5 Heavy Industrial or Zone MU1 Mixed Use—that the development is for the purpose of small scale aquarium fish production, and</p> <p>(ii) pond-based aquaculture in Zone C3 Environmental Management or Zone C4 Environmental Living—that the development is for the purpose of extensive aquaculture, and</p> <p>(iii) tank-based aquaculture in Zone R1 General Residential, Zone R2 Low Density Residential, Zone R3 Medium Density Residential, Zone R4 High Density Residential, Zone R5 Large Lot Residential, Zone C3 Environmental Management or Zone C4 Environmental Living—that the development is for the purpose of small scale aquarium fish production, and</p> <p>(iv) pond-based aquaculture or tank-based aquaculture in Zone W1</p>	<p>(b) <i>keeping fish or marine vegetation in a confined area for a commercial purpose (such as a fish-out pond), but does not include—</i></p> <p>(c) <i>keeping anything in a pet shop for sale or in an aquarium for exhibition (including an aquarium operated commercially), or</i></p> <p>(d) <i>anything done for the purposes of maintaining a collection of fish or marine vegetation otherwise than for a commercial purpose, or</i></p> <p>(e) <i>any other thing prescribed by the regulations.”</i></p> <p>It is proposed to undertake tank-based aquaculture at the Lake Sustainable Energy Precinct in accordance with the provisions of this clause. This will be in the form of a Fish Farm with Murray Cod, producing up to 50 ton per annum.</p> <p>The proposal is not inconsistent with the objective and the aquaculture facility is not proposed on land that is declared to be an area of outstanding biodiversity value, vacant Crown land or land within land within a wetland of international significance.</p> <p>A permit to undertake aquaculture is required under <i>Fisheries Management Act 1994</i> section.144 is a matter that has been satisfactorily conditioned.</p>
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	<p>Natural Waterways, Zone W2 Recreational Waterways or Zone W3 Working Waterways—that the development will use waterways to source water.</p> <p>(3) The requirements set out in Part 1 of Schedule 6 are minimum requirements and do not limit the matters a consent authority is required to take into consideration under the Act or the conditions that it may impose on any development consent.</p>	
Clause 5.21 – Flood Planning	<p>(1) The objectives of this clause are as follows—</p> <p>(a) to minimise the flood risk to life and property associated with the use of land,</p> <p>(b) to allow development on land that is compatible with the land's flood hazard, taking into account projected changes as a result of climate change,</p> <p>(c) to avoid significant adverse impacts on flood behaviour and the environment.</p> <p>(2) This clause applies to—</p> <p>(a) land identified as “Flood Planning Area” on the Flood Planning Map, and</p> <p><u>(b) other land at or below the flood planning level.</u></p> <p>(3) Development consent must not be granted to development on land to which this clause applies unless the consent authority is satisfied that the development—</p> <p>(a) is compatible with the flood hazard of the land, and</p> <p>(b) will not significantly adversely affect flood behaviour resulting in detrimental increases in the potential flood affectation of other development or properties, and</p> <p>(c) incorporates appropriate measures to manage risk to life from flood, and</p> <p>(d) will not significantly adversely affect the environment or cause avoidable erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses, and</p> <p>(e) is not likely to result in unsustainable social and economic costs to the community as a consequence of flooding.</p>	<p>The site is not identified on Council's Flood Planning Area on the Flood Planning Map however does have flood easement marked on the plans. The site was subject to flooding during the peak 2022 flood event however not the area of the proposed development as shown Figure 5.</p> <p>The development is located outside of the area shown on the site to have historically flooded as part of the lake system which has seen been dammed and it will not likely be impacted.</p> <p>The applicants assessment concludes the proposed development is satisfactory stating:</p> <p><i>The site is elevated above the Lachlan River floodplain. The foreshore of Lake Cargelligo is located approximately 1 kilometre north-west of the existing power generation facility on the site. Part of the 'Burnlea' property has an easement to flood, inundate and submerge (D406203) which is understood to be associated with the highest recorded level of water within Lake Cargelligo.</i></p> <p><i>The leased area of the Lake Sustainable Energy Precinct has been designed to be located outside this easement area and there are no flood planning issues considered to apply.</i></p> <p>Based on the above the proposal has demonstrated that it is consistent with the requirements of this section.</p>

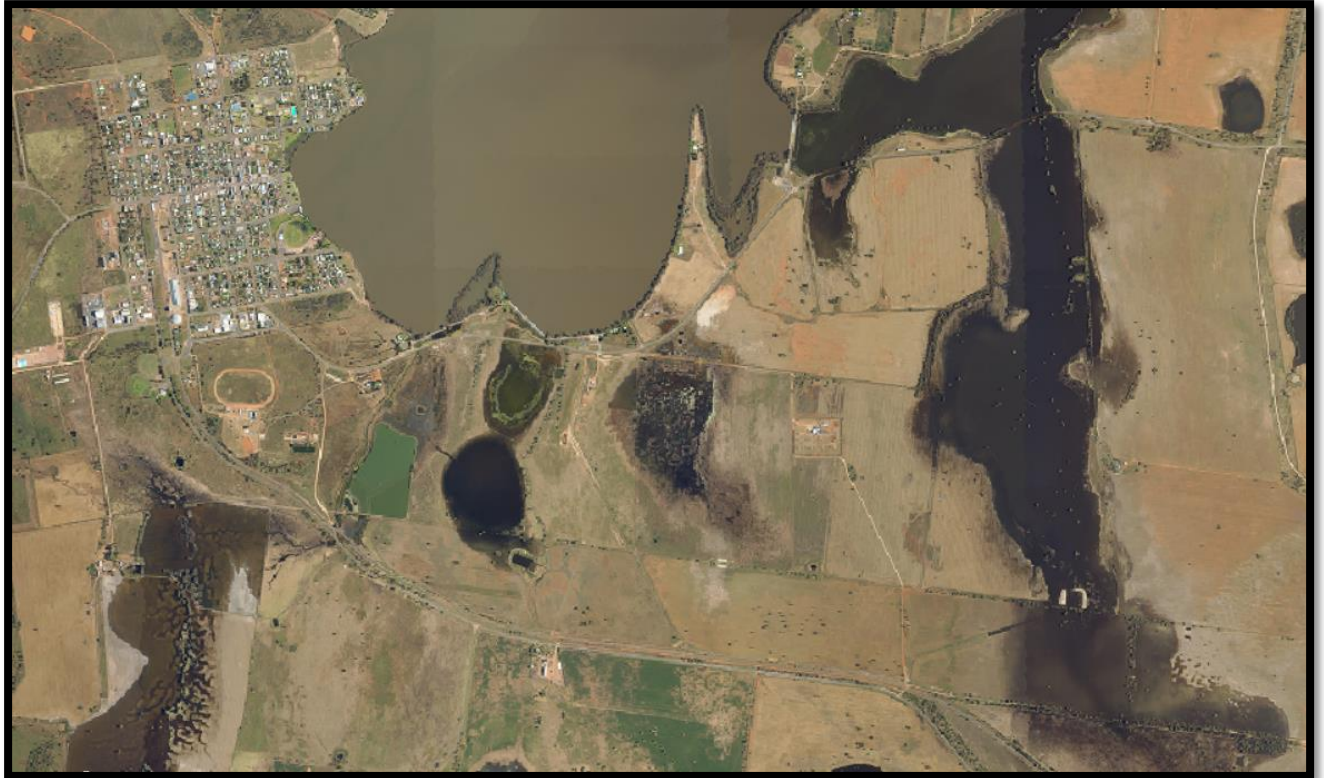


Figure 5 – 2022 Flood Event – Flooding on site east of development area.

Additional Local Provisions (Part 6)

Part 6 Additional Local Provisions		
Part 6	Local Provisions Applicable To Development And/Or Site	How Does The Development Comply (Where Applicable)
Clause 6.1 Earthworks	<p>The objective of this clause is 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. Before granting development consent for earthworks (or for development involving ancillary earthworks), the consent authority must consider the following matters—</p> <p>(a) the likely disruption of, or any detrimental effect on, drainage patterns and soil stability in the locality of the development</p> <p>(b) the effect of the development on the likely future use or redevelopment of the land,</p> <p>(c) the quality of the fill or the soil to be excavated, or both,</p>	<p>The following earthworks are proposed in the development area, which will be subject to soil disturbance for the construction, installation of the solar panels as well as the importation of fill for the construction of buildings:</p> <ul style="list-style-type: none"> Approximately 2,000m³ of gravel material would be required for road works and service tracks, peripheral backfill and compaction. Approximately 400m³ of sand would be required for the burying of cables into trenches. <p>Overall this is considered to be relatively minor earthworks and these works are not expected to unreasonably affect existing environmental functions.</p> <p>In considering the required matters listed under this clause the proposed earthworks are an ancillary part of the development. During site works sediment and erosion control measures will be installed across the site to ensure no adverse effects to neighbouring properties occur.</p>

Part 6 Additional Local Provisions		
Part 6	Local Provisions Applicable To Development And/Or Site	How Does The Development Comply (Where Applicable)
	<p>(d) the effect of the development on the existing and likely amenity of adjoining properties,</p> <p>(e) the source of any fill material and the destination of any excavated material,</p> <p>(f) the likelihood of disturbing relics,</p> <p>(g) the proximity to, and potential for adverse impacts on, any waterway, drinking water catchment or environmentally sensitive area,</p> <p>(h) any appropriate measures proposed to avoid, minimise or mitigate the impacts of the development.</p>	<p>A condition has been included which requires a detailed Construction Management Plan for the development and the recommendations implemented throughout the installation and construction phase of the project.</p>
Clause 6.4 – Terrestrial Biodiversity	Not identified on map and the likelihood of potential impacts is very minimal.	
Clause 6.5 – Groundwater Vulnerability	Not identified on map and the likelihood of potential impacts is very low.	
Clause 6.6 – Wetlands	Not identified on map and the likelihood of potential impacts is very low.	
Clause 6.7 – Essential Services	<p>Development consent must not be granted for development unless the consent authority is satisfied that any of the following services that are essential for the development are available or that adequate arrangements have been made to make them available when required:</p> <ol style="list-style-type: none"> the supply of water, the supply of electricity, the disposal and management of sewage, stormwater drainage or on-site conservation, suitable vehicular access. 	<p>The site is currently serviced by water, electricity, on-site wastewater management systems, as well as direct vehicular and pedestrian access services, as required by the clause.</p> <p>The applicant has undertaken a water demand analysis which confirms the amount of water collected on-site will be able to service the development during all climatic conditions including average, above average and below average annual rainfall conditions.</p> <p>Connection to reticulated water or sewerage is not required. A rainwater tank and waterless composting toilet would service the unstaffed control room.</p> <p>Regardless servicing conditions have been applied as relevant and it is the responsibility of the owner to upgrade services to the site, at their cost, if required.</p>
Clause 6.21 – Flood Planning	<ol style="list-style-type: none"> The objectives of this clause are as follows— <ol style="list-style-type: none"> to minimise the flood risk to life and property associated with the use of land, to allow development on land that is compatible with the land's flood 	<p>The site is not identified on Council's Flood Planning Area on the Flood Planning Map however does have flood easement marked on the plans. The site was not subject to flooding during the 2022 flood event.</p> <p>The development is located outside of the area shown on the site to have historically flooded as</p>

Part 6 Additional Local Provisions		
Part 6	Local Provisions Applicable To Development And/Or Site	How Does The Development Comply (Where Applicable)
	<p>hazard, taking into account projected changes as a result of climate change,</p> <p>(c) to avoid significant adverse impacts on flood behaviour and the environment.</p> <p>(2) This clause applies to—</p> <p>(a) land identified as “Flood Planning Area” on the Flood Planning Map, and</p> <p><u>(b) other land at or below the flood planning level.</u></p> <p>(3) Development consent must not be granted to development on land to which this clause applies unless the consent authority is satisfied that the development—</p> <p>(a) is compatible with the flood hazard of the land, and</p> <p>(b) will not significantly adversely affect flood behaviour resulting in detrimental increases in the potential flood affectation of other development or properties, and</p> <p>(c) incorporates appropriate measures to manage risk to life from flood, and</p> <p>(d) will not significantly adversely affect the environment or cause avoidable erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses, and</p> <p>(e) is not likely to result in unsustainable social and economic costs to the community as a consequence of flooding.</p>	<p>part of the lake system which has seen been dammed and it will not likely be impacted.</p> <p>The applicants assessment concludes the proposed development is satisfactory stating:</p> <p><i>The site is elevated above the Lachlan River floodplain. The foreshore of Lake Cargelligo is located approximately 1 kilometre north-west of the existing power generation facility on the site. Part of the ‘Burnlea’ property has an easement to flood, inundate and submerge (D406203) which is understood to be associated with the highest recorded level of water within Lake Cargelligo.</i></p> <p><i>The leased area of the Lake Sustainable Energy Precinct has been designed to be located outside this easement area and there are no flood planning issues considered to apply.</i></p> <p>Based on the above the proposal has demonstrated that it is consistent with the requirements of this section.</p>

- b. Section 4.15 (1)(a)(ii) The provisions of any proposed instrument that is or has been the subject of public consultation under *the Act* and that has been notified to the Consent Authority

Nil

- c. Section 4.15 (1)(a)(iii) The provisions of any Development Control Plan

Lachlan Shire Development Control Plan 2018 (LDCP)

The proposal has been assessed in regard to compliance with the following chapters:

DCP Provision / Objective	Assessment/Compliance
Chapter 1 – Introduction	
1.3 - Land to which this plan applies This plan applies to all land within Lachlan Shire and subject to Lachlan LEP 2013.	The subject site within the Lachlan Shire and subject to the LLEP 2013.

DCP Provision / Objective	Assessment/Compliance
Chapter 3 – Development	
3.1 – Development on all land This section applies to all land within Lachlan Shire and to all streets and road frontages with the exception of: <ul style="list-style-type: none"> • Lanes in settlements not exceeding 6.5 metres in width, and • Land on which a building is proposed to be erected and being of a class 3, 4, 5, 6, 7 or 8 as defined in the Building Code of Australia. 	The proposal is subject to the requirements of the plan.
3.1.3 – Energy Efficiency	The proposal does not impact on any adjoining development and seen to be a highly energy efficient development.
3.1.4 – Water Efficiency and stormwater management	The proposal meet the water efficiency requirements and will appropriately manage stormwater at the development site with sustainable re-use throughout the Sustainable Energy Precinct.
3.1.5 – Landscaping	There is minimal landscaping and given the proximity to other development there is no requirement for landscape screen plantings.

- d. Section 4.15 (1)(a)(iia) The provisions of any Planning Agreement

The subject site does not have a Planning Agreement.

- e. Section 4.15 (1)(a)(iv) The provisions of the Regulations

The *Environmental Planning & Assessment Regulation 2000* prescribes certain development consent conditions that form part of the development consent conditions imposed.

- **AS 2601** Australian Standard AS 2601—1991: *The Demolition of Structures*
 Demolition forms part of this application and the proposal will be required to meet the requirements of this standard.

- **BCA** The development is capable of complying with the *Building Code of Australia* and relevant Australian Standards.

f. Section 4.15 (1)(b) The Likely Impacts Of The Development

The proposal has the potential to result in adverse impacts however those impacts are capable of being mitigated by conditions of consent (e.g. context, visual setting and construction impacts including noise) or can be considered to result in minimal impact within reasonable/acceptable limits. There are no adverse social and economic impacts associated with the proposal.

Context and setting

The site is located within a rural area with the predominant surrounding land uses being agricultural in nature, with the site itself already being established for energy production through a previous development undertaken in 2010.

There are only three (3) of residential properties to the west of the subject site fronting the Lake Cargelligo water front that are within 1.5km of the development area. Given the distance from the development these are unlikely to be detrimentally impacted.

Views to and from the site are open and generally flat, the development is set within the existing landscape that allows for views above and beyond the development to be maintained.

The use of the site for the proposed development would likely not lead to any ongoing impacts that would detrimentally impact on the operations of nearby properties and does not prohibit or limit future redevelopment opportunities for surrounding sites.

Whilst from a long term sense the proposal will be generally inconsistent with the character of the area (which is typically rural) given there is no other energy generating facilities, it is not incompatible with adjacent land uses in the existing context and setting given there is an existing energy producing development established on the site which will be expanded as well as the incorporation of agricultural uses such as greenhouse horticulture and tank-based aquaculture.

Noise and Vibration

A noise and vibration impact assessment was prepared to assess the potential impacts of the construction and operation of the development however there was no on-site data testing to assist this. The applicant has though provided a detailed assessment on the impacts related to noise and vibration from the development, which in summary determines the project noise trigger levels (PNTLs) and project intrusiveness noise levels (PINL) in accordance with the applicable policy:

The applicant has determined the project noise trigger levels (PNTLs) and project intrusiveness noise levels (PINL) in accordance with the applicable policy:

The policy sets out the procedure to determine the PNTLs relevant to any development. The PNTL is the lower (i.e. the more stringent) of the Project Intrusiveness Noise Level (PINL) and Project Amenity Noise Level (PANL) determined in accordance with Section 2.3 and Section 2.4 of the NPI.

The PINL (LAeq(15min)) is the RBL + 5dB and seeks to limit the degree of change a new noise source introduces to an existing environment. Hence, when assessing intrusiveness, background noise levels need to be measured / predicted. For low noise environments, such as residential environments like the subject site, minimum assumed RBLs apply within the NPI

and can be adopted in lieu of completing background noise measurements. This is considered the most conservative method for establishing noise criteria for a project.

These result in minimum intrusiveness noise levels as follows:

- *Minimum Day RBL = 35dBA;*
- *Minimum Evening RBL = 30dBA; and*
- *Minimum Night RBL = 30dBA.*

The PINLs for the site are assumed to be based on the minimum RBL+5dBA

Further the applicant has addressed and calculated the Project Amenity Noise Level (PANL) which is relevant to the specific land use or locality. The findings of this are as follows:

To limit continuing increases in intrusiveness levels, the ambient noise level within an area from all combined industrial sources should remain below the recommended amenity noise levels specified in Table 2.2 of the NPI). The NPI defines two categories of amenity noise levels:

- *Amenity Noise Levels (ANL) – are determined considering all current and future industrial noise within a receiver area.*
- *Project Amenity Noise Level (PANL) – is the recommended level for a receiver area, specifically focusing the project being assessed.*

PANL for new industrial developments = recommended ANL minus 5dBA.

The following exceptions apply when deriving the PANL:

- *Areas with high traffic noise levels.*
- *Proposed developments in major industrial clusters.*
- *Existing industrial noise and cumulative industrial noise effects.*
- *Greenfield sites.*

Where the PANL is applicable and can be satisfied, the assessment of cumulative industrial noise is not required. Therefore, the recommended amenity noise levels from the NPI for a residence in a low noise amenity area are:

- *Day – 50 dB LAeq(period).*
- *Evening – 45 dB LAeq(period).*
- *Night – 40 dB LAeq(period).*

Relevant assessment criteria to control noise generated from the proposal are as follows:

- *Noise Management Levels (NMLs) for construction activities for all residential receivers are 45dB LAeq(15min) (RBL +10dB).*
- *The PINLS for the proposal are 35dB LAeq(15min) for the morning shoulder and 40dB LAeq(15min) for the day period.*
- *The PANLs for the proposal are 43dB LAeq(15min) for the night /morning shoulder and 50dB LAeq(15min) for the day.*
- *The PNTLs for the proposal are therefore 35dB LAeq(15min) for the morning shoulder and 40dB LAeq(15min) for the day period.*

The NPI noise assessment findings indicate noise emissions and vibration associated with the construction phase are unlikely to have a significant noise impact due to the separation from nearby sensitive receptors and the proposed limited construction works being undertaken in daylight hours.

Mitigation measures will be put in place during construction to ensure there is not any issues. These include:

- *Enclose fixed engines, pumps and compressors where practicable.*
- *Use of electrical motors in mechanical systems where practical.*

- Maintain equipment in accordance with the original equipment manufacturer's specifications.
- Work in daylight hours only.
- Shut down equipment when not in use.

The applicant upon request, has provided further details clarifying the noise and vibration impacts of the development during works and operations along with mitigation and control measures:

The noise assessment findings advised that noise emissions and vibration associated with the proposed Lake Sustainable Energy Precinct are unlikely to have a significant noise impact due to the separation from nearest dwelling to the north-west (>1km) and the proposed limited construction works being undertaken in daylight hours. Exceedances of the noise level criteria under the NSW Noise Policy for Industry 2017 were not assessed to be triggered and a site-specific noise assessment involving calibrated noise loggers on and around the site was not warranted given the separation distances between the Lake Sustainable Energy Precinct and sensitive receivers and the mitigation measures proposed by Graphite Energy, as follows:

- *Enclose fixed engines, pumps and compressors where practicable.*
- *Use of electrical motors in mechanical systems where practical.*
- *Maintain equipment in accordance with the original equipment manufacturer's specifications.*
- *Work in daylight hours only.*
- *Shut down equipment when not in use.*

It is noted that no objections or issues were raised by adjoining landowners about noise or vibration impacts as a result of the public engagement phase of the proposal.

Compliance with the above per recommended conditions will ensure there is no exceedance of the noise limits and that the impacts of the development are not significant or unreasonable.

Access, Transport and Traffic

A Traffic Impact Assessment (TIA) was carried out by consultant PTC to consider the potential impacts of the proposed development on the local road network.

Access to the site will be from Lake Cargelligo Road which is a regional road under Council management, via the sites existing single access point which was approved under DA2008/63. The access is sited on the north western boundary and achieves good visibility in both directions. Minor upgrade works will be required for the sealing of the access between the existing road surface and the property boundary. This will be managed through proposed conditions.

During construction works when heavy vehicles are entering the site traffic management including signage will be implemented to ensure the access is well identified to all road users.

Traffic generation associated with the development once operational is considered to be negligible as it would accommodate ten (10) full time equivalent positions. Appropriate vehicle parking areas are currently provided for in the existing development with these thirty (30) spaces to be retained. Further vehicle parking is not considered to be necessary given during construction and operations the workforce will not be greater than this.

Aboriginal Heritage

Aboriginal sites have previously identified on the site however they were unrecorded at the time. The applicant engaged a suitably qualified consult OzArk Environment and Heritage to assist with the matter, who provided detailed Archaeological Heritage Report to address the requirements and relevant considerations. This included a heritage impact assessment and the completion of required community engagement.

The supporting AHIP report has been reviewed by Heritage NSW and General Terms of Approval (GTA) have been issued. Subject to meeting the on-site requirements include mitigation and management, as detailed in the GTA, the development would not be unreasonable in regards to Aboriginal Heritage.

Impacts during Construction

Given the size of the development, temporary impacts resulting from construction noise, dust and traffic are likely to bring short term inconveniences to the surrounding area over the four month period.

Conditions have been recommended that require the developer to produce Construction Site Management Plans that relate to the management of matters such as, but not limited to, waste management, dust, hours, noise, pollution, access and sediment control.

Social Impacts

The proposal is not considered to generate adverse social impacts with some local employment/contractors likely to be utilised to remove the potential impacts of accommodation pressures from construction (maximum of twenty) being generated in the Lake Cargelligo and Lachlan region.

The impacts once the development is operational are likely to be positive with new employment opportunities offering stability to the township and reducing the likelihood of population decline and reduced services in the area.

Glare

Glare impact has not been addressed in the application however the development must consider the potential visual influence of the proposal on the impact to the existing built landscape to neighbours and users of public roads.

There is no sensitive receptors such as rural/residential dwellings in close proximity (minimum 1.25km separation) and the most likely impact from glare associated with the development is to road users being approximately 500m from Lake Cargelligo Road and 700m from Wyalong Road.

Due to the location of the development including solar panels, the applicant will be required by proposed conditions to address visual glare impacts and ensure any impacts are prevented through appropriate measures prior to construction and during operations.

Hydrogen

The proposed development is primarily a demonstration site – to demonstrate how renewable energy can be used in industrial and farming operations to transition to low carbon processes.

The proposal involves:

- Solar Electricity Generation – in the form of agrivoltaics where the solar PV field will be co-located with protected cropping (grown under the solar panels);
- Thermal power generation – there is an existing steam turbine that will be used to make electricity in non-daylight hours when the PV field is not generating electricity;
- Battery Energy Storage - a 650kW / 650kWh Toshiba lithium titanium oxide battery energy storage system to store Solar PV power – this is housed in a standard 6m transportable shipping container;
- Thermal Energy Storage system (TES) – *“The TES comprises a graphite based solid state storage medium that are heated by electrical energy up to a maximum temperature of 650°C. Water is passed through the TES to create steam, which can be used for a range of industry applications, including, heating, cooling, drying, hydrogen production and power generation. At the Lake Sustainable Energy Precinct, the TES will be used to demonstrate all of these applications, demonstrating a cost effective and efficient means of long duration energy storage as an alternative to / or enhancement of battery storage systems, which remain relatively expensive.”*
- Hydrogen Energy Storage – *“Hydrogen energy storage is a form of chemical energy storage in which electricity (from the PV field to be installed) is converted into hydrogen, through electrolysis which is the separation of water (H₂O) into hydrogen (H₂) and Oxygen (O₂). When made from renewable electricity, hydrogen is a carbon free fuel that can be used as an alternative combustion fuel to natural gas or diesel. It can also be used as the input into a fuel cell (or catalyst) which makes electricity by separating the hydrogen into protons and electrons. Hydrogen energy storage is integral to the electricity generating works at the Lake Sustainable Energy Precinct, enabling the use of renewable energy 24/7 with the end product of hydrogen being used as a power source to generate electricity. Hydrogen will be used to generate steam to power the existing steam turbine to supply electricity for onsite use as well as exporting surplus power to the grid. It will also be used as an alternate fuel to diesel to power larger vehicles such as tractors operated at the farm and trucks transporting agricultural products to market. In collaboration with Toshiba and others, Graphite Energy is developing a Hydrogen production system that utilises up to 25% less energy than conventional hydrogen production systems, making it potentially the most efficient available in Australia. Installation of the system at the Lake Sustainable Energy Precinct will be a first of a kind.”*

The Department of Planning and Environment released a guideline in March 2023, after the development application was lodged, relating to hydrogen titled “Hydrogen Guideline”.

The purpose of this guideline is to:

“assist industry, regulators, and the community in understanding hydrogen development and related supply chain activities under the NSW planning framework.”

The guideline discusses the categorisation of hydrogen development and includes the following as shown in Table 3:

Table 1. Characterising hydrogen development

Hydrogen supply chain	Purpose of the development	Land use term
Production	Production of hydrogen using electrolysis	<i>Heavy industry</i> (includes <i>hazardous industry</i>)
Storage	Bulk storage of hydrogen as: <ul style="list-style-type: none"> gas or compressed gas liquified gas 	<i>Heavy industrial storage establishment</i> (includes <i>hazardous storage establishment</i>) <i>Port facilities</i> (outside Lease Area) <i>Port facilities</i> (in Lease Area)
Distribution - refuelling	The transfer of hydrogen as a fuel source from a storage tank into a hydrogen-fuelled vehicle	<i>Service station</i> <i>Highway service centre</i> <i>Port facilities</i> (outside Lease Area) <i>Port facilities</i> (in Lease Area) <i>Wharf or boating facilities</i>
Distribution - other	The distribution of hydrogen by pipe, road, rail, air or sea for domestic use or export to international markets	<i>Freight transport facility</i> <i>Port facilities</i> (outside Lease Area) <i>Port facilities</i> (in Lease Area) <i>Wharf or boating facilities</i> <i>Rail infrastructure facilities</i>
End Use - electricity	The use of hydrogen fuel for the generation of electricity	<i>Electricity generating works</i>
End Use – industrial feedstock	The use of hydrogen in industrial processes such as ammonia and steel production	<i>Heavy industry</i>

Table 3: Characterising Hydrogen Development

The production of hydrogen and storage of hydrogen is proposed for “power generation and diesel replacement”. Therefore the objective or dominant use is the end use as electricity on site (when the solar PV can’t be used). Although surplus energy will be exported to the grid the main purpose is for power generation to be used on-site. Therefore the hydrogen storage component of the development is categorised as “electricity generating works” as the main purpose is to make electricity or store it for use on-site.

The key assessment issues from the guidelines are addressed below, with a comment regarding each of the issues.

Hazards and Risks

The hydrogen component is relatively small scale and will not present a risk to worker or public safety due to the measures put in place by the operator and the separation from any other buildings/uses.

Site selection

The footprint of the development on the site is ideally located in terms of proximity to any sensitive land uses (greater than 1km), impact on adjoining land use (predominately rural with no future residential development identified in any Council Strategies), proximity to transport (direct access to regional road) and development restrictions (permitted with consent and an expansion of an existing energy generating facility)

Cumulative Impacts

The hydrogen component of the development is complementary to the other forms of development/activities undertaken on the site and the site itself is well established given the existing use. The location of the site is not part of precinct and it is expected to be an isolated development with the overall cumulative impact considered to be minimal.

Water Management

The site is not connected to the towns reticulated water supply and the existing development has been self-sufficient since commencing operations. A water services strategy has been developed which demonstrates that the proposed collection measures as well as back up options are sufficient.

Biodiversity

The development does not proposed clearing of vegetation and would not impact native vegetation, a habitat of threatened species or ecological communities.

Air quality and noise

Air quality and noise impacts are satisfactory subject to compliance with proposed conditions.

Heritage

Heritage impacts are discussed in detail elsewhere in the assessment report. Aboriginal Heritage Impact Permit is required to be obtained and GTA have been issued.

Traffic and Transport

Traffic and Transport impacts are satisfactory subject to compliance with proposed conditions.

Waste

The proposal will include construction waste. During operation hydrogen was will be managed by the operator in accordance with the regulations. Conditions have been included which address both phases to ensure that the waste is managed and disposed of appropriately.

Contamination

Contamination matters have been addressed by the applicant and there is no record of any existing contamination. The development will need to ensure that waste is well managed and contamination of the site is not caused as a result of hydrogen generation and processing.

Community and Stakeholder Engagement

The development is not identified as State Significant Development.

The applicant provided the following statement regarding the proposal in regards to the Hydrogen Guideline:

Section 1.2.4 of the Currajong SEE advises hydrogen energy storage is for power generation and diesel replacement. In Section 2.3 of the Currajong SEE dealing with ancillary aspects of the Lake Sustainable Energy Precinct, the SEE notes hydrogen energy production and storage is for refuelling of farming plant machinery and equipment as well as plant operated by Graphite Energy and other industry partners. In explaining the electricity generated from the integrated storage systems (including hydrogen) Section 1.2.4 of the SEE advises:

'Hydrogen energy storage is integral to the electricity generating works at the Lake Sustainable Energy Precinct, enabling the use of renewable energy 24/7 with the end product of hydrogen being used as a power source to generate electricity. Hydrogen will be used to generate steam to power the existing steam turbine to supply electricity for onsite use as well as exporting surplus power to the grid. It will also be used as an alternate fuel to diesel to power larger vehicles such as tractors operated at the farm and trucks transporting agricultural products to market.'

Section 1.2.4 of the SEE states:

'It is important to note the integrated energy storage facilities are a form of electrical generating works, particularly at night when the PV is not generating electricity.'

It is maintained throughout the Currajong SEE that hydrogen gas production and storage at the Lake Sustainable Energy Precinct is not of a type that triggers criteria for Designated Development or State Significant Development.

Section 3.3 of the Currajong SEE and Drawing SK0003 prepared by the Nettletontribe provides a description of the hydrogen facility at the Lake Sustainable Energy Precinct. It is important to note the hydrogen facility is relatively small-scale, commensurate with its Research and Development (R &D) purpose. The hydrogen facility is being designed to produce a maximum of one (1) tonne of hydrogen gas per day with typical production more likely to be 250kg / day. Based on the continual consumption of hydrogen gas at the Lake Sustainable Energy Precinct it is estimated that total hydrogen gas present at the site would be a maximum of 10 tonnes present on the site at any one time.

Shed 7 Hydrogen Facility has a gross floor area of 650m² and is proposed to be serviced by a compressed hydrogen gas storage tank of 10 tonne capacity to the north of Shed 7. At the time of submission of the Development Application for the Lake Sustainable Energy Precinct, the DPE Hydrogen Guideline dated March 2023 was not published. Having regard to the DPE Hydrogen Guideline 2023, the hydrogen components of the Lake Sustainable Energy Precinct are small-scale and do not present a risk to worker or public safety or any significant environmental risks for the following reasons:

- Hydrogen gas storage will not exceed the 50 tonnes present threshold quantity in Schedule 15 of the Work Health and Safety Regulation 2017 that would quantify the premises as a major hazard facility under State Environmental Planning Policy (Planning Systems) 2021.
- The proposal is not a heavy industry and hydrogen production is ancillary to electricity generating works, extensive agriculture and aquaculture which are all permitted in the RU1 Primary Production zone.
- The proposal does not involve heavy industry storage and hydrogen storage is ancillary to electricity generating works, extensive agriculture and aquaculture which are all permitted in the RU1 Primary Production zone.
- The proposal does not involve the operation of a service station, highway service centre, freight transport or port facility.

Lighting

The proposal will include satisfactory lighting facilities including outdoor lighting, ensuring that the buildings are well lit and operations are able to occur during non-daylight hours. Whilst there is minimal details of the proposed lighting, no concerns are raised given it is greater than 1km from the nearest dwelling and that specific lighting details can be provided prior to release of the construction certificate stage 1. This will ensure that all lighting meets the relevant standards and there will be no adverse impacts as a result of the development.

Food Production

The proposal involves the planting and harvesting of whole foods in greenhouses and under PV's. Further it includes the production of up to 50 tonnes annually of Murray Cod fish in a model tank based fish farm, which is subject to first obtaining permit under Fisheries Management Act 1994.

No food processing facilities are proposed on-site for any product and the whole product will be transported off site in bulk quantities to various markets.

Conditions have been included which address food production and the restriction on food processing facilities.

Waste Management

The proposal includes both demolition and construction waste. Conditions have been included which address both phases to ensure that the waste is managed and disposed of appropriately. During operations a waste management plan will need to comply with and will contain measures to adequately deal with all waste including the management of waste associated with food production and electricity generating works.

Decommissioning

Decommissioning of solar farm facilities would usually occur at the end of the useful life of the infrastructure. Due to the nature of this development and the additional uses decommission is less likely than typical solar farms which are around 25 years.

At the end of the facilities life a decision on whether to upgrade or decommission the facility will be taken by the operator. A recommended condition of consent requires that decommission be considered as part of the Operational Plan of Management prior to operation of the development. In addition, the solar panels will need to be disposed of appropriately. The condition deals with this aspect as well.

Natural Hazards

The area of the proposed development area is not considered to be flood prone however outer lying areas of the site have been subject to flooding. This is not expected to impact the development.

At the time of lodgement the site was not mapped bushfire prone land (BFPL) however was located on Council's draft mapping, which had been on public exhibition. On 30 May 2023 the NSW RFS Commissioner certified Council's updated BFPL Map, which then identified the development site.

The matter was referred to NSW RFS who appropriately considered the matter and requested that the development considers the requirements of *Planning for Bushfire Protection 2019* (PFBP 2019).

The NSW RFS have said on 15 November 2023:

“The development includes solar farm/s and power generating works (battery energy storage, thermal energy storage and hydrogen energy storage) which are considered as hazardous industries and must be addressed against the provisions of Planning for Bush Fire Protection (PBP 2019) and in particular Section 8.3.5 and Section 8.3.9.”

Under Section 8.3.5 (Wind and Solar Farms) the proposal would need to meet the following:

- *a minimum 10m Asset Protection Zone (APZ) for the structures and associated buildings/infrastructure; and*
- *the APZ must be maintained to the standard of an Inner Protection Area (IPA) for the life of the development.*

A suitable security fence will be installed around the sustainable energy facilities infrastructure. Inside this fence a minimum 10m wide APZ can be maintained to provide for bush fire control and tanker access.

The APZ will provide the requisite defensible space around the sustainable energy facilities and infrastructure.

Under Section 8.3.9 (Hazardous industry) a bush fire design brief (BFDB) is potentially required to create a performance based solution in consultation with the NSW RFS.

NSW RFS have since reviewed the proposal following re-referral and on 13 July 2023 provided response with general conditions. Subject to compliance with conditions the development is satisfactory.

Biodiversity

A detailed biodiversity assessment was completed by consultant OzArk Environment and Heritage to consider the impacts of the proposed development.

The need for a biodiversity development assessment report (BDAR) is not triggered and this is discussed in greater detail below under the Biodiversity Act section.

An assessment of the impacts to the different flora and fauna types found that the impacts are unlikely and that appropriate mitigation measures should be put in place during works.

Water Demand and Usage

The site is not connected to the towns reticulated water supply and the existing development has been self-sufficient since commencing operations. The proposed development will continue with this arrangement however with the introduction of thermal and hydrogen energy production as well as a fish farm and intensive agriculture (greenhouse and under PV plantings) water supply and security is critical to the ongoing operations.

A water demand analysis (referred to as a water services strategy) has been undertaken and submitted as part of the proposal to ensure that the proposed collection and storage methods will be sufficient to meet maximum demands in prolonged dry weather conditions.

Attachment 1 - Development Application Assessment Report

Development Application No. 2022/50 – Lot: 3 DP: 858374 & Lot: 102 DP: 1253582, 120 Lake Cargelligo Road & 8247 Wyalong Road Lake Cargelligo

The water services strategy looks at the rainfall data for Lake Cargelligo. There is no information on the length of the data collection from the Lake Cargelligo airport but they do discuss the collection of 10 years of meteorological data from an onsite weather station at the site. On the Bureau of Meteorology (BOM) website they include data for the Lake Cargelligo airport which is provided below in Figure 6.




Statistics	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Years	Plot	Map
Rainfall															2023	
Mean rainfall (mm)	40.7	34.8	37.4	30.5	35.9	37.5	33.2	33.2	32.2	40.0	33.8	36.8	425.8	140	1881 2023	
Decile 5 (median) rainfall (mm)	25.2	19.0	18.4	19.6	27.7	35.0	29.7	31.9	24.9	31.2	24.2	28.0	414.2	139	1881 2023	
Mean number of days of rain ≥ 1 mm	3.2	3.0	3.1	3.3	4.3	5.1	5.2	5.1	4.4	4.4	3.6	3.5	48.2	139	1881 2023	
Other daily elements																

Figure 6 – BOM Rainfall Data for Lake Cargelligo Airport

These figures are slightly different to the figures in the report provided by the Applicant but the annual mean rain figure is slightly higher than that provided by the Applicant. This is measured over a period of 140 years (1881 to 2023).

The strategy analyses three annual rainfall predictions as follows:

- Average annual rainfall catchment – total of 340mm per annum
- Below average annual rainfall catchment – total of 115mm per annum
- Above average annual rainfall catchment – total 495mm per annum

Both the energy and agricultural systems require water inputs in numerous forms and conditions.

No water will be extracted from the groundwater resources.

The proposal will collect “roof water for storage in tanks and adopting water wise and recycling strategies throughout its business operations”.

The water strategy report states:

“An existing water licence, with both high security and general entitlements is owned by Peter and Elizabeth Skipworth and available to the ‘Burnlea’ property for agricultural use. Peter and Elizabeth will be the operators of the agricultural components and this water licence can be made available to the Lake Sustainable Energy Precinct if required. This supply would only be accessed to cover any shortfall from on-site catchment. Consultation with Water NSW indicates that water sourced from the existing high security water licence is permitted for the proposed development.”

The previous development on the site was serviced by 550kL which was stored across 4 x 100kL tanks and 3 x 50kL tanks.

The water strategy report states:

“The total roof area to be connected to onsite water tanks is 17,380m², in stages as follows:

- Existing - existing buildings comprising 860m² of roof area connected to existing water tanks totalling 550kL.
- Stage 1 – proposed buildings comprising 2,200m² of roof area connected to existing water tanks totalling 500kL.

- Stage 2 – includes no buildings that catch rainwater, PV field installation only.
- Stage 3 – proposed buildings comprising 12,400m² of roof area connected to existing water tanks totalling 1,000kL.
- Stage 4 – proposed buildings comprising 1,920m² of roof area connected to existing water tanks totalling 500kL.

Water tank storage will total 3,050kL on the site.

Catch dams are designed to store up to 3,500kL on the site, excluding the freeboard capacity of 600kL that has been designed to manage stormwater runoff from onsite storages in large storm events.”

In terms of predicted water storage volumes by applying the annual rainfall predictions the total water storage volumes are predicted as follows:

- Average annual rainfall – 5,900kL total catchment
- Below average annual rainfall – 2,000kL total catchment
- Above average annual rainfall – 8,600kL total catchment

The report discussed the storage required for bushfire fighting purposes but it did not discuss NCC firefighting requirements. This has since been addressed by the Applicant clarifying that there will be 250,000 litres of water reserved for firefighting purposes.

The report, with regard to stormwater overflow detention states:

“In the event of multiple overflow events, a stormwater overflow catch-dam will be constructed on the South-Western side of the property at a capacity of ~4,100kL. These dams are within the maximum harvestable rights dam capacities as dictated by WaterNSW. The maximum nominated for an 83ha lot in Lake Cargelligo is 4,150kL.”

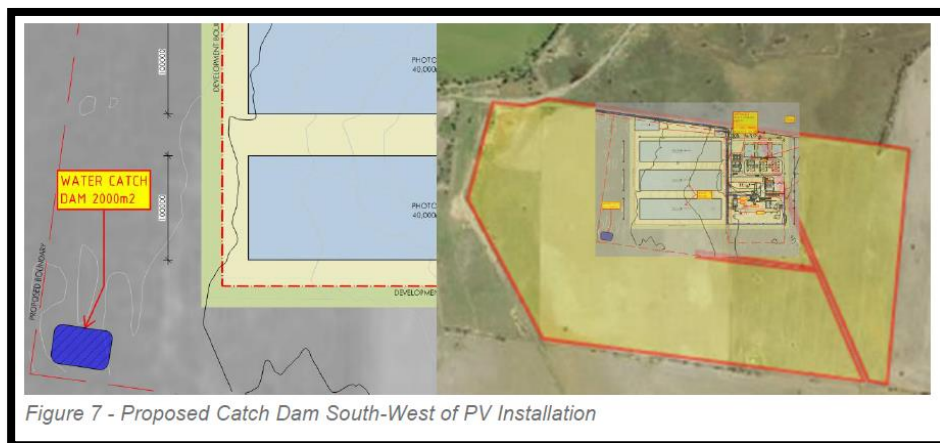


Figure 7 – Location of Catchment Dam

The water strategy report discusses each element of the proposal and the expected water usage and then includes a discussion on the total water usage which states:

“the Lake Sustainable Energy Precinct is predicted to use 2,595kL annually”.

The Report includes an analysis of usage across the three different rainfall scenarios, which is included below in Table 4:

	Average 'Figure 10'	Above Avg 'Figure 11'	Below Avg 'Figure 12'
Total Rainfall (kL)	7,300	10,800	2,450
Total Caught in Tanks (kL)	3,050	3,050	2,000
Total Caught in Catch Dam (kL)	2,850	3,500	0
Sub-Total Rainfall Caught (kL)	5,900	6,550	2,000
Annual Usage (kL) ex firefighting supply	2,555	2,555	2,555
Annual Firefighting Top Up (kL)	40	40	40
Contribution from Storage (kL)	Nil	Nil	595
Spare / Deficit (kL)	3,305	3,955	0
	127% Surplus	153% Surplus	
Firefighting Reserve (kL)	250		
Comments	More than sufficient rainfall in both scenarios, remainder to flow into stormwater catch dam. Minimum storage of 250,000 litres is to be held in reserved for emergency fire-fighting purposes. Surplus rainfall distributed to ongoing storage.		595kL used from dam stored reserve.

Source: Graphite Energy Water Services Report

Table 4: Water Servicing Analysis

However, more detail was requested on water storage requirements to comply with the NCC and overall site requirements including bushfire. This is given that the site is not connected to a water supply line.

In response to issues raised about water supply for emergency response to bushfire and / or fires within buildings, the Graphite Energy Water Services Strategy report has been updated to reserve a minimum of 250,000 litres of water for fire fighting purposes, with an allocation of 40,000 litres per year for the top up of reserve tanks (if required).

Should more than the annual allowance of 40kL be required to maintain dedicated firefighting supply of 250KL, any shortfall will be provided from (in order of priority):

- 1. The 3,300kL surplus available in both average and above average rainfall years.*
- 2. The 4,150kL stormwater overflow catch dam.*
- 3. Trucked in from town water supply (standpipe).*
- 4. From the high security water supply licence of the landowners.*

The updated Water Services Strategy report concludes there will be sufficient supply of water for all firefighting requirements under any rainfall scenario.

The additional analysis concludes that there will be more than adequate water supplies available from on-site collection and storage to service this development during all climatic conditions including average, above average and below average annual rainfall conditions. In rare times that the on-site collection is below the minimum amounts, there is a number of suitable options available to ensure the water levels required are satisfied. During each stage of development the applicant will need to demonstrate compliance with NCC and bushfire water supply requirement through a detailed water analysis plan.

Economic Impacts

The construction and installation of the sustainable energy facility will provide employment opportunities for the local labour force during the construction phase in the form of twenty (20) positions. Once in full operation there is expected to be employment for ten (10) full time equivalent positions on-site, which will be a good boost to the local economy.

Additional employment opportunities may arise from the supply of goods and materials that are needed during the installation phase from local manufacturing companies and suppliers.

The development has a strong focus on enabling renewable energy in the locality as well developing and showing future technologies to create a circular economy. On a broader scale the proposed development contributes to the future of sustainable agriculture, achieves increased renewable energy outputs and large investment into the local area.

Services

The site contains an existing grid connection point for exporting power and a 22KV underground transmission line which will be retained as part of the development. The proposed development is not anticipated to have any significant impact on services other than providing a renewable energy source to the benefit of the local areas power supply. The application has been referred to both Transgrid and Essential Energy for comment who have raised no objection to the development and have provided conditions where necessary.

g. Section 4.15 (1)(c) The suitability of the site for the development

The land is appropriately zoned for part of the development under Lachlan Local Environmental Plan 2013 and has permissibility under the provisions of SEPP Infrastructure and the existing use approved in 2008. The proposed land use is consistent with the more recent use of the site but does differ to the historical use of the land for agricultural purposes but is one that can be suitably located and managed on this land with an acceptable degree of impact.

The character of farmland throughout country NSW is transitioning to include more sustainable production and intensive agriculture methods as an alternative to traditional agricultural production where suitable infrastructure and locations exist, in order to support additional renewable energy sources, provide alternative sources energy production and the utilisation of intensive farming methods.

The site is of a sufficient size to accommodate the additional use and is located away from the main village populated areas. There are no site constraints that would render the site unsuitable for the proposed development.

h. Section 4.15 (1)(d) Any submissions

This application was notified for a period of 28 days in accordance with the requirements of the Lachlan Community Participation Plan from 22 November 2022 to 20 December 2022. No public submissions were made during this period.

i. Section 4.15 (1)(e) The public interest

The public interest is best served by the consistent application of the requirements of the relevant planning controls and by Council ensuring that any adverse effects on the surrounding area and the environment are avoided.

The proposed development contributes to federal, state and local goals of promoting the development of renewable energy and reduces the reliance on other forms of electricity generation that are reliant on the burning of fossil fuels. The proposed development is considered to be in the public interest as it offers an opportunity for productive and sustainable economic activity and of intensive farming methods within the area and provides significant employment opportunities during the construction and operational phase.

It is also in the public interest to consider the development in the context of strategic planning documents that may not be legislative but provide relevance and significance to the determination of the application. Such documents include Central West and Orana Regional Plan 2036 and Council's Local Strategic Planning Statement 2020-2040 that list 'Direction 9: Increase Renewable Energy Generation' Under this direction it refers to the region's and Council's potential for renewable energy industries and one of the key actions is to 'Facilitate small-scale renewable energy projects using bioenergy, solar, wind, small-scale hydro, geothermal or other innovative storage technologies.'

Taking into account the full range of matters for consideration under Section 4.15(1) of the Environmental Planning and Assessment 1979 (as discussed within this report) it is considered that approval of the application is in the public interest.

The application is not expected to have any unreasonable impacts on the environment or the amenity of the locality, with noise related and operational matters controlled by conditions. It is considered appropriate with consideration to the zoning and the character of the area and is therefore considered to be in the public interest.

Accordingly, development consent of this proposal will not undermine the public interest subject to appropriate conditions being imposed on any development consent.

3. Referrals and Submissions

a. Referrals

The application was referred to a number of Council internal teams. Where required, conditions have been recommended and imposed by the technical assessments.

For external agencies, the following were issued referral for assessment. The following responses were received via the NSW Planning Portal – CNR-48277.

Heritage NSW

Response dated 19 June 2023:

This letter contains our general terms of approval for the above integrated development application for those known Aboriginal sites which would require an Aboriginal Heritage Impact Permit pursuant to s.90 of the National Parks and Wildlife Act 1974.

Following review of the application, we requested additional information on 16 June 2023 of a final report, finalised consultation with Registered Aboriginal Parties and sought clarification on some items in the report.

We have reviewed the final Aboriginal Cultural Heritage Assessment Report (ACHAR), dated 18 April 2023, prepared by OzArk Environment & Heritage. The report has identified that Aboriginal objects in the form of stone artefact sites will be impacted by the proposed development. Mitigation has been proposed in the form of surface collection of stone artefacts prior to development works.

A culturally modified tree (42-2-0169) identified in the application area will be avoided by the proposed works.

No public submissions were received in the CNR portal in relation to this application. Considering the above, and in accordance with Section 4.47 of the Environmental Planning and Assessment Act 1979, the following general terms of approval are granted:

APPROVED DEVELOPMENT

1. Development must be in accordance with:

- a. Aboriginal Cultural Heritage Assessment Report Lake Sustainable Energy Project Lake Cargelligo, NSW (OzArk Environment & Heritage, 19 April 2023).*
- b. Lake Sustainable Energy Precinct Statement of Environmental Effects (Currajong Pty Ltd, 4 November 2022).*
- c. Lake Sustainability Energy Project Graphite Energy – Lake Cargelligo, NSW Stage 1 Works Architectural Plans (Nettletontribe, 6 October 2022).*

Please note that any modification of the above development that will result in impacts to Aboriginal cultural heritage must be referred to us to determine whether changes to these general terms of approval are required.

EXCEPT AS AMENDED by the following general terms of approval:

- 2. A s.90 Aboriginal Heritage Impact Permit (AHIP) for the proposed works must be sought and granted prior to the commencement of works.*
- 3. The AHIP application must be accompanied by appropriate documentation and mapping as outlined in Applying for an Aboriginal Heritage Impact Permit: Guide for applicants (2011).*
- 4. Consultation with the Aboriginal community undertaken as part of the AHIP application must be in accordance with the Aboriginal cultural heritage consultation requirements for proponents 2010 (2010).*
- 5. The AHIP application must be completed with reference to the requirements of the Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW (2011).*
- 6. The AHIP application must include complete records satisfying the requirements of the Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales (2010).*
- 7. Long term management of Aboriginal objects must be considered as part of the AHIP application.*
- 8. A culturally modified tree (42-2-0169) must be avoided by the works. Protection measures must be put in place to ensure harm to this tree does not occur.*

ADVICE

At the time of submission of the AHIP application, the applicant should review the ACHAR to ensure consistency. Note sections 9.1.2 and 9.3.4 state 8 sites will be harmed, section 10.2 says 10 sites will be harmed and elsewhere the report it states 9 sites will be harmed.

ABORIGINAL COMMUNITY CONSULTATION MUST BE MAINTAINED

Consultation with the Registered Aboriginal Parties (RAPs) must be maintained. We recommend updates on the project are provided to the RAPs every 6 months to ensure the consultation is continuous.

If you have any questions regarding these general terms of approval, please contact Lyndon Patterson, Senior Assessment Officer, at Heritage NSW, on 02 6022 0619 or Lyndon.Patterson@environment.nsw.gov.au

Essential Energy

Response received 02/12/2022 with advice:

Strictly based on the documents submitted, Essential Energy has the following comments to make as to potential safety risks arising from the proposed development:

- As the plans provided do not show the distances from Essential Energy's infrastructure and the development, there may be a safety risk. A distance of 10 metres from the nearest part of the development to Essential Energy's infrastructure (measured horizontally) is required to ensure that there is no safety risk.*
- It is also essential that all works comply with SafeWork clearance requirements. In this regard it is the responsibility of the person/s completing any works to understand their safety responsibilities.*

The applicant will need to submit a Request for Safety Advice if works cannot maintain the safe working clearances set out in the Working Near Overhead Powerlines Code of Practice, or CEOP8041 - Work Near Essential Energy's Underground Assets. Information relating to developments near electrical infrastructure is available on our website Development

Applications (essentialenergy.com.au). If the applicant believes the development complies with safe distances or would like to submit a request to encroach then they will need to complete a Network Encroachment Form via Essential Energy's website Encroachments (essentialenergy.com.au) and provide supporting documentation. Applicants are advised that fees and charges will apply where Essential Energy provides this service.

Council's and the applicant's attention is also drawn to Section 49 of the Electricity Supply Act 1995 (NSW). Relevantly, Essential Energy may require structures or things that could destroy, damage or interfere with electricity works, or could make those works become a potential cause of bush fire or a risk to public safety, to be modified or removed.

Essential Energy makes the following general comments:

- If the proposed development changes, there may be potential safety risks and it is recommended that Essential Energy is consulted for further comment;*
- Any existing encumbrances in favour of Essential Energy (or its predecessors) noted on the title of the above property should be complied with;*
- Any activities in proximity to electrical infrastructure must be undertaken in accordance with the latest industry guideline currently known as ISSC 20 Guideline for the Management of Activities within Electricity Easements and Close to Infrastructure;*

- *Prior to carrying out any works, a “Dial Before You Dig” enquiry should be undertaken in accordance with the requirements of Part 5E (Protection of Underground Electricity Power Lines) of the Electricity Supply Act 1995 (NSW); the location of overhead and underground powerlines are also shown in the Look Up and Live app essentialenergy.com.au/lookupandlive.*

Should you require any clarification, please do not hesitate to contact us.

TransGrid

Advised referral not required on 24/11/2022 under SEPP (Transport and Infrastructure) 2021, s2.48

NSW Rural Fire Service

Response received 6 February 2023 with advice:

I refer to your correspondence regarding the above proposal which was received by the NSW Rural Fire Service on 15/11/2022. The NSW RFS has considered the information submitted and provides the following comments: After Reviewing the supporting documents:

- *Statement of Environmental Effects for Lake Sustainable Energy Precinct, prepared by Currajong Pty Ltd for Graphite Energy Pty Ltd, Project reference: CA22015, dated 4 November 2022;*
- *Lake Sustainable Energy Precinct being Developed by Graphite Energy Civil Engineering Package: Development Application, prepared by Northrop, dated 2 August 2022;*
- *Lake Sustainability Energy Precinct Graphite Energy - Lake Cargelligo, NSW Final Draft Application, prepared by Nettletontribe, dated 6 October 2022.*

The subject application seeks consent for alterations and additions to the existing Solar Thermal Power Generation facility located at 210 Lake Cargelligo Road, Lake Cargelligo, and includes the following:

- *Three (3) new solar photovoltaic farms coupled with energy storage systems (battery energy storage, thermal energy storage and hydrogen energy storage).*
- *Tank-based aquaculture.*
- *Greenhouse horticulture.*

The subject site is not mapped as Bush Fire Prone Land (BFPL) as reviewed on the Department of Planning and Environment's (DPE) website as of the 02/02/2023, and consists predominantly of managed land surrounding the existing facilities. SIX Maps imagery indicates that the subject site contains grassland vegetation which has been identified as the most apparent bush fire hazard.

The development includes solar farm/s and power generating works (battery energy storage, thermal energy storage and hydrogen energy storage) which are considered as hazardous industries and must be addressed against the provisions of Planning for Bush Fire Protection (PBP 2019) and in particular Section 8.3.5 and Section 8.3.9.

There is no objection to the proposal, subject to the required future documentation including an assessment against the requirements of PBP 2019.

NSW RFS provided an additional response on 13 July 2023 following re-referral due to the site being mapped BFPL:

I refer to your correspondence dated 11/07/2023 seeking advice regarding bush fire protection for the above Development Application in accordance with Clause 55(1) of the Environmental Planning and Assessment Regulation 2000.

The New South Wales Rural Fire Service (NSW RFS) has considered the information submitted and provides the following recommended conditions:

General Conditions
Emergency and Evacuation

The intent of measures is to provide suitable emergency and evacuation arrangements for users of the development.

1. A Fire Management Plan (FMP) must be prepared in consultation with NSW RFS Mid Lachlan Valley Fire Control Centre. The FMP must include:

- 24 hour emergency contact details including alternative telephone contact;*
- Site infrastructure plan;*
- Fire fighting water supply plan;*
- Site access and internal road plan;*
- Construction of Asset Protection Zones (APZ) and their continued maintenance;*
- Location of hazards (Physical, Chemical and Electrical) that will impact on fire fighting operations and procedures to manage identified hazards during fire fighting operations;*
- Such additional matters as required by the NSW RFS District Office (FMP review and updates).*

Asset Protection Zones

The intent of measures is to minimise the risk of bush fire attack and provide protection for emergency services personnel, residents and others assisting fire fighting activities. To achieve this, the following conditions shall apply:

2. From the start of building works, the property around the proposed solar farm must be managed as an inner protection area (IPA) for a distance of 10 metres, and property around the proposed energy storage systems must be managed as an inner protection area (IPA) for a distance of 50 metres in accordance with the requirements of Appendix 4 of Planning for Bush Fire Protection 2019. When establishing and maintaining an IPA the following requirements apply:

- tree canopy cover should be less than 15% at maturity;*
- trees at maturity should not touch or overhang the building;*
- lower limbs should be removed up to a height of 2 metres above the ground;*
- tree canopies should be separated by 2 to 5 metres;*
- preference should be given to smooth barked and evergreen trees;*
- large discontinuities or gaps in vegetation should be provided to slow down or break the progress of fire towards buildings;*
- shrubs should not be located under trees;*
- shrubs should not form more than 10% ground cover;*
- clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation.*
- grass should be kept mown (as a guide grass should be kept to no more than 100mm in height); and*
- leaves and vegetation debris should be removed.*

Access – Public Roads

The intent of measures is to provide safe operational access to structures and water supply for emergency services, while residents are seeking to evacuate from an area. To achieve this, the following conditions shall apply:

3. Access roads must comply with the following requirements of Table 5.3b of Planning for Bush Fire Protection 2019:

- minimum 5.5 metre carriageway width kerb to kerb;
- traffic management devices are constructed to not prohibit access by emergency services vehicles;
- maximum grades for sealed roads do not exceed 15 degrees and an average grade of not more than 10 degrees or other gradient specified by road design standards, whichever is the lesser gradient;
- all roads are through roads;
- dead end roads are not recommended, but if unavoidable, are not more than 200 metres in length, incorporate a minimum 12 metres outer radius turning circle, and are
- clearly sign posted as a dead end;
- one way only public access roads are no less than 3.5 metres wide and have designated parking bays with hydrants located outside of these areas to ensure accessibility to reticulated water for fire suppression;
- the capacity of perimeter and non-perimeter road surfaces and any bridges/causeways is sufficient to carry fully loaded firefighting vehicles; bridges/causeways are to clearly indicate load rating;
- hydrants are located outside of parking reserves and road carriageways to ensure accessibility to reticulated water for fire suppression;
- hydrants are provided in accordance with the relevant clauses of AS 2419.1:2005 - Fire hydrant installations System design, installation and commissioning; and
- there is suitable access for a Category 1 fire appliance to within 4 metre of the static water supply where no reticulated supply is available.

Water and Utility Services

The intent of measures is to minimise the risk of bush fire attack and provide protection for emergency services personnel, residents and others assisting fire fighting activities. To achieve this, the following conditions shall apply:

4. A 20,000 litre static water supply must be provided for fire fighting purposes and comply with the following:

- The tank must be located / designed so that a connection for fire fighting purposes is located within the inner protection area (IPA).
- Underground tanks must be clearly marked, have an access hole of 200mm to allow fire fighting appliances to refill direct from the tank, and have a hardened ground surface for truck access within 4 metres of the access hole.
- Above ground tanks must be manufactured of concrete or metal. Raised tanks must have their stands protected.
- Tanks on the hazard side of a building must be provided with radiant heat shielding to protect the tank
- from bush fire impacts and maintain safe access to the water supply for firefighters.
- A standard 65mm metal Storz outlet with a gate or ball valve must be provided to the tank. The gate or ball valve, pipes and tank penetration of any tank must be adequate for full 50mm inner diameter water flow through the Storz fitting and made of metal.
- All associated fittings to the tank must be metal.

- Pumps where provided to supply water for fire suppression activities, must be a minimum 5hp or 3kW and petrol or diesel powered. The pump must be shielded from the direct impacts of bush fire. Any hose and reel must have an internal diameter of 19mm.
- An SWS marker must be obtained from the local NSW RFS and positioned for ease of identification by fire fighting personnel and other users of the SWS. Markers must be fixed in a suitable location so as to be highly visible and be positioned adjacent to the most appropriate access for the static water supply.
- All aboveground water pipes external to the building must be metal including and up to any taps/outlets/fittings.
- Electrical transmission lines should be located underground where possible. Overhead electricity lines must have short pole spacing (i.e. 30 metres) except where crossing gullies, gorges or riparian areas. No tree may be closer to an electricity line than the distance set out in in ISSC3 Guideline for Managing Vegetation Near Power Lines.
- Gas must be installed and maintained as set out in the relevant Australian Standard and all pipes external to the building must be metal including and up to any taps/outlets/fittings. Polymer-sheathed flexible gas supply lines must not be used.
- Fixed gas cylinders must be kept at least 10 metres clear of flammable materials and be shielded on the hazard side. Connections must be metal. Cylinders near to a building must be have safety valves directed away from the building and be at least 2 metres from combustible materials.

Landscaping Assessment

The intent of measures is to minimise the risk of bush fire attack and provide protection for emergency services personnel, residents and others assisting fire fighting activities. To achieve this, the following conditions shall apply:

- Landscaping within the required asset protection zone must comply with Appendix 4 of Planning for Bush Fire Protection 2019. In this regard, the following principles are to be incorporated:
- A minimum 1 metre wide area (or to the property boundary where the setbacks are less than 1 metre), suitable for pedestrian traffic, must be provided around the immediate curtilage of the building;
- Planting is limited in the immediate vicinity of the building;
- Planting does not provide a continuous canopy to the building (i.e. trees or shrubs are isolated or located in small clusters);
- Landscape species are chosen to ensure tree canopy cover is less than 15% (IPA), and less than 30% (OPA) at maturity and trees do not touch or overhang buildings;
- Avoid species with rough fibrous bark, or which retain/shed bark in long strips or retain dead material in their canopies;
- Use smooth bark species of trees species which generally do not carry a fire up the bark into the crown;
- Avoid planting of deciduous species that may increase fuel at surface/ ground level (i.e. leaf litter);
- Avoid climbing species to walls and pergolas;
- Locate combustible materials such as woodchips/mulch, flammable fuel stores away from the building;
- Locate combustible structures such as garden sheds, pergolas and materials such as timber garden furniture away from the building; and
- Low flammability vegetation species are used.

For any queries regarding this correspondence, please contact Rohini Belapurkar on 1300 NSW RFS.

b. Political Donations Disclosure

Under Section 10.4(4) of the *Environmental Planning and Assessment Act, 1979* (the Act), a person who makes a relevant planning application to Council is required to disclose any reportable political donations and gifts made by any person with a financial interest in the application within the period commencing two years before the application is made and ending when the application is determined, including:

- a. all reportable political donations made to any Councillor of this Council
- b. all gifts made to any Councillor or employee of this Council.

Note: Section 10.4(1) of the Act states 'political donations or gifts are not relevant to the determination of any such planning application and the making of political donations or gifts does not provide grounds for challenging the determination on any such planning application'.

The Disclosure Statement received by Council indicates that no reportable donations or gifts have been made.

4. Other Matters for Consideration

a. Biodiversity Conservation Act 2016

The Biodiversity Conservation Act 2016 (BC Act) establishes a framework to avoid, minimise and offset the impacts of proposed development and land use change on biodiversity. The primary requirement under the BC Act, is to determine whether the development is likely to significantly affect threatened species

According to clause 7.7(2) of the BC Act, if the proposed development is likely to significantly affect threatened species, the development application is to be accompanied by a biodiversity development assessment report (BDAR).

In order to determine if the development is likely to significantly affect threatened species three key tests are required as follows:-

1. *Is the subject site identified as an area of outstanding biodiversity value on the biodiversity values map? The site is not identified on the map.*

The site is not identified on the map.

2. *Does the amount of native vegetation being removed exceed the biodiversity offsets scheme threshold?*

The threshold area is determined by the minimum lot size associated with the property, the minimum lot size of the property is 400ha, the site is 25ha. For lots that are greater than 40ha and less than 1000ha the threshold for clearing, above which the offsets scheme will apply is 1ha.

An ecological survey found a total of 0.332 ha of native vegetation within the development footprint. Vegetation clearing and disturbance will be restricted to the minimum necessary, however this report conservatively assesses potential impacts to the full 0.332 ha of native vegetation.

3. *Test of Significance - the test to determine whether the proposed development or activity is likely to significantly affect threatened species or ecological communities, or their habitats.*

An assessments of significance was carried out by OzArk Environment and Heritage, a suitability qualified biodiversity consultant; the findings are detailed below;

In summary no significant impact will arise to the local viability of any species or its habitat due to the undertaking of the proposal

Given the small scale of removal that is proposed in relation to the habitat available within the study area and locality and the absence of any recorded endangered flora or fauna on site the proposed development is not anticipated to significantly affect threatened species or ecological communities or their habitats.

Based on the above assessment the proposal does not trigger the BC Act thresholds. Therefore, a BDAR is not required to accompany the development application and the proposed development is not required to enter into the Biodiversity Offset Scheme (BOS).

b. Lachlan Shire 7.12 Contributions Plan 2015

Section 7.12 of the Environmental Planning and Assessment Act 1979 and the Lachlan Shire Section 7.12 Contributions Plan enables Council to levy contributions, where anticipated development will or is likely to increase the demand for public facilities. A Section 7.12 contribution applies and will be put towards the provision high quality and diverse public facilities to meet the expectations of the shires residents.

The Lachlan Shire Council Section 7.12 Contribution Plan 2015 is applicable to this application. The cost of the works including GST is \$29,276,500.00 and a contribution of 1% is applied being \$292,765.00. This amount is to be adjusted in accordance with the *Environmental Planning and Assessment Regulation 2021* and section 1.16 of the Lachlan Shire Council Section 7.12 Levy Contributions Plan 2015.

5. Conclusion

An assessment of the application has resulted in this application being supported on the following grounds:

- The application has appropriately addressed the provisions of State Environmental Planning Policy (Transport and Infrastructure) 2021 and Lachlan Local Environmental Plan 2013 under which it is permitted with consent.
- The application is consistent with the controls contained in LDCP 2018 as outlined in the body of this report.
- The potential noise impacts to adjoining properties in proximity to the development, particularly during construction have been addressed by the applicant and recommended conditions can offset any impacts.
- There are no site constraints that would result in the site being unsuitable for the proposed development.
- Whilst the development will have a larger footprint on the rural landscape it is one that is consolidated to a single site and that is becoming more common within the wider rural landscape and one that has an accepted degree of impact when balanced against other factors associated with the importance of sustainable development and renewable energy targets.

- The expansion of the sustainable energy generating facility will contribute to a reduction in greenhouse gas emissions and a move toward cleaner electricity generation, thereby serving the public interest.
- The expansion of the sustainable energy generating facility to include industry leading methods, with the development of operational greenhouses and a fish farm powered by the energy produced onsite along with the utilisation of the land under the PV panels for food producing plantings, is future proofing sustainable rural development and food production.

In conclusion, the proposal is permitted with consent, is generally consistent with the objectives of the zone and where necessary conditions have been recommended such as to offset any adverse potential environmental impacts.

Based on the assessment above, where there are no outstanding issues, it is recommended that DA No. 2022/50 be approved.

6. Recommendation

That Western Regional Planning Panel approve DA No. 2022/50, for alterations and additions to electricity generating works approved under DA2008/63 to include a solar photovoltaic farm coupled with energy storage systems (battery energy storage, thermal energy storage and hydrogen energy storage), as well as development of tank-based aquaculture, greenhouse horticulture, agricultural produce industry components and ancillary development at Lot: 3 DP: 858374 & Lot: 102 DP:1253582, 120 Lake Cargelligo Road & 8247 Wyalong Road, Lake Cargelligo, subject to the recommended conditions of consent in **Attachment 1**.

END OF REPORT