STATEMENT OF ENVIRONMENTAL EFFECTS

Gilgandra Solar Farm

23 November 2021

Zenith
TOWN PLANNING

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Document Details & History

Project number	1321
Project title	Gilgandra Solar Farm, Lots 1 & 2 DP 1070081
Document title	Statement of Environmental Effects
Client	ITP (Development) Pty Ltd
Author	Allen Grimwood, Director
ABN	Zenith Town Planning Pty Ltd PO Box 591 Moruya NSW 2537 11 624 467 349
Qualifications	Bachelor of Arts (Honours), UNSW Master of Urban & Regional Planning, USyd PIA Registered Planner — Planning Institute Australia
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EXECUTIVE SUMMARY

This Statement of Environmental Effects supports an application to Gilgandra Shire Council to develop a solar farm at Lots 1 and 2 DP 1070081 No 361 Oxley Highway, Gilgandra, referred to as the Gilgandra IA Solar Farm. The proponent is ITP (Development) Pty Ltd. The site is located 3 kilometres west of Gilgandra town centre and occupies 11.3 hectares of the 133 hectare property. The application is for regionally significant development that needs consent and is to be determined by the Western Regional Planning Panel.

The proposed development comprises the following:

- 12,000 solar modules ranging in height from 1.5 metres to 2.75 metres installed in rows running north to south with approximately 6.25 metres centre to centre spacing between each row,
- Two 3.4MW inverter stations that are 3 metres high and each mounted on a 12.2 metre long skid,
- A 2.9 metre high kiosk to convert high and medium voltage to low voltage electricity suitable for connection to the local system,
- A battery storage system that is 12.2 metres long, 2.4 metres wide and 2.9 metres high,
- A temporary car parking and materials laydown area,
- A 1.8 metre high security fence topped with three rows of barbed wire to give a total height of 2.3 metres, and
- 5 metre wide perimeter landscaping with shrubs that grow to a maximum height of 3 metres on the outer side of the security fence along the northern side of the array, along the eastern boundary of the northern section, and along the western edge of the array at the northern end and at the southern end.

The site selection process has involved liaison with Gilgandra Shire Council officers; identification of environmental and topographical constraints; existence of necessary infrastructure including accessways, power lines and sub-stations; proximity to the settlement of Gilgandra to enable supply of power direct to the township; sufficient cleared land area; willingness of the land owner to develop the property and enter lease arrangements to facilitate the solar farm; and the availability of solar resources.

Documentation is submitted in accordance with *Schedule 1 Forms Part 1 Development Applications* of the *Environmental Planning and Assessment Regulation 2000*. It is not integrated development as there are no separate approvals required to be issued under section 4.46 of the *Environmental Planning and Assessment Act 1979*.

The development is satisfactory to the objects of the *Environmental Planning & Assessment Act 1979* and applicable environmental planning instruments. The land is zoned RU1 Primary Production under *Gilgandra LEP 2011*. The development is defined as *electricity generating works* which means a building or place used for the purpose of making or generating electricity. The proposed development of Gilgandra Solar Farm is to be located on land zoned RU1 and the use is prohibited in that zone. However, it is made permissible by provisions of *SEPP (Infrastructure) 2007*.

The proposed development is consistent with the strategic planning framework that applies to the local government area, the site itself and to the development of electricity generating works. Goals, objectives and actions of the *Central West and Orana Regional Plan 2036*, the *Gilgandra Local Strategic Planning Statement 2020* and the *NSW Renewable Energy Action Plan* are satisfied.

Key issues are potential impacts on biodiversity, access to the site and traffic impacts, the effects of noise emissions, and impacts on the rural landscape and scenic amenity. The likely impacts of the development have been considered and measures recommended to avoid, minimise or mitigate these impacts.

The use is suited to a rural location due to the need for a large land area and the ability to connect to the local electrical transmission network. The addition of a solar farm to the rural area of Gilgandra would not detract unreasonably from local amenity or the natural environment and will be screened from existing and future development of the neighbouring general residential zones. The owners of rural land have a reasonable expectation to be able to develop permissible uses and future inhabitants of residential zones purchase and build with the knowledge that rural uses exist and will continue to be developed on nearby rural land.

Electricity generated by the system will be directed to the settlement of Gilgandra via existing electrical infrastructure to contribute to the supply of electricity for use by households and businesses. The solar farm will generate community economic benefits through local employment opportunities during the planning and construction phases as well as maintenance and inspection jobs once operational. The land may continue to be used for agriculture and returned to its current condition once the facility is decommissioned. It will assist Commonwealth and NSW Governments to achieve targets and objectives relating to emissions to address climate change. The site is located within the Central West Renewable Energy Zone.

The cumulative impacts of the proposed development are minor. Development approval has been issued for a 50MW solar farm on a site 25 kilometres south of Gilgandra but there have been no other large scale solar farm proposals in the vicinity of the development site. There is sufficient capacity in the electricity grid system to accommodate the Gilgandra Solar Farm as evidenced by prior arrangements made by ITP Development Pty Ltd to connect to Essential Energy infrastructure.

1. INTRODUCTION

1.1 Overview

The purpose of this Statement of Environmental Effects is to support an application to Gilgandra Shire Council to develop a solar farm at Lots 1 and 2 DP 1070081, No. 361 Oxley Highway, Gilgandra, referred to as the Gilgandra 1A Solar Farm. The application is for regionally significant development that needs consent and is to be determined by the Western Regional Planning Panel.

The purpose of this report is to assist Council's assessment of the proposal against the matters for consideration listed in section 4.15 of the *Environmental Planning and Assessment Act 1979*. There are no separate approvals required to be obtained under section 4.46 of the *Environmental Planning and Assessment Act 1979,* therefore, the application is not integrated development.

Table 1 below is a checklist of this application against relevant sections of legislation that may generate the need for a separate approval.

Table 1: Integrated development checklist

Act	Provision	Approval	The proposal	Integrated (Y/N)
Coal Mine Subsidence Compensation Act 2017	s 22	approval to alter or erect improvements, or to subdivide land, within a mine subsidence district	The land is not designated a mine subsidence district	No
Fisheries Management Act 1994	s 144	aquaculture permit	It is not proposed to carry out aquaculture	No
	s 201	permit to carry out dredging or reclamation work	It is not proposed to carry out dredging or reclamation work	No
	s 205	permit to cut, remove, damage or destroy marine vegetation on public water land or an aquaculture lease, or on the foreshore of any such land or lease	It is not proposed to remove, damage or destroy marine vegetation	No
	s 219	permit to— (a) set a net, netting or other material, or (b) construct or alter a dam, floodgate, causeway or weir, or	It is not proposed to carry out any works across or within a bay, inlet, river or creek, or	No

Act	Provision	Approval	The proposal	Integrated (Y/N)
		(c) otherwise create an obstruction, across or within a bay, inlet, river or creek, or across or around a flat	across or around a flat	
Heritage Act 1977	s 58	approval in respect of the doing or carrying out of an act, matter or thing referred to in s 57(1)	The application does not relate to an interim heritage order or an item listed on the State Heritage Register	No
Mining Act 1992	ss 63, 64	grant of mining lease	The development does not involve an application for a mining lease	No
National Parks and Wildlife Act 1974	s 90	grant of Aboriginal heritage impact permit	Due diligence indicates that there is no item or place of Indigenous significance and an application is not being made for permit	No
Petroleum (Onshore) Act 1991	s 16	grant of production lease	The development does not involve an application for a petroleum production lease	No
Protection of the Environment Operations Act 1997	ss 43(a), 47 and 55	Environment protection licence to authorise carrying out of scheduled development work at any premises.	The application does not involve scheduled development	No
	ss 43(b), 48 and 55	Environment protection licence to authorise carrying out of scheduled activities at any premises (excluding any activity described as a "waste activity" but including any activity described as a "waste facility").	The application does not involve scheduled activities	No
	ss 43(d), 55 and 122	Environment protection licences to control carrying out of non-scheduled activities for the purposes of regulating water pollution resulting from the activity.	The application does not involve non- scheduled activities that would generate water pollution	No
Roads Act 1993	s 138	consent to— (a) erect a structure or carry out a work in, on or over a public road, or (b) dig up or disturb the surface of a public road, or (c) remove or interfere with a structure, work or tree on a public road, or	There are no works required to be carried out on the Oxley Highway which is a classified road	No

Act	Provision	Approval	The proposal	Integrated (Y/N)
		(d) pump water into a public road from any land adjoining the road, or (e) connect a road (whether public or private) to a classified road		
Rural Fires Act 1997	s 100B	authorisation under section 100B in respect of bush fire safety of subdivision of land that could lawfully be used for residential or rural residential purposes or development of land for special fire protection purposes	The application does not involve subdivision for a residential use or a special fire protection purpose	No
Water Management Act 2000	ss 89, 90, 91	water use approval, water management work approval or activity approval under Part 3 of Chapter 3	The proposed development is not located in close proximity to a watercourse and does not necessitate a controlled activity approval. The application does not involve a water use approval or water management work approval	No

1.2 Scope of the report

This Statement has been prepared having regard to information that has been sourced from the Council's website, the NSW legislation website, SIX Maps, the website of the Department of Planning, Industry & Environment, the Planning Portal and SEED (Sharing and Enabling Environmental Data). All information referenced in this Statement has been sourced from publicly available documents or websites and from expert reports produced to support the application that are listed in Table 2. The Property Report sourced from the Planning Portal is appended as Attachment A.

The contents of this Statement have been prepared in accordance with *Schedule 1 Forms Part 1 Development Applications* of the *Environmental Planning and Assessment Regulation 2000 w*hich specifies that a statement of environmental effects must indicate:

(a) the environmental impacts of the development,

(b) how the environmental impacts of the development have been identified,

(c) the steps to be taken to protect the environment or to lessen the expected harm to the environment,

(d) any matters required to be indicated by any guidelines issued by the Planning Secretary for the purposes of this clause.

This statement is accompanied by the documents listed in Table 2 which support the development application and have been submitted under separate cover.

Note that the findings and recommendations of expert reports that accompany the application are summarised in this Statement. Further information about these matters should be sought from the original documents.

Table 2: Development application documents

Plan/Doc No.	Plan/Doc Title	Prepared by	Issue	Date
GID1A-G-0100	Gilgandra 5MW Solar Farm Development Application	ITP Renewables	-	-
GID1A-G-0400	Location Plan, Site Plan	ITP Renewables	1	15/11/21
GID1A -G-2100	General Arrangement Plan	ITP Renewables	3	15/11/21
GID1A -G-2200	Site Elevations	ITP Renewables	1	15/11/21
GID1A -C-4300	Inverter Footing Details	ITP Renewables	1	17/09/21
GID1A -C-4310	BESS Footing Details	ITP Renewables	1	09/11/21
GID1A -C-5300	Fencing Details	ITP Renewables	1	09/11/21
GID1A -C-5301	Gate Details	ITP Renewables	1	09/11/21
GID1A -C-6300	Access Path Details	ITP Renewables	1	09/11/21
GID1A -C-7300	Landscape Details	ITP Renewables	MJB	15/11/21
GID1A -E-3400	Nextracker Array Detail	ITP Renewables	1	09/11/21
GID1A -E-4300	Inverter Station Details	ITP Renewables	1	09/11/21
GID1A -E-5300	BESS Station Details	ITP Renewables	1	09/11/21
GID1A-E-5301	DC-DC Skid Details	ITP Renewables	1	09/11/21
MAC180781-17RP1	Noise Assessment	Muller Acoustic Consulting Pty Ltd	Final	15/11/21
F8712	Traffic Impact Assessment Report	Price Merrett Consulting Pty Ltd	2	23/11/21
18105488-022-Rev0	Water Assessment	ITP Renewables	1	03/11/21
21079	Glare and Glint Assessment	ITP Renewables	1	18/10/21
-	Waste and Decommissioning Assessment	ITP Development Pty Ltd	1	26/10/21

Plan/Doc No.	Plan/Doc Title	Prepared by	Issue	Date
-	Fire Assessment	ITP Development Pty Ltd	1	26/10/21
-	Biodiversity Inspection Report	Red-Gum Environmental Consulting Pty Ltd	-	15/10/21
1321	Landscape Character & Visual Impact Assessment	Zenith Town Planning Pty Ltd	-	17/11/21
-	Project cost estimate	ITP	-	02/11/21

1.3 The proponent

The proponent for the proposed solar farm is ITP (Development) Pty Ltd. ITP (Development) is a private sector organization based in Canberra and Sydney, which was established in 2003. It is part of the IT Power Group which was formed in 1981 in the UK to bring together specialists in renewable energy, energy efficiency and carbon markets. IT Power offers expertise in renewable energy and energy efficiency, including research, development and implementation, managing and reviewing government incentive programs, high level policy analysis (including carbon markets), engineering design and project management.

1.4 Justification

Solar energy is energy created by the heat and light of the sun. Solar power is produced when this energy is converted into electricity or used to heat air, water, or other substances. Australia has the highest average solar radiation per square metre of any continent in the world. Despite uncertainty regarding energy policy, the Commonwealth and NSW Governments have recognized the need to supplement energy derived from fossil fuels with energy generated from renewable sources. Alternative energy supply may be sourced from solar photovoltaic, geo-thermal, solar thermal, wave and tidal action, and wind.

The development of solar photovoltaic power is well underway in NSW and across Australia. This growth in the local solar PV sector continues to provide a significant boost for Australia's regional economy with renewable infrastructure development estimated to create upwards of 2,300 direct jobs plus indirect employment.

According to the Australian Renewable Energy Agency (ARENA), the deployment of household solar PV that generates about 5 kW is expected to continue and at the same time an increase in rooftop solar PV installations on commercial premises generating around (10-100 kW) is

expected. Large scale solar PV is also rapidly expanding in Australia with several solar farms being constructed that will have the capacity to generate over 50MW. The proposed solar farm aims to fill the gap in the mid-sized plants. It will generate 5MW of AC power and contribute to renewable energy supply to supplement electricity generation from coal, oil and gas.

The proposed development is in accordance with relevant objects of the *Environmental Planning and Assessment Act 1979* in that it will assist to generate power to be distributed to residents of NSW thereby promoting the social and economic welfare of the community in a manner that manages and conserves natural resources. The Gilgandra Solar Farm will further the goals of sustainability, and the orderly and economic use of land.

1.5 Electromagnetic radiation

The information presented in this section has been sourced from the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA). It includes a description of the type of electromagnetic radiation that may be produced by the generation and distribution of electricity.

The generation, distribution and use of electricity can produce extremely low frequency (ELF) electromagnetic fields (EMF) from electrically charged particles. The electric field is produced by the voltage whereas the magnetic field is produced by the current. The strength of the electric field is measured in units of volts per metre whilst the strength of the magnetic field is expressed in units of tesla (T), microtesla (μT), gauss (G) or milligauss (mG).

ELF EMF is produced by both natural and artificial sources. Naturally occurring ELF EMF is associated with atmospheric processes such as ionospheric currents, thunderstorms and lightning. Artificial sources are the dominant sources of ELF EMF and are usually associated with the generation, distribution and use of electricity at the frequency of 50 or 60 Hz. The widespread use of electricity means that people are exposed to ELF electric and magnetic fields in the home, in the environment and in the workplace.

According to the Australian Radiation Protection and Nuclear Safety Agency, which maintains continual oversight of emerging research into the potential health effects of the EMF exposure, there is no established evidence of health effects from exposure to electric and magnetic fields from powerlines, substations, transformers or other electrical sources, regardless of proximity.

2. SITE DESCRIPTION AND CONTEXT

2.1 Description

The site of the proposed Gilgandra Solar Farm is described as No 361 Oxley Highway, Gilgandra, NSW. The parcel comprises Lots 1 and 2 DP 1004833, Lot 1 DP 103752 and Lots 1 and 2 DP 1070081. The property is located approximately 3 kilometres west of Gilgandra town centre and adjoins the urban area. The development site is irregular in shape with a total area of approximately 133.2 hectares. The location of the site relative to the town of Gilgandra is shown in Figure 1 below.

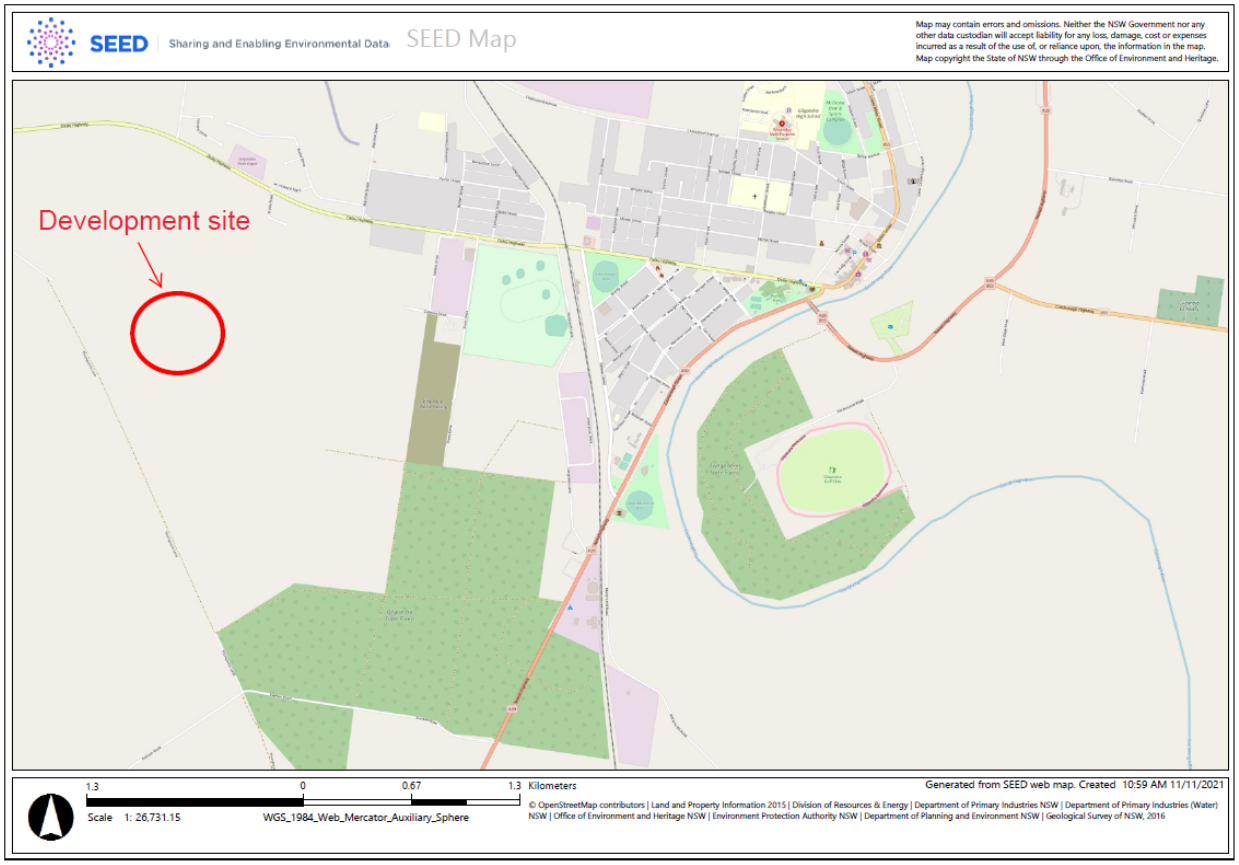


Figure 1: Locality map. Source: SIX Maps, 2021

The property is generally cleared with a small number of isolated trees across the site and a couple of small clusters including eucalypt and pine species that run in a north-south direction. There is a dense landscape screen within both sides of the Oxley Highway road reserve that screens the site from land on the northern side of the Highway. The topography of the development site is relatively flat with a slight fall towards the west. It is currently under a wheat crop. There are no structures on the site. There are no watercourses traversing the site. Entry is

off the Oxley Highway and Aralee Road which is sealed for approximately 120 metres then becomes gravel heading south. An 11kV power line within a 20 metre wide easement runs across the site from east to west which connects to the Essential Energy Gilgandra Zone Substation.

2.2 Context

Gilgandra Shire covers an area of 4,487 square kilometres and is located in the Central West region of NSW. The township of Gilgandra was proclaimed in 1888 and is located at the centre of the local government area alongside the Castlereagh River. It is 442 kilometres north-west of Sydney at the junction of the Newell, Oxley, and Castlereagh Highways and is the administrative centre of the Shire. Smaller settlements in the LGA include Armatree, Biddon, Collie, Curban and Tooraweenah. The name Gilgandra is Aboriginal for long water hole, and the traditional custodians describe the area as being a meeting place between the Wiradjuri, Kamilaroi and Wailwan nations.

Surrounding land uses comprise the following:

North

- Council Works Depot directly across the Highway.
- Houses backing onto the Highway that face Christie Drive and Butler Drive.
- Houses on Howard Place
- Poultry farm (362 Oxley Highway)

East

- Houses in Timbara Court
- Gilgandra State Forest

West

- Open cropping land
- Nearest house adjacent to the intersection of the Oxley Highway and Thompsons Lane
- Old house on Thompsons Lane that appears unoccupied

South

- Open cropping land
- Gilgandra State Forest
- Houses near the intersection of Thompsons Lane and Everton Road

An aerial image of the site and surrounding land is shown in Figure 2 below which is dated 6 June 2011. The development site is edged red.

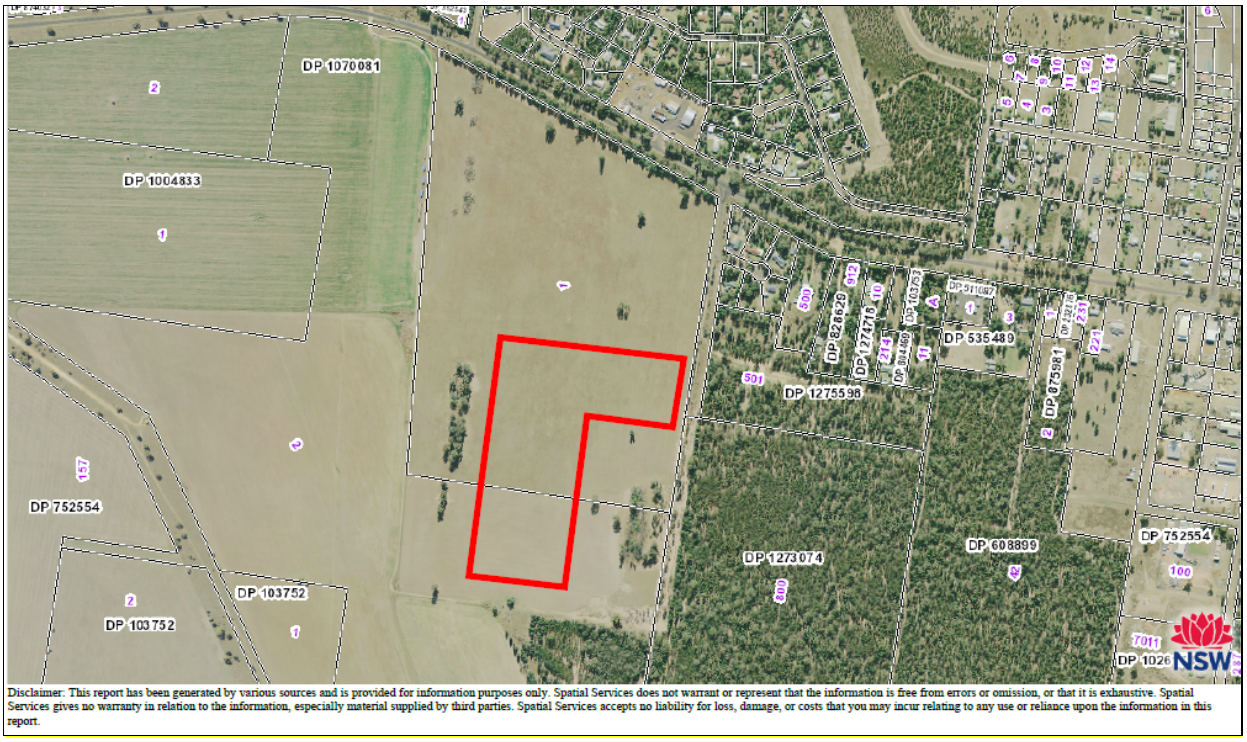


Figure 2: Aerial image. Source: SIX Maps, 6 June 2011

The inland rail project, managed by the Australian Rail Track Corporation, will link Brisbane to Melbourne. The section between Narromine and Narrabri (N2N) currently includes a 5 kilometre wide study area west of Gilgandra. The corridor is approximately 13.5 kilometres west of the development site.

2.3 Climate

Global solar exposure is described by the Australian Bureau of Meteorology as being the total amount of solar energy falling on a horizontal surface. The daily global solar exposure is the total solar energy for a day. Typical values for daily global solar exposure range from 1 to 35 MJ/m^2 (megajoules per square metre). The values are usually highest in clear sun conditions during the summer, and lowest during winter or very cloudy days. Global solar exposure coincides with seasons – the longer the daylight hours the greater the solar radiation due to the tilt of the earth during summer months. Rainfall is spread relatively evenly across the year and so does not appear to impact on the level of solar radiation.

Solar exposure estimates are important for a wide range of applications, including for agriculture, power generation and solar heating system design and use. This climatic information sourced from the Australian Bureau of Meteorology indicates that the global solar exposure, or solar radiation, is sufficient to support power generation in the proposed location which benefits from

the presence of electricity power lines in the vicinity of the development site. The map below (Figure 3) shows the average daily hours of sunshine across Australia. Gilgandra LGA receives an average of between 8 and 9 hours of sunshine each day.

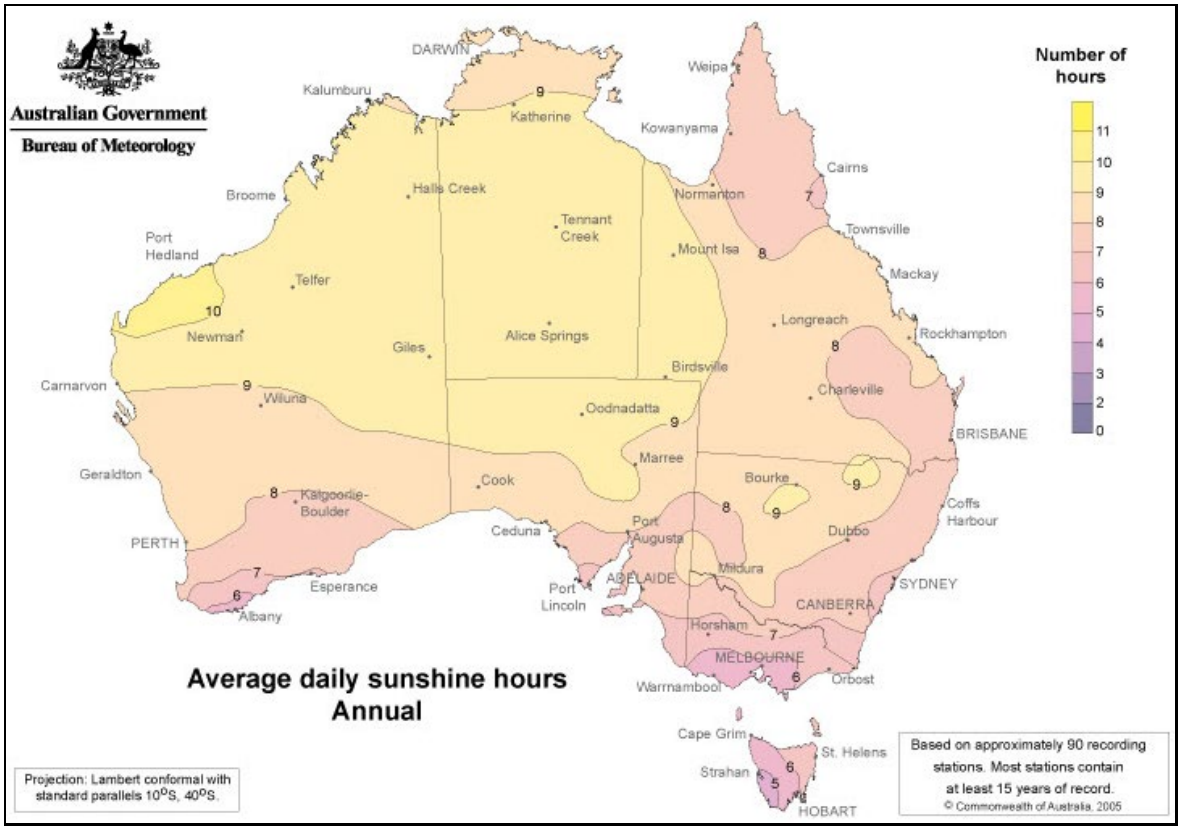


Figure 3: Average daily sunshine hours. Source: Australian Bureau of Meteorology

The mean monthly global solar exposure measured at the Gilgandra (Castlereagh River) station (station number 051144), the closest measuring station to the solar farm site, is given in Table 3 below. The annual mean daily global exposure for 2020 was 18.3MJ/m^2.

Table 3: Mean monthly global solar exposure at Gilgandra, 2020

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Monthly mean	26.8	21.4	18.3	14.3	12.5	10.7	11.0	14.1	18.5	20.3	26.2	25.4

This data demonstrates that Gilgandra receives adequate solar energy to harness and convert to clean electricity and is eminently suitable for the development of a solar photovoltaic farm.

3. DETAILS OF THE PROPOSED DEVELOPMENT

3.1 Overview

The proposed development comprises a solar farm and ancillary facilities with an AC capacity of 5MW. The development is proposed on 11.3 hectares across Lots 1 and 2 DP 1070081. The solar farm would have a coverage of 8.3% of the total parcel.

The capital investment value of the solar farm is estimated to be $8.67 million.

3.2 The array

There are proposed to be approximately 12,000 solar modules installed in 138 rows that are 105 metres long and 2.2 metres wide running east to west. There is approximately 6.25 metres spacing between each row. The array is proposed to be placed to the south of an electricity easement that runs across the property from east to west.

The array is to be contained within an area with perimeter dimensions of 391 metres across the northern side, 191 metres along the southern side, 411 metres stepped along the eastern side and 465 metres along the western side.

Each row of PV modules will rotate to track the sun across the sky from east to west each day. The hub height of each tracker is 1.5 metres with the peak of the modules reaching an approximate height of 2.75 metres when the array is fully tilted to 60 degrees from horizontal, i.e. in the early morning and late evening.

The layout and exact placement of the array is shown on General Arrangement Plan (Drawing No GID1A-G-2100).

3.3 Inverters and ancillary items

An inverter station incorporating two 3.4MW inverters and a converter-DC coupler will be installed near the centre east of the array and mounted on a 12.2 metre long skid. The inverter stations incorporate high and medium voltage switchgear. Allowance is made for a 2.9 metre high battery energy storage facility (BESS) alongside the inverter station. A 2.5 metre high kiosk is to be located at the north-eastern corner of the array. Underground high voltage cables will connect to the kiosk which typically includes additional switchgear, a transformer and busbars to connect high and medium voltage cables to the existing grid.

The inverter will be connected by way of an overhead high voltage power line to the existing 11kV power line that runs east-west from Aralee Road through the centre of the site to inject power to the electricity grid at the Essential Energy Gilgandra Zone Substation. The array and ancillary works are to be positioned to avoid interference with the power line easement. Dial-before-you-dig investigations would be carried out prior to commencing all subsurface work.

3.4 Construction and maintenance

The mounting system for the PV panels is constructed on piles that are driven into the ground using a vibrating pile driver. The piles will be driven approximately 1.5 to 3.5 metres into the ground, as to be confirmed by a geotechnical and structural engineer.

During construction there is expected to be 50 personnel on site working from 7.00am – 4.00pm Monday to Friday. The construction is expected to take approximately three months. Should it be necessary to carry out work outside these hours then activities would be limited to those generating low noise emissions.

Once operational the site will be unmanned. Maintenance is expected to be carried out quarterly by a crew of 2 to 3 people. Maintenance workers would not be required to remain on site. Cleaning of the PV panels would be carried out on an annual basis to maximise the performance of the system. This is done using water brought into the site and a sponge mop.

3.5 Services

Reticulated water and sewer services are not required to be provided to the solar farm as there are no permanent offices or amenities proposed on site. Portaloos for wastewater disposal (see https://www.kennards.com.au/site-equipment/showers-toilets.html) and water supply by way of a portable tank or cart (see https://www.kennards.com.au/site-equipment/water-tank.html) are proposed to be installed during the construction phase.

3.6 Access and car parking

Access is proposed to be by way Aralee Road which runs along the eastern boundary of the site and intersects with the Oxley Highway to the north. An entrance into the development site will be constructed approximately 264 metres south of the highway intersection. A 4 metre wide internal road will run west from the access point along the north of the array to the centre of the array and then head south along the eastern edge of the array to the location of the inverter station and BESS.

A temporary materials laydown and car parking area is to be located at the north-west corner of the array footprint. It is expected that car parking for up to 40 small vehicles will be needed to cater for the 50 construction workers at the rate of 0.8 spaces per worker.

Expected traffic generation is given in Table 4 below. It is proposed that heavy vehicles only access the site between 10.00am and 2.00pm.

Table 4: Expected traffic generation

Phase	Description of vehicles	Expected one-way vehicle movements
Establishment	10-15 trucks and trailers to deliver gravel with 4 to 5 workers with 2 persons per vehicle	5 vehicle trips per day for 2 to 3 days
	Light vehicles	6 to 8 vehicle trips per day
Construction	45 articulated trucks (12 B-double articulated 26m length and 33 semi articulated 19 metre length) to deliver equipment	4 vehicle trips per day non-peak
	40 light vehicle one-way trips for 50 construction workers (worst case without shuttle bus and one person per vehicle)	40 vehicle trips per day
	Potential shuttle bus service to and from the site	2 vehicle trips per day
Commissioning	Light & 12 metre heavy rigid vehicles for 10 workers with 2 persons per vehicle	5 vehicle trips per day
Operational	1 light vehicle for maintenance contractor	1 vehicle trip every 2 to 3 months

3.7 Landscaping

It is proposed to plant a 5 metre wide vegetated screen using native plants that grow to a maximum height of 3 metres on the outer side of the security fence on the northern side of the array, along the northern section of the eastern boundary, and along the western edge of the array for approximately 90 metres at the northern end and approximately 100 metres at the southern end. The plants would provide a continuous screen upon maturity.

Land that is disturbed during construction of the solar farm and not to be used for access or other maintenance purposes will be sown with grasses following completion of construction. Planting will also assist to minimise site disturbance and contribute to the rural landscape and character of the immediate area.

Plantings will be maintained and watered by maintenance crew on a regular basis. The planting will be carried out whilst construction takes place to enable use of the hired portable tank or cart that will provide water supply to the site. Construction will take approximately 3 months so regular watering during that period would ensure the establishment of plants. The use of native plants means that watering requirements once established would be minimal and would be done once every 2 or 3 months by the maintenance crew. There would be nil impact on Council's infrastructure and no augmentation of services is proposed. Bore water would be sourced to maintain the plants if available, otherwise water would be brought onto the site in tanks fixed to utility trays.

Regular inspections of the site will be carried out to ensure that grassland is managed to reduce the risk of bushfire to surrounding land and to control weeds. Mowing or slashing between rows of PV panels and in the area immediately surrounding the arrays would be carried out as required. Livestock grazing is being trialled elsewhere and may be carried out around and beneath panels in the future.

3.8 Security

The solar farm is to be enclosed within a 1.8 metre high security fence comprising chain mesh steel topped with three rows of barbed wire giving a total height of 2.3 metres. The fence is to be setback 264 metres to the northern boundary, 5 metres from the eastern boundary, 786 metres from the southern boundary and 128 metres from the western boundary. The array is to be setback 10 metres from the security fence around the entire perimeter which will provide an asset protection zone. Security lighting is not proposed to be installed.

3.9 Waste management and decommissioning

A *Waste and Decommissioning Assessment* of the waste generated during construction and operation of the proposed solar farm has been carried out by ITP Development Pty Ltd to determine the appropriate means of waste disposal and recycling. The findings of the assessment are summarized below. Reference should be made to the *Waste and Decommissioning Assessment* that is submitted with the development application for further information or clarification of any matter concerning the assessment and recommendations.

The largest amount of waste will be generated during the construction phase and be classified as general solid waste (non-putrescible). Wastes would include wooden pallets, cardboard, plastics, green waste and domestic waste. Construction of a solar farm would not generate any putrescible waste products. Minimal waste would be generated when the farm is operational

other than small amounts of replacement parts and packaging required for maintenance and repair works.

Local waste management facilities and capacities are identified in the assessment. Technology for recycling of PV panels is advancing rapidly worldwide and while recycling options currently exist, they are likely to be more advanced and readily available at the time of decommissioning. Options for recycling of PV panels should be reviewed as the project progresses.

Estimates of waste materials and proposed management arrangements for each phase of the development project are provided in Table 5 below.

Table 5: Estimated waste materials and waste management arrangements

Phase	Waste material	Proposed management
Construction	• Packaging waste such as cardboard, wood pallets, plastic wrap, scrap metal, general waste including approximately 860 wooden pallets and carboard packing boxes • Concrete waste during setting of footings and mounts • Electric cable waste and cable reels • Plastic pipe offcuts/scrap • Empty drums and containers (minimal quantities) • Minimal used lubricating oil and filters • Unused or spent chemicals • Minimal volumes of domestic waste such as office consumables, paper, plastics, glass from on-site demountable site office/lunchroom • Waste from maintenance of ablution blocks	Waste products will be sorted and stored separately in skip bins located in the materials laydown area in accordance with EPA Waste Classification Guidelines. This will facilitate disposal through appropriate waste streams as follows: Recycling: • Steel and scrap metal (recycled) • Timber/cardboard (recycled) • Recyclable plastics Landfill: • General wastes and plastic (other than where recyclable) All recycling and general waste would be collected and taken to off-site waste management facilities for disposal Fluids would be recycled where possible or taken to off-site waste management facilities for disposal
Operational	• Waste resulting from maintenance or replacement of equipment	All waste materials would be taken to off-site waste management facilities for recycling or disposal

Phase	Waste material	Proposed management
Decommissioning	• PV modules (12,000 panels) and supporting poles and mounts • Glass for panels (270 tonnes) • Silicon for wafers (40 tonnes) • Inverters / transformers / batteries • PV boxes, skids, scrap metal (860 tonnes) • Electrical cables • Fencing • Storage containers (three 40-foot containers)	The solar farm infrastructure would be dismantled into separate waste products such as metals, glass, plastics and concrete. All products would be sorted on site into recyclable and general waste streams in accordance with the EPA Waste Classification. Fencing and storage containers would be removed from the site and reused where possible.

Waste management should be predicated on the international hierarchy of waste management to avoid/reduce, reuse, recycle, recover, treat and dispose of waste products to avoid or reduce waste materials where possible, and to re-use, recycle and recover the majority of waste materials generated during each of the construction, operational and decommissioning phases.

It is recommended that a waste management plan be developed to provide detailed procedures to manage the waste stream. The plan should contain:

- Strategies to reduce waste during all project phases,
- Recycling, re-use and recovery strategies and opportunities,
- Classification of all waste streams with a tracking register and details,
- On site recycling management,
- Allocation of responsibilities for recycling, re-use and disposal, and
- Reporting and notification procedures if a waste incident occurs and there is a threat to the environment.

The expected operating life of the Gilgandra Solar Farm (excluding the construction and decommissioning phases) is projected to be 35 years. Upon decommissioning all infrastructure, including cabling and panels and mounting frames including footings and inverters would be disassembled and removed from the site. The bulk of materials that are used in solar panel manufacturing include glass (75%), aluminium (8%), silicon (5%) and copper (1%). There are also small amounts of silver, tin and lead. These materials are recoverable.

Decommissioning will involve:

- Notification of stakeholders (e.g. Essential Energy, Gilgandra Shire Council) of proposed de-energisation,
- De-energisation of the solar farm and disconnection of assets,
- Removal of PV modules and associated infrastructure,
- Removal of electrical wiring,
- Remediation of land.

Relevant equipment will be brought on to site to facilitate decommissioning, including amenities for site crew for the duration of the works. This equipment may include mobile cranes, excavators, skid steers, loaders, rollers/compactors, pile drivers, telehandlers, skip bins, water carts, temporary shipping containers for storage, site office and site ablution blocks.

Full details of the process are provided in the *Waste and Decommissioning Assessment* prepared by ITP Development Pty Ltd. Reference should be made to that report for an explanation of each step in the decommissioning process.

4. STATUTORY FRAMEWORK

4.1 Legislation

4.1.1 Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment (EPA) Act 1979* is the principal piece of legislation governing the use and development of land in NSW. The objects of the Act are:

(a) to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources,

(b) to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment,

(c) to promote the orderly and economic use and development of land,

(d) to promote the delivery and maintenance of affordable housing,

(e) to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats,

(f) to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage),

(g) to promote good design and amenity of the built environment,

(h) to promote the proper construction and maintenance of buildings, including the protection of the health and safety of their occupants,

(i) to promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State,

(j) to provide increased opportunity for community participation in environmental planning and assessment.

The objects of the EPA Act are intended to guide land planning and management. Section 4.15 of the Act lists matters for consideration when assessing and determining an application for development.

4.1.2 Biodiversity Conservation Act 2016

The *Biodiversity Conservation Act 2016* introduced the *Biodiversity Offsets Scheme* which is used to determine whether the *Biodiversity Assessment Method* is necessary to assess the impacts of a development proposal on threatened species, endangered ecological communities and habitats. Determining whether a *Biodiversity Development Assessment Report* is required under the

Biodiversity Conservation Act 2016 and subsequently whether the *Biodiversity Offsets Scheme* would apply to the proposed works is subject to three steps.

- The first step is to identify whether the site is mapped on the *Biodiversity Values Map*.
- The second step is to estimate whether the extent of native vegetation to be cleared for the proposed development is above the threshold which in this case is 1 hectare.
- The third step is to carry out a test of significance to predict whether impacts on biodiversity are likely to be significant.

Under the *Biodiversity Offsets Scheme* offset obligations may apply whereby the biodiversity assessment finds that the removal of vegetation to facilitate the development will have significant impacts on flora. These offsets are in the form of credit obligations whereby payment is made to a biodiversity conservation fund which enable vegetation removal and provides funds to assists to preserve the same vegetation community elsewhere. Credit obligations also apply to fauna species where particular species are likely to be living in or frequenting the property. These matters are addressed in section *5.1 Biodiversity* of this Statement.

4.1.3 Water Management Act 2000

The *Water Management Act 2000* includes provisions to control or permit works near a watercourse or stream. Works within specified distances of the top of the bank of a watercourse may necessitate issue of a *controlled activity approval* by the Natural Resources Assessment Regulator. Impacts on surface and groundwaters are addressed in *5.3 Water resources* of this Statement.

4.1.4 Local Land Services Act 2013

The *Local Land Services Act 2013* regulates the clearing of native vegetation on rural land and where an activity is permitted without Council consent. There are two broad categories of land under the LLS Act - Category 1 (Exempt) land and Category 2 (Regulated, Vulnerable or Sensitive) land which are shown on the Native Vegetation Regulatory Map .

Clearing may be authorised on Category 1 (Exempt) Land but only where the activity is permitted without consent and when no other permit is required under other legislation. The onus is on the applicant to ensure they are not committing an offense under other legislation. If located on Category 2 (Regulated, Sensitive or Vulnerable) Land, the clearing may be authorised as an Allowable Activity or under the Land Management (native vegetation) Code within the *LLS Act*. If the clearing on Category 2 Land is not an Allowable Activity or is not authorised under the Land Management (native vegetation) Code, the clearing will need to be offset under the Biodiversity Offset Scheme. This means a Biodiversity Development Assessment Report is needed and the

clearing will need to be approved by the Native Vegetation Panel. The LLS Act does not apply to the proposed solar farm as development consent is required to be obtained to enable the works to proceed.

4.1.5 National Parks and Wildlife Act 1994

The objectives of the *National Parks and Wildlife Act 1974* are to conserve and protect habitat, ecosystems, biodiversity, landforms, landscapes and objects, places or features of cultural value in NSW. Under the NPW Act, it is an offence to knowingly harm or desecrate an Aboriginal object. Harm includes destroy, deface or damage an Aboriginal object or Aboriginal Place, and in relation to an object, move the object from the land on which it has been situated. Aboriginal objects include sites, relics or cultural material such as scar trees, middens and ancestral remains.

The NPW Act can also protect areas of land that have no Aboriginal objects, that is, they may have no physical evidence of Aboriginal occupation or use. These areas can be declared 'Aboriginal places' if they have spiritual, natural resource usage, historical, social, educational or other type of significance.

Anyone who exercises due diligence in determining that their actions will not harm Aboriginal objects has a defence against prosecution for the strict liability offence if they later harm an object. The *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* provides a process whereby a reasonable determination can be made as to whether or not Aboriginal objects will be harmed by an activity, whether further investigation is warranted and whether the activity requires an application for an Aboriginal Heritage Impact Permit. Due diligence has been carried out and is explained in section *5.8 Heritage* of this Statement.

4.1.6 Heritage Act 1977

The aims of the *Heritage Act 1977* are to identify, protect and conserve items of State heritage significance. Provisions of the Heritage Act facilitate the establishment of a State Heritage Register for the listing of items of State significance and the preparation of conservation management plans for these items. The Heritage Act also sets out the procedures for the approval of works relating to items listed on the State Heritage Register. Impacts on listed heritage items are addressed in section *5.8 Heritage* of this Statement.

4.1.7 Noxious Weeds Act 1993

The aims of the *Noxious Weeds Act 1993* are to prevent the establishment, reduce the risk of spread and minimise the extent of noxious weeds within NSW. The extent of noxious weeds and

procedures to eradicate weed infestation from the development site are addressed in section *3. Details of the proposed development* in this Statement.

4.1.8 Roads Act 1993

Under section 138 of the Roads Act 1993, consent is required to carry out works in, on or over a public road, remove or interfere with a structure, work or tree on a public road or connect a road to a classified road. The consent of Transport for NSW is required in the case of works relating to a classified road. Traffic impacts are addressed in section *5.6 Traffic and access* of this Statement.

4.1.9 Commonwealth Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* aims to protect nationally and internationally important flora, fauna, ecological communities and heritage places. The approval of the Commonwealth Minister for the Environment is required for actions that may have a significant impact on matters of national environmental significance. The *EPBC Act* also requires Commonwealth approval for certain actions on Commonwealth land.

An assessment of the potential impact of the proposed works on any matters of national environmental significance under the *EPBC Act* and the need for referral to the Commonwealth is provided in section *5.1 Biodiversity* of this Statement.

4.2 State Environmental Planning Policies

4.2.1 State Environmental Planning Policy No 55 – Remediation of Land

SEPP 55 requires Council to consider whether land is contaminated and to determine whether the proposed use is suitable with or without contamination. Council can require an applicant for development to conduct a preliminary investigation and a subsequent more detailed investigation if warranted. Where contamination exists and remediation is necessary, Council must be satisfied that the remediation will take place before the land is used for the proposed purpose. It is noted that should the preliminary investigation identify contamination on the site then the NSW *Contaminated Land Planning Guidelines* apply to subsequent investigations.

4.2.2 State Environmental Planning Policy (Infrastructure) 2007

The aims of *SEPP (Infrastructure) 2007* are to ensure a consistent and flexible planning system to facilitate the delivery of services. The policy identifies environmental assessment categories for types of infrastructure, matters to consider when assessing development adjacent to

infrastructure and provides for consultation with relevant public authorities. The policy applies to the whole of NSW.

SEPP (Infrastructure) contains provisions relating to approval processes and assessment requirements for infrastructure proposals according to the type or sector of infrastructure. It outlines land use zones where types of infrastructure are permissible with or without consent and identifies certain works as exempt and complying development.

Part 3 Division 4 of the policy relates to electricity generating works and solar energy systems. Section 34(7) enables development for the purpose of a solar energy system to be carried out by any person with consent on any land. The proposed development is permitted with consent by *SEPP (Infrastructure) 2007*.

Clause 45 of *SEPP (Infrastructure) 2007* requires the consent authority to consult with the electricity supply authority where development occurs near electricity infrastructure. If an electricity line runs within an easement on or near the development site, Council is to consult Essential Energy prior to determination of the application.

Clause 104 - Traffic-generating development also applies. Schedule 3 triggers a referral to Transport for NSW if the proposed development generates vehicle movements within a specified threshold.

4.2.3 Proposed Amendments to SEPP (Infrastructure) 2007 – Renewable Energy and Regional Cities

Amendments to *State Environmental Planning Policy (Infrastructure) 2007* that relate to renewable energy systems have been foreshadowed by the state government. An Explanation of Intended Effect (EIE) has been exhibited by the Department of Planning, Industry and Environment between 13 September 2021 and 11 October 2021. It is stated in the EIE that the proposed amendments aim to manage emerging land use conflicts associated with utility-scale solar and wind developments near regional cities. Examples of regional cities are included in the EIE although a regional city is not defined. The amendments will prescribe certain matters of consideration and new definitions for utility-scale solar and wind energy developments.

The EIE is an explanatory document prepared to provide information about a proposed amendment and is not a draft environmental planning instrument. A draft instrument to implement the proposed amendments to the Infrastructure SEPP has not yet been exhibited. The consent authority is not required to take this matter into consideration under section *4.15 Evaluation* of the *Environmental Planning and Assessment Act 1979*.

4.2.4 State Environmental Planning Policy (Primary Production and Rural Development) 2019

The aims of *SEPP (Primary Production and Rural Development) 2019* are:

(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.

The policy applies to *State significant agricultural land,* farm dams and other artificial waterbodies, livestock industries and aquaculture. There is no *State significant agricultural land* listed in the schedule to the policy.

The Department of Primary Industries (Agriculture) has released draft mapping of *State Significant Agricultural Land* in NSW to assist decision-making regarding development on rural land. The development site is not mapped as being *State Significant Agricultural Land.*

4.2.5 State Environmental Planning Policy (State and Regional Development) 2011

Development that is state and regionally significant is identified in *SEPP (State and Regional Development) 2011*. Electricity generating works including solar farms which have a capital investment value of more than $30 million, or a capital investment value of more than $10 million and are located in an environmentally sensitive area of State significance, are declared state significant development. Private infrastructure, including electricity generating stations, that have a capital investment value of over $5 million are declared regionally significant and are to be determined by a Regional Planning Panel.

4.2.6 State Environmental Planning Policy (Koala Habitat Protection) 2021

SEPP (Koala Habitat Protection) 2021 aims to encourage the conservation and management of areas of natural vegetation that provide habitat for koalas to support a permanent free-living population over their present range and reverse the current trend of koala population decline. The new policy is implemented through the *Koala Habitat Protection Guideline*. Schedule 1 lists local government areas to which the policy applies. A koala assessment report is required for development on rural properties greater than 1 hectare in area and for where a koala plan of management has not been prepared. Consent may be granted where there are no feed trees and the land is not koala habitat. This matter is addressed in section *5.1 Biodiversity* of this Statement.

4.2.7 State Environmental Planning Policy No. 33 – Hazardous and Offensive

State Environmental Planning Policy No. 33 – Hazardous and Offensive and the Hazardous Industry Planning Advisory Paper No. 6 – Guidelines for Hazard Analysis require that a Preliminary Hazard Assessment be prepared for potentially hazardous or offensive development. Although SEPP No 33 does not apply to the development of solar farms, ITP Development Pty Ltd has carried out a hazard analysis and risk screening, submitted separately and entitled *Fire Assessment*.

The results of risk screening are that a PHA is not required for dangerous goods to be stored on the site. However, the following management measures have been recommended to be implemented:

- Installing reliable, automated monitoring and control systems, with an alarm and shutdown response capability,
- Taking reasonable and safe measures to prevent the risks of external heat effects in the event of a bushfire,
- Designing appropriate separation and isolation between battery cubicles, and between the BESS and other infrastructure, in accordance with the manufacturers' recommendations, and including gravel set-off areas around the facility,
- Compliance with all applicable Australian codes and standards,
- Preparation of a BESS-specific fire response plan, in conjunction with the NSW Rural Fire Service,
- Installing an adequate automatic fire suppression system integrated into the detection and control system,
- Disposal (and where possible, recycling) of any potentially hazardous material in accordance with the best international practices available at that time, and

- Fuels and pesticides/herbicides in use at the site will be stored at the laydown area in appropriately bunded areas designed in accordance with AS1940-2004.

In terms of fire safety including the threat of bushfire, the report recommends that the facility with battery storage can be made safer through the integration of safety in design principles from bushfire standards including APZ clearances, internal protection areas, comprehensive system fault monitoring, automated fire detection and suppression systems and safety procedures built into WHS policies and procedures to ensure these farm assets and the surrounding area are protected from the risk of fire.

The layout of the solar array is proposed to include an Asset Protection Zone (APZ) surrounding the entire site with a 10 metre wide setback from a non-combustible chain-link fence. The APZ will not be located on land exceeding a slope of 18 degrees. This 10 metre wide APZ is also intended to act as a defendable space and a buffer against radiant heat effects for emergency services. Furthermore, a minimum 10 metre wide APZ shall be established around the battery station (which includes the cubicles, switching station and associated structures of the BESS) and other infrastructure including gravel off-set areas. Road access to the site and fencing are excluded from the APZ. Internal curves of the APZ and inner protection area (IPA) are designed with minimum 6 metre radius turning circles to assist in vehicle access. The solar farm includes an early warning system of issues such as earth faults and automatically initiates safety systems to prevent uncontrolled outbreaks of hazards such as electricity disturbances on the grid or localised issues such as fire.

4.3 Local Environmental Plans

4.3.1 Gilgandra Local Environmental Plan 2011

The property is zoned RU1 Primary Production under *Gilgandra LEP 2011*. The objectives of zone RU1 are:

- *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.*
- *To minimise conflict between land uses within this zone and land uses within adjoining zones.*
- *To enable development that supports agriculture to be carried out on land within this zone in a manner that does not significantly reduce the agricultural and horticultural production potential of land in the locality.*

- *To encourage eco-tourist facilities and tourist and visitor accommodation that minimise any adverse effect on primary industry production and scenic amenity of the area.*
- *To allow the development of non agricultural land uses that are compatible with the character of this zone*

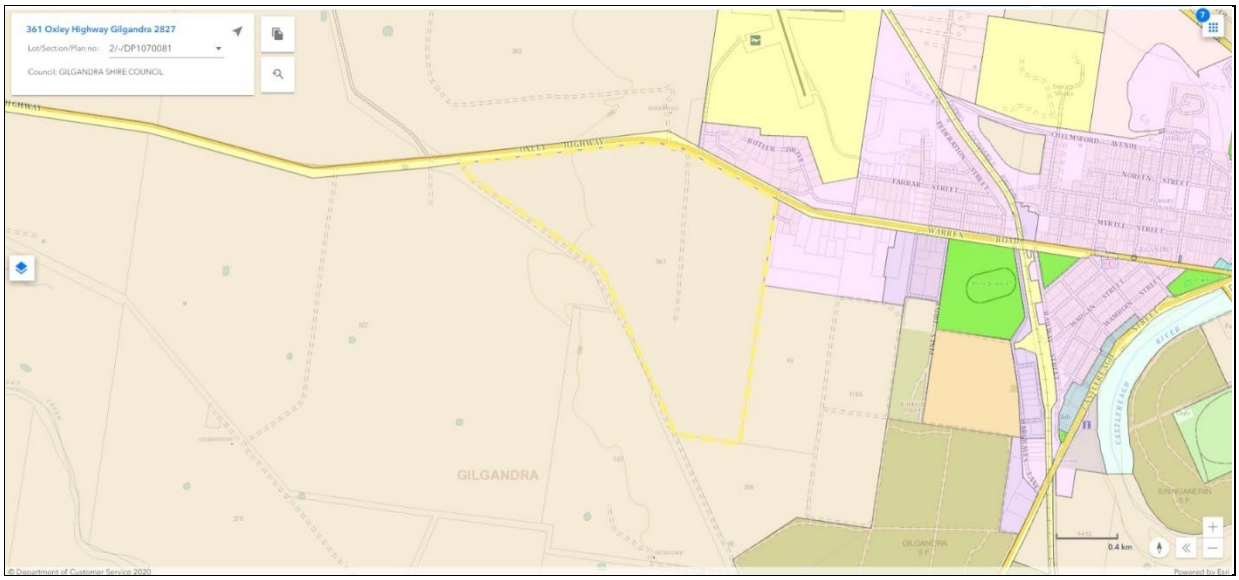


Figure 4: Land zoning Gilgandra. Source: NSW Planning Portal

The development is defined as ***electricity generating works*** which means a building or place used for the purpose of making or generating electricity. This use is prohibited in zone RU1.

Large parcels of land surrounding the development site are also zoned RU1 with adjoining land to the north and north-east zoned R1 General Residential.

The following clauses of *Gilgandra LEP 2011* apply to the proposed development:

Clause 7.1 Biodiversity protection

The objective of this clause is to maintain terrestrial and aquatic biodiversity, including protecting native fauna and flora, protecting the ecological processes necessary for their continued existence, and encouraging the recovery of native fauna and flora and their habitats. The consent authority is to consider the impact of the proposed development on native ecological communities; the habitat of any threatened species, populations or ecological community; regionally significant species of fauna and flora or habitat; and habitat elements providing connectivity. The consent authority must be satisfied that the development is designed or managed to avoid, minimize or mitigate adverse impacts.

The development site is mapped as being affected by Biodiversity Sensitivity on the *Sensitivity Biodiversity Map* (Sheet NRM_002B. This matter is addressed in section 5.1 Biodiversity of this Statement.

Clause 7.6 Essential services

This clause requires a consent authority to be 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:

(a) the supply of water,
(b) the supply of electricity,
(c) the disposal and management of sewage,
(d) stormwater drainage or on-site conservation,
(e) suitable road access.

The supply of reticulated water and sewerage services is not required for the proposed development. However, portaloos for wastewater disposal (see https://www.kennards.com.au/site-equipment/showers-toilets.html) and water supply by way of a portable tank or cart (see https://www.kennards.com.au/site-equipment/water-tank.html) are proposed to be installed during the construction phase.

Electrical services are available to the site. Stormwater management is proposed to be addressed by controls recommended in this Statement with full details to be provided with the application for a construction certificate. Legal and practical access to the site is available by Aralee Road.

Clause 7.8 Earthworks

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.

Development consent is required for earthworks unless the earthworks are ancillary to development for which development consent has been given. In deciding whether to grant development consent for development involving ancillary earthworks, the consent authority must consider:

(a) the likely disruption of, or any detrimental effect on, drainage patterns and soil stability in the locality,

(b) the effect of the development on the likely future use or redevelopment of the land,

(c) the quality of the fill or the soil to be excavated, or both,

(d) the effect of the development on the existing and likely amenity of adjoining properties,

(e) the source of any fill material and the destination of any excavated material,

(f) the likelihood of disturbing relics,

(g) the proximity to, and potential for adverse impacts on, any waterway, drinking water catchment or environmentally sensitive area.

h) any measures proposed to minimise or mitigate the impacts referred to in paragraph (g).

Earthworks associated with the development comprise minor excavation to 150mm to install road base for accessways, 750mm footings for the inverters and security fence strainer posts, 1,000mm footings for the access gate and 1,500mm to 3,500mm footings for the panel mounting frames. Cable trenching of 600mm for low voltage cables and 1,200mm deep trenching is also to be carried out.

All of these earthworks are ancillary to the development of a solar farm and are not expected to impact adversely on drainage, future use of the land if the facility if decommissioned, relics, the natural environment or adjoining developments.

There are no draft environmental planning instruments that are on exhibition or have been exhibited but not yet published that apply to the site, or that relate to the proposed development of electricity generating works.

4.4 Development Control Plans

4.4.1 Gilgandra Development Control Plan 2011

Gilgandra DCP 2011 provides guidance for development, however, the DCP does not contain any provisions that apply to the development of a solar farm. Notwithstanding, the following sections of the DCP broadly apply to the proposed development.

Ch. 11 Indigenous heritage

A due diligence assessment of Indigenous heritage has been carried out using the AHIMS database and no items or places of significance have been recorded at 361 Oxley Highway, Gilgandra. Contact has been made with Gilgandra LALC and an enquiry made as to whether the LALC is aware of any heritage on site that is not recorded in AHIMS and whether a site survey

should be carried out prior to the commencement of works. This matter is addressed in section *5.8 Heritage* of this Statement.

Ch. 12 Non-indigenous heritage

Two heritage items are located on the Council works depot site opposite the development site. These are the Igloo and Butlers Airlines Hangar. These items will be some 320 metres from the nearest point of the solar farm and there will be no visual connection between the array or ancillary infrastructure and the heritage items. An assessment of the impact of the proposed development on the values of these two heritage items is included in the *Landscape Character and Visual Impact Assessment* prepared by Zenith Town Planning Pty Ltd to support the development application. It is considered that the development respects the values and setting of these two items through distance separation and additional proposed landscape screening.

Ch. 21 Environmental hazards

Flooding, bushfire threat and land contamination are addressed in sections *5.2 Natural hazards* and *5.3 Water resources* of this Statement.

Ch. 22 Waste minimisation and management

A Waste and Decommissioning Assessment has been prepared by ITP Development Pty Ltd and is submitted under separate cover. A summary of the findings and recommendations of this report is provided in section *3.9 Waste management and decommissioning* of this Statement.

Ch. 25 Erosion and sediment control

A range of site drainage and water quality controls have been recommended by ITP Renewables in the Water Assessment prepared to support the DA that relate to development design, construction and decommissioning. These have been summarised in section *5.3 Water resources* of this Statement.

Ch. 26 Stormwater management

A range of site drainage and water quality controls have been recommended by ITP Renewables in the Water Assessment prepared to support the DA that relate to development design, construction and decommissioning. These have been summarised in section *5.3 Water resources* of this Statement.

Ch. 27 Preservation or trees or vegetation

There are no trees proposed to be removed to facilitate construction of Gilgandra Solar Farm. Access to the site may involve the removal of some ground cover which may include native grasses. This matter is addressed in the *Biodiversity Inspection Report* prepared by Red-Gum Environmental Consulting Pty Ltd and summarised in section *5.1 Biodiversity* of this Statement.

4.5 Land use strategies

4.5.1 Central West and Orana Regional Plan

The *Central West and Orana Regional Plan 2036* was released in June 2017. It establishes a framework for growth over the next 20 years for the Central West and Orana Region. Gilgandra LGA is located in the centre of the Orana district. The settlement of Gilgandra is nominated as a *Centre*. Economic opportunities identified in the plan include renewable energy generation to promote local jobs in small communities and development opportunities for associated industries.

A series of goals, directions and actions are to guide land use planning priorities and decision-making. The plan aims to develop the region as *the most diverse regional economy in NSW*. Direction 9 is to increase renewable energy generation. It is noted that *The region has significant potential for renewable energy industries with vast open spaces and higher altitude tablelands with potential for wind power generation, large-scale solar energy and bioenergy generation.*

Action 9.1 is to iden*tify locations with renewable energy generation potential and access to the electricity network*. In the case of the proposed Gilgandra Solar Farm, ITP Development have identified the development site as being suitable in terms of existing power infrastructure to enable connection and proximity to the township of Gilgandra in order to directly generate power for use by the local community. Action 9.2 is to *facilitate small-scale renewable energy projects using … solar … through local environmental plans*.

4.5.2 Gilgandra Local Strategic Planning Statement 2020

The *Gilgandra Shire Local Strategic Planning Statement 2020* outlines economic, social and environmental land use needs for the next 20 years. The Statement identifies planning priorities to achieve the vision for Gilgandra, along with actions and the means for monitoring delivery.

Planning Priority 9 of the LSPS is *Adapting to change*. It is noted in the statement that Gilgandra Shire Council will also show leadership by committing to transitioning its energy needs to

renewable sources, creating healthy public spaces, and resilient infrastructure. A strategy of the *Castlereagh Regional Economic Development Strategy 2018-2022* (Incorporating Gilgandra and Warrumbungle Shire Councils) is referenced as *Invest in water and energy utilities infrastructure to achieve a sustainable economy and improve quality of life.*

The proposed Gilgandra Solar Farm will also assist Council to achieve Planning Priority 6 of the LSPS which is to *Expand education and opportunities for local employment* through upskilling of the local workforce during the construction and operation of the facility.

4.5.3 NSW Renewable Energy Action Plan

The *NSW Renewable Energy Action Plan* supports the achievement of the national target of 20% renewable energy by 2020. It aims to position NSW to increase the use of energy from renewable sources at least cost to the energy customer and with maximum benefits to NSW. The plan is predicated on the following three goals:

- Attract renewable energy investment and projects
- Build community support for renewable energy
- Attract and grow expertise in renewable energy technology

These goals are supported by 24 actions which include considering a more strategic and integrated approach to assessment of renewable energy projects and promoting NSW as a leader of research and innovation in renewable energy.

The plan notes that the NSW Government is in the process of streamlining the state planning system and advocates new planning legislation founded on the principle of sustainable development that meets the needs of the current generation without compromising the ability of future generations to meet their needs. Renewable energy projects are a good example of sustainable development in action. Streamlining will focus public participation on strategic planning in order to provide greater certainty for applications and the community in development assessment.

Importantly, the development site is located within the Central West Renewable Energy Zone designated by the state govrnment.

5. ENVIRONMENTAL EFFECTS

5.1 Biodiversity

5.1.1 Assessment of impacts

A biodiversity assessment has been carried out by Red-Gum Environmental Consulting Pty Ltd to determine the potential impact on any threatened species and endangered ecological communities that are present on the development site and in the vicinity of the site. The findings of the assessment are summarized below. Reference should be made to the *Biodiversity Inspection Report* that is submitted with the development application for further information or clarification of any matter concerning the assessment and recommendations.

Methodology for the biodiversity assessment involved desktop research and a site inspection. The assessment covered details of recorded sightings of threatened species including koalas and identification of vegetation communities in the vicinity of the development site.

The *Biodiversity Inspection Report* provides a test of significance in accordance with requirements of the *Biodiversity Conservation Act 2016,* an assessment of potential koala habitat as required by *SEPP (Koala Habitat Protection) 2021*, and also satisfies requirements of the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999*.

5.1.2 Findings

Red-Gum Environmental Consulting Pty Ltd contends that the project requires less than 1 hectare clearance of native grass and zero remnant native trees. The proposed activities are unlikely to have an adverse effect on the foraging ability or the life cycle of threatened species that may be opportunistically using the site or surrounding areas.

The small amount of native grass that will be impacted by the development (primarily in the entrance to the site) will not endanger or have a significant effect on any existing native vegetation, habitats within the wider region, or fauna species that may be using the site.

This project will not displace any rare or threatened species, however, it is likely that a number of threatened and declining bird species and Koala may be using the areas on the western and eastern boundaries of the site and in the heavily wooded areas to the east of the site, hence the construction activities may prove to disturb foraging activities for a short period.

While the proposed works are unlikely to introduce noxious weeds, vermin, feral species or genetically modified organisms into an area, the movement of vehicles, plant, equipment and people on and off the development site has the potential to introduce such impacts. Wherever possible, removal of weeds should be undertaken prior to seed developing, which for most species occurs during the warmer months (i.e. summer).

The typical home ranges of Koalas are from 2 hectares of connected vegetation to hundreds of hectares. Koala feed almost exclusively on a few preferred tree species which are of primary and secondary importance. The occurrence of both primary and secondary tree species varies widely on a regional, local and even a seasonal basis, meaning that koalas are unevenly distributed across their range. In the study area, primary food tree species are River red gum (*E. camaldulensis*) and Coolabah (*E. coolabah*) with secondary food tree species including Dirty (or Baradine) gum (*E. chloroclada*), Blakely's red gum (*E. blakelyi*), E. camaldulensis, Poplar or Bimble box (*E. populnea*), white box (*E. albens*), and *Callitris glaucophylla*.

No viable food sources are present in the development area. Importantly, there are numerous core vegetation areas surrounding the site which represent areas of viable Koala habitat. The site is highly unlikely to be traversed or used by the species who are much more likely to stay within the connected canopy of the large remnant patch to the east of site.

The report concludes that the activities as proposed will not have a significant effect on any threatened species and ecological communities and/or their conservation.

5.1.3 Mitigation measures

By way of a clearing process that minimizes the risk to threatened species that may be opportunistically using the site, it is recommended that:

I. Construction limits and exclusion zones be clearly identified prior to work,
II. A visual inspection is conducted by environmental staff before construction commences to identify any areas of the site that might be supporting native fauna,
III. Vehicle movements around the site will be restricted to the construction footprint and away from any existing planted trees and flagging exclusion fencing to be installed,
IV. Soil disturbance by vehicle and pedestrian access is to be kept to a minimum outside the construction footprint, and
V. Any weeds removed (particularly those bearing seeds) are to be disposed of appropriately at the nearest waste management facility.

5.2 Natural hazards

5.2.1 Flooding

The site not mapped as a flood planning area on the Flood Planning Map in *Gilgandra LEP 2011.* An analysis of flood potential is summarised and mitigation measures are provided in section *5.3 Water resources* of this Statement.

5.2.2 Bushfire

The site is mapped as being affected by bushfire hazard on the bushfire prone land map. Infrastructure comprising electricity generating works is not a habitable building and is not listed as a *special fire protection purpose* under section 100B of the *Rural Fires Act 1997.*

However, defendable space is available within the 10 metre setback between the array and the security fence. It is also proposed that a fire emergency management plan be prepared through liaison with Council, Essential Energy and the Rural Fire Service. That plan would establish procedures to respond to a fire event and other measures such as maintenance of ground fuels, access arrangements, on site fire-fighting equipment and isolation of electrical infrastructure.

5.2.3 Land contamination

A search of the Environment Protection Authority's *List of Notified Contamination Sites* and *Protection of the Environment Operations Act Public Register* has been undertaken which revealed no contaminated site listed in or around the development site. The property is not listed on a Council register of potentially contaminated land. There are no known prior land-uses on the development site that are likely to have resulted in the contamination of the land. A preliminary assessment is not considered necessary in this instance.

5.2.4 Mitigation measures

See section *5.3 Water resources* for recommended mitigation measures to address flooding.

Prepare a fire emergency management plan and include that plan in the environmental management plan.

There are no mitigation measures recommended in relation to land contamination.

5.3 Water resources

5.3.1 Assessment of impacts

A *Water Assessment* of potential impacts on groundwater and surface water flows and flooding has been carried out by ITP Renewables Pty Ltd. The findings of the assessment are summarized below. Reference should be made to the *Water Assessment* that is submitted with the development application for further information or clarification of any matter concerning the assessment and recommendations.

5.3.2 Findings

Potential adverse surface water-related impacts to the site relate to site accessibility and managing downstream sedimentation. There will be no extraction of groundwater or interference with the groundwater table and the works are not expected to contribute to any regional groundwater issues.

The project site is not within any mapped flood zones flood shown in the *Gilgandra LEP 2011* and the Gilgandra Shire local flood plan. The site does not have any significant drainage lines passing through it due to the flat topography of the immediate area.

The development has the potential to alter existing water quality conditions within the site. The impervious area of solar facilities is typically only marginally increased owing to associated hardstand and building areas.

However, the panels may impact the nature of vegetation/grass coverage on the site, which has the potential to increase surface runoff and peak discharge. Increased flow concentration off the panels also has the potential to erode soil at the base of solar panels.

As the site has been historically used for cropping there is very little natural ground cover vegetation. Modelling by the NSW Government indicates that the site has a soil profile with dark brown light clay with alluvium lithology. The physiography is described as having extremely low local relief. There is the potential that the proposed solar site runoff will contain sediments and increase turbidity or other water quality parameters in downstream water ways.

5.3.3 Mitigation measures

The following mitigation measures given in Table 6 are recommended to manage downstream sedimentation.

The potential for site accessibility and the potential for inundation issues during flood events should be reviewed and procedure developed to halt construction during heavy rainfall to reduce potential impacts to the development and to increases in downstream sedimentation.

Table 6: Proposed mitigation measures to manage downstream sedimentation

Stage	Measure	Activities/approach
Design	Site drainage and water quality controls	Design Basis • Undertake hydrological assessment of the site's catchment in accordance with relevant methods outlined in Australian Rainfall and Runoff • Determine sediment management targets and drainage control standards in accordance with Managing Urban Stormwater: Soils and Construction Vol 1 (Blue Book) (DECC, 2008). • Develop a site erosion and sediment control plan in accordance with the Blue Book. • Develop site drainage design incorporating detention basins and sedimentation management structures where relevant. • Permanent site drainage should coincide with temporary arrangements where possible
Construction and/or demolition	Site drainage and water quality controls	General site works: • Catch drains to be located downslope of any proposed road works. • Install location appropriate sediment fences or other applicable control measures depending on whether the feature is upstream or downstream of a disturbed part of the site or will need to be trafficable. • All stormwater collection points need to have appropriate sedimentation and erosion controls. • Undertake ongoing inspections of stormwater facilities and water control measures to assess their effectiveness. • Vibration grids or wash bays at all construction exits. • Level spreaders at locations where concentrated flow is discharged offsite to ensure sheet flow like conditions are maintained. • Flat land erosion control options include erosion control blankets, gravelling, mulching, soil binder, turfing and revegetation
Construction and/or Demolition	Stormwater point source control	In the event of concrete works: • Do not undertake works if chance of heavy rain. • Store rinsate water, if applicable, separately to other water on site and dispose of offsite as appropriate. • Block on site drains in the area of the works and remove any contaminated runoff. In the event that dewatering practices are required: • Elevate pump hose intakes for withdrawing water from excavations to minimise sediment pumping and direct hose to a containment area for settling prior to discharge of water. • Limit direct discharge off site (consistent with the design requirements for sediment pond discharge).

Stage	Measure	Activities/approach
		• Stormwater collected on site should be reused where possible. Controls should be inspected and maintained on a regular basis. All water released from sediment basins should be clear or disposed of off site by vehicle. • Material and waste storage areas should be designed and operated to minimise interaction with surface waters. • Vehicle washdown areas should be located away from water courses

5.4 Air quality

5.4.1 Assessment of impacts

The Department of Planning, Industry and Environment maintain air quality monitoring stations across rural NSW. The instruments used at most rural network sites are low cost indicative particulate monitors that respond to all aerosols including smoke and fog.

Total suspended particles are solid particles and liquid droplets 100 micrometres or less in diameter. They come from natural and human-made sources, such as pollen, bushfires and motor vehicle emissions. Dust emissions are also a source of air pollution and can cause poor air quality. The pollutants measured by the Department are nitrogen dioxide, sulphur dioxide and ammonia.

Particles are also measured as PM_{10} and $PM_{2.5}$. PM_{10} are particles less than 10 micrometres in diameter. Sources include crushing or grinding operations and dust stirred up by vehicles on roads. $PM_{2.5}$ are fine particles less than 2.5 micrometres in diameter. Sources include all types of combustion, including motor vehicles, power plants, residential wood burning, forest fires, agricultural burning, and some industrial processes.

Table 7 gives average hourly readings of PM_{10} particles and $PM_{2.5}$ particles and the DPIE rating for the nearest monitoring stations to the development site.

Table 7: Average hourly air quality readings. Source: https://www.dpie.nsw.gov.au/air-quality/air-quality-concentration-data-updated-hourly

Monitoring station	Orange		Gunnedah	
Period	11 November 2021, 1.00pm-2.00pm			
Particles	Reading	Rating	Reading	Rating
PM_{10}	4.0	Good	7.1	Good
$PM_{2.5}$	2.4	Good	3.3	Good

Activities that disturb the earth's surface and that are carried out with the use of machinery have the potential to generate dust emissions. This may be exacerbated by wind exposure to an exposed ground surface. The previous use of the land for farming may have involved regular tilling, sowing and harvesting that may create dust and impact on air quality. Similarly, grazing would generate dust as animals trample the ground surface. The land has been modified for agriculture with the consequent loss of most native vegetation leading to exposed soil surfaces.

The construction of the solar farm will not involve extensive earthworks. Pile driving for footings for the array framework and excavation for roads and ancillary structures will be carried out. Along with the delivery of materials using heavy vehicles, these construction works may generate dust, however, once operational the change of use of the land from agricultural to solar photovoltaic electricity generation is expected to reduce particulate emissions and lead to an improvement in local air quality. Vehicle movements would be restricted to internal access roads and the majority of the site would be revegetated with native or pasture grasses.

5.4.2 Mitigation measures

To minimize dust generation during the construction and operational phases the following mitigation measures are proposed:

During construction:

- Limit vehicle movements to areas necessary to deliver panels, ancillary structures and equipment,
- Suppress dust emissions using watering and cease works during dry and windy condition,
- Ensure ground disturbance is limited to areas necessary to place footings or to be used for access,
- Ensure minimal handling of excavated materials, and
- Ensure stockpiles of excavated material is bunded and protected from wind and vehicle movements.

During operation:

- Grade and add road base to internal accessways,
- Revegetate the site with suitable groundcover immediately construction works are completed, and
- Ensure all plant and equipment operates in accordance with specifications.

5.5 Noise

5.5.1 Assessment of impacts

A *Noise Assessment* of the impacts of noise emissions has been carried out by Muller Acoustic Consulting. The findings of the assessment are summarized below. Reference should be made to the *Noise Assessment* that is submitted with the development application for further information or clarification of any matter concerning the assessment and recommendations.

The purpose of the *Noise Assessment* is to quantify potential environmental noise emissions associated with the construction and operation of the project. Where impacts are identified, recommendations are made to mitigate and manage noise. The location of noise sensitive receptors are shown in Figure 5.

5.5.2 Findings

The results of the Noise Assessment demonstrate that of 39 identified receivers, noise levels are expected to exceed the noise management levels by up to 5dB at 16 receivers and up to 9dB at an additional eight receivers when works are at their nearest proximity during standard construction hours. Exceedances at these receivers are expected from all construction activities (piling, trenching & assembly), however, the exceedances would be of a temporary nature and of short duration.

Operational noise management levels are satisfied at all identified receiver locations. Sleep disturbance is not anticipated, as there are no operational noise sources that generate significant maximum noise events and noise emissions from the project are predicted to satisfy the EPA maximum noise level criteria.

Road noise emissions associated with the project are anticipated to satisfy the relevant Road Noise Policy criteria at any receiver along the proposed transportation route and not increase noise levels by more than 2dB.

A qualitative assessment of potential vibration impacts has been completed. Due to the nature of the works proposed and distances to potential vibration sensitive receivers, vibration impacts from the project would be negligible.

Based on the Noise Assessment results, there are no noise related issues which would prevent approval of the proposed project subject to the proposed recommended mitigation measures.

Figure 5: Location of noise sensitive receivers. Source: Muller Acoustic Consulting

5.5.3 Mitigation measures

The following mitigation measures are recommended to address noise emissions during the construction phase:

- a construction noise management protocol to minimise noise emissions, manage out of hours (minor) works to be inaudible, and to respond to potential concerns from the community,
- where possible use localised mobile screens or construction hoarding around piling rig/plant to act as barriers between construction works and receivers, particularly where equipment is near the site boundary and/or a residential receiver including areas in constant or regular use (e.g. unloading and laydown areas),
- operating plant in a conservative manner (no over-revving), shutdown when not in use, and be parked/started at farthest point from relevant assessment locations,
- selection of the quietest suitable machinery available for each activity,
- minimise noise plant/machinery working simultaneously where practicable,
- minimise impact noise wherever possible,
- utilise a broadband reverse alarm in lieu of the traditional high frequency type reverse alarm,
- provide toolbox meetings, training and education to drivers and contractors visiting the site during construction so they are aware of the location of noise sensitive receivers and to be cognisant of any noise generating activities,

- signage is to be placed at the front entrance advising truck drivers of their requirement to minimise noise both on and off-site, and
- utilise project related community consultation forums to notify residences within proximity of the site with project progress, proposed/upcoming potentially noise generating works, its duration and nature and complaint procedure.

It is recommended that noise emissions from the solar farm be minimised when operational. To assist in noise management, it is recommended that a one-off noise validation monitoring assessment be completed to quantify emissions from the site and to confirm that relevant criteria are satisfied.

5.6 Traffic and access

5.6.1 Assessment of impacts

A *Traffic Impact Assessment Report* of the impacts on traffic and the adequacy of access arrangements has been prepared by Price Merrett Consulting Pty Ltd. The findings of the assessment are summarized below. Reference should be made to the *Traffic Impact Assessment Report* that is submitted with the development application for further information or clarification of any matter concerning the assessment and recommendations.

The traffic assessment includes a description of the existing road network and considers expected traffic generation during site construction and operation. Site access arrangements and intersection capacity are also considered.

5.6.2 Findings

During the three-month construction period 45 heavy vehicles will access the site with an expected daily maximum of 4 trucks. Access to the site for heavy vehicles will be limited to between 10.00am and 2.00pm. A maximum of 50 construction workers are likely to generate around 40 vehicles entering the site in the morning between 6:30am and 8:00am and leaving at the afternoon peak between 4:00pm and 5:00pm. This is based on the number of vehicles being 80% of the workforce. These will be light vehicles and/or a shuttle bus service. Movements are expected to be evenly distributed between Gilgandra and other nearby towns such as Dubbo, therefore, traffic movements will be predominantly left turn into the site during the morning peak and right turn out of the site in the afternoon. Proposed turning movements are low and the impacts of short-term construction works are assessed to be minimal. Turning templates demonstrate that B-Double trucks can manoeuvre into and out of Aralee Road at the intersection with the Princes Highway.

Access to the site is to be by way of a entrance off Aralee Road at the north-eastern corner of the development footprint and approximately 290 metres from the intersection with the Oxley Highway. Aralee Road is a local gravel road approximately 8 metres wide with table drains. A permit would be required for B-Double use of Aralee Road. The proposed access will be constructed to an all-weather standard able to accommodate a B-Double turn movement. The specific access should be located to minimise vegetation removal. The intersection of Oxley Highway and Aralee Road provides a channelized left turn into Aralee Road which would not require any further improvements with the low number of proposed traffic movements.

5.6.3 Mitigation measures – to be updated

It is recommended that:

- The access point should be constructed to accommodate B-Double turning movements.
- Dust suppression (water cart) may be required depending on the construction time.
- Prior to the commencement of construction, a consultation plan is recommended to be implemented with a focus on notifying local community of the programmed works. Primarily this is to give information on site contact details if there are any concerns.
- Dilapidation survey to be undertaken along Aralee Road and the site returned to previous or better state following the construction period.
- New access to be designed and constructed to a standard to Council's standards. This may require drainage works depending on levels.

5.7 The community and economy

5.7.1 Population and accommodation

Gilgandra Shire Council contracts Remplan to analyse census and demographic data. The data provided below has been sourced from Remplan's community profile https://app.remplan.com.au/gilgandra/community and economic profile https://app.remplan.com.au/gilgandra/economy/.

The usual residence count For Gilgandra from the 2016 Census was 4,237 persons, compared to 4,368 in 2011. This represents a population change of 131 persons, or an annualised rate of -0.61%.

The 2020 Estimated Residential Population (ERP) is 4,229. This represents a decrease from the 2016 ERP of 4,298, or 69 persons. The annualised growth rate from 2016-2020 was -0.4%, compared to 1.38% for New South Wales.

There were a total of 4,181 dwellings in Gilgandra in 2016. Of these 4,006 (95.8%) were occupied private dwellings and the remainder were non-private dwellings. There were no unoccupied private dwellings.

The Gilgandra economy supports an estimated 1,578 jobs, representing 3.16% of the 49,871 people working in Orana Region, 0.05% of the 3,358,119 people working in New South Wales, and 0.01% of the 10,683,322 people working in Australia. In Gilgandra, the centre of the region contains the highest number of jobs. Gilgandra has an annual economic output **of** $469.55 million.

In Gilgandra, tourism supports an estimated 94 jobs, which is 6% of total employment. The largest sub-sector in Gilgandra is Accommodation & Food Services with 70 jobs supported by tourists expenditure. There are only two establishments offering accommodation for visitors to Gilgandra listed on the NSW Government's VisitNSW website (https://www.visitnsw.com/destinations/country-nsw/dubbo-area/gilgandra). These are a motel and caravan park. However, there are a further 47 places to stay in nearby Dubbo and surrounding districts which is 40 minutes drive from Gilgandra. In addition to these establishments there is likely to be additional unregulated accommodation places such as AirBnB and Stayz.

5.7.2 Agriculture and land capability

The Agriculture, Forestry & Fishing industry sector makes the greatest contribution to economic output in the region, which at $183.2 Million accounts for 39.01% of total output. This industry sector is also the largest employer with 546 jobs which represents 34.6% of total employment within the region.

DPI Agriculture uses the land and soil capability mapping scheme as the preferred methodology for the classification of agricultural land. Eight classes of rural land are mapped plus flood irrigation, and mining and quarrying land. Figure 6 below shows land capability mapping for the development site and surrounding land.

The development site has a land capability of class 3 and class 4. The class 3 land is across the western extent of the parcel. The proposed location of the solar farm is class 4 land capability. Class 4 is moderate capability land: Land that has moderate to high limitations for high-impact land uses, which restricts land management options for regular high-impact land uses such as cropping, high intensity grazing and horticulture. These limitations can only be managed by specialised management practices with a high level of knowledge, expertise, inputs, investment

and technology. (*The land and soil capability assessment scheme – A general rural land evaluation scheme for NSW, 2nd Approximation*, OEH).

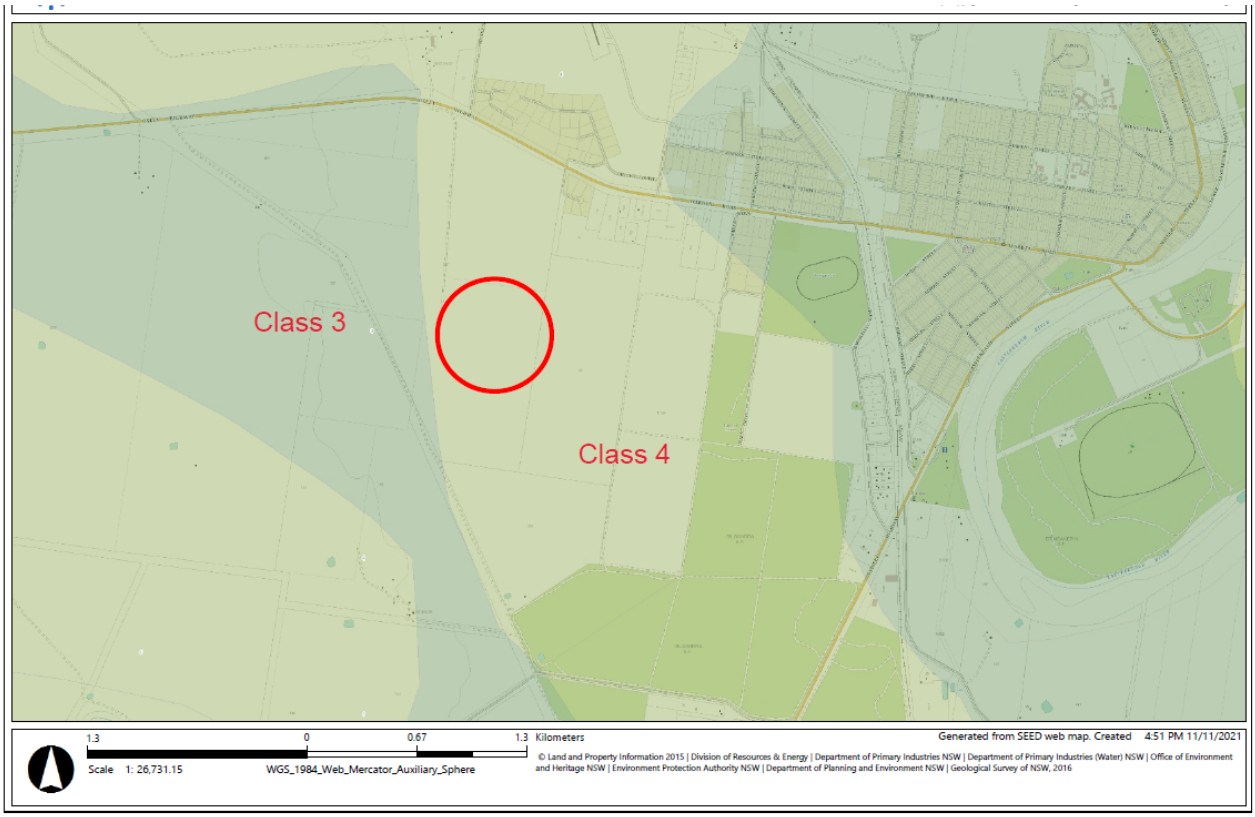


Figure 6: Land capability mapping. Source: OEH 2021

The Department of Primary Industries (Agriculture) has recently released draft mapping of *State Significant Agricultural Land* in NSW under *SEPP (Primary Production and Rural Development) 2019*. The development site is not mapped as being *State Significant Agricultural Land.*

5.7.3 Potential socio-economic impacts

The benefit to the community of the solar farm will be through an increased understanding of sustainable development and by gaining a commitment to greater reliance on renewable energy. Similarly, the clustering of solar power generation would bring regional economic development benefits to the region as the area gains a reputation as a suitable location for renewable energy and linked industries, implementing the *Central West and Orana Regional Plan 2036*.

It is anticipated that there will be 50 personnel directly involved in construction on site which is expected to take approximately three months. Varying levels of expertise will be required ranging from labourers to qualified electricians and project managers. In addition, personnel would be involved in transport and delivery of materials to the site. Some of this employment may be able

to be sourced locally. Once operational the site will be unmanned, however, two to three personnel will be necessary to carry out maintenance every quarter or as required. The skills required to be involved in the construction and ongoing maintenance of the solar farm may require some personnel to undergo further training and education, leading to an upskilling of the local workforce and enhanced employment opportunities generally.

Employment and education will bring direct economic benefits to the local economy through wages and salaries and indirect benefits through the need for accommodation and sustenance in the area for non-local employees. Restaurants, cafes, bakeries, supermarkets, pubs and newsagents would all benefit from the additional custom this will bring.

During the initial planning phase ITP (Development) Pty Ltd commissioned local professionals to carry out the land survey of the development site. This initial expenditure generates flow on effects throughout the local economy through income and employment. If necessary, sites officers employed by the Local Aboriginal Land Council will be engaged to carry out a cultural survey prior to commencement of works to identify any Indigenous items or places present on the development site.

If all construction workers reside outside the region it is considered that there is adequate accommodation available to cater to the 50 workers given the number of visitor accommodation establishments in Gilgandra, Dubbo and surrounding districts plus short term rentals and unregulated accommodation providers. However, it is important to ensure that the timing of construction of the solar farm does not coincide with the period of construction of other infrastructure to avoid additional pressure on visitor accommodation.

There is likely to be negligible effects on the availability of affordable rental over the short construction period as it is not expected that landlords would evict long-term tenants in preference of short-term workers for a period of only three months. Workers coming to the area would be likely to take up tourist accommodation similar to mine workers across country NSW, however, construction may be limited to the off-peak tourist season if necessary.

The loss of agricultural land due to the development of the solar farm would be minimal. If necessary and practical in terms of security, the land surrounding panel arrays can continue to be used for farming purposes such as the cultivation of vegetables or flowers, or potentially livestock grazing during the operation of the solar farm. The landowner may also choose to continue to graze livestock within and around the array, activities that do not require consent, and the additional lease income may be put to improvements elsewhere on the property. The arrays of panels can be removed once the facility is decommissioned and the land can be returned to full agricultural use.

It is considered that the impact in terms of loss of productive agricultural land should be seen in the context of the impacts on farmland of other forms of power generation, for example, fracking for coal seam gas, and mining for coal and uranium as well as the infrastructure to support the processing of coal and gas. The loss of agricultural land would be offset by the contribution that the solar farm will make to the local economy through direct and indirect employment and expenditure over the short term and through the benefits that renewable energy power supply will bring to the region.

Plate 1: Sheep grazing amongst a PV array. Source: Sydney Morning Herald 17 February 2021

In summary:

- The solar farm will generate community economic benefits through local employment opportunities during the planning and construction phases as well as limited maintenance and inspection jobs once operational. The development of a solar farm will create a new market for local contractors and expand diversity of income for the land holder
- The loss of productive agricultural land is minimal and temporary. The array of panels can be removed once the facility is decommissioned and the land can be fully returned to agricultural use

- If necessary and practical in terms of security, the land can continue to be used for farming purposes such as the cultivation of vegetables or flowers, or the grazing of sheep during the operation of the solar farm

5.7.4 Mitigation measures

It is recommended that labour to construct the solar farm and for ongoing maintenance be sourced from within Gilgandra LGA wherever possible. Where labour needs to be brought into the area, it is considered that there would be sufficient accommodation options for employees in the LGA for the estimated 50 workers engaged during the three month construction phase. However, it is necessary to ensure that the timing of construction of the solar farm does not coincide with the construction of major development projects to avoid a shortage of visitor accommodation. It is recommended that advertising be placed in local media and to approach local businesses to determine whether there is the capacity and expertise available in Gilgandra and surrounding districts to participate in the construction and ongoing maintenance activities.

5.8 Heritage

5.8.1 Indigenous heritage

The generic due diligence process outlined in the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* was implemented to ensure that an adequate due diligence process that addresses Aboriginal cultural heritage issues has been carried out. This process follows the following five steps:

1. Will the activity disturb the ground surface?

Earthworks will involve trenching which is required for cabling of each PV array/module to inverters and a substation. Other earthworks would be pile-driving to support module frames, and to enable the placement of concrete slabs and gravel accessways. Most of the infrastructure would be pre-fabricated off-site, delivered and assembled on-site.

2a. Search the AHIMS database

In accordance with the code, an on-line search was carried out of the *Aboriginal Heritage Information Management Service (AHIMS)* that is maintained by Heritage NSW. The search is part of the due diligence process and remains valid for 12 months. It is appended as Attachment B.

A search of Lots 1 and 2 DP 1070081 Gilgandra with a buffer of 50 metres was performed on 11 November 2021. The search results are:

- There are no Aboriginal sites recorded in or near the selected location, and
- There are no Aboriginal places that have been declared in or near the selected location.

It is noted that surveys for Aboriginal objects have not been carried out in all parts of NSW and Aboriginal objects may exist on a parcel of land even though they have not been recorded in *AHIMS*. Further, not all known Aboriginal sites are registered on the *AHIMS* database and not all sites consist of physical evidence or remains, e.g. dreaming and ceremonial sites.

2b. Activities in areas where landscape features indicate the presence of Aboriginal objects

The development area does not possess landscape features that indicate the presence of Aboriginal objects. The vast majority of the site has been cleared and sown with crops.

3. Can you avoid harm to the object or disturbance of the landscape features

Not applicable as the development area has been disturbed and farmed, does not possess significant landscape features and no known Aboriginal objects are listed in *AHIMS*.

4. Desktop assessment and visual inspection

The desktop assessment found that no known Aboriginal objects are listed in *AHIMS*. A site visit was made in October 2021 by Anthony Daintith Town Planning. Photographs of the site indicate a high level of disturbance for cropping and do not indicate the likely presence of any artefacts or items of cultural significance on the surface of the land.

5. Further investigations and impact assessment

An extensive search of *AHIMS* records is not necessary given that there are no Aboriginal sites or places that have been recorded on the development site.

The property lies within the area managed by Gilgandra Local Aboriginal Lands Council. The LALC has been advised of the plans to develop the solar farm by email. As not all culturally significant items or places are made public and listed on AHIMS, a request was forwarded to the LALC enquiring as to whether the organization has any knowledge of Indigenous items or places of significance on the property and whether a site survey should be carried out prior to

commencement of works. Gilgandra LALC has not responded at the time of writing this Statement.

It is acknowledged that a condition of consent may be imposed to this effect. Council may also recommend a condition of consent to comply with provisions of the *National Parks and Wildlife Act 1974* should any evidence of Aboriginal occupation be found during site works. An *Aboriginal Heritage Impact Permit* may be required to be obtained if indigenous heritage objects are found during ground disturbance.

5.8.2 Non-indigenous heritage

There are several properties listed in the township of Gilgandra in *Schedule 5 Environmental heritage* of *Gilgandra LEP 2011*.The nearest listed items to the development site are I53 The Igloo and I26 Butler Airlines Hangar. Both items are located on the northern side of the Oxley Highway opposite Lot 1 DP 1070081. Both items have been relocated from their original location in Tooraweenah to the current site for use by Gilgandra Shire Council as part of the works depot. There is significant vegetation on either side of the road reserve of the Oxley Highway to sever any visual connection with the proposed solar farm which is located approximately 320 metres to the south at the nearest point. This distance separation and the additional vegetation screening to be placed along the northern side of the array further negates any impact on the values of these heritage items. This matter is addressed further in the *Landscape Character and Visual Impact Assessment* submitted under separate cover.

5.8.3 Mitigation measures

Council may recommend that a condition of consent be imposed to require a site survey be carried out by a Gilgandra LALC sites officer either before any work commences or prior to the issue of a construction certificate. Council may also recommend a condition of consent to comply with provisions of the *National Parks and Wildlife Act 1974* should any evidence of Aboriginal occupation be found during site works. An *Aboriginal Heritage Impact Permit* may be required to be obtained if indigenous heritage objects are found during ground disturbance. There are no recommendations in relation to non-Indigenous heritage.

5.9 Glare and glint

5.9.1 Assessment of impacts

A *Glint and Glare Assessment* has been carried out using the Solar Glare Hazard Analysis Tool by ITP Renewables. The findings of the assessment are summarized below. Reference should be

made to the *Glint and Glare Assessment* that is submitted with the development application for further information or clarification of any matter concerning the assessment and recommendations.

The assessment is based on identifying the potential sensitive receptors in close proximity to the development site having regard to the elevation of the site relative to surrounding land and structures or vegetation that would act as visual barriers. Potential glare and glint impacts are assessed and if necessary mitigation measure are recommended to reduce potential impacts to an acceptable level.

5.9.2 Findings

A total of 40 observation points and six road routes were identified as potential visual receptors. While there is a significant number of properties within a two kilometre radius of the development site, most were discounted due to the presence of vegetation and structures on intervening properties that act as visual barriers.

The results of the analysis indicate that persons occupying the selected properties are unlikely to be affected by glare as a result of the proposed solar farm. Many residences will also not have a direct view of the solar farm due to visual obstruction from trees and other structures.

The proposed landscape screening along the northern boundary of the array, along the northern section of the eastern boundary, and along the northern and southern sections of the western boundary is expected to provide a physical obstruction between the solar farm and nearby residences and users of Aralee Road, the Oxley Highway and Thompsons Lane. It is noted that presently there is substantial vegetation in the road reserve of the Oxley Highway which will effectively screen the development from the north.

5.9.3 Mitigation measures

No mitigation measures are necessary in relation to glare and glint.

5.10 Landscape character and visual amenity

5.10.1 Assessment of impacts

Impacts on landscape character and visual amenity of the proposed solar farm have been assessed by Zenith Town Planning Pty Ltd. Reference should be made to the *Landscape Character and Visual Amenity Impact Assessment* that is submitted with the development application for

further information or clarification of any matter concerning the assessment and recommendations.

The methodology included a site inspection of the location of the proposed works and the surrounding area in October 2021 to identify potential viewpoints, land uses and characteristics of the surrounding area, and includes an assessment against planning principles for visual impact established by the Land an Environment Court. The assessment estimates the likely impacts on landscape character and viewpoints within a 2 kilometre radius based on the sensitivity to physical change and the magnitude, or relative size and scale, of the works and then applies an impact ranking.

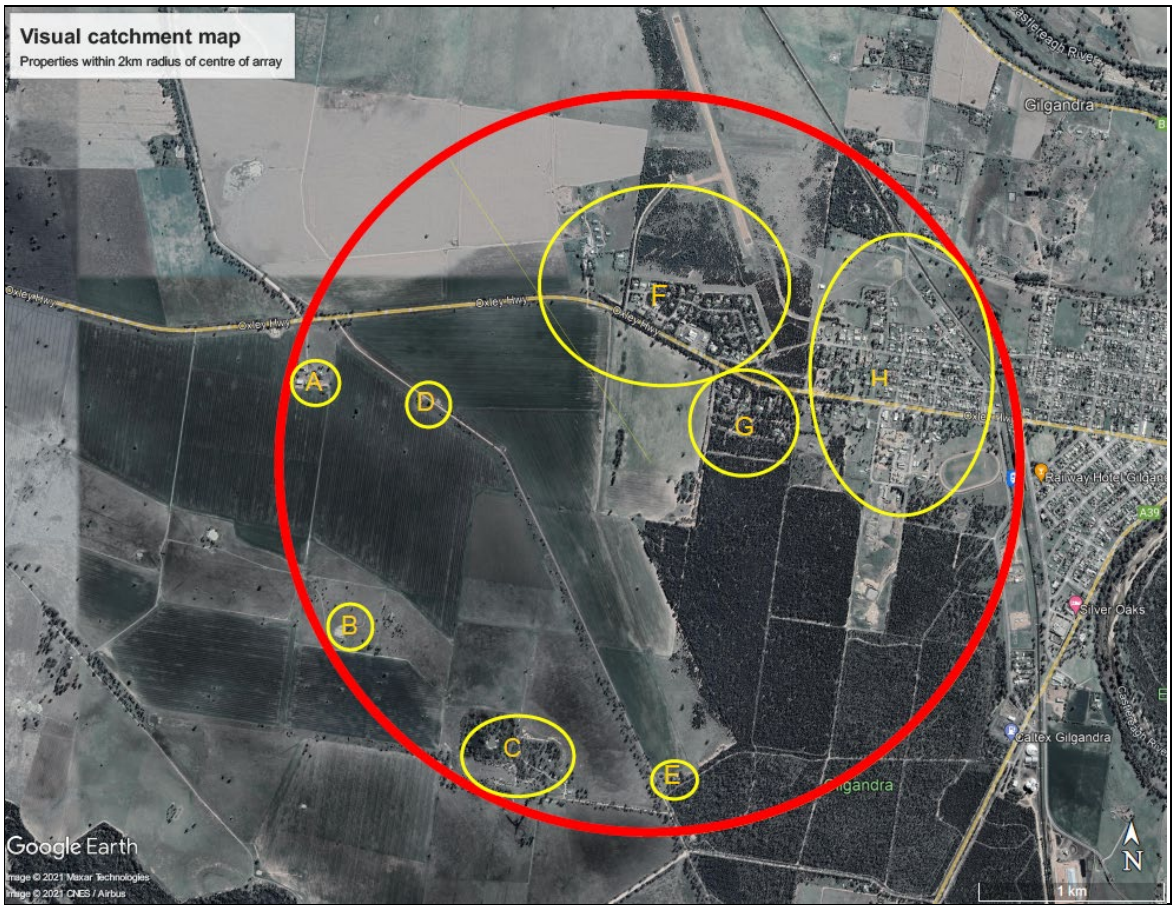


Figure 7: The visual catchment and observation sectors

5.10.2 Findings

The landscape near the site of the Gilgandra Solar Farm is characterised by cleared agricultural land and remnant or regrowth native vegetation that remains along boundaries, on private land to the south and on forestry land to the south-east. The topography in the immediate vicinity of

the development site is generally flat. The facility will be partially visible to a number of dwellings and public roads within the vicinity of the site.

The findings of the assessment acknowledge that there will be moderate impacts on the landscape and impacts on visual amenity ranging from negligible to high. However, there is no view loss; the impact is a change to the view – a new element within the landscape. Impacts are greatest in close proximity to the solar farm as the further the distance a viewpoint is from the site the less the overall visual impact as the development occupies a lesser proportion of the total view. These impacts are considered reasonable and acceptable given the proposed use to generate energy to benefit the local community and the fact that the land use is permitted in the rural zone.

The proposed landscape planting on the northern edge of the array and partially along the eastern and western sides of the array will assist to maintain the current rural landscape character. Along with the existing remnant vegetation in road reserves and within the development site either side of the array footprint, visual links to the facility will be effectively mitigated for adjoining and adjacent properties and this screening will compensate for any change to rural character. This landscaping will shield visibility not just to the array but will also screen ancillary items including the inverters, the BESS and the kiosk which are all beneath 3 metres in height.

On balance and having regard to other matters for consideration under section *4.15 Evaluation* of the *Environmental Planning and Assessment Act 1979*, the impacts are considered acceptable given that:

- the solar farm will contribute to renewable energy generation and provide a source of electricity for local domestic and commercial use whilst at the same time assisting to reduce greenhouse gas emissions and our reliance on fossil fuels,
- It will also generate employment opportunities during the construction phase and once operational will provide employment for maintenance crews,
- The placement of the array within the property has been chosen to maximise distance separation from dwellings and public roads,
- Existing vegetation along road reserves and within the development site is to be maintained,
- Along with existing vegetation along roadsides and on private property, the proposed landscaping will grow to a height that will effectively screen the facility from observation points including public roads.

5.10.3 Mitigation measures

It is recommended that Gilgandra Shire Council be consulted to determine appropriate species to plant within the landscape screen surrounding the solar array on the outer side of the security fence. It is also recommended that plantings be staggered to avoid the appearance of a hedge which is not characteristic of the rural landscape of Gilgandra.

Plate 2: Looking west from Aralee Road along the proposed northern boundary of the array. Source: Anthony Daintith Town Planning Pty Ltd, October 2021

Plate 3: Looking south from the intersection of Aralee road and the Oxley Highway. Source: Anthony Daintith Town Planning Pty Ltd, October 2021

Plate 4: Looking south-east towards the site from the Oxley Highway between Middleton Memorial Drive and Thompsons Lane. Source: Anthony Daintith Town Planning Pty Ltd, October 2021

Plate 5: looking east from Thompsons Lane.
Source: Anthony Daintith Town Planning Pty Ltd, October 2021

6. CONCLUSION

6.1 Findings

Suitability of the site

The site is considered suitable for the proposed development of Gilgandra Solar Farm. A connection is available to the Essential Energy Gilgandra zone substation to transfer power generated by the solar panels to the township and on to the grid.

The development area is relatively flat, is free of constraints and is accessible to large delivery vehicles during the construction phase and for utility vehicles for ongoing maintenance.

Likely impacts

The likely impacts of the development have been considered in this Statement and supporting documents. Considerations include impacts on biodiversity, natural hazards, visual and scenic amenity, glare and glint, traffic, noise, air quality, water resources, indigenous and non-indigenous heritage, the community and the local economy. Any impacts on these interests have been found to be acceptable and mitigation measures have been recommended where necessary.

According to the Australian Radiation Protection and Nuclear Safety Agency, which maintains continual oversight of emerging research into the potential health effects of the EMF exposure, there is no established evidence of health effects from exposure to electric and magnetic fields from powerlines, substations, transformers or other electrical sources, regardless of the proximity, causes any health effects. The location of the solar farm and the distance separation between nearby dwellings and the site mean that any potential impacts on health are mitigated.

Land use conflict

It is considered that the solar farm can co-exist with residential development to the north and north-east of the site. The array is to be setback a minimum of 15 metres from the road reserve and is to be screened at the north-eastern corner of the array and along the northern extent with 3 metre high shrubs which will ensure that visual amenity for future residences is maintained. The landscaped buffer is to be 5 metres depth and on the outer side of the security fence.

Noise impacts once operational have been assessed to be within noise management levels and therefore are not expected to interfere with future inhabitants of the residential zone.

Cumulative impacts

The cumulative impacts of the proposed development are minor. Development approval has been issued for a 50MW solar farm on a site 25 kilometres south of Gilgandra but there have been no other large scale solar farm proposals in the vicinity of the development site. There are no other electricity generating works in the immediate area and the use is suited to a rural location due to the need for a large land area. The addition of a solar farm to that rural area would not detract unreasonably from local amenity or the natural environment.

The owners of rural land have a reasonable expectation to be able to develop permissible uses and inhabitants of residential zones purchase and build with the knowledge that rural uses exist and will continue to be developed on nearby rural land.

Consistency with planning framework

The proposed development is consistent with the strategic planning framework that applies to the local government area, the site itself and to the development of electricity generating works. The solar farm is permissible with consent under provisions of *SEPP (Infrastructure) 2007* which prevails over provisions of the local environmental plan and is satisfactory to other applicable SEPPs.

The proposed rural location implements the planning priorities, goals and actions of the *Central West and Orana Regional Plan 2036*, the *Gilgandra Local Strategic Planning Statement 2020* and the *NSW Renewable Energy Action Plan*. These objectives seek to capitalize on solar energy resources to increase the provision of renewable energy using rural land in locations that will not cause land use conflict.

Government targets

Electricity generated by the system will be directed to the settlement of Gilgandra via existing electrical infrastructure to contribute to the supply of electricity for use by households and businesses. Any surplus electricity will be sent to the grid and any deficit will be drawn from the grid. As well as the potential to utilize local contractors to construct the facility, the township will benefit through the ability to use clean energy that is generated adjacent the settlement.

The development of the solar farm will assist the transition of our economy from reliance on fossil fuels to renewable sources. It will assist Commonwealth and NSW Governments to achieve targets and objectives relating to emissions to address climate change. The site is located within the Central West Renewable Energy Zone.

Given the local, regional and national benefits of renewable energy generation and based on implementation of the recommended mitigation measures to avoid, minimize or mitigate impacts to the existing natural and built environment, the development is considered to be in the public interest.

6.2 Summary of mitigation measures

Table 8 provides a summary of mitigation measures. It is recommended that an environmental management plan be prepared to cover the construction and operational phases. Where necessary Table 8 includes a recommendation as to whether the mitigation measure should be included in the management plan. In addition to the mitigation measures detailed below, it is recommended that a waste management plan be prepared for inclusion in an environmental management plan.

Table 8: Summary of mitigation measures

Consideration	Mitigation measures	Environmental Management Plan
Fire assessment	• Install a reliable, automated monitoring and control systems, with an alarm and shutdown response capability • Take reasonable and safe measures to prevent the risks of external heat effects in the event of a bushfire • Design appropriate separation and isolation between battery cubicles, and between the BESS and other infrastructure, in accordance with the manufacturers' recommendations, and including gravel set-off areas around the facility • Comply with all applicable Australian codes and standards • Prepare a BESS-specific fire response plan, in conjunction with the NSW Rural Fire Service • Install an adequate automatic fire suppression system integrated into the detection and control system • Dispose (and where possible, recycle) of any potentially hazardous material in accordance with the best international practices available at that time • Fuels and pesticides/herbicides in use at the site will be stored at the laydown area in appropriately bunded areas designed in accordance with AS1940-2004 In terms of fire safety including the threat of bushfire, the report recommends that the facility with battery storage can be made safer through the integration of safety in design principles from bushfire standards including APZ clearances, internal protection areas, comprehensive system fault monitoring, automated fire detection and suppression systems and safety procedures built into WHS policies and procedures to ensure these farm assets	Yes, for operational phases

	and the surrounding area are protected from the risk of fire.	
Biodiversity	By way of a clearing process that minimizes the risk to threatened species that may be opportunistically using the site, it is recommended that: I. Construction limits and exclusion zones be clearly identified prior to work; II. A visual inspection is conducted by environmental staff before construction commences to identify any areas of site that might be supporting native fauna; III. Vehicle movements around the site will be restricted to the construction footprint and away from any existing planted trees and flagging exclusion fencing to be installed. IV. Soil disturbance by vehicle and pedestrian access is to be kept to a minimum outside the construction footprint. V. Any weeds removed (particularly those bearing seeds) are to be disposed of appropriately at the nearest waste management facility.	Yes, with reference to ongoing site access during both construction and operational phases, and to the storage of materials within the site
Natural hazards	Prepare a fire emergency management plan and include that plan in the environmental management plan	Yes, for construction and operational phases
Water resources	Design – site drainage and water quality controls: • Undertake hydrological assessment of the sites catchment in accordance with relevant methods outlined in Australian Rainfall and Runoff. • Determine sediment management targets and drainage control standards in accordance with Managing Urban Stormwater: Soils and Construction Vol 1 (Blue Book) (DECC, 2008). • Develop a site erosion and sediment control plan in accordance with the Blue Book. • Develop site drainage design incorporating detention basins and sedimentation management structures where relevant. • Permanent site drainage should coincide with temporary arrangements where possible	Yes, for construction and operational phases. Include an erosion & sediment control plan or soil and water management plan
	Construction and/or demolition – site drainage and water quality controls: • Catch drains to be located downslope of any proposed road works. • Install location appropriate sediment fences or other applicable control measures depending on whether the feature is upstream or downstream of a disturbed part of the site or will need to be trafficable. • All stormwater collection points need to have appropriate sedimentation and erosion controls. • Undertake ongoing inspections of stormwater facilities and water control measures to assess their effectiveness.	

	• Vibration grids or wash bays at all construction exits. • Level spreaders at locations where concentrated flow is discharged offsite to ensure sheet flow like conditions are maintained. • Flat land erosion control options include erosion control blankets, gravelling, mulching, soil binder, turfing and revegetation	
	Construction and/or demolition – stormwater point source control: In the event of concrete works: • Do not undertake works if chance of heavy rain. • Store rinsate5 water, if applicable, separately to other water on site and dispose of offsite as appropriate. • Block on site drains in the area of the works and remove any contaminated runoff. In the event that dewatering practices are required: • Pump hose intakes for withdrawing water from excavations will be elevated to minimise sediment pumping and directed to a containment area for settling prior to discharge. • Limit direct discharge off site (consistent with the design requirements for sediment pond discharge). • Stormwater collected on site should be reused where possible. Controls should be inspected and maintained on a regular basis. All water released from sediment basins should be clear or disposed off site by vehicle. • Material and waste storage areas should be designed and operated to minimise interaction with surface waters. • Vehicle washdown areas should be located away from water courses	
Air quality	During construction: • Limit vehicle movements to areas necessary to deliver panels, ancillary structures and equipment • Suppress dust emissions using watering and cease works during dry and windy conditions • Ensure ground disturbance is limited to areas necessary to place footings or to be used for access • Ensure minimal handling of excavated materials • Ensure stockpiles of excavated material is bunded and protected from wind and vehicle movements During operation: • Grade and add road base to internal accessways	Yes, for construction and operational phases

	• Revegetate the site with suitable groundcover immediately construction works are completed • Ensure all plant and equipment operates in accordance with specifications	
Noise	The following mitigation measures are recommended to address noise emissions during the construction phase: • a construction noise management protocol to minimise noise emissions, manage out of hours (minor) works to be inaudible, and to respond to potential concerns from the community, • where possible use localised mobile screens or construction hoarding around piling rig/plant to act as barriers between construction works and receivers, particularly where equipment is near the site boundary and/or a residential receiver including areas in constant or regular use (e.g. unloading and laydown areas), • operating plant in a conservative manner (no over-revving), shutdown when not in use, and be parked/started at farthest point from relevant assessment locations, • selection of the quietest suitable machinery available for each activity, • minimise noise plant/machinery working simultaneously where practicable, • minimise impact noise wherever possible, • utilise a broadband reverse alarm in lieu of the traditional high frequency type reverse alarm, • provide toolbox meetings, training and education to drivers and contractors visiting the site during construction so they are aware of the location of noise sensitive receivers and to be cognisant of any noise generating activities, • signage is to be placed at the front entrance advising truck drivers of their requirement to minimise noise both on and off-site, and • utilise project related community consultation forums to notify residences within proximity of the site with project progress, proposed/upcoming potentially noise generating works, its duration and nature and complaint procedure. It is recommended that the noise emissions from the solar farm be minimised when operational. To assist in noise management, it is recommended that a one-off noise validation monitoring assessment be completed to quantify emissions from site and to confirm emissions relevant criteria are satisfied.	Yes, for construction and operational phases
Traffic	• The access point should be constructed to accommodate B-Double turning movements. • Dust suppression (water cart) may be required depending on the construction time. • Prior to the commencement of construction, a consultation plan is recommended to be	Yes, with reference to site access during the construction phase

	implemented with a focus on notifying local community of the programmed works. Primarily this is to give information on site contact details if there are any concerns. • Dilapidation survey to be undertaken along Aralee Road and the site returned to previous or better state following the construction period. • New access to be designed and constructed to Council's standards. This may require drainage works depending on levels.	
The community & local economy	• labour to construct and maintain the solar farm be sourced from within the Gilgandra local government area wherever possible • advertising be placed in local media and local businesses contacted to determine whether there is the capacity and expertise available to participate in the construction and ongoing maintenance activities • Ensure that the timing of construction of the solar farm does not coincide with the construction of major infrastructure projects to avoid a shortage of visitor accommodation	n/a
Heritage	Council may recommend that a condition of consent be imposed to require a site survey be carried out by a Gilgandra LALC sites officer either before any work commences or prior to the issue of a construction certificate. Council may also recommend a condition of consent to comply with provisions of the *National Parks and Wildlife Act 1974* should any evidence of Aboriginal occupation be found during site works. An *Aboriginal Heritage Impact Permit* may be required to be obtained if indigenous heritage objects are found during ground disturbance. There are no recommendations in relation to non-Indigenous heritage.	n/a
Landscape character & visual amenity	It is recommended that Gilgandra Shire Council be consulted to determine appropriate species to plant within the landscape screen surrounding the solar array on the outer side of the security fence. It is also recommended that plantings be staggered to avoid the appearance of a hedge which is not characteristic of the rural landscape of Gilgandra.	n/a
Glare and glint	No mitigation measures are proposed	n/a

Property Report

361 OXLEY HIGHWAY GILGANDRA 2827

Property Details

Address:	361 OXLEY HIGHWAY GILGANDRA 2827		
Lot/Section /Plan No:	1/-/DP1004833	1/-/DP103752	1/-/DP1070081
	2/-/DP1004833	2/-/DP1070081	
Council:	GILGANDRA SHIRE COUNCIL		

Summary of planning controls

Planning controls held within the Planning Database are summarised below. The property may be affected by additional planning controls not outlined in this report. Please contact your council for more information.

Local Environmental Plans	Gilgandra Local Environmental Plan 2011 (pub. 9-12-2011)
Land Zoning	RU1 - Primary Production: (pub. 9-12-2011)
Height Of Building	NA
Floor Space Ratio	NA
Minimum Lot Size	500 ha
Heritage	NA
Land Reservation Acquisition	NA
Foreshore Building Line	NA
Terrestrial Biodiversity	Biodiversity Sensitivity

Detailed planning information

State Environmental Planning Policies which apply to this property

State Environmental Planning Policies can specify planning controls for certain areas and/or types of development. They can also identify the development assessment system that applies and the type of environmental assessment that is required.

- State Environmental Planning Policy (Affordable Rental Housing) 2009: Land Application (pub. 31-7-2009)
- State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004: Land Application (pub. 25-6-2004)
- State Environmental Planning Policy (Concurrences and Consents) 2018: Land Application (pub. 21-12-2018)
- State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017: Land Application (pub. 1-9-2017)
- State Environmental Planning Policy (Exempt and Complying Development Codes) 2008: Land Application (pub. 12-12-2008)
- State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004: Land Application (pub. 31-3-2004)
- State Environmental Planning Policy (Infrastructure) 2007: Land Application (pub. 21-12-2007)
- State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007: Land Application (pub. 16-2-2007)
- State Environmental Planning Policy (Primary Production and Rural Development) 2019: Land Application (pub. 28-2-2019)
- State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017: Excluded (pub. 17-9-2021)
- State Environmental Planning Policy No 21—Caravan Parks: Land Application (pub. 24-4-1992)
- State Environmental Planning Policy No 33—Hazardous and Offensive Development: Land Application (pub. 13-3-1992)
- State Environmental Planning Policy No 36—Manufactured Home Estates: Land Application (pub. 16-7-1993)
- State Environmental Planning Policy No 50—Canal Estate Development: Land Application (pub. 10-11-1997)
- State Environmental Planning Policy No 55—Remediation of Land: Land Application (pub. 28-8-1998)
- State Environmental Planning Policy No 64—Advertising and Signage: Land Application (pub. 16-3-2001)
- State Environmental Planning Policy No 65—Design Quality of Residential Apartment Development: Land Application (pub. 26-7-2002)

Other matters affecting the property

Information held in the Planning Database about other matters affecting the property appears below. The property may also be affected by additional planning controls not outlined in this report. Please speak to your council for more information

1.5 m Buffer around Classified Roads	Classified Road Adjacent
Bushfire Prone Land	Vegetation Buffer
Land near Electrical Infrastructure	This property may be located near electrical infrastructure and could be subject to requirements listed under ISEPP Clause 45. Please contact Essential Energy for more information.
Local Aboriginal Land Council	GILGANDRA
Regional Plan Boundary	Central West and Orana

Attachment B

AHIMS Web Services (AWS)
Search Result

Your Ref/PO Number : 1321a

Client Service ID : 639430

Zenith Town Planning

Date: 17 November 2021

P O Box 591
Moruya New South Wales 2537

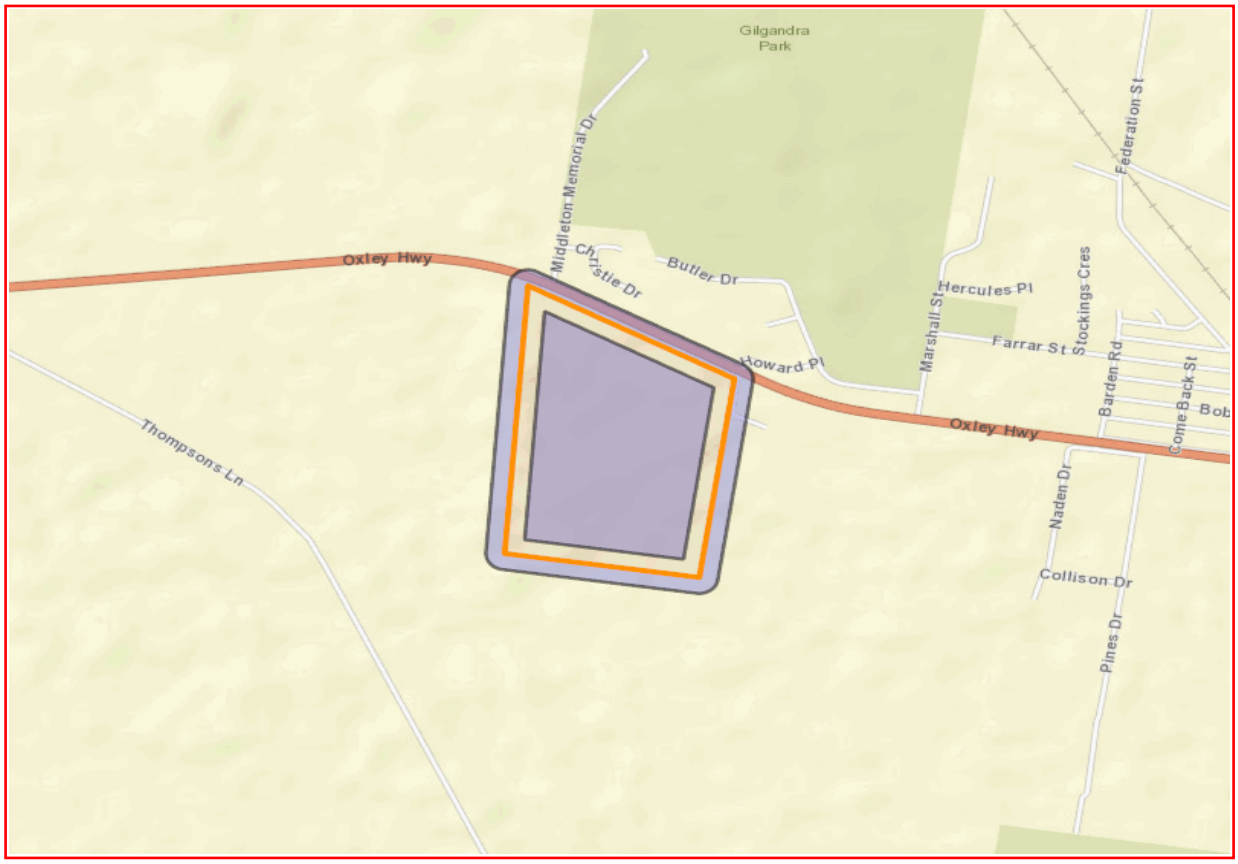
Attention: Allen Grimwood

Email: zenithplan@bigpond.com

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lot : 1, DP:DP1070081, Section : - with a Buffer of 50 meters, conducted by Allen Grimwood on 17 November 2021.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



A search of Heritage NSW AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

0	**Aboriginal sites are recorded in or near the above location.**
0	**Aboriginal places have been declared in or near the above location. ***

AHIMS Web Services (AWS)
Search Result

Your Ref/PO Number : 1321b

Client Service ID : 639433

Zenith Town Planning

P O Box 591

Moruya New South Wales 2537

Attention: Allen Grimwood

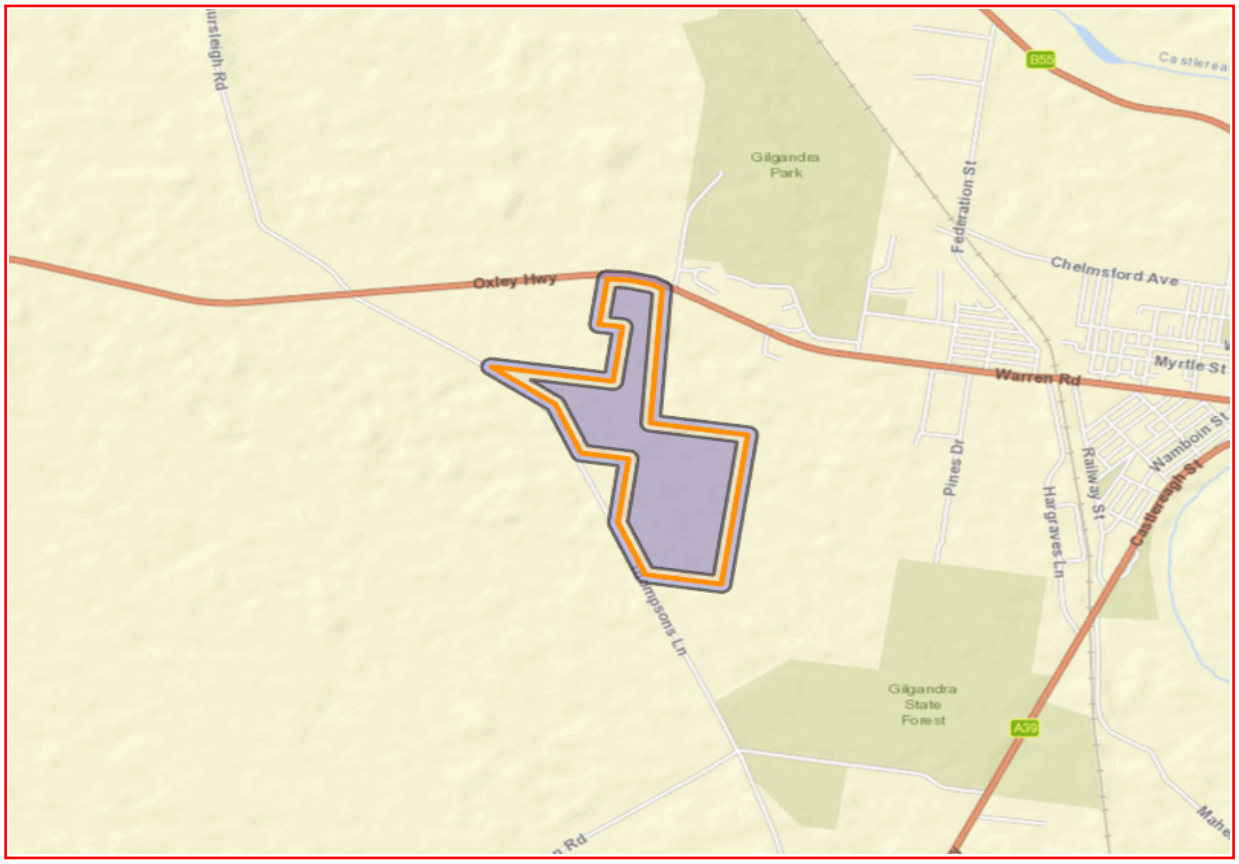
Email: zenithplan@bigpond.com

Date: 17 November 2021

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lot : 2, DP:DP1070081, Section : - with a Buffer of 50 meters, conducted by Allen Grimwood on 17 November 2021.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



A search of Heritage NSW AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

0	**Aboriginal sites are recorded in or near the above location.**
0	**Aboriginal places have been declared in or near the above location. ***

If your search shows Aboriginal sites or places what should you do?

- You must do an extensive search if AHIMS has shown that there are Aboriginal sites or places recorded in the search area.
- If you are checking AHIMS as a part of your due diligence, refer to the next steps of the Due Diligence Code of practice.
- You can get further information about Aboriginal places by looking at the gazettal notice that declared it. Aboriginal places gazetted after 2001 are available on the NSW Government Gazette (https://www.legislation.nsw.gov.au/gazette) website. Gazettal notices published prior to 2001 can be obtained from Heritage NSW upon request

Important information about your AHIMS search

- The information derived from the AHIMS search is only to be used for the purpose for which it was requested. It is not be made available to the public.
- AHIMS records information about Aboriginal sites that have been provided to Heritage NSW and Aboriginal places that have been declared by the Minister;
- Information recorded on AHIMS may vary in its accuracy and may not be up to date. Location details are recorded as grid references and it is important to note that there may be errors or omissions in these recordings,
- Some parts of New South Wales have not been investigated in detail and there may be fewer records of Aboriginal sites in those areas. These areas may contain Aboriginal sites which are not recorded on AHIMS.
- Aboriginal objects are protected under the National Parks and Wildlife Act 1974 even if they are not recorded as a site on AHIMS.
- This search can form part of your due diligence and remains valid for 12 months.

Level 6, 10 Valentine Ave, Parramatta 2150
Locked Bag 5020 Parramatta NSW 2124
Tel: (02) 9585 6345

ABN 34 945 244 274
Email: ahims@environment.nsw.gov.au
Web: www.heritage.nsw.gov.au