Development Assessment Report

Panel Reference	2019NTH017 DA
DA Number	DA 2019-059
LGA	Tenterfield Shire Council
Proposed Development	Solar Farm – Electricity Generating Works comprising 25MW$_{AC}$ Solar Farm
Street Address	Lots 85, 87, 89 & 90 DP 751540, 75 Old Racecourse Road, Tenterfield
Applicant/Owner	Enerparc Australia Pty Ltd (Applicant) Silver Downs Farms Pty Ltd (Owner)
Date of Lodgement	29 May 2019
Number of Submissions	9 submission of objection.
Recommendation	Approval subject to conditions.
Regional Development Criteria (Schedule 7 of the SEPP (State and Regional Development) 2011	Private infrastructure for the purpose of electricity generating works with a capital investment value of more than $5 million
List of all relevant 4.15(1) matters	Environmental Planning Instruments: s4.15(1)(a)(i) • State Environmental Planning Policy No.55 – Remediation of Land; • State Environmental Planning Policy (Infrastructure) 2007; • State Environmental Planning Policy (State and Regional Development) 2011; • New England North West Regional Plan 2036; and • Tenterfield Local Environmental Plan 2013.
List all documents submitted with this report for the panel's consideration	Annexure A – Statement of Environmental Effects and associated reports. Annexure B – Recommended Conditions of Consent. Annexure C – Agency Responses.

	Annexure D – Submissions Annexure E –Applicant's response to the submissions.
Report prepared by	Anthony Daintith
Report date	

Summary of s4.15 matters Have all recommendations in relation to relevant s4.15 matters been summarised in the Executive Summary of the assessment report?	Yes
Legislative clauses requiring consent authority satisfaction Have relevant clauses in all applicable environmental planning instruments where the consent authority must be satisfied about a particular matter been listed and relevant recommendations summarised, in the Executive Summary of the assessment report? e.g. Clause 7 of SEPP 55 - Remediation of Land, Clause 4.6(4) of the relevant LEP	Yes
Clause 4.6 Exceptions to development standards If a written request for a contravention to a development standard (clause 4.6 of the LEP) has been received, has it been attached to the assessment report?	NA
Special Infrastructure Contributions Does the DA require Special Infrastructure Contributions conditions (S94EF)? Note: Certain DAs in the Western Sydney Growth Areas Special Contributions Area may require specific Special Infrastructure Contributions (SIC) conditions	NA
Conditions Have draft conditions been provided to the Applicant for comment? Note: in order to reduce delays in determinations, the Panel prefer that draft conditions, notwithstanding Council's recommendation, be provided to the Applicant to enable any comments to be considered as part of the assessment report	YES

EXECUTIVE SUMMARY:

Reason for consideration by the Joint Regional Planning Panel:

The application must be determined by the Regional Planning Panel pursuant to Schedule 7 of *State Environmental Planning Policy (State and Regional Development) 2011*, as the proposal is for electricity generating infrastructure by a private developer and has a capital investment value of $23,547,780.

Under the State Environmental Planning Policy (State and Regional Development) 2011, electricity generating works (including solar) that are considered private infrastructure and have a Capital Investment Value greater than $5 million and less than $30 million are classified as "Regionally Significant Development" (RSD). RSD projects require approval under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

Description of Proposal:

The proposed Tenterfield Solar Farm, located within the Tenterfield Shire Local Government Area (LGA), proposes to generate electricity through the conversion of solar radiation to electricity using Photovoltaic (PV) panels laid out across the solar farm site (the Site) in a series of fixed modules, mounted on steel racks with piled, screwed or ballasted supports. Other infrastructure that is proposed to be present on site includes electrical power conversion units, underground electrical cabling, telecommunications equipment, storage facilities, vehicular access, security fencing and gates.

Electricity shall be fed from the TSF to the TransGrid Substation, located approximately 1.5 km south- west of the Site. The proposed route for the grid connection generally follows private property and road reserves associated with Old Racecourse Road, with an under bored crossing of the Bruxner Highway road reserve. The proposed route of the connection infrastructure is included within the studied area.

The proposed development involves the construction and operation of a 25 Mega Watt (MW) solar farm covering approximately 60 hectares (approximately 30 ha of panels).

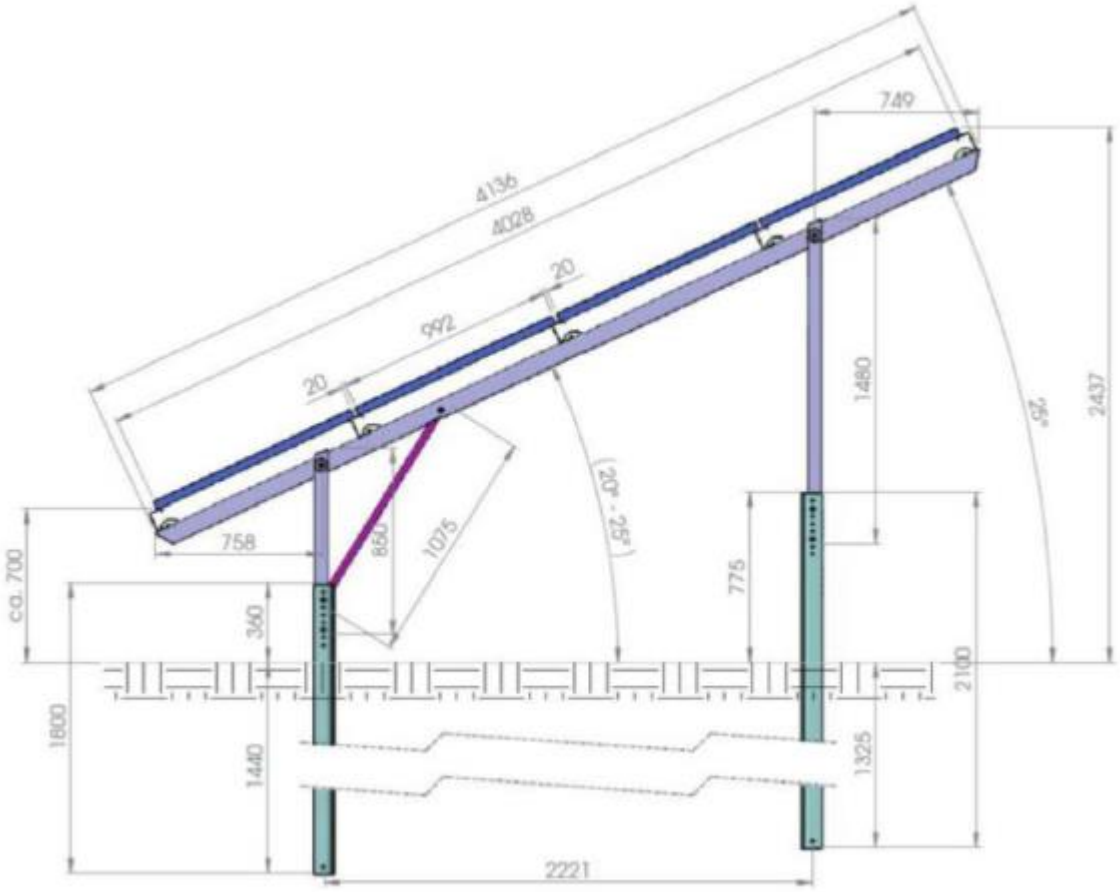
It is anticipated that the Proposed Development would take approximately 7 months to construct and would be operational for approximately 28 years. Following the operational period, all above ground infrastructure would be removed from the site which would take approximately 6 months. As such, development consent for the proposed development is sought for 30 years.

The solar array includes fixed PV modules which comprise of approximately 107,286 pieces, with 10 inverter stations expected to be in operation. The combined electricity generation capacity is approximately 25 megawatt AC (Alternating Current).

The solar panels would be fitted to fixed frames (i.e. non-tracking) which would be orientated so that the panels face upwards at approximately 25 to 30º in a northerly direction. The solar

array will be supported by approximately 750 piles which would be mechanically driven or screwed into the ground.

Figure 1: Proposed Solar Array



The solar array would be wired in 'blocks' that would be connected to inverter stations located throughout the proposed development. Blocks would not necessarily appear as discrete entities but would appear as a series of continuous rows running in an east-west alignment. The solar array would connect to the substation through a 22kV line that would be installed below ground.

Inverter stations

PV panels produce Direct Current (DC) electricity which would be converted to Alternating Current (AC) at 10 inverter stations of approximately 3MVA capacity, each. Inverter stations are typically housed in containers, or located on platforms, either singularly the size of a 20 ft container, measuring approximately 6.1 m (l) x 2.9 m (h) x 2.5 m (w), or doubly the size of a 40 ft container measuring approximately 12.2 m (l) x 2.9 m (h) x 2.5 m (w). Each inverter station would also have:

- Circuit breakers;
- Transformer; and
- Communication equipment.

Inverter stations will be transported to the site ready-made and require little in the way of foundations, either attached to steel or concrete pilings approximately 1.6 m deep depending on ground conditions.

Onsite building

A support building and/or storage shed with fire-fighting water tank and associated parking would take a maximum additional area of 50 m by 50 m.

Onsite buildings will be designed to support operational requirements during the operational life of the proposed development and will be required to comply with all relevant Australian building standards and regulations. Water will be supplied to the Site by commercial contactors and stored onsite in water tanks.

Cables and cable trenching

All cables will be designed and installed in accordance with relevant Australian and international standards. Subject to final design, cable trenches will contain:

- Below ground warning tapes;
- Below ground Polymeric cover strips;
- Electrical cables to export power;
- Electrical supply cables where necessary;
- Earthing cable;
- Communications and Supervisory Control and Data Acquisition links; and
- Above ground warning signs.

Where possible, trenches will be located alongside/underneath internal access tracks to minimise ground disturbance.

Construction hours

The proposed hours of construction are as follows:

- Monday to Friday, 7 am to 6 pm; and
- Saturday, 8 am to 1 pm.

Any construction activities outside these hours would only be undertaken following consultation with relevant authorities and notification of immediate neighbours.

Operational

The operational period is anticipated to commence immediately following construction. Operational activities include:

- Monitoring of solar production – analysis of Supervisory Control and Data Acquisition data;

- Export of solar energy to the National Electricity Grid;
- Maintenance of all plant and equipment – visual inspections; engineering work and replacement of equipment as required;
- Security – remotely and through routine site inspections;
- Vegetation monitoring and management – routine vegetation management and monitoring in panel areas (sheep may be permitted to graze within panel areas) and the vegetation buffer areas;
- Erosion monitoring – routine monitoring for scarring beneath the panels and along access tracks and waterways.

During the operational period there would be approximately 8 to 12 full time staff who may routinely visit the solar farm to carry out activities as listed above. Travel would be in standard 4x4 vehicles; however, should there be a requirement for major maintenance work, larger trucks and equipment may need to be deployed.

Decommissioning

During decommissioning all above ground infrastructure would be removed to a level of at least 0.5 m below the surface and the Site restored to its pre-development state.

Key activities shall include:

- Disconnection from the substation;
- Dismantling of the support buildings;
- Removal of the solar arrays, piles and cabling;
- Removal of onsite tracks and fences unless agreed otherwise with the landowner; and
- Disturbed groundcover would be reinstated.

It is anticipated that decommissioning would take up to 6 months. Impacts would generally be similar in effect, but shorter in duration, than those experienced during construction. Reuse of materials will be considered first prior to recycling and/or waste disposal.

Background:

Development Application No 2019-059 lodged with Council on the 29 May 2019.

Consultation:
The application was publicly exhibited in accordance with the Tenterfield Development Control Plan 2014 from the 17 June 2019 to 19 July 2019. The application was advertised in the local newspaper, the Tenterfield Star on 12 June 2019 and 3 July 2019 and notification letters were sent to all adjoining property owners. Nine (9) submissions by of objection was received during the exhibition period and have been addressed in this report.

Recommendation:

It is recommended that DA 2019.059 be approved subject to the conditions contained in ANNEXURE B.

Annexures:

Annexure A – Statement of Environmental Effects and associated reports.

Annexure B – Recommended Conditions of Consent.

Annexure C – Agency Responses.

Annexure D – Submissions

Annexure E –Applicant's response to the submissions.

Subject Site and Locality:

The Proposed Development is located on land within the Tenterfield Shire LGA approximately 2 km east of the town of Tenterfield, New South Wales (NSW), and accommodated within four (4) parcels of land. Additional to the four parcels of land allocated for the solar panel array area, there is also a transmission line route that forms part of the Proposed Development. This transmission line route heads along Old Racecourse Road, before passing through private property and under the Bruxner Highway to arrive at the current substation on Bellevue Road. Table 1 identifies all lots associated with the proposed development.

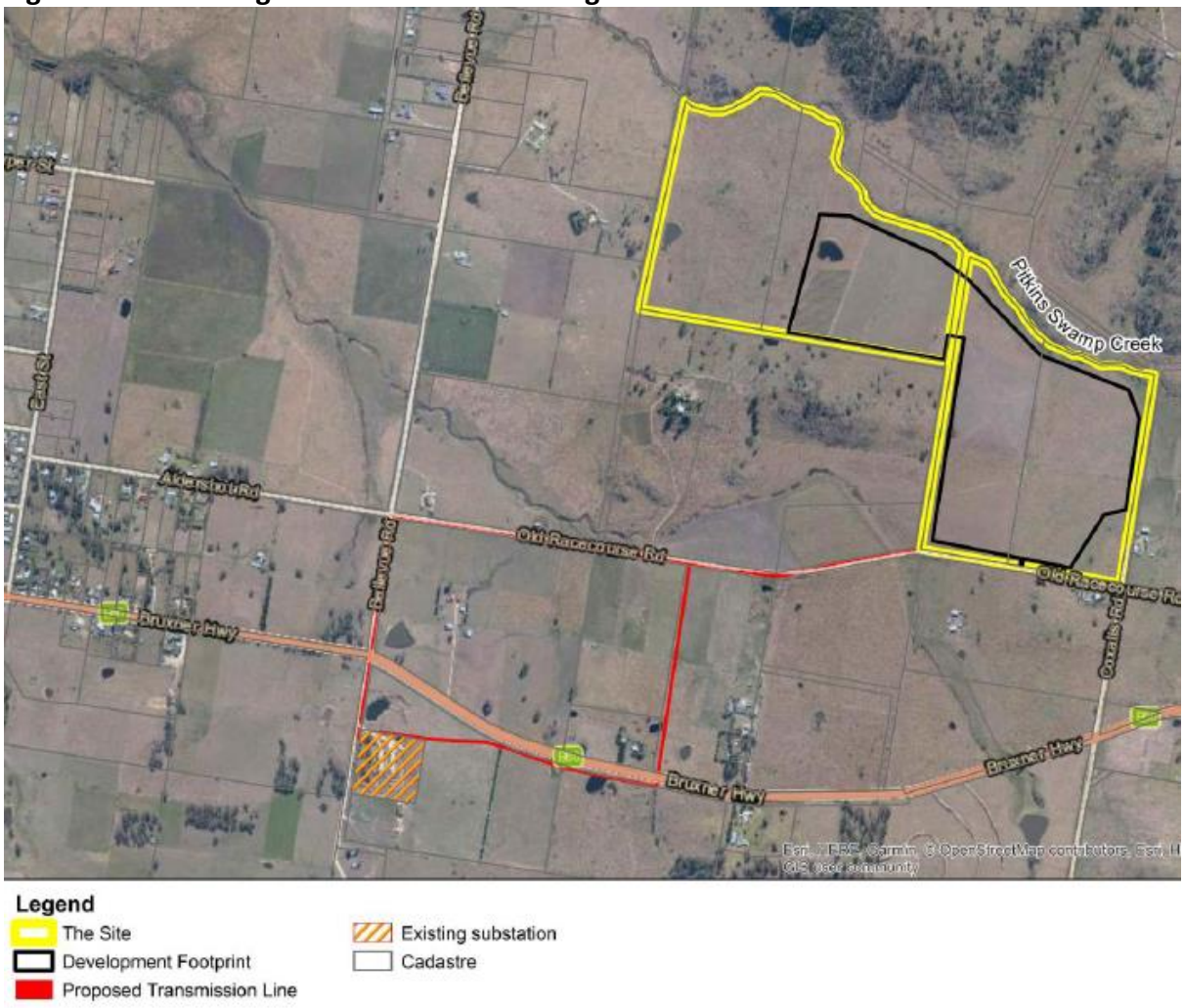
Table 1: Subject Land

Lot/DP	Area	Proposed Use
Lot 85 DP 751540	21.2	Site
Lot 87 DP 751540	23.3	Site
Lot 89 DP 751540	18.7	Site
Lot 90 DP 751540	19.9	Site
Lot 1 DP 779055	6.0	Transmission Line
Lot 528 DP 751540	15.3	Transmission Line
Lot 437 DP 751540	13.8	Transmission Line

Lot 1 DP 782041	18.7	Transmission Line
Lot 862 DP 1218118	38.3	Transmission Line
Lot 1 DP 529125	3.4	Substation Link

The site lies within the Tenterfield Plateau sub-region of the New England Tableland bioregion and is located in a rolling landscape, where elevation ranges around 880 - 890 m above sea level. Land within the Site has been historically cleared for grazing and most has been sown with improved pastures. There are small patches of native vegetation along roadsides, paddock edges, lower lying areas along drainage lines and scattered throughout paddocks.

Figure 2: Aerial Image of Site and Surrounding Land



ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

In determining a Development Application, the consent authority must take into consideration matters referred to in Section 4.15 of the *Environmental Planning and Assessment Act 1979* as are of relevance to the development. The following section of this report summarises the relevant matters for consideration and provides a planning response.

4.15 (1)(a)(i) the provisions of any environmental planning instrument

Integrated Development

The development also requires a controlled activity approval under section 91(2) of the *Water Management Act 2000* will also be required for cable and vehicular crossings of waterfront land (bed, bank or land within 40 m of a watercourse). As such, the DA is considered to be Integrated Development in accordance with Division 4.8 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

In accordance with Section 4.46(3) of the *Environmental Planning and Assessment Act 1979,* development is not integrated development in respect of the consent required under section 138 of the *Roads Act 1993* if, in order for the development to be carried out, it requires the development consent of a council and the approval of the same council.

Environmental Planning and Assessment Act 1979 and Environmental Planning and Assessment Regulation 2000

Schedule 3 of the *Environmental Planning and Assessment Regulation 2000* requires any "electricity generating station", such as a solar farm, that generates more than 30MW of electrical power to be designated development. As the proposed solar farm is expected to generate a maximum of 25MW, the project is not designated development.

Biodiversity Conservation Act 2016 (BC Act)

The purpose of the BC Act is to maintain a healthy, productive and resilient environment for the greatest well-being of the community, now and into the future, consistent with the principles of Ecologically Sustainable Development (ESD). The BC Act contains provisions relating to threatened species and ecological community listings and assessment, section 1.7 (formerly 5A) of the EP&A Act and repealing the *Threatened Species Conservation Act 1995*.

The BC Act also provides for a biodiversity offsets scheme, a single biodiversity assessment methodology (BAM), calculation and retirement of biodiversity credits and biodiversity assessment and approvals. The BC Act also contains measures for flora and fauna protection, repealing parts of the National Parks and Wildlife Act 1974 (NPW Act).

Desktop assessment and field investigations undertaken by the applicant indicate no threatened species are likely to be present on the Site. Field assessment indicated that the Site includes areas of the Threatened Ecological Community (TEC) White box yellow box Blakely's red gum woodland, listed as an endangered ecological community under the BC Act. This TEC is represented by PCT 510 in various condition states.

It is considered that the White box yellow box Blakely's red gum woodland found within the Site does not meet the criteria for listing under the EPBC Act. This is due to the observed lack of presence of key canopy species and floristic abundance in the ground cover layers.

The development footprint for the works has been developed to first avoid and then minimise impacts to biodiversity such that potential impacts are not significant and do not trigger the BAM.

Fisheries Management Act 1994 (FM Act)

The FM Act provides for the protection, conservation, and recovery of threatened species defined under the FM Act. It also makes provision for the management of threats to threatened species, populations, and ecological communities defined under the FM Act, as well as the protection of fish and fish habitat in general.

One named waterbody (Pitkins Swamp Creek) forms the northern boundary of the Site. The NSW Department of Primary Industries (DPI) maps the creek as Key Fish Habitat (KFH). KFH is not defined under the FM Act, however the DPI provides a definition for KFH as generally including habitats that are crucial to the survival of native fish stock, excluding man-made habitats such as off-stream dams and ponds, and those natural waterways which are dry for the majority of the time or have limited habitat value.

A desktop constraints analysis by Geolyse (2018) identified two endangered aquatic species with potential to occur in Pitkins Swamp Creek. These are the Tusked Frog (Adelotus brevis, listed as endangered under the BC Act) and Purple-Spotted Gudgeon (Mogurnda adspersa, listed as endangered under the FM Act). Upon inspection of the Creek by an EcoLogical Australia (ELA) aquatic ecologist, it is considered unlikely that Purple-Spotted Gudgeon or Tusked Frog occurs in the area (refer to Section 5.7.1 of the SOEE).

It is considered that the proposed development will not harm marine vegetation or block fish passage, as the proposed development will ensure a 50 m buffer from the banks of the waterways within and along the boundaries of the subject land.

Water Management Act 2000 (WM Act)

The WM Act regulates controlled activities on waterfront land in NSW. Waterfront land is defined as the bed of any river, together with any land lying between the bed of the river and a line parallel to, and the prescribed distance (being 40 m) inland of, the highest bank of the river.

The Proposed Development will ensure at least a 40 m buffer from the banks of the waterways within and along the boundaries of the Site; however, cables may cross 1 and 2 Strahler order drainage lines.

Therefore, a controlled activity approval under section 91(2) of the WM Act will be required for cable and vehicular crossings of waterfront land (bed, bank or land within 40 m of a watercourse regardless of Strahler order).

The Natural Resources Regulator has issued their General Terms of Approval for the Controlled Activity Approval.

Local Land Services Act 2013 (LLS Act)

The LLS Act provides the framework for clearing of native vegetation that does not require development consent on rural land in NSW. It is an offence under section 60N of the LLS Act for a person to clear native vegetation in a regulated rural area, unless the person establishes any of the following defences:

a) that the clearing is for an allowable activity authorised under Division 4 and Schedule 5A,
b) that the clearing is authorised by a land management (native vegetation) code under Division 5,
c) that the clearing is authorised by an approval of the Panel under Division 6,
d) that the clearing is authorised under section 60O (Clearing authorised under other legislation etc.).

The Proposed Development, including any vegetation clearing, is being assessed under Part 4 of the EP&A Act, hence this clearing does not require assessment and approval under Part 5A of the LLS Act.

National Parks and Wildlife Act 1974 (NPW Act)

The main aim of the NPW Act is to conserve the natural and cultural heritage of NSW.

An initial 'due diligence' assessment conducted by the applicant has indicated that there is a low risk that Aboriginal objects and/or sites may occur within the Site.

Despite this, mitigation measures have been recommended to protect potential archaeologically sensitive areas:

- A buffer zone extending 50 m from the top of the left bank of Pitkins Swamp Creek shall be establish along the northern boundary of the Site. No development shall occur in this area moderate potential for subsurface archaeological deposits;
- All access to the site shall be via existing established roads (Old Racecourse Road);
- Aboriginal objects are protected under the NPW Act regardless of whether or not they are registered on AHIMS. If suspected Aboriginal objects, such as stone artefacts are located during future works,
- works must cease in the affected area and an archaeologist called in to assess the finds. If the finds are found to be Aboriginal objects, the OEH shall be notified under section 89A of the NPW Act. Appropriate management and avoidance or approval under a section 90 AHIP should then be sought if Aboriginal objects are to be moved or harmed.
- In the extremely unlikely event that human remains are found, works should immediately cease and the NSW Police should be contacted. If the remains are suspected to be Aboriginal, the OEH may also be contacted at this time to assist in determining appropriate management.

Heritage Act 1977 (Heritage Act)

Historic relics, buildings, structures and features are protected under the Heritage Act. The Heritage Act defines 'environmental heritage' as those places, buildings, works, relics, moveable objects and precincts of local or State significance. Identified heritage items are listed in the heritage schedule of the local Council's LEP or listed on the State Heritage Register, or by an active Interim Heritage Order.

Under section 139 of the Heritage Act, a person must not disturb or excavate any land knowing or having reasonable cause to suspect that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, moved, damage or destroyed unless the disturbance or excavation is carried out in accordance with an excavation permit. A relic is any deposit, artefact, object or material that relates to the settlement of the area that comprises NSW, not being Aboriginal settlement, and is of State or local heritage significance. Section 139 does not apply to a relic that is subject to an interim heritage order made by the Minister or a listing on the State Heritage Order.

No heritage items or places have been identified within the site. The Proposed Development would not have any direct or indirect impacts on any items of historic heritage significance and a section 139 permit is not required.

Crown Land Management Act 2016

Crown land includes Crown reserves, state parks, land that is leased or licensed, minor ports, river entrances, caravan parks, places of cultural and community significance, submerged land of public waterways (except where under the ownership of NSW Maritime Authority) and Crown roads. It is an offence to reside, erect a structure, graze or drove livestock, clear, dig up, cultivate or enclose public land without lawful authority. Under Part 3 of the Act, prior to any allocation action of Crown land including lease, sale, reservation, dedication, licence or permit, the land must be assessed to consider capacities and suitable uses.

Crown roads are generally unformed ('paper roads') that provide lawful access to freehold or leasehold land where little or no subdivision has occurred since the original Crown subdivision of NSW in the early 19thcentury. The Minister is the authority for all Crown roads.

No Crown lands or Crown roads will be impacted by the Proposed Development.

Roads Act 1993

Section 138 of the Roads Act sets out the requirements for approval to carry out certain works within the vicinity of a road. Under section 138 a person must not, without consent of the appropriate road's authority:

a) Erect a structure or carry out a work in, on or over a public road;
b) Dig up or disturb the surface of a public road;
c) Remove or interfere with a structure, work or tree on a public road;
d) Pump water into a public road from any land adjoining the road; and/or

e) Connect a road (whether public or private) to a classified road.

The proposed development's grid connection route will follow the road reserves, being Old Racecourse Road, Bellevue Road and the crossing of the Bruxner Highway. These are existing public roads. Access (including any necessary upgrades) to the Site will be off the Bruxner Highway, north onto Bellevue Road and right onto Old Racecourse Road. The Bruxner Highway is a classified state road whilst Bellevue Road and Old Racecourse Road are local roads for which Tenterfield Shire Council is the roads authority. Old Racecourse Road is mostly unsealed, with its condition deteriorating to the east.

The proposed development can also be accessed by Coxalls Road, an existing public local road (it is proposed to place a condition prohibiting access from Coxalls Road to the Bruxner Highway).

Activities that may change the structure or be considered activities under section 138 will require approval from the appropriate road's authority under section 138 of the Roads Act.

The proposal is to avoid direct impacts within the Bruxner Highway road corridor through the use of underboring techniques, although consent is required from RMS under section 138 of the Roads Act to undertake these works.

Works will be undertaken in consultation with TfNSW, to ensure compliance with the works authorisation deed that may be applied by TfNSW upon favourable approval of the Proposed Development.

Any upgrading to the intersection of the Bruxner Highway and Bellevue Road will require the further consent of TfNSW in accordance with the Austroads Guidelines, Australian Standards and TfNSW supplements prior to the commencement of on-site construction works for the solar farm.

The upgrade of the intersection of Bellevue Road and Old Racecourse Road and the upgrade of Old Racecourse Road will require Section 138 approval from Tenterfield Shire Council prior to the commencement of on-site construction works for the solar farm.

Protection of the Environment Operations Act 1997 (POEO Act)

The objectives of the POEO Act are to protect, restore and enhance the quality of the environment, in recognition of the need to maintain ecological sustainable development.

Pursuant to section 48 of the POEO Act, premises-based scheduled activities, as defined in schedule 1, require EPLs from the NSW EPA. Under clause 17 of Schedule 1, electricity generation is scheduled activity requiring an EPL, however solar power is not included in this definition. Therefore, the Proposed Development is not a scheduled activity under the POEO Act, and an EPL is not required.

Biosecurity Act 2015

The *Biosecurity Act 2015* repealed the Noxious Weeds Act 1993 and provides a framework for the prevention, elimination and minimisation of biosecurity risks posed by biosecurity matter, dealing with biosecurity matter, carriers and potential carriers, and other activities that involve biosecurity matter, carriers or potential carriers.

Part 3 of the *Biosecurity Act 2015* applies a General Biosecurity Duty for any person who deals with biosecurity matter or a carrier to prevent, eliminate or minimise any biosecurity risk they may pose. Under section 23 of the Act, a person who fails to discharge a biosecurity duty is guilty of an offence.

Whilst the Act provides for all biosecurity risks, implementation of the Act for weeds is supported by Northern Tablelands Regional Strategic Weed Management Plans (RSWMP) developed for each region in NSW. Appendix 1 of each RSWMP identifies the priority weeds for control at a regional scale. However, landowners and managers must take appropriate actions to reduce the impact of problem weed species regardless of whether they are listed in Appendix 1 of the RSWMP, or not, as the general biosecurity duty applies to these species. There were a number of listed species in the RSWMP that were identified on site. The species identified of particular importance include Black Knapweed (Centaurea x moncktonii), Blackberry (Rubus fruticosus spp. agg.), and Sweet Briar (Rosa rubiginosa).

This is of particular importance concerning Black Knapweed, regarding which the applicant will need to liaise with Council and/or the DPI, who will advise them of relevant restrictions and protocols (e.g. regarding soil movement and machinery hygiene).

Conditions of consent are proposed to control weeds on the subject land.

Harm to the environment

The applicant must implement all reasonable and feasible measures to prevent and/or minimise any material harm to the environment that may result from the construction, operation, or decommissioning of the development, ***including weed control****.*

Landscaping Plan

A Final Landscape Plan must be prepared for the development incorporating all recommended mitigation measures under Section 5.4.3 within the Statement of Environmental Effects prepared by Ecological Australia. Specifically, the Plan must include vegetation buffers (Coxalls Road) and visual setbacks (Coxalls Road and Bellevue Road)

Additionally, the landscape plan must detail:

- *Name and number of species (with preference on the use of native varieties);*
- *Height of species at planting;*
- *Height and spread of species at maturity;*
- *Method of site preparation and maintenance, to ensure likely survival of plant stock;*
- *Monitoring program to detect and replace dead or unhealthy plant stock;*
- ***Weed management****;*
- *Proposal for landscaping/screening of the site in the event of drought conditions prevailing, which may inhibit the landscaping planting being undertaken from the outset;*

- *Proposal for ongoing maintenance/watering of plantings to ensure their survival during drought conditions.*

Such plan is to be submitted to the satisfaction of the Council prior to the issue of a Construction Certificate.

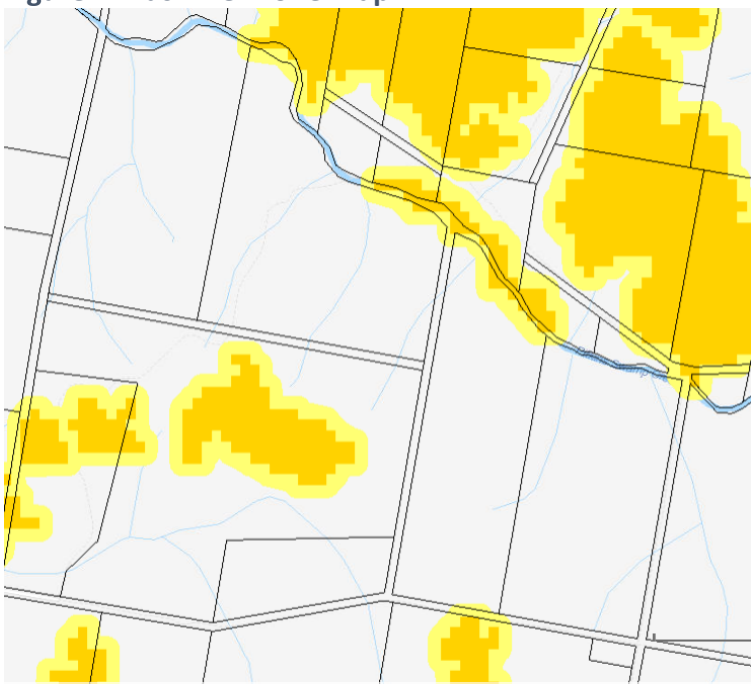
Landscaping/screening required under this consent, is to be undertaken in accordance with the approved plan prior to the operational phase of the development commencing.

Rural Fires Act 1997 (Rural Fires Act)

The Rural Fires Act provides for the preparation, mitigation and suppression of bushfires and other fires in LGAs to provide protection of infrastructure and environment, economic, cultural, agricultural and community assets from damage arising from fire.

Bushfire prone mapping identifies the portions of the development site in the south and some areas along the grid alignment are mapped as Vegetation Category 2. Category 2 is considered to be a relatively low bush fire risk (NSWRFS, 2015).

Figure 2: Bushfire Prone Map



The Proposed Development is not a subdivision for residential or rural residential purposes nor is it for a special fire protection purpose, hence issue of a bush fire safety authority under section 100B of the Rural Fires Act is not required.

A small portion of the Site is mapped as bush fire prone under the bush fire prone land map.

The bush fire hazard associated with the proposed development is considered highly manageable through electrical equipment selection, appropriate access arrangements, fuel load reduction programs, safety protocols during periods of high fire risk and the implementation of an emergency response plan as outlined in the SOEE.

There will also be a 20,000 litre water tank located on site for the sole use of fire protection in line with the RFS standards.

Mining Act 1992

The objective of the Mining Act 1992 is to encourage and facilitate the discovery and development of mineral resources in NSW, having regard to the need to encourage ESD.

There are no current mining or exploration leases or applications over the development Site. There has been one historic exploration license (between 1970 and 1972), owned by Jingellic Minerals (Geolyse, 2018). There are no known mineral occurrences near the Site.

State Environmental Planning Policy (State and Regional Development) 2011

Under the State Environmental Planning Policy (State and Regional Development) 2011, electricity generating works (including solar) that are considered private infrastructure and have a Capital Investment Value greater than $5 million and less than $30 million are classified as "Regionally Significant Development" (RSD). RSD projects require approval under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The proposed development has a CIV of $23,547,780 and is being carried out by a private developer. Therefore, the proposal is Regionally Significant Development.

State Environmental Planning Policy (Infrastructure) 2007 (ISEPP)

The ISEPP was introduced to facilitate the effective delivery of infrastructure across NSW. In most cases, the ISEPP overrides the provisions of other Environmental Planning Instruments and provides permissibility and development assessment provisions which apply across the State for different infrastructure sectors.

Pursuant to clause 34(7), development for the purpose of a solar energy system may be carried out by any person with consent on any land (except land in a prescribed rural residential zone). Therefore, the Proposed Development is permissible with consent.

The development was referred to TfNSW. TfNSW have responded with recommended conditions of consent relating to the two affected intersections on the Bruxner Highway that will be impacted upon by the proposed solar farm.

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

The aims of this Policy are as follows:

a) *to facilitate the orderly economic use and development of lands for primary production;*
b) *to reduce land use conflict and sterilisation of rural land by balancing primary production, residential development and the protection of native vegetation, biodiversity and water resources,*
c) *to identify State significant agricultural land for the purpose of ensuring the ongoing viability of agriculture on that land, having regard to social, economic and environmental considerations,*

d) *to simplify the regulatory process for smaller-scale low risk artificial waterbodies, and routine maintenance of artificial water supply or drainage, in irrigation areas and districts, and for routine and emergency work in irrigation areas and districts,*
e) *to encourage sustainable agriculture, including sustainable aquaculture,*
f) *to require consideration of the effects of all Proposed Development in the State on oyster aquaculture,*
g) *to identify aquaculture that is to be treated as designated development using a well-defined and concise development assessment regime based on environment risks associated with site and operational factors.*

Pursuant to clause 11, land identified as being State significant agricultural land is listed in Schedule 1 of the *State Environmental Planning Policy (Primary Production and Rural Development) 2019*. The lands proposed to be used for the Proposed Development are not contained within this schedule. Therefore, the Proposed Development does not compromise any of the above objectives nor impact upon any State significant agricultural land.

State Environmental Planning Policy No. 44 (Koala Habitat) (SEPP 44)

SEPP 44 aims to encourage the proper conservation and management of areas of natural vegetation that provide habitat for Phascolarctos cinereus (Koala) to ensure a permanent free-living population over their present range and to reverse the current trend of Koala population decline. Developers of land with Koala habitat must consider the impact of their proposal on Koalas, and in certain circumstances, prepare individual Koala plans of management for their land.

Tenterfield Shire Council is listed in Schedule 1 as one of the Councils in which SEPP 44 applies. Councils are encouraged to prepare LGA-wide Koala plans of management, and once agreed to by the NSW Department of Planning, they may be used by developers to address Koala issues and individual plans of management would no longer be required. Currently, potential and core Koala habitat has not been surveyed in the Tenterfield Shire Council LGA, or included as a special provision in the Tenterfield LEP, or the Tenterfield Development Control Plan 2014.

Potential koala habitat is defined as areas of native vegetation (>1 ha) where the trees types listed in Schedule 2 of SEPP 44 constitute at least 15% of the total number of trees in the upper and lower strata. Core Koala habitat is defined as an area of land with a resident population of Koalas, evidenced by attributes such as breeding females and recent sightings and historical records of a population.

There is no potential impact on Koalas. The biodiversity assessment prepared as part of the development application did not identify any Koala feed trees on the Site.

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

SEPP 33 defines and regulates the assessment and approval of potentially hazardous or offensive development. Under clause 1 of the SEPP 33, a 'potentially hazardous industry' is defined as "…a development for the purposes of any industry which, if the development were to operate without employing any measures (including, for example, isolation from existing or likely future development on other land) to reduce or minimise its impact in the locality or on the existing or likely future development on other land, would pose a significant risk in relation to the locality:

a) *to human health, life or property, or*
b) *to the biophysical environment,*

and includes a hazardous industry and a hazardous storage establishment."

Clause 1 also defines a 'potentially offensive industry' as *"… a development for the purposes of an industry which, if the development were to operate without employing any measures (including, for example, isolation from existing or likely future development on other land) to reduce or minimise its impact in the locality or on the existing or likely future development on other land, would emit a polluting discharge (including for example, noise) in a manner which would have a significant adverse impact in the locality or on the existing or likely future development on other land, and includes an offensive industry and an offensive storage establishment*."

A preliminary hazard analysis is required for development proposals classified as 'potentially hazardous industry' to determine the risks to people, property and the environment. Appendix 3 of the Applying SEPP 33 guidelines list the industries that are considered to fall within SEPP 33. Solar farms are not listed in Appendix 3 of the guidelines.

State Environmental Planning Policy No. 55 – Remediation of Land (SEPP 55)

SEPP 55 aims to promote remediation of contaminated land for the purpose of reducing the risk of harm to human health or any other aspect of the environment.

Under clause 7, a consent authority must not consent to the carrying out of any development on land unless:

a) *it has considered whether the land is contaminated, and*
b) *if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out, and*
c) *(c) if the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.*

A review of the NSW Environmental Protection Agency (EPA) Contaminated Land Record under s 58 of the Contaminated Land Management Act 1997 (CLM Act) and the List of NSW contaminated sites notified to the EPA under section 60 of CLM Act did not reveal any registered contaminated land sites within or surrounding the Site.

A review of premises currently regulated by an Environmental Protection Licence (EPL) under the *Protection of the Environment Operations Act 1997* (POEO Act) and premises that are no longer required to be licensed under the POEO Act revealed no EPLs within the Site.

Pursuant to clause 7 of SEPP 55 there is no apparent reason to consider that land to be impacted by the Proposed Development would be contaminated.

New England North West Regional Plan 2036

The New England North West Regional Plan 2036 prioritises solar renewable energy production opportunities within the Tenterfield Council area and the surrounding region.

The site is not mapped as comprising Biophysical Strategic Agricultural Land.

The Plan outlines 9 Strategic Directions for the North West Slopes and Plains region in NSW. Strategic Direction Number 5 is to "Grow New England North West as the renewable energy hub of NSW". The Plan encourages the following actions to be taken to achieve this goal:

a) Diversify the energy sector by identifying renewable energy resource precincts and infrastructure corridors with access to the electricity network; and

b) Facilitate appropriate smaller-scale renewable energy projects using biowaste, solar, wind, hydro, geothermal or other innovative storage technologies.

The proposed solar farm will contribute to achieving the Strategic Direction Number 5 actions, as it will capitalise on the existing high rates of regional solar penetration to expend and provide diversity in electricity generation.

It is considered that the SOEE has adequately addressed the Regional Plan.

Tenterfield Local Environmental Plan 2013 (TLEP 2010)

<u>Permissibility</u>

The land is zoned RU1 Primary Production pursuant to the *Tenterfield Local Environmental Plan 2013*. The proposed solar farm is defined as "**electricity generating works**".

"Electricity generating works" is defined as:

"… a building or place used for the purpose of making or generating electricity."

"Electricity generating works" are permissible development with consent in zone RU1.

The objectives of zone RU1 zone 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.*

Comments

The proposed development is considered consistent with the objectives of the zone.

The proposed solar farm (the subject site) and surrounds are zoned 'RU1 - Primary Production' under the Tenterfield Local Environmental Plan 2013. The subject site predominantly consists of highly disturbed, previously cleared agricultural land that is currently used for cattle grazing. Historically this land was sown with pasture grass for cattle, and some areas have been ploughed and/or burned repeatedly for many years.

The land surrounding the Proposed Development is primarily used for agricultural activities, with associated rural dwellings com prising a mix of involved and non-involved residences.

The 60 ha of the proposed Site is classified as Class 4 (land and soil capability assessment scheme). This 60 ha makes up 0.07 % of the total Class 4 in the Tenterfield LGA. Land and soil capability mapping corresponds to each soil landscape, based on the most limiting factor. Under the land and soil capability assessment scheme (OEH) Class 4 land has moderate to severe limitations for some land uses that need to be consciously managed to prevent soil and land degradation

Given that the subject land is close proximity to urbanisation and the sub-station on Bellevue Road, it is considered that the proposed small scale solar farm project to compatible with the RU1 zone and will not impact on agricultural lands within the Local Government Area or result of unacceptable land use conflict.

4.15 (1)(a)(ii) any proposed instrument that is or has been the subject of public consultation under this Act and that has been notified to the consent authority

Nil applicable.

4.15 (1)(a)(iii) any development control plan

Tenterfield Development Control Plan 2014

The Tenterfield Development Control Plan 2014 does not contain controls that are applicable to the proposed use of the land for “electricity generating works”.

4.15 (1)(a)(iiia) any planning agreement that has been entered into under section 7.4 or any draft planning agreement

The proposal and the site are not subject to a planning agreement.

4.15 (1)(a)(iv) the regulations

The proposed development will require a Construction Certificate and will be required to be constructed in accordance with the National Construction Code.

4.15 (1)(b) the likely impacts of that development

Access, Transport and Traffic

General access to the Site will be via a new access point off Old Racecourse Road. Construction vehicles will arrive via the New England Highway, Bruxner Highway, Bellevue Road and Old Racecourse Road. No access will be permitted to the site via Coxalls Road.

Traffic flows on the local roads are low. The Proposed Development is forecast to generate around five heavy vehicles and up to 40 light vehicles a day during the seven month construction period. The existing road network will not be significantly affected by the additional traffic. The Road Safety Audit identified potential sight distance issues and recommended roadworks to be addressed prior to commencement of construction activities.

The Proposed Development's grid connection route will follow the road reserves, being Old Racecourse Road, Bellevue Road and the crossing of the Bruxner Highway. These are existing public roads. Access (including any necessary upgrades) to the Site will be off the Bruxner Highway, north onto Bellevue Road and right onto Old Racecourse Road. The Bruxner Highway is a classified state road whilst Bellevue Road and Old Racecourse Road are local roads for which Tenterfield Shire Council is the roads authority. Old Racecourse Road is mostly unsealed, with its condition deteriorating to the east.

The Proposed Development can also be accessed by Coxalls Road, an existing public local road (it is proposed to place a condition prohibiting access from Coxalls Road to the Bruxner Highway).

Activities that may change the structure or be considered activities under section 138 will require approval from the appropriate road's authority under section 138 of the Roads Act.

Works will be undertaken in consultation with TfNSW, to ensure compliance with the works authorisation deed that may be applied by TfNSW upon favourable approval of the Proposed Development.

Any upgrading to the intersection of the Bruxner Highway and Bellevue Road will require the further consent of TfNSW in accordance with the Austroads Guidelines, Australian Standards and TfNSW supplements prior to the commencement of on-site construction works for the solar farm.

TfNSW are agreeable for Traffic Control Plans to be developed as a temporary measure to accommodate all heavy vehicle movements during the construction phase at the New England Highway and Bruxner Highway intersection.

The same temporary management measures can also be adopted for any truck movements required during the operational and decommissioning phases. All temporary management measures are to be documented in the final approved Traffic Management Plan.

Any Traffic Control Plan/s (TCPs) are to manage peak periods or events during the construction, operation and decommission phases of the development. TCPs are to be certified and implemented by suitably qualified persons in accordance with the current Traffic Control at Worksites Manual. TCPs will need to take into consideration the existing speed environment, safety of turning and peak hour traffic.

A Road Occupancy Licence (ROL) must be obtained from TfNSW prior to the implementation of any traffic control on the classified road.

The Bruxner Highway and Bellevue Road Intersection is to be upgraded in accordance with the Austroads Guidelines, Australian Standards and TfNSW supplements prior to the commencement of on-site construction works for the solar farm. The applicant will be required to enter a Works Authorisation Deed (WAD) with TfNSW to obtain concept and detailed design acceptance for road works on a Classified (State) Road.

Any WAD shall be executed with TfNSW and the Consent Authority notified of the practical completion of works prior to the commencement of construction related traffic. The applicant will be responsible for all costs associated with the roadwork and administration for the WAD. It is recommended the applicant familiarise themselves with the requirements of the WAD process and further details can be obtained from the TfNSW website.

TfNSW has advised that they are available to discuss and assess the final intersection treatment at the detailed design stage This may necessitate an independent road safety audit to inform the level of risk. Should the final scope of works require the recommended opposing CHR-S treatments, the Consent Authority may request drawings of that scope to understand any associated vegetation, property and utility adjustments and their associated impacts prior to the commencement of works.

TfNSW requires that the final Traffic Management Plan (TMP) be further expanded to detail proposed procedures to be implemented during the construction, operational and decommission phases of the development. The TMP should be prepared in consultation with the relevant road authorities and approved by the Consent Authority prior to the commencement of each phase of the development.

TfNSW requires that Traffic Control Plans (TCPs) reflecting the final approved development will be prepared, certified and implemented by suitably qualified persons in accordance with the current Traffic Control at Worksites Manual.

The final TMP should include details of any consultation undertaken with relevant bus service providers, particular for school bus service operating in the locality and along the identified transport route. Any issues identified during such consultation are suitably addressed prior to the commencement of construction-related traffic.

Old Racecourse Road is to be upgraded to a Class B road as per Councils Engineering Guidelines prior to commencement of onsite construction. This would require the road to be reconstructed (up to the solar farm entrance) to a two lane two way carriageway with a minimum pavement width of 7.0 metres and a minimum sealed width of 6.0 metres. The design speed for the road function will be a minimum 70 km/h. Any culverts will need to be minimum 7.2m wide subject to the formation design and may need to be wider if the road formation needs to be in large fill

The intersection of Bellevue Road and Old Racecourse Road is to be upgraded to a BAL standard (RMS) for articulated vehicles and a stop sign control applied across Old Racecourse Road prior to commencement of onsite construction. Council may consider a satisfactory TCP to be implemented in lieu of the physical works been undertaken at the intersection.

Access to the site off Old Racecourse Road is to be constructed in accordance with Councils Engineering Guidelines prior to commencement of onsite construction.

The upgrade of the intersection of Bellevue Road and Old Racecourse Road and the upgrade of Old Racecourse Road will require Section 138 approval from Tenterfield Shire Council.

Other Land Resources

The Site is located within a relatively low undulating landscape, with a number of stock dams on the Site. A considerable portion of the Site has been cultivated for improved pasture.

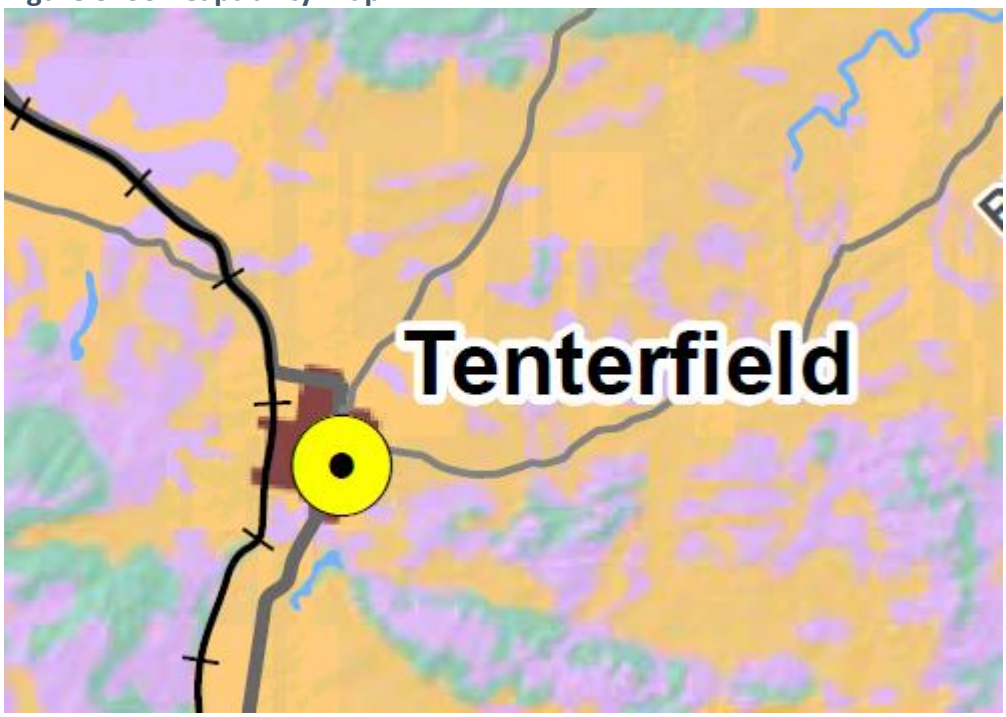
Land capability classes aim to classify land according to its inherent ability and protection from erosion and other forms of land degradation. The classification of any land is based on biophysical features which determine the limitations and hazards of that land. The main hazards and limitations include: water erosion, wind erosion, soil structure decline, soil acidification, salinity, waterlogging, shallow soils, rockiness, and mass movement. The eight class system recognises four types of land uses with land capability decreasing from Class 1 to Class 8 (OEH, 2012):

- Class 1 – 3: land suitable for cultivation;
- Class 4 – 5: land suitable for grazing and restricted cultivation;
- Class 6: land suitable for grazing; and
- Class 7 – 8: land not suitable for agricultural production.

The 60 ha of the proposed Site is classified as Class 4 (land and soil capability assessment scheme). This 60 ha makes up 0.07 % of the total Class 4 in the Tenterfield LGA. Land and soil capability mapping corresponds to each soil landscape, based on the most limiting factor.

Under the land and soil capability assessment scheme (OEH) Class 4 land has moderate to severe limitations for some land uses that need to be consciously managed to prevent soil and land degradation. These limitations can be overcome by specialised management practices with high levels of knowledge, expertise, inputs, investment and technology. This class includes sloping lands (10–20% slope). This land is generally used for grazing and is suitable for pasture improvement.

Figure 3: Soil Capability Map



Given that the subject land is close proximity to urbanisation and the sub-station on Bellevue Road, it is considered that the proposed small scale solar farm project to compatible with the RU1 zone and will not impact on agricultural lands within the Local Government Area or result of unacceptable land use conflict.

Conditions are recommended to require that the property be maintained to prevent the harbourage of pest and the risk of fire. This includes the implementation of measures to specifically manage pests, vermin and weeds on site.

Landscaping

A Final Landscape Plan is to be prepared for the development incorporating all recommended mitigation measures under Section 5.4.3 within the Statement of Environmental Effects prepared by Ecological Australia. Specifically, the Plan must include vegetation buffers (Coxalls Road) and visual setbacks (Coxalls Road and Bellevue Road)

Additionally, the landscape plan must detail:

- Name and number of species (with preference on the use of native varieties);
- Height of species at planting;

- Height and spread of species at maturity;
- Method of site preparation and maintenance, to ensure likely survival of plant stock;
- Monitoring program to detect and replace dead or unhealthy plant stock;
- Weed management;
- Proposal for landscaping/screening of the site in the event of drought conditions prevailing, which may inhibit the landscaping planting being undertaken from the outset;
- Proposal for ongoing maintenance/watering of plantings to ensure their survival during drought conditions.

Such plan is to be submitted to the satisfaction of the Council prior to the issue of a Construction Certificate.

Landscaping/screening required under this consent, is to be undertaken in accordance with the approved plan prior to the operational phase of the development commencing.

Flora and Fauna

Desktop assessment and field investigations undertaken by the applicant indicate no threatened species are likely to be present on the Site. Field assessment indicated that the Site includes areas of the Threatened Ecological Community (TEC) White box yellow box Blakely's red gum woodland, listed as an endangered ecological community under the BC Act. This TEC is represented by PCT 510 in various condition states.

It is considered that the White box yellow box Blakely's red gum woodland found within the Site does not meet the criteria for listing under the EPBC Act. This is due to the observed lack of presence of key canopy species and floristic abundance in the ground cover layers.

The development footprint for the works has been developed to first avoid and then minimise impacts to biodiversity such that potential impacts are not significant and do not trigger the BAM.

The Site was assessed under the BC Act for the likely biodiversity impacts of the Proposed Development, having regard to the BAM. The results of the current survey and BAM plot data determined that there was not enough native vegetation present to warrant a full BDAR, and a Biodiversity Assessment was considered to be more appropriate for the subject site.

The Biodiversity Assessment provides the following conclusion:

8 Conclusion

This report describes the ecological environment of the subject site of the proposed Tenterfield solar farm and assesses the impacts of the Proposed Development.

No threatened flora species were recorded in the area potentially impacted by the Proposed Development. The absence of basaltic soils on-site means that the three threatened flora species; Wandering Peppercress, Austral Toadflax and Bluegrass known to occur in the vicinity of the subject site would not occur within the Proposed

Development footprint. Riparian areas along Pitkins Swamp Creek, the areas of PCT 51 O and areas of exotic pasture were searched for these species, but none occurred.

lt is understood that Pitkins Swamp Creek and its immediate surrounds will not be affected by the current proposal. lt is recommended that the tributaries of Pitkins Swamp Creek that extend across the northerly portion of the subject site are avoided, in terms of placement and construction of the steel racks which will support the mounted photovoltaic panel modules.

Black Knapweed is prohibited matter under the Biosecurity Act 2015 and was detected within the subject site. As such, restrictions may apply regarding works undertaken in the development area. Surveillance activities by the DPI and LLS are ongoing to delimit the Black Knapweed infestation and support an eradication campaign. As the situation unfolds, the client will need to liaise with Tenterfield Shire Council and/or the DPI, who will advise them of relevant restrictions and protocols (e.g. regarding soil movement and machinery hygiene).

The study area is considered to provide habitat of varying degrees of suitability for six listed threatened fauna species. None of these species would depend on habitat within the study area to maintain viable populations.

Recommendations are provided to mitigate potential impacts on the habitat values of the subject site.

Assessment of the project is to proceed under Part 4 of the EP&A Act. An assessment of the area to be impacted indicated that thresholds for implementation of the BOS and BAM were not reached and so impacts were assessed through the application of the Five Part Test of significance process under Clause 7.3 of the BC Act, in accordance with relevant assessment guidelines (DECC 2007). These tests concluded that the proposal is unlikely to have a significant effect on any threatened species. An SIS is not required for the proposal.

Following consideration of the administrative guidelines for determining significance under the Commonwealth EPBC Act, it is concluded that the proposal is unlikely to have a significant impact on any Matters of National Environmental Significance, and a referral to the Commonwealth Environment Minister is therefore not required.

Noise and Vibration

The Proposed Development is located within a rural landscape and, background noise sources and levels are considered to be low, typical of the rural setting. There are thirty-five residences are located within 1 km of the assessed preliminary Development Footprint.

Acoustic modelling uses a worst-case prediction scenario to assess the maximum possible noise impact where it is assumed that all noise-generating construction machinery are being operated concurrently at the nearest part of the Development Footprint to each respective receiver. While maximum impact will only be for a short duration until the activities move to a different location, assessing the maximum impact ensures the right mitigation methods are implemented.

The worst-case modelling indicates that the ICNG Noise Management Level of 50 dB(A) would be exceeded during the noisiest construction tasks (under worst-case atmospheric, meteorological and ground attenuation conditions) for residences located within 550 m of the Development Footprint. The period of time during which the exceedance could occur at any particular receiver will be a small proportion of the overall 6-month construction period, when the construction activities are at the edge of the Development Footprint closest to that particular receiver. The ICNG highly noise affected limit of 75 dB(A) is not exceeded at any residences even during the noisiest construction tasks. Impact from operational activities is predicted to be insignificant. Mitigation measures are provided to further reduce potential impacts during all project phases.

The following mitigation measures are proposed by the applicant:

5.5.3 Mitigation Measures

The opportunities for practical physical noise control are few given the transient and constantly moving nature of the construction work. However, it is recommended to use mobile noise barriers/enclosures during certain construction work, such as around stationary work activities and plant.

In addition to physical noise control or in situations where this is not practical, management measures should be employed to minimise the construction noise impact for residential and commercial premises. These should include all feasible and reasonable measures employed by the contractor such as:

- *Locate the stations at least 260 m away from the closest NSR.*
- *• Informing and consulting with residents and interested parties, as far as practicable, regarding impending or current events that may cause high levels of noise and how long they are expected to take. This may take the form of letter drops, or community notices.*
- *Provide a complaints telephone number prominently displayed where the works are taking place and on any letter drops or community notices.*
- *Respite hours agreed with residents when noisy works will not take place if necessary.*
- *Investigate complaints when received to establish the cause, and where possible implement a corrective action such as, provide a respite period or other practical measure.*
- *Minimising the operating noise of machinery brought on to the Site.*
- *Where appropriate, obtaining acoustic test certificates for machinery brought on to the Site.*
- *Undertake noise monitoring at the start of a new noisy activity so noise levels can be investigated should a complaint be received.*
- *If there is excessive noise from any process, that process will be stopped and if possible that noise attenuated to acceptable levels. Where there is no alternative the process will be rescheduled to non-sensitive hours.*
- *Ensuring that plant is not left idling when not in use.*
- *Ensuring that plant is well maintained and in good working order and not causing unnecessary noise, such as damaged mufflers on plant, and*
- *All access hatches for plant to be kept closed.*

Water

The Site lays within the upper reaches of the Border Rivers Catchment area. The Site drains generally in a northerly direction via first order streams and a second order stream (Strahler, 1957) to Pitkins Swamp Creek, a fourth order stream which forms the northern boundary.

The second order stream is a gentle sloping area that extends into a low lying floodplain adjacent to Pitkins Swamp Creek. Pitkins Swamp Creek is a shallow, narrow winding creek with a mostly mud or fine sand substrate that is impacted by historical land management activities including livestock access. Aquatic vegetation was sparsely distributed in the creek, and biodiversity was low. Riparian vegetation and the riparian zone generally throughout the Site are cleared and/or highly degraded to support agricultural activities and comprise exotic species. There are also a number of farm dams present. Background searches of threatened species that may occur in the locality by the applicant had indicated potential impact for two aquatic species within Pitkins Swamp Creek. However, field survey has concluded that it is unlikely that Purple-Spotted Gudgeon or Tusked Frog occur in the area, so the potential for impact to either species is negligible.

The Proposed Development has been assessed as having no direct impacts on water resources. There is low potential for indirect impacts to occur during the construction, operation and decommissioning stages through the process of erosion and sedimentation. Solar panels will be located away from the waterway, and there is no construction planned for inside the riparian corridor, so impacts to Pitkins Swamp Creek from the proposed solar farm will be negligible or minor. If the creek is fenced off from stock, and stocking rates lowered, the ecological condition of Pitkins Swamp Creek may potentially improve.

The following environmental protections are proposed by the applicant and considered acceptable:

- Exclusion from the Development Footprint of Pitkins Swamp Creek (4th order stream) and the associated riparian zone (a buffer distance of at least 40 m from the creek bank);
- Avoidance of footings and pilings, where practicable, from 1 and 2 order riparian zones;
- Avoidance of creek crossings for internal access and cabling;
- Sourcing of non-potable water from onsite dams and/or existing water licenced sources offsite; and
- Sourcing all potable water requirements from offsite.

Management plans shall be developed to assess and identify appropriate operational protocols to ensure the protection of surface and groundwater quality, maintenance of water supplies and rights of access, and the protection of riparian, aquatic and groundwater dependent ecosystems.

Air and Microclimate

In the current dry conditions, dust is a likely impact of the construction phase and also the ongoing operation of the project if there is limited ground cover. As a consequence, conditions have been recommended with respect to dust suppression and management.

These conditions require that the Applicant prepare a Site Environmental Management Plan and Construction Environmental Management Plan that specifically addresses dust. Conditions also require that the development is to be constructed and operated in a manner that minimises dust generation from the site, including wind-blown and traffic-generated dust.

A condition has also been recommended that nominates that any product used for dust mitigation or cleaning of the solar panels must be declared to the Council prior to use to ensure that no soil or ground water contamination risks are associated with the product.

Heritage

There are no listed heritage items on the subject land under the Tenterfield LEP.

An Aboriginal Heritage Due Diligence Assessment was undertaken by Ecological to accompany the Development Application.

There are no registered AHIMS site located on the subject land.

Following an analysis of the desktop assessment (review of previously undertaken Aboriginal studies and database searches) and observations made during the archaeological field survey, the Site and proposed transmission line routes were considered to represent an area of low archaeological potential as a result of physical impacts caused by pastoral activities including vegetation clearing, ploughing, vehicle movement and dam/fence construction. The Proposed Development will not have any direct or indirect impacts on known historic heritage items. It is unlikely any items of historic significance remain unidentified within the Site; however, an unexpected archaeological finds procedure will be adopted.

To address these recommendations, conditions are included to require that if during the course of construction, the Applicant becomes aware of any previously unidentified heritage object(s) or unidentified significant Aboriginal object(s), all work must cease.

Hazards and Risks

Hazards and risk assessments considered bushfire, electrical fire and electromagnetic interference. Small portions of the transmission line route, the Site, and its surrounds are mapped as Bushfire Prone Land on the Tenterfield LGA Bushfire Prone Land Map (NSW RFS, 2018). The Proposed Development is located within cleared areas, away from infrastructure, residences and Pitkins Swamp Creek.

In terms of onsite resources, the Site is well serviced by multiple roads (Old Racecourse Road and Bellevue Road). There will also be internal access tracks created for the proposed Development. These roads can provide emergency evacuation routes and emergency vehicle entry. The flammability of solar farms is very low as they are predominantly constructed of glass, silicon, steel and aluminium. While fires (such as grassland fires) have the potential to occur, the risk of fire originating from the Site is very low. With appropriate mitigation strategies in place, bushfire and electrical fire risks during the operation of the solar farm are considered highly manageable.

The applicant has provided the following commentary on electromagnetic fields:

Potential electromagnetic field (EMF) impacts would occur only during the operational phase, when the solar farm infrastructure is capable of generating EMFs. EMFs produced by the PV solar array would be significantly less than those produced for household applications (Chang & Jennings, 1994). The EMFs produced by the underground (up to)22 kV cables connecting the solar array with the adjacent existing TransGrid 132/22 kV substation will be insignificant due to the insulative effect of burial and in built cable shielding. Any EMFs produced by the

existing substation would already comply with exposure limits (EMFs Info, 2017). Given the distance of residences from the highest EMF emitter (the substation), the low EMFs emitted from the PV solar arrays, the existing 11 and 22 kV distribution network, and two TransGrid 132 kV transmission lines located near these residences, EMFs from the Proposed Development are likely to be indistinguishable from background levels at the boundary fence.

There is no flood planning mapping in the Tenterfield LEP and no directly relevant prior flood studies that would enable informed comment about the extent of flooding in the Site.

The Tenterfield Floodplain Risk Management Study and Plan (Jacobs, 2014) was conducted to provide basis of the management of existing and future flood risks for the township of Tenterfield and includes the township of Tenterfield, with the area extending from Tenterfield Dam to just downstream of Rouse Street. As such, this modelling does not consider the flood hydrology of Pitkins Swamp Creek.

It can be concluded that sporadic, minor flooding of the site may accompany periods of wet weather, however, such periods of local inundation are likely to be occasional and of short duration.

Visual Impact

To reduce any potential impact on surrounding properties, the applicant will be required as a condition of consent to development a landscape plan (a copy of the draft landscaping plan is depicted in the figure below).

Landscaping Plan

A Final Landscape Plan must be prepared for the development incorporating all recommended mitigation measures under Section 5.4.3 within the Statement of Environmental Effects prepared by Ecological Australia. Specifically, the Plan must include vegetation buffers (Coxalls Road) and visual setbacks (Coxalls Road and Bellevue Road)

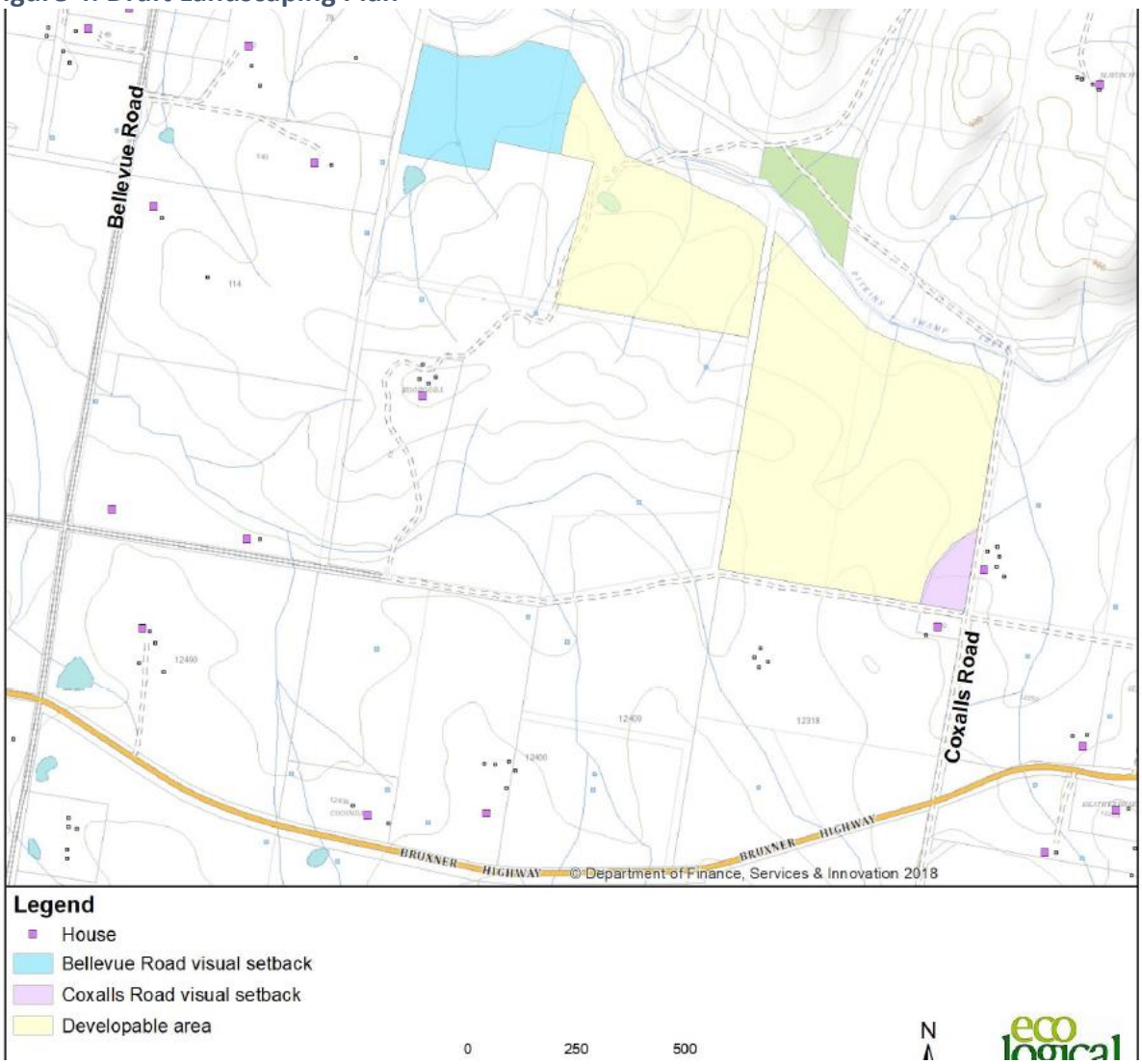
Additionally, the landscape plan must detail:

- *Name and number of species (with preference on the use of native varieties);*
- *Height of species at planting;*
- *Height and spread of species at maturity;*
- *Method of site preparation and maintenance, to ensure likely survival of plant stock;*
- *Monitoring program to detect and replace dead or unhealthy plant stock;*
- ***Weed management**;*
- *Proposal for landscaping/screening of the site in the event of drought conditions prevailing, which may inhibit the landscaping planting being undertaken from the outset;*
- *Proposal for ongoing maintenance/watering of plantings to ensure their survival during drought conditions.*

Such plan is to be submitted to the satisfaction of the Council prior to the issue of a Construction Certificate.

Landscaping/screening required under this consent, is to be undertaken in accordance with the approved plan prior to the operational phase of the development commencing.

Figure 4: Draft Landscaping Plan



The applicant has advised that the proposed landscaping within these areas would comprise plantings of endemic native species, common to the area, of which is subject to consultation with the relevant adjoining landholder. The plant species and quantity would be selected to meet agreed performance criteria to ensure an effective visual buffer suited to local conditions based on guidance from ecologists, agronomists, local nurserymen and/or Landcare groups. The vegetation screens are intended to grow densely and to a height taller than the panel array. Suggested species may Include, though are not restricted to:

- *Eucalyptus blakelyi (Blakely's Red Gum)*
- *Eucalyptus moluccana (Grey Box)*
- *Eucalyptus metliodora(Yellow Box)*
- *Eucalyptus conica (Fuzzy Box)*
- *Brachych/ton populneus (kurrajong) ·*
- *Acacia implexa (Hickory Wattle)*
- *Acacia buxlfolla (Box-leaf Wattle)*
- *Angophorafloribunda(Rough-barked Apple)*
- *Exocorpos cupressiformis (Cherry Ballart)*

- *Banksia cunninghamii (Banksia)*
- *Callistemon viminalis (Weeping Bottlebrush)*
- *Calllstemon steberi (River Bottlebrush)*

Landowner to the north

As a result of extensive consultation with an impacted landowner directly north of the development site, Enerparc has committed to planting vegetative screening on this resident's property.

Supplementary to further compensation as outlined in a signed letter of commitment from Enerparc Australia dated 15-07-19, Enerparc has signed to compensate the landowner for the cost of commissioning the planting of up to 15 trees. Enerparc intends to execute the terms of agreement once the construction of the solar farm commences.

Solar Photovoltaic Glint and Glare Study

A Solar Photovoltaic Glint and Glare Study has been prepared by Pager Power to accompany the application.

The definition of glint and glare can vary however, the definition used by Pager Power is as follows:

- Glint - a momentary flash of bright light typically received by moving receptors or from moving reflectors.

- Glare - a continuous source of bright light typically received by static receptors or from large reflective surfaces.

The report concluded:

8 OVERALL CONCLUSIONS

8.1 Dwelling Results

Overall. no impact upon the residential amenity of the assessed dwelling to the north of the proposed solar development is expected. This is because a solar reflection from the proposed solar development is not geometrically possible. This is true for both the panel elevation angle of 25-degreesand 30-degrees orientated north.

8.2 Overall Conclusions and Recommendations

No impact upon the residential amenity of the assessed dwelling is anticipated. No mitigation is required.

Environmental

Environmental Management Plans would be prepared following final design and prior to each respective development stage to provide an overall framework for the management of environmental impacts that could potentially arise during the construction, operation and decommissioning of the Proposed Development.

As a condition of consent, the Applicant is to prepare the following Plans for the development:

- Emergency Response Plan (ERP);
- Construction Environmental Management Plan (CEMP), which is to include but not limited to:
    - Environmental measures to be implemented for any hazardous materials stored on site and prevent their offsite migration;
    - Details for the storage of any hazardous materials on site;
    - A Spill Response Plan (SRP)
    - Erosion and Sediment Control Plan;
    - Details and protocols for any on-site refuelling and details of the disposal of these materials;
- Operational Environmental Management Plan (OEMP), which is to include but not limited to:
    - Inspection program following significant storm events, identifying rectification works required to stabilise the site, access roads and all site infrastructure;
    - Inspection program to repair/replace faulty panels before they may become hazardous to the environment by way of deterioration/damage to prevent any contamination from occurring either on or off site.
- Construction Noise and Vibration Management Plan;
- Construction Management Plan (CMP)
- Bushfire Management Plan (BMP);
- Community Consultation Plan (CCP);

Such Plans are to be submitted to and approved by the relevant certifying authority before the issue of a Construction Certificate and implemented/adopted for the life of the development.

The Proposed Development would be designed, constructed, operated and decommissioned in accordance with the requirements of:

- Relevant legislation;
- Conditions of consent; and
- Commitments provided in this SEE.

Residual risks following the application of mitigation strategies are considered to be generally low or medium and can be reasonably managed.

The proposed development as demonstrated by the applicant in Statement of Environmental Effects & associated reports and accord with environmental, social and economic considerations, as well as the principles of Ecologically Sustainable Development.

Environmental impacts associated the construction, operation and decommissioning of the Proposed Development are considered compliant with the requirements for ESD under the EP&A Act and other relevant State and Commonwealth legislation. Potential environmental

impacts are considered relatively minor and can be appropriately managed through the application of identified mitigation strategies and ongoing stakeholder consultation.

Utilities

Pursuant to section 68 of the *Local Government Act 1993*, an approval will be required from Council to carry out onsite effluent disposal. A condition is recommended which requires that this permit be obtained prior to the issue of a Construction.

Socio-Economic Impacts

The Proposed Development would have an overall positive impact on the local and wider economy during the construction and decommissioning stages which will generate the largest economic gain for the greatest number of people and businesses. This is due to the hiring of a large temporary work force over these periods. Employment opportunities would involve landscaping for vegetative screening, concreting, earthworks, steel works and electrical cabling during construction, with demolition and removal during decommissioning.

Where practicable, Enerparc has advised that they will source from local companies. Indirect employment opportunities would involve food industries, fuel, accommodation and other services that contractors coming to the area would require. Local employment opportunities will be generated, while additional workers from outside the region would stimulate the local economy through demand for accommodation, hospitality and retail services. A temporary influx of staff may lead to a small, but temporary, increase in pressure on local services, including accommodation.

Enerparc has advised that they will liaise with relevant local representatives to maximise the benefits to the local economy, by recruiting contractors from the local area and implementing an informal 'buy local' practice where goods and services are purchased from local businesses, provided that they are competitive in terms of quality and price.

The Proposed Development would provide a number of employment opportunities and benefits to the local economy, while reducing carbon emissions and providing progress towards national and international environmental commitments.

Electricity produced from the Site provides a clean power source for local and regional consumers in a cost-effective manner.

The applicant will be required to develop a Community Consultation Plan outlining the measures that will be taken during the construction phase of the development and to reduce any adverse impacts. This will require protocols to keep the community updated on the project progress and how relevant stakeholders will be informed of potential impacts, and the resolution process for any complaints received.

Developer Contributions

Pursuant to the Tenterfield Shire Council Section 94A Contributions Plan, Council may levy contributions from a development for the provision of community infrastructure.

Development with a value of greater than $200,000 is subject to a levy of 1%. A cost summary of works was prepared to accompany the Development Application and nominates a capital investment value of $23,547,780. As such, the contribution payable is $23,5477.80

A condition is recommended to require that payment of this contribution is made prior to issue of any Construction Certificate.

4.15 (1)(c) the suitability of the site for the development

The subject site is considered suitable for the proposed development as it is located within a rural location with low agricultural capability, is compatible with existing land uses in the locality, will not contribute to or result in land use conflict; and when decommissioned, the area of the existing farm upon which the solar farm is to be located can be restored to its previous form.

4.15 (1)(d) any submissions made in accordance with this Act or the Regulations

The application was publicly exhibited in accordance with the Tenterfield Development Control Plan 2014 from the 17 June 2019 to 19 July 2019. The application was advertised in the local newspaper, the Tenterfield Star on 12 June 2019 and 3 July 2019 and notification letters were sent to all adjoining property owners. Nine (9) submissions by of objection was received during the exhibition period and have been addressed in this report.

The points of objection are:

The proposal will have a negative impact on and a loss of prime agricultural land.

Comment

The proposed solar farm (the subject site) and surrounds are zoned 'RU1 - Primary Production' under the Tenterfield Local Environmental Plan 2013. The subject site predominantly consists of highly disturbed, previously cleared agricultural land that is currently used for cattle grazing. Historically this land was sown with pasture grass for cattle, and some areas have been ploughed and/or burned repeatedly for many years.

The land surrounding the Proposed Development is primarily used for agricultural activities, with associated rural dwellings com prising a mix of involved and non-involved residences.

The 60 ha of the proposed Site is classified as Class 4 (land and soil capability assessment scheme). This 60 ha makes up 0.07 % of the total Class 4 in the Tenterfield LGA. Land and soil capability mapping corresponds to each soil landscape, based on the most limiting factor.

Under the land and soil capability assessment scheme (OEH) Class 4 land has moderate to severe limitations for some land uses that need to be consciously managed to prevent soil and land degradation

Given that the subject land is close proximity to urbanisation and the sub-station on Bellevue Road, it is considered that the proposed small scale solar farm project to compatible with the RU1 zone and will not impact on agricultural lands within the Local Government Area or result of unacceptable land use conflict.

The use of approximately 30 ha for a solar farm and associated infrastructure does not compromise or diminish the availability of land for primary production in the area and wider region. Nor does it compromise the capacity for neighbours to continue existing or proposed primary production land uses.

Furthermore, the applicant has advised that they would consider periodic grazing by sheep, subject to suitability and in accordance with insurance requirements, within the development site. Thus, supporting ongoing agricultural activities within the Site.

Disposal of solar panels at the decommissioning stage

Comment

The solar farm will be required to be decommissioned after the life of the facility, all infrastructure (including underground cabling) above 0.5 m below the surface would be dismantled and removed off site so there was no potential for soil contamination or residual materials to be left in the upper soil profile. Decommissioning would entail removing the grid connection infrastructure, including cabling and other equipment so the land could be continued to be utilised for its current use (agriculture).

With the emergence of solar technology, it is anticipated there will also be new opportunities for recycling materials associated with solar farms. Any materials that were not able to be recycled will be disposed off-site in accordance with the relevant legislative requirements at an approved waste management facility.

Vegetation management - ongoing

Comment

The proponent commits to partnering with local nurseries and Landcare groups to find the best species for vegetation screening that will support species local wildlife and ensure the success of the plantings.

Specifications and performance criteria for this screening will be developed as part of the CEMP and its ongoing maintenance guided through commitments in the Operational Environmental Management Plan (OEMP). Both documents are subject to Agency review and approval prior to commencement of the project and provide a safeguard to ensure that effective visual buffers are a key component of the proposed development.

It is acknowledged that current climatic conditions can present challenges in tree establishment. However, the site for the proposed vegetative screens is well suited to this undertaking, being mid-slope, well drained and sunny locations. Furthermore, both CEMP and OEMP will include performance indicators to assess the ongoing success of the planting's groundwater sources within the development site to establish the proposed vegetation screening.

Impact on Pitken Swamp Creek – pollution risk

Comments

The proposed development has been assessed as having no direct impacts on water resources. There is low potential for indirect impacts to occur during the construction, operation and decommissioning stages through the process of erosion and sedimentation. The Development Footprint has been designed to minimise potential impacts to water resources. The module layout has been designed to ensure a buffer distance from Pitkins swamp creek, with no creek crossings proposed. Potential impacts to water quality, quantity and aquatic ecosystems for both surface and groundwater resources during construction (including decommissioning) and operational phases are considered in the following sections.

Solar panels will be located away from the waterway, and there is no construction planned for inside the riparian corridor, so impacts to Pitkins Swamp Creek from the proposed solar farm will be negligible or minor. If the creek is fenced off from stock, and stocking rates lowered, the ecological condition of Pitkins Swamp Creek may potentially improve. Background searches of threatened species that may occur in the locality had indicated potential impact for two aquatic species within Pitkins Swamp Creek. However, field survey has concluded that it is unlikely that Purple-Spotted Gudgeon or Tusked Frog occur in the area, so the potential for impact to either species is negligible.

The solar farm is unlikely to have a significant impact on the aquatic ecology of Pitkins Swamp Creek as the creek and its riparian zone is already relatively degraded by past clearing and cattle access, fences excluding stock would allow the creek to improve in condition. Pitkins Swamp Creek is unlikely to be suitable for Purple-Spotted Gudgeon because impacts caused by previous agricultural practices.

The proposed construction and decommissioning works involve a range of activities that disturb soils and could potentially lead to sediment laden runoff, affecting local waterways during rainfall events. These activities include:

- Excavations for the construction of internal roads, support buildings, construction laydown and parking areas;
- Ground preparations associated with the installation of PV panels and inverter stations;
- Trenching for below ground cable installation; and
- Soil compaction and reduced permeability in areas of hardstand and access tracks.

The use of fuels, lubricants, herbicides and other chemicals during construction pose a risk of surface and groundwater contamination in the event of a spill, this is also discussed in Section 5.3.2. Waste or debris created during construction works could pollute surrounding waterways, for example via strong winds or runoff to Pitkins Swamp Creek during unforeseen extreme weather events.

Operational impacts to water quality are considered negligible. The operational land use as a solar farm would likely reduce the potential for impacts to water quality, compared to current agricultural landuse practices. Potential water quality benefits would include a decrease in soil disturbance as the current land use is cattle grazing, increasing the potential for sediments to enter surface water. A reduction in stocking rates would also reduce erosion, sedimentation and riparian disturbance at the Site and hence impacts on surface water. In addition, a decrease in fertiliser use and stocking rates would reduce the potential for nutrients to enter surface waters.

Although the installation of PV panels presents a large impervious surface standing above the ground at approximately 2.5 m, the shape of the panels, and the separation distance between rows will quickly return rainfall as runoff to the natural ground to allow surface penetration and/or run-off to occur in a typical manner. Disturbed areas would be revegetated in order to stabilise the ground surface. This should prevent soil erosion and, thus, sedimentation impacts to surface water. However, it is acknowledged that soil scarring resulting from large rainfall events could occur under the panels which may, if left untreated, result in soil erosion and potential impacts to surface water. Sedimentation may also occur from increased runoff due to the more impervious nature of the permanent access tracks and hardstand areas.

No operational activities would affect groundwater at the Site. No groundwater is proposed to be sourced during operation of the Proposed Development. The Proposed Development will not impact on the quantity of water available to adjacent water users or impacts upon water related infrastructure. Any additional water required for the Site should be met without the need for an application for a water licence, therefore not impacting upon surrounding water users. If a licence is required, the regulator is to determine the potential impact as part of the application process.

<u>Mitigation measures</u>

The Proposed Development has been designed to minimise potential impacts to water resources and aquatic ecosystems. Potential environmental constraints within the Site have been excluded from developable land. As a result of a design philosophy that, in the first instance seeks to avoid impacts, the following environmental protections apply:

- Exclusion of Pitkins Swamp Creek from the Development Footprint (4th order stream);
- Avoidance of footings and pilings, where practicable, from 1st and 2nd order riparian zones;
- Avoidance of creek crossings for internal access and cabling;
- Sourcing of non-potable water from onsite dams and/or existing water licenced sources offsite; and
- Sourcing all potable water requirements from offsite.

Management plans shall be developed to assess and identify appropriate operational protocols to ensure the protection of surface and groundwater quality, maintenance of water supplies and rights of access, and the protection of riparian, aquatic and GDEs. Specific mitigation to potential impacts by topic are outlined below.

Visual Impacts

Comments

Visual impact from solar farms is generally considered to be subjective however it has been identified the proposed development may adverse visual impacts to a small number of neighbouring landholders.

To lessen the impacts to visual amenity from the development, the proponent has allowed for buffers around the development site including landscaping and generous setbacks.

Landscaping, including planting of native species, is proposed at various locations site to provide a buffer around the development and help lessen any adverse impacts to visual amenity. Targeted plantings of native species would be undertaken where receptors may be impacted by the development.

Solar PV panels are specifically designed to absorb, not reflect solar energy and comparatively, solar panels have significantly lower levels of glare than many other materials typical in a rural or urban environment.

The following mitigation measures will be implemented over the life of the project.

- Implement visual setback areas within the site to eliminate, where possible, or mitigate visual impacts to highly impacted residences.
- Minimise vegetation clearing and earthworks and rehabilitate bare earth progressively.
- Implement commitments to establish vegetation screening and setbacks.
- Continued consultation with moderately impacted landholders will be undertaken to identify, where possible, the location of mutually agreeable vegetation screening both pre and post construction.
- Where practicable use muted, low contrast colours for all supporting infrastructure, so that they blend into the landscape as far as possible.
- Where practicable select infrastructure to minimise potential for reflectivity and glare.
- Minimise night lighting.

A Final Landscape Plan is to be prepared for the development incorporating all recommended mitigation measures under Section 5.4.3 within the Statement of Environmental Effects prepared by Ecological Australia. Specifically, the Plan must include vegetation buffers (Coxalls Road) and visual setbacks (Coxalls Road and Bellevue Road)

Additionally, the landscape plan must detail:

- Name and number of species (with preference on the use of native varieties);
- Height of species at planting;
- Height and spread of species at maturity;
- Method of site preparation and maintenance, to ensure likely survival of plant stock;
- Monitoring program to detect and replace dead or unhealthy plant stock;
- Weed management;
- Proposal for landscaping/screening of the site in the event of drought conditions prevailing, which may inhibit the landscaping planting being undertaken from the outset;
- Proposal for ongoing maintenance/watering of plantings to ensure their survival during drought conditions.

Such plan is to be submitted to the satisfaction of the Council prior to the issue of a Construction Certificate.

Landscaping/screening required under this consent, is to be undertaken in accordance with the approved plan prior to the operational phase of the development commencing.

Noise Impacts

Comments

The opportunities for practical physical noise control are few given the transient and constantly moving nature of the construction work. However, the applicant has suggested to use mobile noise barriers/enclosures during certain construction work, such as around stationary work activities and plant.

In addition to physical noise control or in situations where this is not practical, management measures should be employed to minimise the construction noise impact for residential and commercial premises. These should include all feasible and reasonable measures employed by the contractor such as:

- Locate the stations at least 260 m away from the closest NSR.
- Informing and consulting with residents and interested parties, as far as practicable, regarding impending or current events that may cause high levels of noise and how long they are expected to take. This may take the form of letter drops, or community notices.
- Provide a complaints telephone number prominently displayed where the works are taking place and on any letter drops or community notices.
- Respite hours agreed with residents when noisy works will not take place if necessary.
- Investigate complaints when received to establish the cause, and where possible implement a corrective action such as, provide a respite period or other practical measure.
- Minimising the operating noise of machinery brought on to the Site.
- Where appropriate, obtaining acoustic test certificates for machinery brought on to the Site.

- Undertake noise monitoring at the start of a new noisy activity so noise levels can be investigated should a complaint be received.
- If there is excessive noise from any process, that process will be stopped and if possible that noise attenuated to acceptable levels. Where there is no alternative the process will be rescheduled to non- sensitive hours.
- Ensuring that plant is not left idling when not in use.
- Ensuring that plant is well maintained and in good working order and not causing unnecessary noise, such as damaged mufflers on plant, and
- All access hatches for plant to be kept closed.

The proposed development will result in devaluation

Comments

Under the provisions of the Environmental Planning & Assessment Act impacts from the proposed development on adjoining land values is not a matter for consideration in the assessment of the proposal.

The development will increase the potential bushfire risk

Comments

Fire could damage structures and impact the safety of employees and contractors at the Site. Fire leaving the Site poses a human safety and property threat and imperils native flora, fauna and ecosystems.

Native and exotic grasses are present across most of the Site with a small section of planted trees along a north-south fence line. Minimal native vegetation disturbance will occur within the Development Footprint. With this type of vegetation mix on the site, it is considered unlikely the Proposed Development will pose a significant bushfire risk. Most of the Site is not mapped as bushfire prone land, although there is a small portion of the southernmost end of the Site where there is category 2 bushfire prone land mapped.

The flammability of solar farms is very low as they are predominantly constructed of glass, silicon, steel and aluminium. The risk of fire originating from the Site is very low. Although, fires (such as grassland fires) have the potential to occur.

The following mitigation measures are proposed by the applicant to reduce and manage the risk of fire and reduce the impact of any fires within or surrounding the Proposed Development and are in accordance with the PBP 2018 guidelines.

The bush fire hazard associated with the activities listed above is considered highly manageable through electrical equipment selection, appropriate access arrangements, fuel load reduction programs, safety protocols during periods of high fire risk and the implementation of an emergency response plan as detailed below.

Risk assessment

Following final design, and prior to commencing construction, undertake a bush and electrical fire risk assessment to assess specific risks associated with the Site and prepare a bushfire management plan to identify a suite of strategies and mitigation measures to manage these risks.

Design

Electrical equipment selected for the 30-year life span of the Proposed Development would be designed to minimise the potential for ignition and certified to comply with relevant Australian Standards. All equipment installed would be earthed appropriately following comprehensive testing of soil conductivity to ensure lightning effects are not harmful to the operation of the Proposed Development. Chemical storage will be in accordance with safety data sheet requirements and would consider potential fire hazards (e.g. the use of fire cupboards for the storage of chemicals).

There will also be a 20,000 litre water tank located on site for the sole use of fire protection in line with the RFS standards (RFS, 2018).

Access and Firebreaks

Appropriate emergency vehicle access will be provided across the entire Site, including access to the 10 inverter stations. Infrastructure setbacks from the boundary shall include a firebreak (up to 5 m) that will be adequate to allow emergency vehicles to access the permitter of the Site. The RFS recommends that firebreaks around valuable assets be mown, grazed or ploughed.

Fuel reduction

The fuel load across the Proposed Development will be monitored, and will be mechanically slashed, grazed or ploughed to reduce the risk of grass fires starting within the Site and ensuring that fires originating from outside the Site do not intensify as a consequence of entering the Site. In addition, asset protection zones would also be designed and maintained around buildings and infrastructure to reduce the risk of fuel loads building up around sensitive assets. These management actions will be included in the relevant environmental management plans.

Emergency Response Plan

The OEMP will include an emergency response plan and a copy will be provided to the RFS and Fire and Rescue NSW. This will allow the first responders to a fire to have ready access to information that details the effective control measures for a fire at the Site and for these to be implemented quickly. The emergency response plan will include the controls required to mitigate the potential risks that could be experienced by fire fighters at the Proposed Development, including the methods required to safely shut down and isolate the necessary components of the solar farm.

Safety protocols

Environmental management plans will provide safety protocols to ensure all staff and contractors are aware of the bushfire risk on site and the mitigation measures required to reduce this risk. Protocols, will include, but are not limited to:

- *Basic training of all staff in the use of firefighting equipment on site;*
- *Firefighting equipment lists will be detailed in the Work Method Statements;*
- *Management procedures for hot works, smoking, vehicle use off formal access tracks, and the use and storage of fuel and flammable chemicals; and*
- *Daily monitoring of the Fire Danger Rating, and communication of any further mitigation measures required to all staff and contractors.*

Ground and groundwater pollution

Comment

The following environmental protections have been proposed to control the potential for ground and groundwater pollution:

- Exclusion of Pitkins Swamp Creek from the Development Footprint (4th order stream);
- Avoidance of footings and pilings, where practicable, from 1st and 2nd order riparian zones;
- Avoidance of creek crossings for internal access and cabling;
- Sourcing of non-potable water from onsite dams and/or existing water licenced sources offsite; and
- Sourcing all potable water requirements from offsite.

Construction and decommissioning activities will avoid impacts to riparian and aquatic ecology, avoiding direct impacts where possible and adopting best practice where necessary.

Management plans shall be developed to assess and identify appropriate operational protocols to ensure the protection of surface and groundwater quality, maintenance of water supplies and rights of access, and the protection of riparian, aquatic and GDEs.

Excavation activities will be located away from drainage lines where possible. This ensures against direct impacts to riparian, aquatic and GDEs.

Erosion and sedimentation impacts associated with soil disturbance from construction activities can be minimised by undertaking works in accordance with provisions of the Managing Urban Stormwater: Soils and Construction series, in particular:

- Managing Urban Stormwater: Soils and Construction, Volume 1, 4th edition (Landcom, 2004), known as The Blue Book';
- Volume 2A Installation of Services (DECC, 2008a); and
- Volume 2C Unsealed Roads (DECC, 2008b).

Water quality protocols include establishing and maintaining groundcover across the Site to minimise potential for erosion and sedimentation impacts to water quality. Groundcover species selection and management will balance grazing and bushfire management objectives to avoid a build-up in combustible vegetation.

Traffic impacts during construction – Old Racecourse Road is not of a suitable standard – poor intersection of Bellevue Road and Old Racecourse Road

Comments

The application indicates that construction and operational traffic will follow Bruxner Highway, Bellevue Road and Old Racecourse Road to the subject land (and in reverse on the

return trip). Coxalls Road as been identified as an alternative route off the Bruxner Highway to the site.

The Bruxner Highway and Bellevue Road are bitumen sealed and Old Racecourse Road has a bitumen/gravel construction. The western part of this road is of a satisfactory road standard and the eastern part is off a poor standard.

Old Racecourse Road is to be upgraded to a Class B road as per Councils Engineering Guidelines prior to commencement of onsite construction. This would require the road to be reconstructed (up to the entrance of the solar farm) to a two lane two way carriageway with a minimum pavement width of 7.0 metres and a minimum sealed width of 6.0 metres. The design speed for the road function will be a minimum 70 km/h. Any culverts will need to be minimum 7.2m wide subject to the formation design and may need to be wider if the road formation needs to be in large fill

The intersection of Bellevue Road and Old Racecourse Road is to be upgraded to a BAL standard (RMS) for articulated vehicles and a stop sign control applied across Old Racecourse Road prior to commencement of onsite construction.

Access to the site off Old Racecourse Road is to be constructed in accordance with Councils Engineering Guidelines prior to commencement of onsite construction.

The upgrade of the intersection of Bellevue Road and Old Racecourse Road and the upgrade of Old Racecourse Road will require Section 138 approval from Tenterfield Shire Council.

The proposed development is too close to Tenterfield

Comment

There are no provisions that prohibit the proposed solar farm on the subject land – there is no development standard concerning the proximity of the Tenterfield urban area to the development.

General concerns regarding the future of the solar industry

Comments

A number of submissions raised concerns relating to the solar industry in Australia into the future. The views expressed are considered general in nature and the objections have not focused on the site and development the subject to this development application.

Local roads impact of suburban streets (use of Martin Street as a thoroughfare)

Comments

As a condition of consent, a Traffic Management Plan is to be developed that outlines the approved routes to and from the subject land.

Water usage concerns (and sourcing) – vegetation management and washing of the panels

Comments

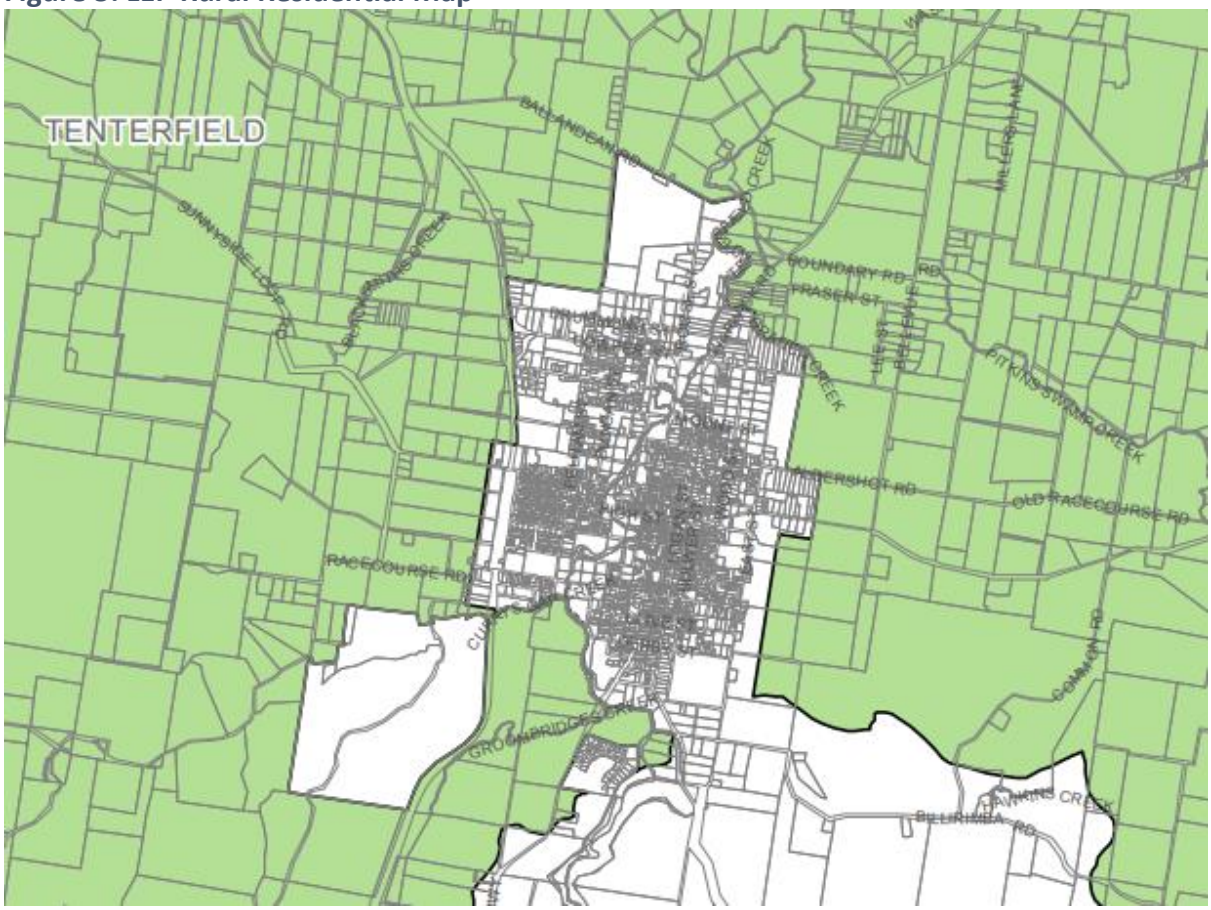
The solar modules are to be periodically washed to remove any excess dirt, dust or other matter (i.e. bird droppings), which may prevent sunlight from effectively reaching the solar cells and subsequently reducing the electricity production output. The solar panels are anticipated to be cleaned via means of water spray from a water truck driven through the informal roadways constructed on-site. No chemicals will be added to the water to ensure minimal impact to the surrounding environment through runoff.

Hinder the future subdivision potential of the land to the north

Comments

In accordance with Clause 4.2C (Subdivision for residential accommodation in Zone RU1) of the LEP, the subject land is located within the Rural Residential ring around Tenterfield. Any future subdivision of land around the quarry would have to consider the impact of the solar farm.

Figure 5: LEP Rural Residential Map



Vegetation, weed, and pest management

Weed and vegetation control will be conducted throughout the Site for the duration of project operations. Weed control is likely to consist of any or, all of the following methods: biological (sheep grazing), mechanical or manual, or chemical methods. Site conditions are to be evaluated prior to the selection of the management method to ensure the method employed is the most appropriate to the environmental conditions of the Site.

Conditions of consent are proposed to control weeds on the subject land.

Harm to the environment

The applicant must implement all reasonable and feasible measures to prevent and/or minimise any material harm to the environment that may result from the construction, operation, or decommissioning of the development, ***including weed control****.*

Landscaping Plan

A Final Landscape Plan must be prepared for the development incorporating all recommended mitigation measures under Section 5.4.3 within the Statement of Environmental Effects prepared by Ecological Australia. Specifically, the Plan must include vegetation buffers (Coxalls Road) and visual setbacks (Coxalls Road and Bellevue Road)

Additionally, the landscape plan must detail:

- *Name and number of species (with preference on the use of native varieties);*
- *Height of species at planting;*
- *Height and spread of species at maturity;*
- *Method of site preparation and maintenance, to ensure likely survival of plant stock;*
- *Monitoring program to detect and replace dead or unhealthy plant stock;*
- ***Weed management****;*
- *Proposal for landscaping/screening of the site in the event of drought conditions prevailing, which may inhibit the landscaping planting being undertaken from the outset;*
- *Proposal for ongoing maintenance/watering of plantings to ensure their survival during drought conditions.*

Such plan is to be submitted to the satisfaction of the Council prior to the issue of a Construction Certificate.

Landscaping/screening required under this consent, is to be undertaken in accordance with the approved plan prior to the operational phase of the development commencing.

External Referrals:

National Resources Access Regulator (NSW DPI Water)

The development also requires a controlled activity approval under section 91(2) of the *Water Management Act 2000* will also be required for cable and vehicular crossings of waterfront land (bed, bank or land within 40 m of a watercourse). As such, the Solar Farm is considered to be Integrated Development in accordance with Division 4.8 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The General Terms of Approval have been issued by the Natural Resources Access Regulator and are included in the draft consent.

Roads and Maritime Services

The proposed development requires consent from Roads and Maritime Services (RMS) under section 138 of the *Roads Act 1993* (Roads Act) to underbore the Bruxner Highway for the installation of the transmission line cabling.

Works will be undertaken in consultation with TfNSW, to ensure compliance with the works authorisation deed that may be applied by TfNSW upon favourable approval of the Proposed Development.

Any upgrading to the intersection of the Bruxner Highway and Bellevue Road will require the further consent of TfNSW in accordance with the Austroads Guidelines, Australian Standards and TfNSW supplements prior to the commencement of on-site construction works for the solar farm.

TfNSW are agreeable for Traffic Control Plans to be developed as a temporary measure to accommodate all heavy vehicle movements during the construction phase at the New England Highway and Bruxner Highway intersection.

The same temporary management measures can also be adopted for any truck movements required during the operational and decommissioning phases. All temporary management measures are to be documented in the final approved Traffic Management Plan.

Any Traffic Control Plan/s (TCPs) are to manage peak periods or events during the construction, operation and decommission phases of the development. TCPs are to be certified and implemented by suitably qualified persons in accordance with the current Traffic Control at Worksites Manual. TCPs will need to take into consideration the existing speed environment, safety of turning and peak hour traffic.

A Road Occupancy Licence (ROL) must be obtained from TfNSW prior to the implementation of any traffic control on the classified road.

The Bruxner Highway and Bellevue Road Intersection is to be upgraded in accordance with the Austroads Guidelines, Australian Standards and TfNSW supplements prior to the commencement of on-site construction works for the solar farm. The applicant will be required to enter a Works Authorisation Deed (WAD) with TfNSW to obtain concept and detailed design acceptance for road works on a Classified (State) Road.

Any WAD shall be executed with TfNSW and the Consent Authority notified of the practical completion of works prior to the commencement of construction related traffic. The applicant will be responsible for all costs associated with the roadwork and administration for the WAD. It is recommended the applicant familiarise themselves with the requirements of the WAD process and further details can be obtained from the TfNSW website.

TfNSW has advised that they are available to discuss and assess the final intersection treatment at the detailed design stage This may necessitate an independent road safety audit to inform the level of risk. Should the final scope of works require the recommended opposing CHR-S treatments, the Consent Authority may request drawings of that scope to understand any associated vegetation, property and utility adjustments and their associated impacts prior to the commencement of works.

TfNSW requires that the final Traffic Management Plan (TMP) be further expanded to detail proposed procedures to be implemented during the construction, operational and decommission phases of the development. The TMP should be prepared in consultation with the relevant road authorities and approved by the Consent Authority prior to the commencement of each phase of the development.

TfNSW requires that Traffic Control Plans (TCPs) reflecting the final approved development will be prepared, certified and implemented by suitably qualified persons in accordance with the current Traffic Control at Worksites Manual.

The final TMP should include details of any consultation undertaken with relevant bus service providers, particular for school bus service operating in the locality and along the identified transport route. Any issues identified during such consultation are suitably addressed prior to the commencement of construction-related traffic

Internal Referrals:

Councils Development Engineer has provided the following comments with respect to the proposed solar farm. These have been considered and have been developed into conditions of consent:

<u>Development Engineering</u>

As required by RMS, a Traffic Impact Assessment should be completed to identify any deficiencies or impacts that need to be addressed as a result of the proposed traffic generation, including sight distances and turning movements.

Given the proposed activity along Old Racecourse Rd with heavy vehicles, I would consider that the road, which is currently a Class D rural road, should be upgraded to a Class B road as a minimum.

This would require the road to be reconstructed to a two lane two way carriageway with a minimum pavement width of 7.0 metres and a minimum sealed width of 6.0 metres. The design speed for the road function will be a minimum 70 km/h.

Any culverts will need to be minimum 7.2m wide subject to the formation design and may need to be wider if the road formation needs to be in large fill, however I think the formation is fairly even in that area.

The intersection of Bellevue Road and Old Racecourse Road should be upgraded to a BAL standard (RMS) for articulated vehicles and a stop sign control applied across Old Racecourse Rd in the interest of safety given the likely conflict of heavy turning vehicles.

The intersection of Bellevue Road and the Bruxner Highway should be upgraded to the satisfaction of Roads and Maritime Service, or as a minimum to a BAL standard (RMS) design catering for articulated vehicles.

4.15 (1)(e) the public interest

There are no further matters of public interest relating to the wider community. The proposal will contribute to the provision of renewable energy for the community. The proposal is consistent with the objectives of the *Tenterfield Local Environmental Plan 2013* and is considered to be compatible with surrounding development and land use patterns.

Assessment – Key Issues:

The key issues identified in the assessment

- Traffic
- Visual Impact
- Impact on creek

Recommendation:

The application has been assessed in accordance with the requirements of the *Environmental Planning and Assessment Act 1979* and *Environmental Planning and Assessment Regulation 2000*. The evaluation demonstrates that the proposal is satisfactory in terms of the matters for consideration identified in the legislation. It is recommended that the proposal be granted conditional development consent.

Annexures:

Annexure A – Statement of Environmental Effects and associated reports.

Annexure B – Recommended Conditions of Consent.

Annexure C – Agency Responses.

Annexure D – Submissions

Annexure E –Applicant's response to the submissions.