

COUNCIL ASSESSMENT REPORT

Panel Reference	2018HCC014
DA Number	8/2016/557/1
LGA	Cessnock City Council
Proposed Development	Construction of a 5 MW Solar Farm and Associated Infrastructure
Street Address	66 Wills Hill Road, Lovedale
Applicant/Owner	Schwartz Family Co P/L
Date of DA lodgement	22 March 2018
Number of Submissions	Nil
Recommendation	Determined by the granting of consent, subject to conditions.
Regional Development Criteria (Schedule 4A of the EP&A Act)	Pursuant to the requirements of Schedule 4A of the Environmental Planning and Assessment Act 1979 and Clause 22 of the State Environmental Planning Policy (State and Regional Development) 2011, this application is referred to the Joint Regional Planning Panel for determination as the application is defined as 'private infrastructure' with a capital investment value exceeding \$5,000,000. The application submitted to Council indicates a value of \$10 081 221 (inc. GST) for the works.
List of all relevant s4.15(1)(a) matters	• State Environmental Planning Policy No. 55 – Remediation of Land • State Environmental Planning Policy No. 44 – Koala Habitat Protection • State Environmental Planning Policy (Infrastructure) 2007 • Cessnock Local Environmental Plan 2011
List all documents submitted with this report for the Panel's consideration	Attachment 1: Summary of changes letter Attachment 2: Revised Site Plan Attachment 3: DPI Water concurrence letter Attachment 4: Statement of Environmental Effects (including plans)
Report prepared by	Kristen Wells
Report date	12 November 2018

Summary of s79C matters

Have all recommendations in relation to relevant s79C 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 summarized, in the Executive Summary of the assessment report?

Yes

e.g. Clause 7 of SEPP 55 - Remediation of Land, Clause 4.6(4) of the relevant LEP

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?

Not Applicable

Special Infrastructure Contributions

Does the DA require Special Infrastructure Contributions conditions (S94EF)?

No

Note: Certain DAs in the Western Sydney Growth Areas Special Contributions Area may require specific Special Infrastructure Contributions (SIC) conditions

Conditions

Have draft conditions been provided to the applicant for comment?

No

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

EXECUTIVE SUMMARY

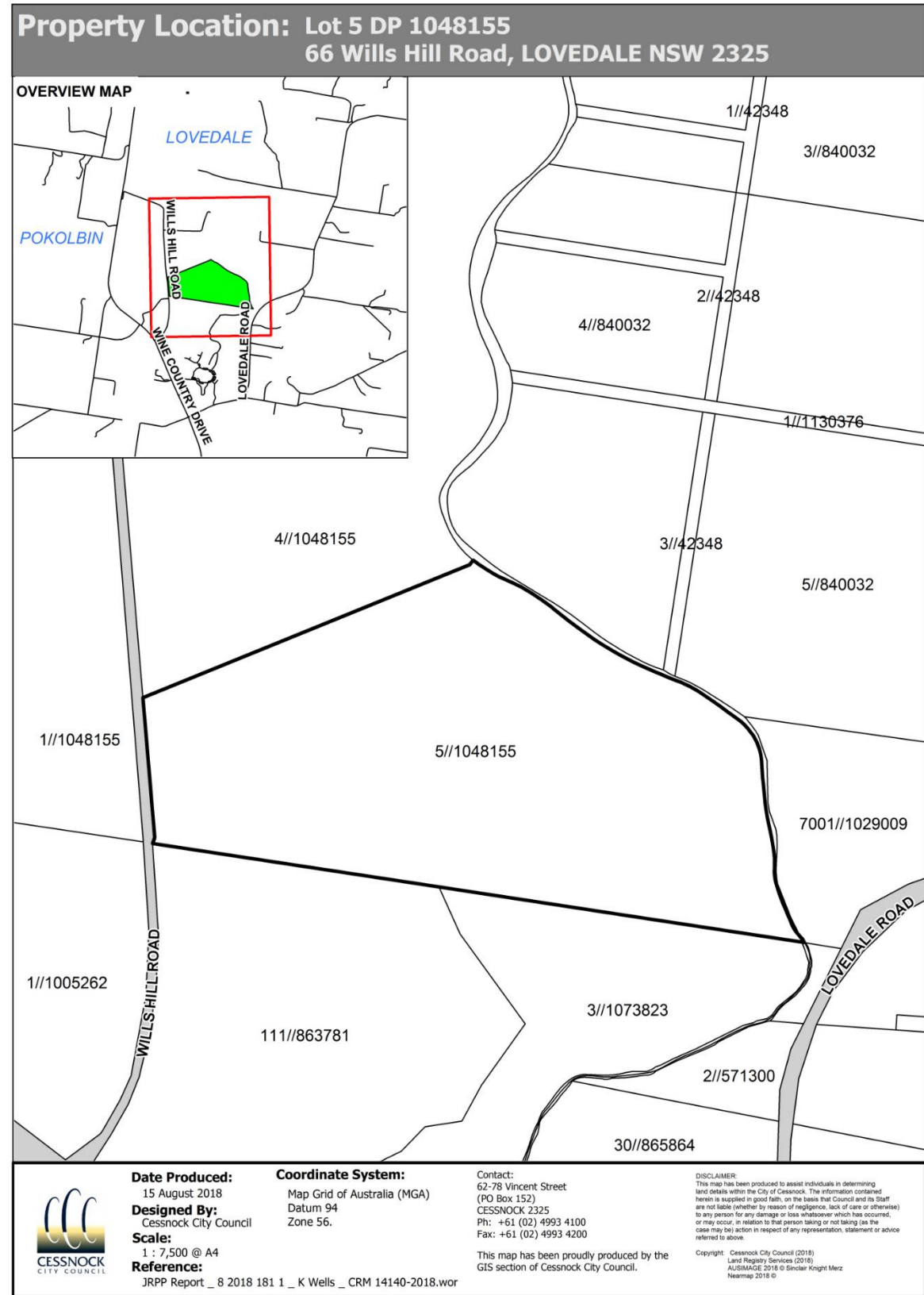
Council is in receipt of Development Application No. 8/2018/181/1 seeking approval for a solar energy system with the capability to produce 5 mega-watts (5MW) upon Lot 5 DP 1048155, otherwise known as 66 Wills Hill Road, Lovedale.

The Development Application has been submitted as 'Nominated Integrated Development' in accordance with Section 91 of the Environmental Planning and Assessment Act 1979; requiring the concurrence of the Department of Primary Industries _ Water (DPI Water). General Terms of Approval have been received from the DPI Water.

The Development Application has been assessed against the Environmental Planning and Assessment Act 1979, Environmental Planning and Assessment Regulations 2000, relevant Environmental Planning Instruments and Council policies. The outcome of this assessment is detailed further in this report.

The Development Application was publicly exhibited and no submissions were received.

LOCATION MAP



OVERVIEW MAP

LOVEDALE

POKOLBIN

WILLSHILL ROAD

NINE COUNTRY DRIVE

LOVEDALE ROAD

1/42348

3/840032

4/840032

2/42348

1/1130376

5/840032

7001/1029009

3/1073823

2/571300

30/865864

1/1048155

4/1048155

5/1048155

1/1005262

111/863781

WILLSHILL ROAD

LOVEDALE ROAD

CESSNOCK CITY COUNCIL

Date Produced: 15 August 2018
Designed By: Cessnock City Council
Scale: 1 : 7,500 @ A4
Reference: JRPP Report _ 8 2018 181 1 _ K Wells _ CRM 14140-2018.wor

Coordinate System: Map Grid of Australia (MGA)
 Datum 94
 Zone 56.

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 2018 8cm Imagery
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SITE DESCRIPTION AND LOCALITY

The subject site is commonly known as 66 Wills Hill Road, Lovedale, and is legally described as Lot 5, Deposited Plan 1048155.

The subject site is located on the eastern side of Wills Hill Road. The site has a frontage of 233.85m to Wills Hill Road, a varied depth of 423.89m and 446.91m and an overall site area of 40.66ha. Vehicular access to the site is available from the Wills Hill Road frontage.

The allotment is encumbered by electricity transmission easements of varying widths.

The subject site is currently occupied by large storage containers (approved via consent 8/2014/699/1) and various smaller items in a metal fenced enclosure. Remnants of an old farm homestead and associated outbuildings can be found towards the centre of the site.

The subject site is situated in a rural setting approximately 4km to the north of Nulkaba. The surrounding properties are characterised by relatively undeveloped rural land to the north and east; the De Bortoli Winery, cellar door, commercial vineyard and associated dwelling house diagonally to the south-west; and, a vineyard with a large dam. Associated with this proposal is an integrated tourist facility located 800m to the south of the subject land, which contains a golf course, hotel restaurant, function centre and tourist accommodation known as Crowne Plaza. The subject site is owned by the owners of the Crowne Plaza and it is intended that the proposed development will offset the electrical consumption associated with the Crown Plaza.

Cessnock Airport, which consists of an aerodrome, a number of aircraft hangars, motel, café and tourist information centre is situated 1200m to the south west of the subject site.

HISTORY

Background

Prior to submitting a development application, the proponent consulted with staff utilising Council's 'Pre-DA' service. A meeting was held on the 22 July 2016 and comments in respect to concept plans for the development proposal were provided to the applicant.

Council has considered an increasing number of solar energy systems in the last 5 years. The majority of these systems are constructed as exempt or complying development under the State Environmental Planning Policy (Infrastructure) 2007. On May 21, 2018 a similar, (albeit much smaller solar energy system) was approved at 336 Oakey Creek Road, Pokolbin (consent 8/2018/217/1). This approval enabled the construction of a 97.5kW solar energy system (1.95% the size of the system proposed); however the similarities include the ground mounting of the solar energy system and that the system was designed to support an onsite tourist hotel.

Development Application

The history of the subject Development Application is summarised in the following table:

10/04/2018		The application is formally lodged.																		
11/04/2018		Referrals are initiated: <table border="1"> <thead> <tr> <th>Agency</th><th>Return Date</th><th>Comment</th></tr> </thead> <tbody> <tr> <td>Ausgrid</td><td>13/04/2018</td><td>Recommended conditions of consent are provided.</td></tr> <tr> <td>Department of Primary Industry (Water)</td><td>08/05/2018 RFI 08/06/2018 Information re-submitted 22/06/2018 RFI re issued 18/07/2018</td><td>General Terms of Approval are received July 18, 2018.</td></tr> <tr> <td>Internal Development Engineer</td><td>16/04/2018</td><td>Recommended conditions of consent are provided.</td></tr> <tr> <td>Internal Heritage Consultant</td><td>01/05/2018</td><td>Recommended conditions of consent are provided.</td></tr> <tr> <td>Internal Airport Coordinator</td><td>04/06/2018</td><td>Advice is provided requiring referral to Civil Aviation Safety Authority.</td></tr> </tbody> </table>	Agency	Return Date	Comment	Ausgrid	13/04/2018	Recommended conditions of consent are provided.	Department of Primary Industry (Water)	08/05/2018 RFI 08/06/2018 Information re-submitted 22/06/2018 RFI re issued 18/07/2018	General Terms of Approval are received July 18, 2018.	Internal Development Engineer	16/04/2018	Recommended conditions of consent are provided.	Internal Heritage Consultant	01/05/2018	Recommended conditions of consent are provided.	Internal Airport Coordinator	04/06/2018	Advice is provided requiring referral to Civil Aviation Safety Authority.
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18/04/2018 18/05/2018	–	The application is first exhibited. The exhibition notice duplicates the application form submitted by the applicant. The application form (and subsequently the exhibition notice) references the 'Construction of a 5mW Solar Farm'. This is erroneous and should read 'Construction of a 5MW Solar Farm'.																		
02/05/2018 01/06/2018	–	The proposal is re-exhibited with the correct wattage reference. No submissions are received.																		
09/05/2018		A formal request for additional information is sent to the applicant to address the DPI Water matters. The applicant is provided until 30 May 2018 to submit the information.																		
01/06/2018		A second request to submit outstanding information is initiated. The applicant is provided until 8 June 2018 to provide the information.																		
04/06/2018		A referral to the Civil Aviation Safety Authority (CASA) is initiated.																		
08/06/2018		Additional information (pertaining to the request from DPI Water) is received. This information is forwarded to the DPI Water for consideration.																		
22/06/2018		Additional information addressing the DPI Water matters are received. The layout of the solar energy system is slightly amended. The correspondence addressing the changes and the revised plans are shown in attachment 1 and 2.																		
26/06/2018		Correspondence is sent to the CASA requesting referral comments. No response is received.																		
18/07/2018		Concurrence is received from DPI Water. The concurrence letter is shown as attachment 3.																		
10/09/2018		The application is re-referred to Councils Airport Coordinator on the basis of no response from CASA. A response to this referral is received 2 October 2018.																		

DETAILS OF THE PROPOSED DEVELOPMENT

Development Application No 8/2016/557/1 seeks approval for the installation of a ground mounted solar energy system. The solar energy system (also referred to in the applicant documents as a 'solar farm') is intended to be used for private infrastructure and will support the nearby Crowne Plaza Hunter Valley estate, which accommodates a golf course, hotel, restaurant and associated land uses. The proposed works will have a disturbance footprint of 8.4 hectares, with the solar array contained within an 8.2 hectare fenced area.

The solar farm is categorised into separate infrastructure categories:

- Solar panel area
- Inverters and battery bank
- Control room
- Overhead power cables
- Ausgrid attachment yard to enable public network connection
- Vehicle access, construction compound and laydown areas.

The separate components of infrastructure are summarised as follows:

Solar panel area

The solar generating system is anticipated to cover 8.2 hectares of the 41 hectare site. The panels will be arranged in east-west rows, with the panel face directed to the north for optimum solar access. The panels are non-motorised and therefore remain statically orientated towards the north. The applicant has stated that the panels are '*non-reflective to minimise glare*'.

An indicative model of the solar panel proposed is shown in figure 1 below:

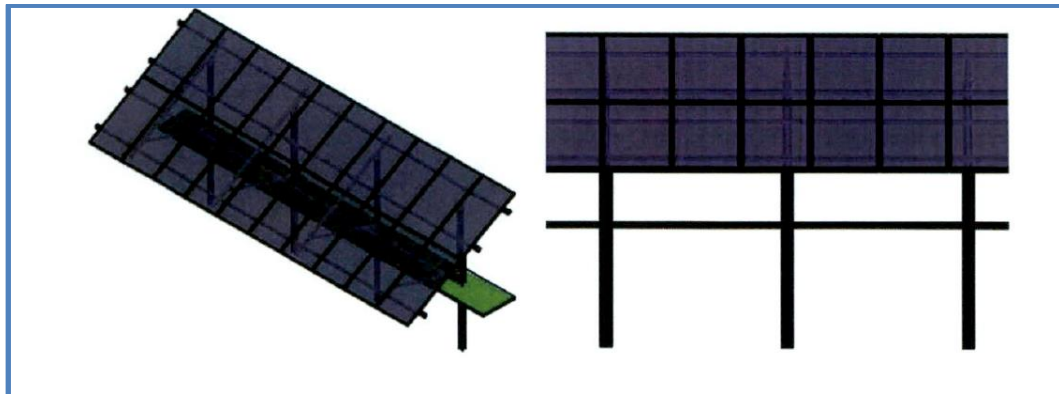


Figure 1: Indicative design of panel

The solar panels are angled, meaning that they are 2.8 - 3 metres tall on the high side, before sloping down to 0.8 – 1.0 metres tall from the ground on the low side. The panel face will be 2.0 metres x 1.0 metre.

Inverters and battery bank

Power to the panels will be conveyed through above ground cabling attached to the panels and within subsurface trenching through to one of two inverters located on the western side of the array.

The inverters are designed to convert the power to enable connection to the mains power network. Two solar inverters are proposed, each housed within shipping containers, measuring 6.1m (length x 2.4m (width) and 2.6m (high). The inverters sit atop elevated piers, approximately 2.0m high.

Once the power is converted, it will be transferred through below ground cabling to the control room, before being directed to overhead power lines through to the mains network.

Control room

A control room is proposed within the northwestern portion of the solar farm area. The control room will house the equipment necessary to manage the transfer of power to the mains network, with added provision of work areas for technicians.

The control room will be constructed in concrete block / panel walls with corrugated iron roofing. The control room measures 5 metres x 5 metres x 3 metres (length, width, height). A verandah will be constructed on the west and east facades; the intent of which is to provide consistency with the surrounding rural landscape.

A 22500L water tank is to be located adjacent to the control room. The tank is designed to collect rain water and will provide the onsite water supply of cleaning solar panels and potential bushfire suppression.

Overhead power cables

A new overhead line will be constructed transferring power from the control room in the north west of the solar farm to the Ausgrid point of attachment located on an existing overhead power line, on Wills Hill Road. A 10m wide easement either side of the proposed power line will be created and dedicated to Ausgrid.

Vehicle access, construction compound and laydown areas

Internal access is gained from Wills Hill Road which is a gravel road located north of the Crowne Plaza, off Wine Country Drive. Access to the solar farm will be gained via an existing gravel access road within the property and extension of same to the proposed position of the solar inverters, battery bank and control room associated with the proposal. Passing bays will need to be constructed on the access road.

ASSESSMENT

Environmental Planning and Assessment Act 1979 – Section 1.7

Application of Part 7 of Biodiversity Conservation Act 2016 and Part 7A of Fisheries Management Act 1994

The site contains an ecologically endangered community, being *Central Hunter Riparian Forest*. A flora and fauna assessment was undertaken by the applicant and identified two distinct vegetation areas being as follows:

- Managed grassland – the site contains large areas of managed exotic grassland and areas identified as managed mixed grassland. The project footprint is located entirely within the managed grassland area.
- Central Hunter Riparian Forest – areas of vegetation dominated by *Eucalyptus amplifolia* subsp. *Ampliflora* (Cabbage Gum), *Angophora floribunda* (Rough-barked Apple) and *Casuarina glauca* (Swamp Oak) with *Eucalyptus tereticomis* (Forest Red Gum) and *Eucalyptus moluccana* (Grey Box) occur Black Creek. The understorey contains a mixture of native and exotic species, with some areas along Black Creek dominated by exotic species *Cardiospermum grandiflorum* (Balloon Vine) and *Cestrum parqui* (Green Cestrum).

This community is equivalent to the Central Hunter Riparian Forest and is consistent with the River-flat eucalypt forest on coastal floodplains of the NSW North Coast, Sydney Basin and South-East Corner bioregions Endangered Ecological Community listed under the NSW Biodiversity Conservation Act 2016.

The proposed development will not require the removal of Central Hunter Riparian Forest vegetation. The solar array works will be confined to the managed grasslands and is not subject to offset requirements. Two *Eucalyptus tereticomis*, Forest Red Gums, located on the western boundary of the site, outside of the riparian corridor will require removal; however the submitted flora and fauna addendum report did not indicate that this tree contained hollow bearings, nor will it require specific management under the submitted vegetation management plan.

Environmental Planning and Assessment Act 1979 – Section 4.14

Consultation and development consent – certain bushfire prone land

The proposal is situated upon bushfire prone land. Pursuant to this clause, development consent must not be granted for the carrying out of development for any purpose on bushfire prone land unless the consent authority is satisfied that the proposal complies with the Planning for Bushfire Protection Guidelines 2006.

The proposed works will be situated upon a part of the land that is predominantly cleared and relatively flat; resulting in a low risk of bushfire threat. Furthermore, no habitable components or regular staff presence will occur on site; therefore, the risk to human life is low.

The proposed internal access road has been designed to allow emergency vehicle access. There is a gap of 6 metres between each of the solar panels, while a 10 metre separation distance between the solar array and the perimeter fence will provide a defensible space and access around the solar energy system.

Grasslands surrounding the solar energy system will be managed to prevent the accumulation of bushfire fuels. Effectively, with the imposition of precautionary conditions, the proposal is deemed to comply with Clause 4.14 of the EP&A Act 1979.

Environmental Planning and Assessment Act 1979 – Section 4.15(1)

In determining a Development Application, the consent authority is to take into consideration the following matters as are of relevance in the assessment of the Development Application on the subject property:

(a)(i) *The Provisions of any Environmental Planning Instrument*

The Environmental Planning Instruments that relate to the proposed development are:

1. State Environmental Planning Policy No 55 – Remediation of Land
2. State Environmental Planning Policy 44 – Koala Habitat Protection
3. State Environmental Planning Policy (Rural Lands) 2008
4. State Environmental Planning Policy (Infrastructure) 2007
5. Cessnock Local Environmental Plan 2011

An assessment of the proposed development under the Environmental Planning Instruments is provided below:

1. State Environmental Planning Policy No 55 – Remediation of Land

Clause 7(1) of State Environmental Planning Policy No. 55 – Remediation of Land is relevant to the assessment of this Development Application.

Clause 7(1) requires that consent not be granted until Council has considered whether the land is contaminated. If the land is contaminated, the Council needs to be 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.

In this instance, the portion of the property required for the building works has previously been cleared. The past grazing practices of the site are not expected to have rendered the site unsuitable for the proposed development.

There are no apparent activities on the site or adjoining the site that are expected to have resulted in any contamination that may impede development of the subject land.

2. State Environmental Planning Policy 44 – Koala Habitat Protection

The flora and fauna report identified on feed tree species listed under Schedule 2 of this SEPP within the study area. *Eucalyptus tereticornis* does not constitute greater than 15% of the canopy species across the study area and there is a lack of connectivity to any larger patches of vegetation. No signs of koala presence were identified during the survey.

3. State Environmental Planning Policy (Rural Lands) 2008

SEPP (Rural Lands) 2008 aims to facilitate the orderly and economic use and development of rural lands for rural and related purposes, identify Rural Planning and Rural Subdivision Principles, implement measures designed to reduce land use conflicts and identify State significant agricultural land.

The SEPP applies to the Cessnock LGA, however, Clause 10 prescribes that certain matters only require consideration if development for the following purposes is proposed:

- (a) subdivision of land proposed to be used for the purposes of a dwelling,
- (b) erection of a dwelling.

In this case, the proposed development is not for either of the above purposes therefore, the provisions contained within Clause 10 of the SEPP cannot be applied.

4. State Environmental Planning Policy (Infrastructure) 2007

Division 4 Electricity Generating Works or Solar Energy Systems applies to this proposal. The proposed solar farm is not exempt development under this division, as the area of works greatly exceeds 150sqm as specified in Clause 39(3) of this SEPP. In accordance with Clause 34(7), solar energy systems (defined in this instance as a *photovoltaic electricity generating system*) are permitted with consent. There are no restrictions on determining the development consent under this SEPP. The proposal complies with the SEPP as consent has been sought.

5. Cessnock Local Environmental Plan 2011

4.1 Permissibility

The subject site is zoned RU4 Primary Production Small Lots under the provisions of Cessnock Local Environmental Plan (CLEP) 2011. The land use is characterized in the CLEP via a notation in the Land Use Table:

“A type of development referred to in the Land Use Table is a reference to that type of development only to the extent it is not regulated by an applicable State environmental planning policy. The following State environmental planning policies in particular may be relevant to development on land to which this Plan applies: ...

*State Environmental Planning Policy (Infrastructure) 2007—relating to infrastructure facilities such as those that comprise, or are for, air transport, correction, education, electricity generating works and **solar energy systems**, health services, ports, railways, roads, waste management and water supply systems.”*

A solar energy system is not separately defined in the CLEP, therefore, as per the notation above, the State Environmental Planning Policy (Infrastructure) 2007 is referred to for clarification on permissibility. As per Clause 34(7) of this SEPP, a solar energy system *“may be carried out by any person with consent on any land.”* Effectively, a solar energy system is permitted with consent on land zoned RU4.

4.2 Objectives

The objectives of the RU4 Primary Production Small Lots zone and a comment as to how they are met are outlined as follows:

- *To enable sustainable primary industry and other compatible land uses.*

Comment: A primary industry is an industry that is concerned with converting natural resources into consumable products. In this case, the solar energy system proposes to capture and collect sunlight, before converting it into an electrical energy source. Effectively, the solar energy farm is considered to be a type of primary industry. A solar energy farm produces a renewable type of electrical energy and is thereby considered to be a sustainable land use. This objective specifically supports to the proposed development.

- *To encourage and promote diversity and employment opportunities in relation to primary industry enterprises, particularly those that require smaller lots or that are more intensive in nature.*

Comment: The proposed solar energy system is a diverse and alternative source of energy. The proposal is not antipathetic to this objective.

- *To minimise conflict between land uses within this zone and land uses within adjoining zones.*

Comment: The proposal does not create significant conflict with other land uses in the zone.

- *To maintain prime viticultural land and enhance the economic and ecological sustainability of the vineyards district.*

Comment: The site has an agricultural land classification of Class 4, and does not currently cultivate viticulture. This class of land is not suitable for any cultivation and has a low agricultural productivity rating. Therefore, the proposal development is not contrary to this zone objective. The alternative energy source is however likely to be a positive influence on the economic and ecological sustainability vineyards; therefore this objective is deemed to be met.

- *To encourage appropriate tourist development (including tourist-related retail) that is consistent with the rural and viticultural character of the vineyards district.*

Comment: N/A this proposal is not a tourist development.

- *To enable the continued rural use of land that is complementary to the viticultural character of the land.*

Comment: The site has an area of 40.66 hectares and the solar energy system is proposed to cover 8.4 hectares of this land. The remaining 32.26 hectares of land will allow for continued rural use of the land (i.e. the solar energy system will not extinguish remaining portions of the land from other uses).

2.3 Relevant Clauses

The Development Application was assessed against the following relevant clauses of CLEP 2011:

- Clause 1.2 – Aims of Plan

Clause 1.2 provides the aims and objectives for the Cessnock LEP 2011. The particular aims of this plan are as follows [Clause 1.2(2)]:

- (a) *to strengthen and protect a high quality, sustainable lifestyle for Cessnock's residents and visitors,*
- (b) *to conserve and enhance, for current and future generations, the ecological integrity, environmental heritage and environmental significance of Cessnock,*

- (c) to encourage development for employment purposes in appropriate locations having regard to proximity to appropriate infrastructure, to ensure the efficient use of land and services, to provide walkable urban environments and to reduce dependency on the use of private vehicles,*
- (d) to provide opportunities for a range of new housing and housing choice in locations that have good access to public transport, community facilities and services, retail and commercial services and employment opportunities, including opportunities for the provision of adaptable and affordable housing,*
- (e) to recognise and protect the historical, cultural and economic values of the vineyards district in relation to agricultural production and associated flow on effects, including tourism.*

A thorough and balanced assessment of the development proposal has been carried out, and because of this assessment, it is concluded that the proposed development is consistent with the aims and objectives of the plan.

- **Clause 2.3 Zone Objectives and Land Use Table**

This clause outlines how the land use table within the Cessnock LEP 2011 specifies a zone, the objectives for the zone, development that may be carried out with or without development consent, and prohibited development. The clause also requires that the consent authority must have regard to the objectives for development in a zone when determining an application.

The land use zone and permissibility of the proposed uses has been raised previously within this report. Due regard has been applied to the objectives of the RU4 Primary Production Small Lots zone. Accordingly, this clause is deemed to have been satisfied.

- **Clause 5.10 Heritage Conservation**

European Heritage

The site is identified as 'Weronga' and is an item of local heritage significance (I179) pursuant to Schedule 5 Environmental Heritage of the LEP. The heritage significance of the land relates to a number of old farm buildings on the site (clustered to the centre and western portion of the land) as well as the 'landscape' of the property. The proposal was referred to Council's Heritage Advisor, who noted that the land has heritage significance given the *"...continuous occupation and use of land over a long period of time by the one family. (The land) represents the way in which the land was opened up for European settlement, and the collection of farm buildings and structures demonstrate the way in which the land has been used."*

Clause 5.10(4) requires the consent authority, prior to issuing consent, to consider the *'effect of the proposed development on the heritage significance of the item or area concerned.'* Council's heritage advisor has considered the potential for impact to the heritage item and provided the following comments: *'While there are built structures on the subject site and within the vicinity of the proposed solar farm, these structures are obscured from view by existing topography and landscape vegetation. Despite the scale of the proposed solar farm, I am generally satisfied that the proposal will not result in any unreasonable visual impacts on the identified built elements of heritage significance, nor will adversely impact on the cultural landscape.'*

Aboriginal Heritage

The proposed development site is situated within 200 metres of a watercourse; therefore, the site is a potentially sensitive Aboriginal Heritage location. There have been no recorded Aboriginal heritage items located on the site and the site has endured a long history of agriculture upon the property. The proposed solar farm requires minimal excavation and it is considered unlikely that any adverse impact to potential Aboriginal heritage sites will occur. Council's Heritage Advisor conducted a desktop review of the site and concluded that the 'site characteristics suggest that this potential (for containing Aboriginal heritage items) is relatively low.

Notwithstanding this, a condition of consent has been imposed on the draft determination notice stating: *"If Aboriginal artefacts are uncovered during work, excavation or disturbance of the area, work must stop immediately. The Environmental Protection and Regulation Group of the Office of Environment and Heritage is to be contacted. Aboriginal archaeological excavation must be coordinated with any proposed investigation of non-indigenous material."*

▪ **Clause 7.2 Earthworks**

Pursuant to the provisions of Clause 7.2 of the Cessnock LEP 2011, before granting consent for earthworks, Council must consider the impacts of the proposed earthworks to ensure they do not detrimentally affect adjoining land.

The earthworks proposed to be carried out in conjunction with the development are not located close to any adjoining boundaries, and adequate sediment and erosion control measures will be employed during the construction phase. On this basis, it is considered that the proposed earthworks will not have an adverse environmental impact upon adjoining land.

• **Clause 7.3 Flood Planning**

The proposed array of solar panels is situated upon flood-affected land. The main area of affectation during a flood event is Black Creek, on the eastern and northeastern boundary of the site. The development location is likely to occur within the flood fringe, associated with low water depths and low velocities. The three objectives of this clause are:

Although the mapping system indicates the site footprint to be partially within a floodway, the water depth and low velocity does not reflect a floodway condition.

The topography of the site is shown to have an RL of approximately 52m AHD. The applicant has provided the following precautions into the design;

- Low side of solar panels to be installed 0.8m above ground;
- Rack cabling, where not buried, is approximately 2m above ground level;
- Solar inverters and the battery bank, approximately 2 m above ground level;
- The concrete constructed control room approximately 52m AHD with equipment positioned a minimum above floor level.

A condition is to be included to ensure the panels will be constructed above the 1 in 100-year flood event that would allow free flow of floodwater and therefore not obstructing flows.

A summary of compliance with this clause is provided below:

7.3 (1) The objectives of this clause are as follows:

(a) to minimise the flood risk to life and property associated with the use of land,

Comment: This objective is upheld as there is no habitable component to this application, no customers will visit the site and limited onsite staff presence on site is required (i.e. no staff will be present on site on a permanent basis). All panels and key infrastructure will be above the 1 in 100 year flood level.

(b) to allow development on land that is compatible with the land's flood hazard, taking into account projected changes because of climate change,

Comment: The proposed structures are not anticipated to have an impact on the free flow of floodwaters.

(c) to avoid significant adverse impacts on flood behaviour and the environment.

Comment: All structures with the exception of solar panel poles) will be above the 1 in 100 year flood level and will not disturb the natural course of flood water.

(2) This clause applies to land at or below the flood planning level.

(3) Development consent must not be granted to development on land to which this clause applies unless the consent authority is satisfied that the development:

(a) is compatible with the flood hazard of the land, and

Comment: The development application was referred to Councils Principal Development Engineer who raised no issue with consent of the proposal, subject to conditions. The recommended conditions related to ensuring all structures (excepting solar array support panels) are clear of the 1 in 100-year flood level. Based upon this recommendation, the application is deemed compatible with the flood hazard of the site.

(b) is not likely to significantly adversely affect flood behaviour resulting in detrimental increases in the potential flood affectation of other development or properties, and

Comment: The proposed development is not anticipated to have any impact on existing and future flood paths.

(c) incorporates appropriate measures to manage risk to life from flood, and

Comments: The proposal does not contain a habitable component and is unlikely to require a regular onsite human presence. The risk to life is minimal.

(d) is not likely to significantly adversely affect the environment or cause avoidable erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses, and

Comments: No works are proposed within watercourses.

(e) is not likely to result in unsustainable social and economic costs to the community as a consequence of flooding.

Comments: There are not likely adverse impacts associated with approval of this proposal.

(4) A word or expression used in this clause has the same meaning as it has in the Floodplain Development Manual (ISBN 0 7347 5476 0), published in 2005 by the NSW Government, unless it is otherwise defined in this clause.

(5) In this clause, **flood planning level** means the level of a 1:100 ARI (average recurrent interval) flood event plus 0.5 metre freeboard.

- **Clause 7.4 Airspace Operations**

Clause 7.4 of the CLEP requires all development proposed within the Obstacle Limitations Surface (OLS) zone to be referred to the relevant 'Commonwealth body'. As depicted in the figure below, the OLS zone encompasses land north and south of the runway (consistent with the ascent/descent zone of the runway), before arcing into a circular pattern up to 6 kilometres away from the aerodrome runways (the regular flight circuit).

The proposed development site is identified in figure 1 in red. A small portion of the site is captured in the dark blue and light grey OLS zone along the western boundary of the site. Apart from standard maintenance of an existing access road, no work is proposed in this portion of the land. The solar energy system is confined to the eastern portion of the site, approximately 615 metres clear of the OLS zone.

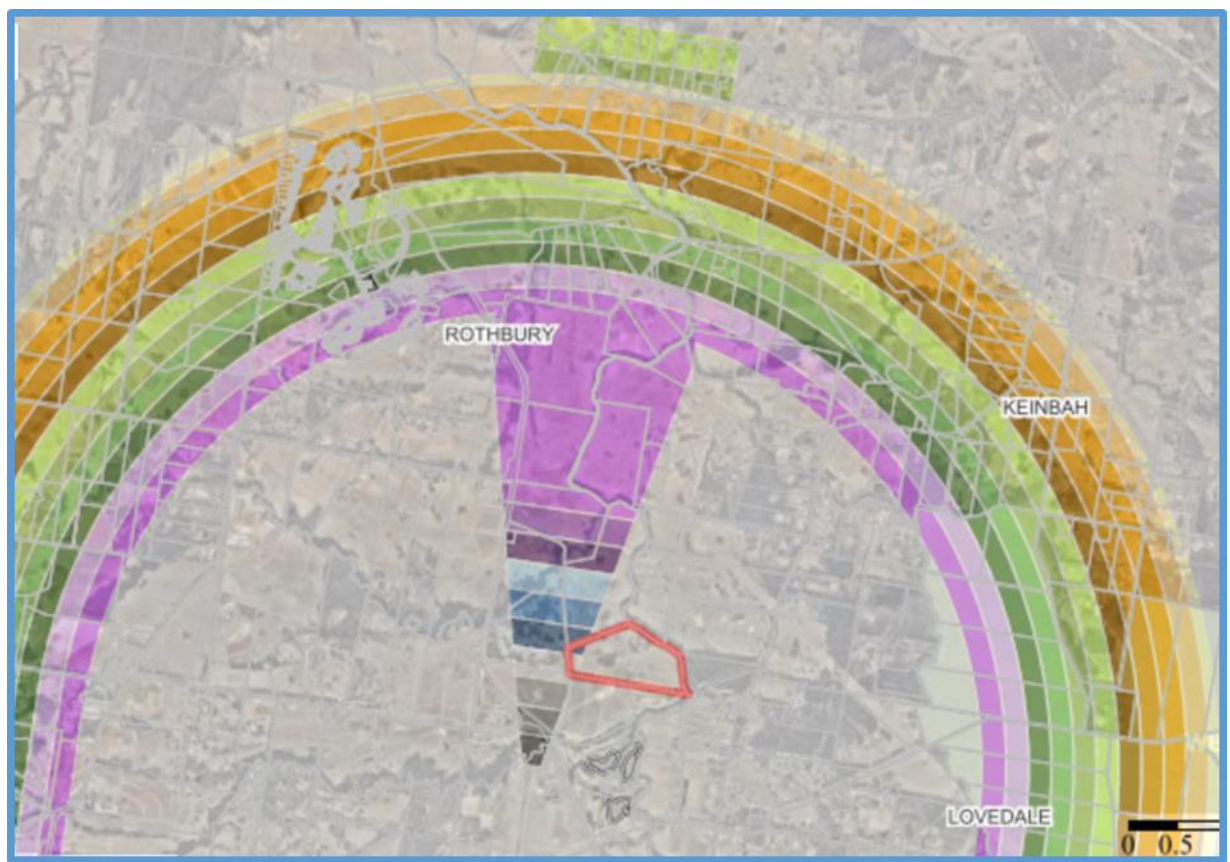


Figure 2: Obstacle Limitation Surface zone

- **Clause 7.5 Areas Subject Airport Noise**

Clause 7.5 deals with development in areas subject to airport noise and uses an aircraft noise exposure forecast (ANEF) to determine if a proposed development will be sensitive to noise or not. The subject site is positioned outside of the ANEF zone and no further consideration is required. Notwithstanding this, the proposal does not comprise a habitable area or other land use that may be sensitive to noise. No further action with regard to this clause is required.

(a)(ii) *The provisions of 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 (unless the Planning Secretary has notified the consent authority that the making of the proposed instrument has been deferred indefinitely or has not been approved).*

No Draft Environmental Planning Instruments are relevant to the application.

(a)(iii) *The Provisions of any Development Control Plan*

Cessnock Development Control Plan 2010

The following is an assessment of the proposal's compliance with the relevant numerical standards in Cessnock Development Control Plan 2010. Discussion of any variations to the standards is provided after the compliance table:

Part of DCP	Compliance?	Specific Provisions	Comments
A.1 Statutory Context	Yes	-	This part of the DCP outlines how the DCP applies.
A.2 What Needs to be Considered in Preparing a DA?	Yes	2.2.2 Integrated Development: "The onus is on the applicant to 'tick the box' on the Development Application form to identify whether the proposal is 'integrated development'..."	The applicant identified that the proposal requires general terms of approval from the Department of Primary Industries – Water. General terms of approval have been sought and provided.
A.3 Submission Requirements	Yes	-	All statutory fees and charges have been paid and all required documentation submitted in support of the application.
B.1 Exempt and Complying Development	N/A	N/A	This chapter has been repealed.
B.2 Public and Notification Advertising	Yes	Table 1: Summary of Advertising and Notification Requirements	The application was formally publicly exhibited between 18 April 2018 and 18 May 2018. Notification letters were sent to

			adjoining property owners (within a 1km radius) and the application was advertised in the local newspapers (the Cessnock Advertiser and Maitland Mercury). The exhibition notice duplicates the application form submitted by the applicant. The application form (and subsequently the exhibition notice) references the 'Construction of a 5mW Solar Farm'. This is erroneous and should read 'Construction of a 5MW Solar Farm'. The proposal is re-exhibited with the correct wattage reference. The second exhibition period is between 2 May 2018 and 1 June 2018. No submissions are received.
C.1 Parking and Access	Yes	1.2 Car Parking Standards	There is no public access available to the site. For operational purposes, two part-time staff will be employed to monitor the solar energy system as well as six part-time maintenance staff. The staff will not be permanently based at the site; more so, they will visit the site as required. The submitted plans show dedicated 'gravel car parks' adjacent to the site office and control room. The parking spaces are not dimensioned; however the applicant has identified 7.5 metres x 5.5 metres of gravel car park area, with a 2.5 metre equipment drop zone. This designated area

			is satisfactory for the car parks. A condition of consent requiring the provision of 3 car parking spaces will be imposed in the draft notice of determination.
C.2 Flora and Fauna Survey Guidelines	Yes	<i>2.1.1 Application</i>	The submitted ecological impact assessment has taken into account the flora and fauna survey guidelines outlined in the chapter.
C.3 Contaminated Lands	Yes	<i>3.2.6 Determination of Applications for Development</i>	The RU4 zoned land does not have a history of contamination or contaminating land use activities. The previous low intensity agricultural land use is unlikely to have had any significant application of fertilizer or pesticides. Considering the history of the site and the development of the land for the purposes of a place of public worship with limited access to bare soils, there is unlikely to be any constraints to the development of the land for the proposed purpose.
C.4 Land Use Conflict and Buffer Zones	Yes	<i>4.3.16 Airports – Category C</i>	This provision appears to have a focus upon managing noise conflicts as the single performance standard for this provision states: “<i>Compliance with AS 2021 (Acoustics – Aircraft Noise Intrusion) and information as to the nature of the development and limited impact of airport or airport noise will be required for Council to reduce development restrictions.</i>” The methods for reducing conflict within this provision include:

			<i>*No structure shall be erected on land within the area surrounding Cessnock Air Transport Facility, above the Obstacle Height Limitation Surface (OHLS), without the consent of Council.</i> Comment: Complies – no structure is within the OHLS. <i>*Council will consult with the Commonwealth Department of Transport and Regional Services and the Civil Aviation Safety Authority.</i> Comment: No works are proposed directly upon the airport land; therefore, consultation with the Department of Infrastructure, Regional Development and Cities has not been required. As the location of the solar panels may have implications for aviation safety, the Civil Aviation Safety Authority (CASA) was consulted for comment. The initial referral letter was sent 4 June 2018. No response was received within the 21 day timeframe provided within the referral letter. This letter was followed by numerous attempts at telephone contact as well as secondary correspondence sent 26 June 2018. No response was received again. The matter was discussed with the Cessnock Airport Coordinator on September 28, 2018. The Airport Coordinator agreed to
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			utilize CASA connections to gain a response. It was advised on 2 October, 2018 that CASA do not ordinarily provide a written response unless they have an interest in the matter. In recognition of the numerous attempts made to gain a response from CASA and the verbal advice from the Cessnock Airport Coordinator that CASA did not wish to provide a written response, the agency is presumed to have no interest in the matter. <i>*No Category A land use will be permitted on land with a Noise Exposure Forecast higher than 25.</i> Comment: N/A <i>*Council consent is required for any Category A land use on land with a Noise Exposure Forecast of between 20 and 25. Council consent will not be granted unless buildings comply with the requirements AS 2021 – ‘Acoustics - Aircraft Noise Intrusion - Building Siting and Construction’, or any document replacing or amending that standard.</i> Comment: N/A
C.5 Waste Management and Minimisation	Yes	5.4 How to comply with these guidelines	A construction waste management plan has been submitted, and is considered adequate.
C.6 Access and Mobility	N/A	N/A	The proposal is not a category of development that is subject to the requirement of this chapter.
C.7 Trees and Vegetation Management	N/A	N/A	This part of the DCP does not apply to the proposed development. Does it not apply?

C.8 Social Impact Assessment and CPTED	N/A	8.3.3 <i>When is a social impact comment required?</i>	A social impact assessment is not required for this category of development application.
C.9 Development on Flood Prone Land	No	1.6 <i>Flood Risks and Hazards</i>	This chapter of the DCP provides flood-affected land with a hazard classification of between H1 (the lowest risk) to H6 (the highest risk). The subject land is identified as being located within a range of hazard categories H1 to H6. The worst affected portion of the land lies along the Black Creek boundary to the east and northeast of the development site. Land in the H6 area is considered unsafe for vehicles and people during a flood. It is noted that the land in the worst affected areas (i.e. H5 and H6) is measured from the bottom of Black Creek and therefore does not represent the maximum hazard within the footprint of the solar energy system. In addition to this, the development does not contain any structure that is habitable or is frequently attended by staff. Under the DCP, works are not permitted upon land identified as H5 and H6 as there is a significant risk to human safety. The site will not accommodate human habitation or even regular attendance by staff, therefore this provision is worthy of variation. This provision furthermore describes the three hydraulic categories applicable under this

		chapter, these being: floodway, flood storage and flood fringe. Each are described as follows: <i>The Floodway</i> is an area where a significant volume of water flows during floods and is often aligned with a natural water course. It relates to areas that, even if only partially blocked, would cause a significant increase in flood levels and/or significant redistribution of flood flow, which may in turn have a detrimental impact on neighbouring properties. <i>The Flood storage</i> area is a part of the floodplain and is important for the temporary storage of floodwaters. Development that substantially reduces the flood storage area through filling or levees can have an adverse impact on nearby areas increasing peak flood levels or peak flow rates. <i>The Flood Fringe</i> is the remaining area affected by flooding after the floodway and flood storage areas are taken up. Development in the flood fringe area would not normally have any significant effect on flood levels or the pattern of flood flows. The subject land is identified as being situated within the floodway and flood storage areas. Although the mapping system indicates the site footprint to be partially within a floodway, the water depth and low velocity does
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			not reflect a floodway condition. The proposed development is therefore considered appropriate for the location subject to controls. Council's principal development engineer has reviewed the proposal and recommended the imposition of conditions of consent to mitigate the potential for flood risk. The conditions of consent (relating to structural certification of building works) have been imposed in the draft notice of determination.
		3.1 Control Matrix	A 'solar energy system' is not separately defined in the development category list of this provision. 'Critical infrastructure' is a development category in the list and includes 'electricity generating works'. Under this matrix, critical infrastructure is required to be located outside of the flood plain and must consider and provide details on the management of floods up to and including the Probable Maximum Flood (PMF). As discussed above, the subject site contains land identified as both flood plain and flood way. Councils principal development engineer has stated that the velocity of water flow and the depth of water in the vicinity of where the solar energy farm will be constructed does not reflect a floodway condition. Councils principal development engineer concludes that: "the

			proposed development is considered appropriate for the location subject to conditions.... A condition is to be included to ensure the panels will be constructed above the 1 in 100 year flood event which would allow free flow of flood water and therefore no obstruct flows." The topography of the site is shown to have an RL of approximately 52m AHD. The applicant has provided the following precautions to incorporate into the design; • Low side of solar panels to be installed 0.8m above ground; • Rack cabling, where not buried, is approximately 2m above ground level; • Solar inverters and the battery bank, approximately 2 m above ground level; • The concrete constructed control room approximately 52m AHD with equipment positioned a minimum above floor level. Overall, with the imposition of precautionary conditions, the variation is worthy of support.
D.1 Subdivision Guidelines	N/A	N/A	This part of the DCP does not apply to the proposed development.
D.2 Urban Housing	N/A	N/A	This part of the DCP does not apply to the proposed development.
D.3 Industrial Development	N/A	N/A	This part of the DCP does not apply to the proposed

			development.
D.4 Purpose Built Rural Tourist Accommodation	N/A	N/A	This part of the DCP does not apply to the proposed development.
D.5 Outdoor Signage	N/A	N/A	This part of the DCP does not apply to the proposed development.
D.6 Poultry Farms – Neighbouring Land Uses	N/A	N/A	There are no nearby poultry farms that would place this proposal within the ‘zone of affectation’.
D.7 Construction of Dams	N/A	N/A	This part of the DCP does not apply to the proposed development.
D.8 Temporary Events	N/A	N/A	This part of the DCP does not apply to the proposed development.
D.9 Outdoor Dining	N/A	N/A	This part of the DCP does not apply to the proposed development.
D.10 Sex Services Premises	N/A	N/A	This part of the DCP does not apply to the proposed development.
D.11 Restricted Premises	N/A	N/A	This part of the DCP does not apply to the proposed development.
D.12 Heritage Conservation and Design Guidelines	N/A	N/A	This part of the DCP does not apply to the proposed development.
E.3 Vineyards District	Yes	3.2.1 Consideration of Surrounding Land Uses	The development has been positioned in a portion of the land that minimises conflict with adjoining properties.
E.3 Vineyards District	Yes	3.2.2 Soils Analysis	The building works will be contained to a portion of the land is identified as Class 3 in the NSW Agricultural Land Classification publication. Class 3 land is only moderately suitable for cultivation.
E.3 Vineyards District	Yes	3.2.2 Potentially Contaminated Land	As discussed previously within this report, the potential for contamination of the land has been considered. The land is not likely to have been contained because of past such that it renders the site unsuitable for the development.
E.3 Vineyards	Yes	3.2.3 Building Siting	Pursuant to this provision,

District		and Design	all development in the Vineyards District shall be <i>'appropriately sited and designed having regard to the opportunities and constraints of a site and its surrounds and the special qualities of the Vineyards District.'</i> The proposed development complies with this objective as it cannot be readily viewed from public viewpoint (see visual analysis further within the report) and the solar array has been proposed upon a part of the land where no/minimal vegetation clearing is required. The development has adequately considered the constraints of the site. This provision furthermore provides prescriptive measures for development upon land in 'visually significant areas'. A map depicting the identified 'visually significant areas' is provided. The subject land is not identified within this map, therefore the further provisions of 'visually significant areas' do not apply.
E.3 Vineyards District	Yes	3.2.4 Development Densities	This part of the DCP does not apply to the proposed development.
E.3 Vineyards District	Yes	3.2.5 Front and Side Development Setbacks	The proposed development has a compliant front setback; whereby all structures are positioned greater than 75m from the Wills Hill Road frontage. The proposal was initially proposed within the required 50m setback for side boundaries. The eastern most boundary was

			affected by this reduced setback. The eastern setback is comprised almost entirely of Black Creek. The DPI Water raised concern with the slight encroachment of the works upon waterfront land. As a result, the applicant has repositioned a group of 50 panels (measuring a combined total of 25 metres long to the western side of the solar array. This has resulted in the eastern side setback (and ultimately all side setbacks) complying with the necessary 50m setback.
E.3 Vineyards District	Yes	3.2.6 Requirements for the Establishment of New / Expanded Vineyards	This part of the DCP does not apply to the proposed development.
E.3 Vineyards District	Yes	3.2.7 Ground Spraying and Aerial Spraying Considerations	N/A The site is not adjacent to an existing working vineyard.
E.3 Vineyards District	Yes	3.2.8 Noise Generation and Odour Considerations	Operational noise of the solar farm is negligible. The remainder of this provision is N/A as the proposed works do not comprise 'human habitation' or 'new winery'.
E.3 Vineyards District	Yes	3.2.9 Development alongside Main Road 220	N/A The proposed solar farm is not positioned immediately adjacent to Wine Country Drive (Main Road 22).
E.3 Vineyards District	Yes	3.2.10 Development in the Vicinity of Cessnock Airport	The proposed solar farm is 1200m northeast of the northern runway at Cessnock Airport. The solar farm will be positioned to the east of the fixed wing aircraft approach and departure path to the airport. The works are all clear of the obstacle limitations surface map (pursuant to the LEP), meaning that formal referral to the relevant

			Commonwealth body governing the airport is not necessary. The applicant provided the following advice with regard to consultation with CASA and likely impact to aircraft: <i>“Discussion with CASA on the matter of glare and the airport operation suggest that while each airport site should be considered independently, airports without control towers (like Cessnock) are unlikely to be adversely impacted (as visibility from the airport to the plane is not relevant).</i> <i>Spaven Consulting 2011 undertook a review of the potential impacts of solar photovoltaic energy facilities on airports for RPS Planning and Development. The review concluded the following:</i> <i>• Glare of dazzle to pilots caused by sunlight is the only significant aviation issue likely to the only potential issue (sic), given the low height of panels and lack of effect on magnetic fields.</i> <i>• Solar panels are designed to absorb rather than reflect light. Typically panels reflect only 2% of sunlight (98% effective absorption), significantly lower than the glare from direct sunlight.</i> <i>• No evidence could be found of solar energy facilities causing adverse impacts at airports around the</i>
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			<i>world, including at Adelaide Airport (with panels located on the roof of terminal building.)"</i>
E.3 Vineyards District	Yes	3.2.11 Singleton Military Area	This part of the DCP does not apply to the proposed development.
E.3 Vineyards District	Yes	3.3 The need to Revegetate Components of the Vineyards District (no net loss)	This principle of no net loss will apply. The solar array has been specifically located to sit within a cleared grassland portion of the site. Two isolated paddock trees, identified as <i>Eucalypt tereticornis</i> saplings will be removed and replanted as part of the vegetation screen and riparian plantings. It is noted that the applicant has proposed two additional plantings of <i>Casuarina Glauca</i> along the bank of Black Creek to improve screening of the development. The no net loss principle is reaffirmed with a condition of consent in the draft notice of determination.
E.3 Vineyards District	Yes	3.3.5 Aboriginal Archaeology	The proposed development site is situated within 200 metres of a watercourse; therefore, the site is a potentially sensitive Aboriginal Heritage location. There have been no recorded Aboriginal heritage items located on the site and the site has endured a long history of agriculture upon the property. The proposed solar farm requires minimal excavation and it is considered unlikely that any adverse impact to potential Aboriginal heritage sites will

			occur. Notwithstanding this, a condition of consent has been imposed on the draft determination notice stating: <i>"If Aboriginal artefacts are uncovered during work, excavation or disturbance of the area, work must stop immediately. The Environmental Protection and Regulation Group of the Office of Environment and Heritage is to be contacted. Aboriginal archaeological excavation must be coordinated with any proposed investigation of non-indigenous material."</i>
E.3 Vineyards District	Yes	3.3.6 European Heritage	The site is identified as 'Weronga' and is an item of local heritage significance (I179) pursuant to Schedule 5 Environmental Heritage of the LEP. The heritage significance of the land relates to a number of old farm buildings on the site (clustered to the centre and western portion of the land) as well as the 'landscape' of the property. Council's heritage advisor has considered the potential for impact to the heritage item and provided the following comments: <i>'While there are built structures on the subject site and within the vicinity of the proposed solar farm, these structures are obscured from view by existing topography and landscape vegetation. Despite the scale of the proposed solar farm, I am generally satisfied that the</i>

				<i>proposal will not result in any unreasonable visual impacts on the identified built elements of heritage significance, nor will adversely impact on the cultural landscape.'</i>
E.3 District	Vineyards	Yes	3.3.7 Water Management Plan	A 22500L rainwater tank will be provided on site to collect roof water from control room. The rainwater will be stored on site and used for the cleaning of the solar panels as well as for bushfire fighting purposes.
E.3 District	Vineyards	Yes	3.3.8.1 Waste Water	No staff will be based at the site; therefore, no amenities have been required. Staff will occasionally visit the site to inspect the panels and undertake maintenance; however, no requirement for permanent facilities is generated. No wastewater will therefore be need to be disposed.
E.3 District	Vineyards	Yes	3.3.8.2 Solid Waste	Waste management will be in accordance with the waste management plan submitted in support of this application.
E.3 District	Vineyards	Yes	3.3.9 Servicing	There is no habitation or permanent staff presence at the site therefore connection to services is not required.
E.3 District	Vineyards	Yes	3.3.10 Outdoor Lighting	There will be low lux, shielded security lighting erected around the control room. The lighting will not be visible form public areas. A condition of consent concerning this matter has been included the draft notice of determination.
E.3 District	Vineyards	Yes	3.3.11 Fencing	It is proposed to maintain typical rural plain wire fencing around the solar farm with security fencing or other enclosure around the control room, inverters and

			electrical point of attachment. An additional 10m high protective mesh fence is proposed towards the southern end of the solar farm. This fence is designed to protect the solar panels from golf driving range activities on the adjoining southern property.
E.3 Vineyards District	Yes	3.3.12 Car Parking	Three car spaces will be provided onsite for technical staff.
Part F: Specific Areas	N/A	N/A	This part of the DCP does not apply to the proposed development.

(a)(iia) The provision of any Planning Agreement that has been entered into under Section 7.4, or any draft Planning Agreement that a developer has offered to enter into under Section 7.4

No such agreement has been proposed as part of this application.

(a)(iv) The provisions of the regulations

There are no matters prescribed by the Regulations that apply to this development.

(b) The likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts on the locality

As demonstrated by the above assessment, the proposed development is unlikely to have a significant impact on both the natural and built environments, and the social and economic conditions of the locality.

Visual Impact

The proposed solar energy system is to be located on low-lying lands adjacent to Black Creek. The solar panels will be 3 metres in height, meaning the panels will be screened from the north and east view lines by the Casuarinas (growing up to 6-10 metres in height) and the Red Gums (10-20 metres in height) lining Black Creek. To the south, the development site abuts the golf course associated with the Crowne Plaza resort. This land is in the same ownership as the proposed site. Visual orientation to the west is benefited by a 1300 metre separation to a major thoroughfare (Wine Country Drive).

A visual impact assessment has been provided by the applicant and includes photomontages from four separate vantage points surrounding the property.

The first visual analysis point is situated 1.8 kilometres north-west from the solar array area. A photograph was taken at the property known as 'Peacock Hill', which is adjacent to Wine Country Drive and accessed via 160 Wills Hill Road, Lovedale. This photograph is shown below:

The solar energy system benefits from the extensive geographical distance (1.8km) between the array area and any public view point (i.e. the road). The dense vegetation associated with the riparian area adjacent to Black Creek further assists to screen the proposed works from public view.



Figure 3: Photograph courtesy of Kleinfelder. View line south east towards the site from 'Peacock Hill'.

Interestingly, a ground mounted solar energy system is located upon the 'Peacock Hill' site. The solar energy system is small in nature; however, the visual prominence of the system upon the high volume state road (Wine Country Drive) is an interesting precedent. A photograph of this system is shown below:



Figure 4: Existing solar energy system at 'Peacock Hill'.

The second visual analysis point is from private property situated northeast of the site. The photograph (shown below) was taken 700 metres away from the location of the array system. The dense and established cluster of Casuarina's successfully screen a large portion of the development from view. There are two small existing gaps in the vegetation allowing the development to be visible. The applicant has identified on the plans two areas of Casuarina replanting. The replanting is proposed within the two vacant pockets of vegetation (shown on the lodgement plans in yellow). Once established, the replanting areas will negate all sight lines to the solar energy system from this location.

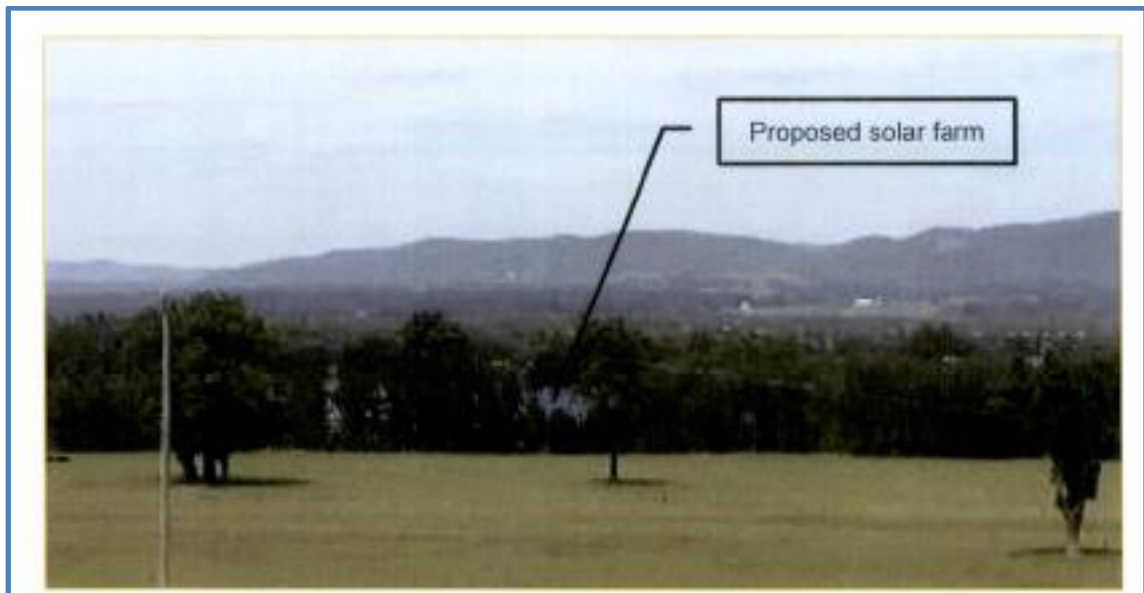


Figure 5: Photograph courtesy of Kleinfelder. Visual inspection angle looking southwest towards the site.

The third visual analysis point depicts the sight lines towards the site from the Wills Hill Road frontage. It is noted that Wills Hill Road is largely a local road providing access to 6

farm properties only. The photograph below shows view lines 500m east across an existing row of vines. Three separate areas of vegetation screening will be planted as part of this application. The plantings include *Eucalyptus tereticomis* (Forest Red Gum) and are a species endemic to this site. The plantings are depicted in the submitted lodgement plans in green. Once established, the plantings will considerably restrict viewlines from Wills Hill Road.



Figure 6: Photograph courtesy of Kleinfelder. View lines looking west towards the site from Wills Hills Road.

The final visual analysis site is taken from Lovedale Road, approximately 300 metres south east of the site. The proposed solar energy system will be periodically visible for a stretch of 200 metres along this road. The designated speed limit along this road is 80 km/hr, meaning the proposed solar energy system will be visible to passing motorists for a for very short periods.



Figure 7: Photography courtesy of Kleinfelder. View towards the site from Lovedale Road.

In summary, the visual analysis of the site concludes the following:

- The site benefits from a topographically low position.
- The existing vegetation upon the site is of a density and height that will screen large portions of public viewlines to the solar energy system,
- The identified gaps within the existing vegetation will be rectified with 5 separate pockets of infill native species replanting.

Natural Environment - Revegetation

The proponent has opted to vegetate portions of the land to provide a visual screening function for an adjacent land owner and for small public view points on Wine Country Drive and Lovedale Road, as well as for riparian corridor improvement and bank stabilization. The vegetation works are purely for improvement works and are not to replace any vegetation required for removal; noting that only a single isolated tree (*Eucalyptus terecomis*) is required for removal.

The figure below (submitted by the applicant) illustrates the location of the solar array with respect to waterfront land and the pockets of revegetation proposed.

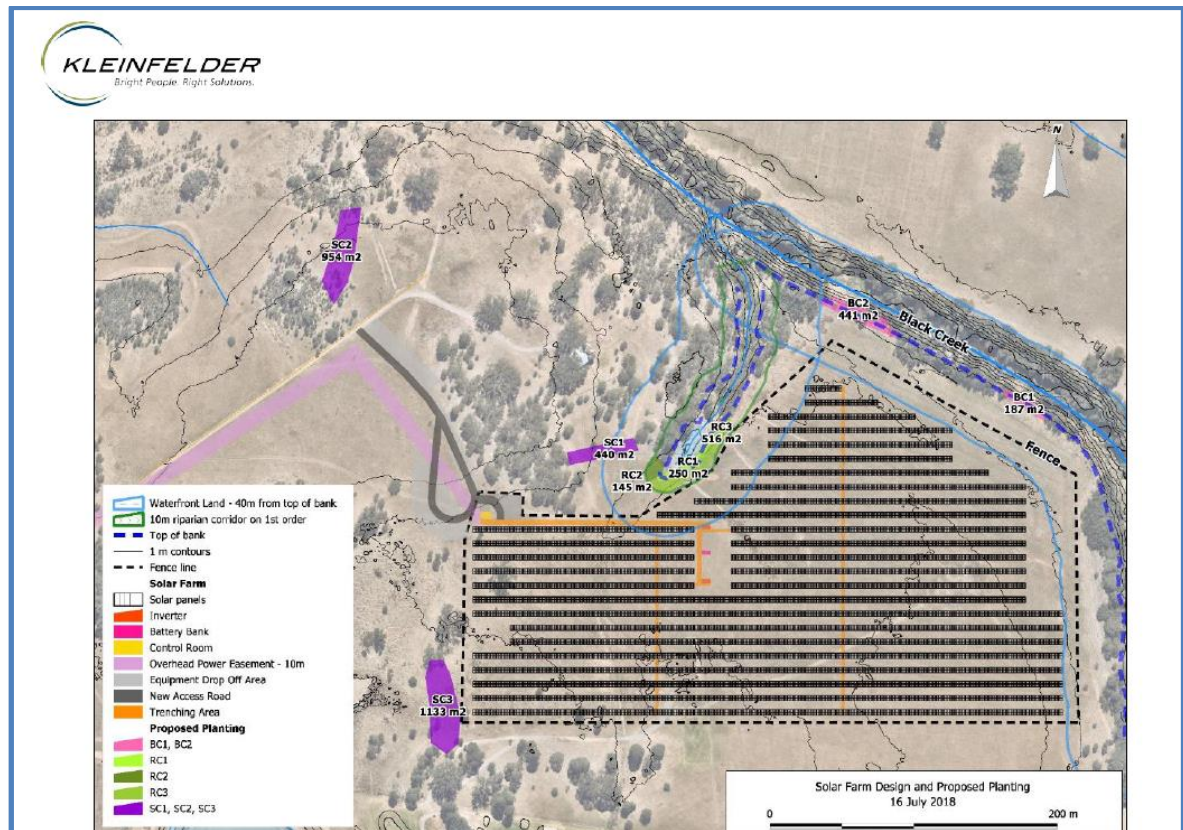


Figure 8: Vegetation planting

The vegetation works include:

- Two patches of the Black Creek riparian corridor of approximately 187sqm and 441sqm targeting exposed sections of the existing riparian corridor. These areas are shown in the above figure 2 as BC1 and BC2. The vegetation plantings will serve primarily as screening vegetation with mid-storey and canopy vegetation; as well as contributing to the riparian corridor improvement.
- One section along an exposed are of the 1st order stream will be planted with the following sections:
 - As shown in figure 2 as RC1, approximately 250sqm of bank stablisation planting with minimal canopy planting to avoid shading of the panels.
 - As shown in figure 2 as RC2, approximately 145sqm of a more complete vegetation assembled structure consisting of grasses, mid storey and canopy species.
 - As shown in figure 2 as RC3, approximately 516sqm of ground and shrub to mid-storey vegetation, to again minimize shading of the panels from canopy species.
- Three patches of screen plantings of *Eucalyptus terrecornis* (Forest Red Gum) to filter and screen the visibility of solar panels from most surrounding public vantage points and private land holdings. These vegetation plantings are shown in figure 2 as SC1, SC2 and SC3.

Social Impact

Renewable energy resources are typically not seen in the same manner as non-renewable energy sources. That is, a solar energy system is not anticipated to have as severe a social impact as an open cut mine is likely to have. Solar energy systems are generally associated with favourable environmental values and therefore any potential awareness of the array area may have a positive effect to the vineyards district (i.e. the area can be seen to promoting environmentally sustainable energy resources).

The Cessnock community identified a 'focus on renewable energy (e.g. solar)' as one of the key items to be considered in the preparation of the Cessnock 2027 Community Strategic Plan. This document has since been endorsed by Council and features numerous references to aligning Cessnock community values with renewable energy options.

Economic Impact

The solar energy system will provide a renewable energy option for the area. Surplus energy generated from the system will be directed back into the existing electrical grid, meaning the community will benefit from easing the burden of existing energy sources.

(c) *The suitability of the site for the development*

As demonstrated by the above assessment, the site is considered to be suitable for the proposed development. The suitability of the site is explicitly supported by Direction 12: Diversify and Grow the Energy Sector of the Hunter Regional Plan 2036. A listed action within Direction 20 is to: *"Diversify and grow the energy sector by working with stakeholders, including councils, communities and industry, to identify and support opportunities for smaller-scale renewable energy initiatives..."*

(d) *Any submissions made in accordance with this Act or the regulations*

The Development Application was first publicly exhibited between 18 April 2018 and 18 May 2018. During the exhibition period, it was identified that the proposal was described as 'Construction of a 5mW Solar Farm'. This is erroneous and should read 'Construction of a 5MW Solar Farm'.

The proposal was then re-exhibited between 2 May 2018 and 1 June 2018, with the correct watt reference. No submissions are received.

(e) *The public interest*

The public interest is served through the detailed assessment of this Development Application under the Environmental Planning and Assessment Act 1979, Environmental Planning and Assessment Regulation 2000, Environmental Planning Instruments and Council Policies.

Based on the above assessment, it is considered that the proposed development is consistent with to the public interest.

SECTION 7.11 CONTRIBUTIONS

Section 7.11 Contributions are payable for the proposal. The Cessnock Section 94A Levy Contributions Plan 2017 applies. The total cost of works is \$10 081 221, therefore the contributions are imposed at a rate of 1%, equalling \$100 812.21.

INTERNAL REFERRALS

The Development Application was referred to the following Council officer/s for comment:

Officer	Comment
Airport Coordinator	The Cessnock Airport is an aerodrome under the management and ownership of Cessnock City Council. For this reason, the application was referred to Council's Airport Operations Coordinator on 11 April 2018, given the proximity of the proposed solar farm to the airport, and specifically the departure and approach areas. The Airport Operations Coordinator initially responded with the recommendation to refer the proposal to the Civil Aviation Safety Authority (CASA). A referral to CASA was then initiated. No response has ever been received from CASA, therefore the application was re-referred to the Airport Operations Coordinator on 10 September 2018 to ensure that there were no comments or recommendations for the notice of determination. This referral was followed up with a meeting on October 2, 2018 whereby the following was noted: • The main circuit currently used at the airport is the runway 35 circuit which takes off in a northerly direction before looping west from the airport and returning from the south. This circuit does not fly over the proposed solar energy system and consequently is not impacted by the proposal in any way. • There is one circuit that will fly in the vicinity of the solar energy system. This circuit is the runway 17 circuit and aircraft travelling on this flight path take off in a southerly direction, before looping east from the airport, travelling north past the solar energy system, and returning to the airport from the north. There is potential for aircraft on descent to have the solar energy system in view. • The airport coordinator is generally in support of the fixed tilt system of solar panel (i.e. the solar panels are static and permanently face north). This provides certainty for aircraft navigating in the area. • Due to the solar energy system permanently facing north (and away from the airport), the only circuit that will be impacted by having the solar array in vision will be descending aircraft approaching the airport from the north. As previously noted, the most frequently used circuit is the runway 35 circuit which descends to the airport from the southern end.

	• It is noted that a pilot's vision will be primarily focused in the direction of flight. During descent from the north, the solar energy system will be to the east of the aircraft and outside of the fixed wing approach path. The panel system is not likely to be directly in the line of sight for the pilot during this period. • There are a number of airports in Australia (and throughout the world) that are installing their own solar energy systems). In 2017, Brisbane airport constructed its own 6MW solar energy system upon the airport land. There have been no incidents associated with this installation. • Contact with CASA was made; however a written response in regard to this matter is unlikely to be received. • The solar panels appear will be designed with low-reflective qualities. The airport coordinator is supportive of this. A written response has been received from the airport coordinator who was reluctant to provide a qualifying statement either in support or against the proposal for liability reasons. The following comments were provided on October 2, 2018: <i>Due to the location within the circuit area for Runway 17 I hold some concern for pilot safety due to glare.</i> <i>There is not a lot of precedence for solar farms in this location however as they <u>are located outside of the 17 runway splay and are of a low reflective material I believe this may help to mitigate some of the risk to aircraft.</u></i> <i>Consideration should be given to the angle and direction when being constructed to reduce glare on aircraft landing on Runway 17.</i> The Airport Operations Coordinator was queried in regard to the statement that “<i>consideration should be given to the angle and direction when being constructed to reduce glare on aircraft landing on Runway 17.</i>” The applicant has opted for the fixed tilt panels to face due north. The northern orientation of the panels will optimize the solar absorption of the system. When pressed for a recommendation to address this statement, the Airport Operations Coordinator stated that concerns “<i>may be mitigated by low or nil glare factor of the panels... what should be avoided though is having anything mirror like blinding the pilot as they attempt to land.</i>” The applicant has stated that the type of panel to be used will be of a low-reflective nature. Within the statement of environmental effects, the applicant
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	provided a comparison of the type of solar panels to be used in this system against a typical corrugated steel roof. The applicant noted: <i>“Coloured steel corrugated roofs have a solar absorption of as low as 23% for light colours increasing to 40-70% for mid tones and 70-96% for darker colours, in comparison to solar panels at approximately 98%... A further comparison using reflectivity indexes for common materials, includes:</i> • <i>Steel: Index of 2.5</i> • <i>Standard glass: Index of 1.517</i> • <i>Smooth water: Index of 1.333</i> • <i>Solar glass: Index of 1.329</i> • <i>Solar glass with anti-reflective (AR) coating: Index of 1.250</i> <i>On this comparison it is evident that solar glass with anti-reflective coatings (as proposed) is likely to reflect about half the light of steel and less than smooth water.”</i> The applicant also references a study conducted by Spaven Consulting in 2011 titled: <i>Solar Photovoltaic Energy Facilities - Assessment of Potential for Impact on Aviation</i> (the Spaven report). The Spaven report was prepared by a consultancy in the UK, however it has been widely referenced in applications for similar developments within Australia. As discussed in the Spaven report, solar panels are designed to absorb as much light as possible to maximise power generation (i.e. reflecting the light is contrary to what the panel is designed for); however because of their glass front and metal frames, it is inevitable that some reflection of sunlight will occur. Nevertheless, compared to other everyday objects, solar panels reflect less light than grass, crops, forest and water. The Spaven report makes the following statements: • <i>Dazzle/glare is likely to present a hazard only during critical phases of flight, especially approach and landing; the en route phase is not normally a critical phase.</i> • <i>Dazzle/glare occurs almost exclusively at low angles of elevation; aircraft in the en route phase of flight will be at higher angles of elevation.</i> • <i>Pilots in the en route phase are already subjected to glare from a number of existing sources such as large assemblies of parked cars, major glasshouse facilities and large bodies of water; these are not considered to require analysis and mitigation despite having potentially much higher luminosity values than PV panels.</i> • <i>The pilot view from most cockpits, particularly in the forward direction, is severely limited in the downward direction by the aircraft structure, thus blocking the line of sight to any source of glare on the ground.</i>
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	The Spaven report concludes by outlining a number of existing solar energy projects in the vicinity of operating airports in Germany and the USA. The report stated that no instances of pilot reports of distraction by glare from the facilities were submitted to airport or solar energy providers in 20 years up until 2011. On the basis of the information supplied in the statement of environmental effects, the accompanied information in the Spaven report, as well as knowledge of the circuit patterns used at Cessnock airport, the concerns raised by the Airport Operations Coordinator are deemed to be addressed.
Development Engineer	Council's principal development engineer was consulted for comment. The development engineer considered matters of storm water discharge, access to and from the site, car parking and flood matters. The only issue raised pertained to flood matters. It is recognized that the site sits within a flood affected area. This was considered by Councils Principal Development Engineer, with the following statement provided: <i>Council's mapping system indicates the site is located within a flood hazard category between H1 and H6. It is noted that the depth and velocity relating to a hazard H6 as shown on the flood certificate is measured from the bottom of black creek and therefore does not represent the maximum hazard within the footprint of the solar farm.</i> <i>The minimum Hazard category H1 is associated with low water depths and low velocities.</i> <i>Although the mapping system indicates the site footprint to be partially within a floodway, the water depth and low velocity does not reflect a floodway condition. The proposed development is therefore considered appropriate for the location subject to controls.</i> <i>The topography of the site is shown to have an RL of approximately 52m AHD. The applicant has addressed the following precautions to incorporate into the design;</i> <i>• Low side of solar panels to be installed 0.8m above ground</i> <i>• Rack cabling, where not buried, is approximately 2m above ground level</i> <i>• Solar inverters and the battery bank, approximately 2 m above ground level</i> <i>• The concrete constructed control room approximately 52m AHD with equipment positioned a minimum above floor level</i> <i>A condition is to be included to ensure the panels will be</i>

	<i>constructed above the 1 in 100 year flood event which would allow free flow of flood water and therefore not obstructing flows.</i> All recommended conditions of consent have been incorporated into the draft notice of determination.
Heritage Officer	The site is identified as 'Weronga' and is an item of local heritage significance (I179) pursuant to Schedule 5 Environmental Heritage of the LEP. The heritage significance of the land relates to a number of old farm buildings on the site (clustered to the centre and western portion of the land) as well as the 'landscape' of the property. The proposal was referred to Councils Heritage Advisor, who noted that the land has heritage significance given the "...<i>continuous occupation and use of land over a long period of time by the one family. (The land) represents the way in which the land was opened up for European settlement, and the collection of farm buildings and structures demonstrate the way in which the land has been used.</i>" Council's heritage advisor has considered the potential for impact to the heritage item and provided the following comments: '<i>While there are built structures on the subject site and within the vicinity of the proposed solar farm, these structures are obscured from view by existing topography and landscape vegetation. Despite the scale of the proposed solar farm, I am generally satisfied that the proposal will not result in any unreasonable visual impacts on the identified built elements of heritage significance, nor will adversely impact on the cultural landscape.</i>' Recommended conditions of consent have been incorporated into the draft notice of determination.

EXTERNAL REFERRALS

The Development Application was referred to the following external agency/agencies for comment:

Agency	Comment
Ausgrid	Pursuant to Clause 45 of the State Environmental Planning Policy (Infrastructure) 2007, the proposal has been referred to Ausgrid given the proximity of the solar energy system adjacent to an easement for electricity supply. Ausgrid have reviewed the proposed plans and do not raise any objection to the proposal, subject to condition of consent.
DPI Water	The application was initially referred to the DPI Water for concurrence. The first response received from the DPI Water indicated that concurrence would not be provided for the proposal in its current form. Some of the eastern most solar panels encroached within 40 metres from the top of bank to Black Creek.

	The applicant has subsequently repositioned the eastern most segment of solar energy panels to the western side of the system (clear of all Black Creek riparian vegetation). This has resulted in the solar array being more than 40 metres from the top of bank of Black Creek. The array at its closest point is over 60 metres from the typical water edge at Black Creek. There are minor works required within 40 metres of a 1st order tributary of Black Creek (adjacent to the northern boundary of the site). No part of the solar array occurs within the riparian zone and no offset is required as per the NSW Office of Water <i>Guidelines for Riparian Corridors on Waterfront Land</i>. The works on waterfront land will be restricted to trenching and steel posts to support the panels. The application still seeks consent for works within 40 metres of the top of bank to Black Creek. The works involve the barrier fencing for the solar energy system as well as vegetation screen planting within the riparian corridors. The DPI Water has granted concurrence to these works, subject to general terms of approval included within the draft notice of determination.
Civil Aviation Safety Authority	There is no statutory requirement to refer the proposal to the Civil Aviation Safety Authority (CASA); however at the recommendation of Councils Airport Coordinator the proposal was referred to CASA for advice. The initial referral was made on 4 June 2018. The referral provided 21 days to respond. Repeated attempts were made to gain referral advice; however no response has been received. CASA is deemed to have no interest in the matter. Despite this, it is noted that the applicant has addressed the issue of solar reflection and any impact it may have to the operation of the airport. Within the submitted Statement of Environmental Effects, the applicant provided the following comments: <i>“Discussion with CASA on the matter of glare and the airport operation suggest that while each airport site should be considered independently, airports without control towers (like Cessnock) are unlikely to be adversely impacted (as visibility from the airport to the plane is not relevant).</i> <i>Spaven Consulting 2011 undertook a review of the potential impacts of solar photovoltaic energy facilities on airports for RPS Planning and Development. The review concluded the following:</i> <i>• Glare of dazzle to pilots caused by sunlight is the only significant aviation issue likely to be the only potential issue (sic), given the low height of panels and lack of effect on magnetic fields.</i> <i>• Solar panels are designed to absorb rather than reflect light.</i>

	<i>Typically panels reflect only 2% of sunlight (98% effective absorption), significantly lower than the glare from direct sunlight.</i> <i><u>No evidence could be found of solar energy facilities causing adverse impacts at airports around the world, including at Adelaide Airport (with panels located on the roof of terminal building.)</u></i> The applicant provided a comparison of the type of solar panels to be used in this system against a typical corrugated steel roof. The applicant noted: <i>“Coloured steel corrugated roofs have a solar absorption of as low as 23% for light colours increasing to 40-70% for mid tones and 70-96% for darker colours, in comparison to solar panels at approximately 98%... A further comparison using reflectivity indexes for common materials, includes:</i> <i>Steel: Index of 2.5</i> <i>Standard glass: Index of 1.517</i> <i>Smooth water: Index of 1.333</i> <i>Solar glass: Index of 1.329</i> <i>Solar glass with anti-reflective (AR) coating: Index of 1.250</i> <i>On this comparison it is evident that solar glass with anti-reflective coatings (as proposed) is likely to reflect about half the light of steel and less than smooth water.”</i>
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CONCLUSION

The Development Application has been assessed in accordance with Section 4.15(1) of the Environmental Planning and Assessment Act 1979 and all relevant instruments and policies.

The proposed development is permitted within the prescribed zone [via the State Environmental Planning Policy (Infrastructure) 2007], and is considered consistent with the zone objectives. The proposed developable area is small in context of the total site area, and the solar energy system has been positioned in a portion of the site that takes advantage of an existing cleared area and utilises the surrounding vegetation as a visual screen.

Solar energy is a renewable energy source that is specifically supported by the Hunter Regional Plan 2036. Overall, the proposal is seen as a progressive development application that could have positive environmental impacts to the area.

Based on the assessment, it is recommended that Development Application No. 8/2018/181/1 be approved, subject to the conditions of consent included in this report.

SCHEDULE 1

TERMS OF CONSENT

CONDITIONS OF CONSENT

1. General Terms of Approval

All General Terms of Approval issued by Department of Primary Industries (Water), date 18 July 2018 (Ref: IDAS1106261) shall be complied with prior, during and at the completion of the development, as required.

A copy of the General Terms of Approval is attached to this determination notice.

2. Compliance with Ausgrid Advice

The letter issued by Ausgrid dated 13 April 2018 shall be complied with prior, during and at the completion of the development, as required.

3. Approved Plans and Documents

Development must be carried out strictly in accordance with DA No. 8/2018/181/1 and the following plans and supplementary documentation, except where amended by the conditions of this consent.

Plan Reference	Drawn By	Dated
Proposed Solar Farm Design, Project Reference: 20182251	Kleinfelder	16/07/2018

Document Title	Prepared By	Dated
Statement of Environmental Effect	Kleinfelder	9 March 2018
Flora and Fauna Assessment	Kleinfelder	March 2018
Addendum – Design Ammendment	Kleinfelder	17 July 2018

In the event of any inconsistency between the approved plans and supplementary documentation, the plans will prevail.

4. BCA Compliance

Pursuant to Section 4.17(11) (cf previous s 80A) of the *EP&A Act 1979* all building work must be carried out in accordance with the requirements of the *BCA*.

PRIOR TO THE ISSUE OF A CONSTRUCTION CERTIFICATE

The following conditions are to be complied with, to the satisfaction of the Principal Certifying Authority, prior to issue of a Construction Certificate.

5. Cessnock Section 94A Levy Development Contributions Plan

A total monetary contribution of \$100,812.21 is to be paid to Council, pursuant to Section 7.12 (cf previous s 94A) of the *Environmental Planning and Assessment Act 1979*, such contribution is to be paid prior to the issue of a Construction Certificate in respect of the proposed development.

- i) This condition is imposed in accordance with the provisions of *Cessnock S94A Levy Development Contributions Plan 2017*. A copy of the document is available on Council's website at www.cessnock.nsw.gov.au or maybe inspected at Councils' Customer Services Section, Administration Building, Vincent Street Cessnock.
- ii) The amount of contribution payable under this condition has been calculated on the basis of the current rate as at the date of consent and is based on the most recent quarterly Consumer Price Index (CPI) release made available by the Australian Bureau of Statistics (ABS). The CPI index rate is expected to rise at regular intervals and therefore the actual contribution payable is indexed and recalculated at the CPI rate applicable on the day of payment.

CPI quarterly figures are released by the ABS on a date after the indexation quarter and as a guide, these approximate dates are provided below. Indexation quarters from the ABS are as follows:

Indexation quarters	Approx release date
September	Late October
December	Late January
March	Late April
June	Late July

Any party intending to act on this consent should contact Council to determine the indexed amount of contribution on the date of payment.

6. Parking – Minimum Requirement

Onsite car parking shall be provided for a minimum of three vehicles and such being set out generally in accordance with Council's Development Control Plan.

The plans submitted in association with the CC application are to demonstrate compliance with this requirement. The plans are to be approved by the CA as satisfying this requirement prior to the issue of a CC.

7. Structural Engineers Report

A certificate prepared by an appropriately qualified and practising structural engineer, certifying the structural adequacy of the property and its ability to withstand the proposed additional, or altered structural loads, must be provided to the CA prior to the issue of a CC.

8. Waste Management Plan

A Waste Management Plan is to be provided to the CA prior to the issue of a CC. The Waste Management Plan is to be prepared in accordance with the following:

- a) Estimated quantities of materials that are reused, recycled, removed from the site

- b) On site material storage areas during construction
- c) Materials and methods used during construction to minimise waste
- d) Nomination of end location of all waste generated

All requirements of the approved Waste Management Plan must be implemented during the construction of the development.

9. Anti-Reflective Coating

Evidence shall be provided to the CA demonstrating that the solar panels have an anti-reflective coating.

PRIOR TO COMMENCEMENT OF WORKS

The following conditions are to be complied with prior to the commencement of works on the subject site/s.

10. Relocation of Services

The registered proprietor of the land shall be responsible for all costs incurred in the necessary relocation of any services affected by the required construction works. Council and other service authorities should be contacted for specific requirements prior to commencement of any works.

11. Construction and Traffic Management Plan

The applicant must prepare a Construction Management and Traffic Management Plan incorporating the following matters. The plan must be submitted to and approved by the CA as satisfying these matters prior to the commencement of works.

- a) A plan view of the entire site and frontage roadways indicating:
 - i) Dedicated construction site entrances and exits, controlled by a certified traffic controller, to safely manage pedestrians and construction related vehicles in the frontage roadways.
 - ii) Turning areas within the site for construction and spoil removal vehicles, allowing a forward egress for all construction vehicles on the site.
 - iii) The locations of proposed work zones in the frontage roadways.
 - iv) Location of any proposed crane, concrete pump, truck standing areas on and off the site.
 - v) A dedicated unloading and loading point within the site for all construction vehicles, plant and deliveries.
 - vi) Material, plant and spoil bin storage areas within the site, where all materials are to be dropped off and collected.

- vii) An onsite parking area for employees, tradespersons and construction vehicles as far as possible.
 - viii) The proposed areas within the site to be used for the storage of excavated material, construction materials and waste and recycling containers during the construction period.
 - ix) How it is proposed to ensure that soil/excavated material is not transported onto surrounding footpaths and roadways.
 - x) The proposed method of support to any excavation adjacent to adjoining properties, or the road reserve. The proposed method of support is to be designed by a Chartered Civil Engineer.
- b) During excavation, demolition and construction phases, noise generated from the site must be controlled.
 - c) All site works must comply with the work health and safety requirements of SafeWork NSW.
 - d) During excavation, demolition and construction phases, toilet facilities are to be provided on site, at the rate of one (1) toilet for every twenty (20) persons or part of twenty (20) persons employed at the site.
 - e) All traffic control plans must be in accordance with the RMS publication *Traffic Control Worksite Manual* and prepared by a suitably qualified person (minimum 'red card' qualification). The main stages of the development requiring specific construction management measures are to be identified and specific traffic control measures identified for each stage.

Approval is to be obtained from Council for any temporary road closures or crane use from public property. Applications to Council shall be made a minimum of six (6) weeks prior to the proposed activity being undertaken.

12. Soil and Water Management Plan

The applicant must prepare a Soil and Water Management Plan, being compatible with the Construction Management and Traffic Management Plan referred to in this Development Consent and incorporating the following matters. The plan must be submitted to and approved by the CA as satisfying these matters prior to the commencement of works.

- a) Minimise the area of soils exposed at any one time
- b) Conservation of top soil
- c) Identify and protect proposed stockpile locations
- d) Preserve existing vegetation. Identify revegetation technique and materials
- e) Prevent soil, sand, sediments leaving the site in an uncontrolled manner
- f) Control surface water flows through the site in a manner that:
 - i) Diverts clean-runoff around disturbed areas
 - ii) Minimises slope gradient and flow distance within disturbed areas
 - iii) Ensures surface run-off occurs at non erodible velocities
 - iv) Ensures disturbed areas are promptly rehabilitated.
- g) Sediment and erosion control measures in place before work commences

- h) Materials are not tracked onto the road by vehicles entering or leaving the site.
- i) Details of drainage to protect and drain the site during works.

13. Relocation of Services

The registered proprietor of the land shall be responsible for all costs incurred in the necessary relocation of any services affected by the required construction works. Council and other service authorities should be contacted for specific requirements prior to commencement of any works.

14. Structural Integrity

The applicant shall submit a report from a suitably qualified and experienced engineer in respect of the proposed development, such report to verify that:-

- a) any damage to the proposed development sustained in a flood will not generate debris capable of causing damage to downstream buildings or property
- b) the building structure will be able to withstand the force of flood waters (including buoyancy forces) and the impact of debris
- c) finishes, plant fittings and equipment subject to inundation will be of materials and functional capability resistant to the effects of flood waters.

Details submitted prior to a CC are to demonstrate compliance with this requirement. The report is to be approved by the CA as satisfying this requirement prior to the issue of a CC.

DURING WORKS

The following conditions are to be complied with during works.

15. Construction Hours

Excavation, building or subdivision work must be restricted to the hours of 7.00am and 5.00pm on Monday to Saturday inclusive. Work is not to be carried out on Sundays and public holidays.

16. Stormwater – Impact on Adjoining Land – Natural Drainage

Filling shall not be placed in such a manner that natural drainage from adjoining land will be obstructed.

17. Stormwater – Impact on Adjoining Land – Surface Water

Filling shall not be placed on land in such a manner that surface water will be diverted to adjoining land.

18. Implementation of Soil and Water Management Plan

The requirements of the Soil and Water Management Plan must be maintained at all times during the works, and any measures required by the Soil and Water Management Plan shall not be removed until the site has been stabilised.

Materials from the site are not to be tracked into the road by vehicles entering or leaving the site. At the end of each working day, any dust/dirt or other sediment shall be swept off the road and contained on the site, and not washed down any stormwater pit or gutter.

The sediment and erosion control measures are to be inspected daily, and defects or system failures are to be repaired as soon as they are detected.

19. Erosion and Sediment Controls

The control of erosion, and the prevention of silt discharge into drainage systems and waterways, will be necessary in accordance with Council's "Engineering Requirements for Development", and Landcom's Soils and Construction Manual - April 2004. Erosion control measures are to be implemented prior to the commencement of any earthworks, and shall be maintained until satisfactory completion and restoration of site earthworks, including revegetation of all exposed areas.

20. Floor Level Certification

The floor level of the proposed building shall be certified by a registered surveyor as being not less than 500mm above the 100 year Average Recurrence Interval (ARI) flood level.

The floor level shall therefore be certified as being not less than RL 52m Australian Height Datum (AHD).

The evidence shall be submitted to the CA prior to construction works proceeding beyond floor level stage.

21. Bushfire Protection

The following bushfire protection measures are to be implemented at the commencement of building works, and maintained for the life of the development:

a) Asset Protection Zones

The intent of measures is to provide sufficient space, and maintain reduced fuel loads, so as to ensure radiant heat levels of buildings are below critical limits, and to prevent direct flame contact with a building.

At the commencement of building works, and in perpetuity, the property around the asset shall be managed as follows in accordance with Section 4.1.3 and Appendix 5 of Planning for Bushfire Protection 2006 and the Rural Fire Services document 'Standards for Asset Protection Zones' as an inner protection area.

b) Water and Utilities

The intent of measures is to provide adequate services of water for the protection of buildings during and after the passage of a bushfire, and to locate gas and electricity so as not to contribute to the risk of fire to a building.

- i) Water, electricity and gas to comply with Section 4.1.3 of Planning for Bushfire Protection 2006
- ii) In recognition that an unreliable reticulated water supply exists, a 22500 litre dedicated water supply tank (non-flammable) shall be provided. An RFS standard 65mm metal Storz outlet with a ball valve shall be provided

c) Access

The intent of measures for property access is to provide safe access to/from the public road system for firefighters providing property protection during a bushfire, and for occupants faced with evacuation. To achieve this, the following requirements shall apply:

- i) Access shall comply with Section 4.1.3(2) of *Planning for Bushfire Protection 2006*.

d) Landscaping

Landscaping to the site is to comply with the principles of Appendix 5 of Planning for Bushfire Protection 2006.

22. Protection of Aboriginal Artefacts

If Aboriginal artefacts are uncovered during work, excavation or disturbance of the area, work must stop immediately. The Environmental Protection and Regulation Group of the Office of Environment and Heritage is to be contacted. Aboriginal archaeological excavation must be coordinated with any proposed investigation of non-indigenous material.

PRIOR TO THE ISSUE OF AN OCCUPATION CERTIFICATE

The following conditions are to be complied with, to the satisfaction of the Principal Certifying Authority, prior to issue of either an Interim or Final Occupation Certificate (as specified within the condition):

23. Roof Stormwater – Clear of Buildings

Prior to issue of an OC, roof water from the building and any rainwater tank overflow shall be piped clear of the building, without creating any nuisance on the property or to adjoining properties.

24. Structural Adequacy

A compliance certificate prepared by an appropriately qualified and practising structural engineer, certifying that the structure has been constructed in accordance with the approved plans prior to the issue of an occupation certificate.

25. Drainage Works

All drainage works required to be undertaken in accordance with this consent shall be completed prior to issue of an OC for the development.

26. Flood Certification

The applicant shall submit a report from a professional engineer in respect of the proposed development. Such report to verify that:-

- a) any damage to the proposed development sustained in a flood will not generate debris capable of causing damage to downstream buildings or property;
- b) the building structure will be able to withstand the force of flood waters (including buoyancy forces) and the impact of debris;
- c) all finishes, plant fittings and equipment subject to inundation will be of materials and functional capability resistant to the effects of flood waters;
- d) the development complies with the Australian Building Codes Board (ABCB) 'Construction of Buildings in Flood Hazard Areas' 2012.

Note: The 100 year Average Recurrence Interval (ARI) flood level in the vicinity of the property is RL 52m Australian Height Datum (AHD).

The report shall be submitted to, and approved by, the CA prior to issue of a CC for the building.

27. Vineyards 'no net loss' policy

At least 2 trees, must be replanted to replace the 2 trees of native vegetation removed. The plants used for planting are to be only native species of local provenance grown by a specialist native plant nursery to enhance foraging opportunities for native fauna. Native species are to be characteristic of (*Central Hunter Riparian Forest* EEC). The area must be fenced if livestock are kept on the lot. Evidence that this has occurred is to be provided to Council's Ecologist prior issue of the OC.

ONGOING USE

The following conditions are to be complied with as part of the ongoing use of the premises.

28. Road – Advice

The applicant is advised that Council will not accept responsibility for the road access. In this respect, the care, control and maintenance thereof, is the sole responsibility of the user/s, in perpetuity.