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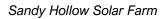




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Acronyms and abbreviations

APZ Asset Protection Zone

BESS Battery Energy Storage System

DA Development Application

DPHI Department of Planning, Housing and Infrastructure (NSW)

EDC Estimated development cost

EP&A Act Environmental Planning and Assessment Act 1979 (NSW)

ha hectares

km kilometres

kV kilovolt

LEP Local Environment Plan

LGA Local Government Area

m metres

MW megawatt

RPP Regional Planning Panel

RSD Regionally Significant Development

VIA Visual Impact Assessment





Terms used in this report

The following terms are defined for the purpose of this report and illustrated in the figure on the following page to reduce any ambiguity or conflicting references. All terminology shall conform to these defined terms.

Site boundary Boundary of the proposed solar farm site

Western site boundary Western boundary of the proposed solar farm site

Northern site boundary Northern boundary of the proposed solar farm site

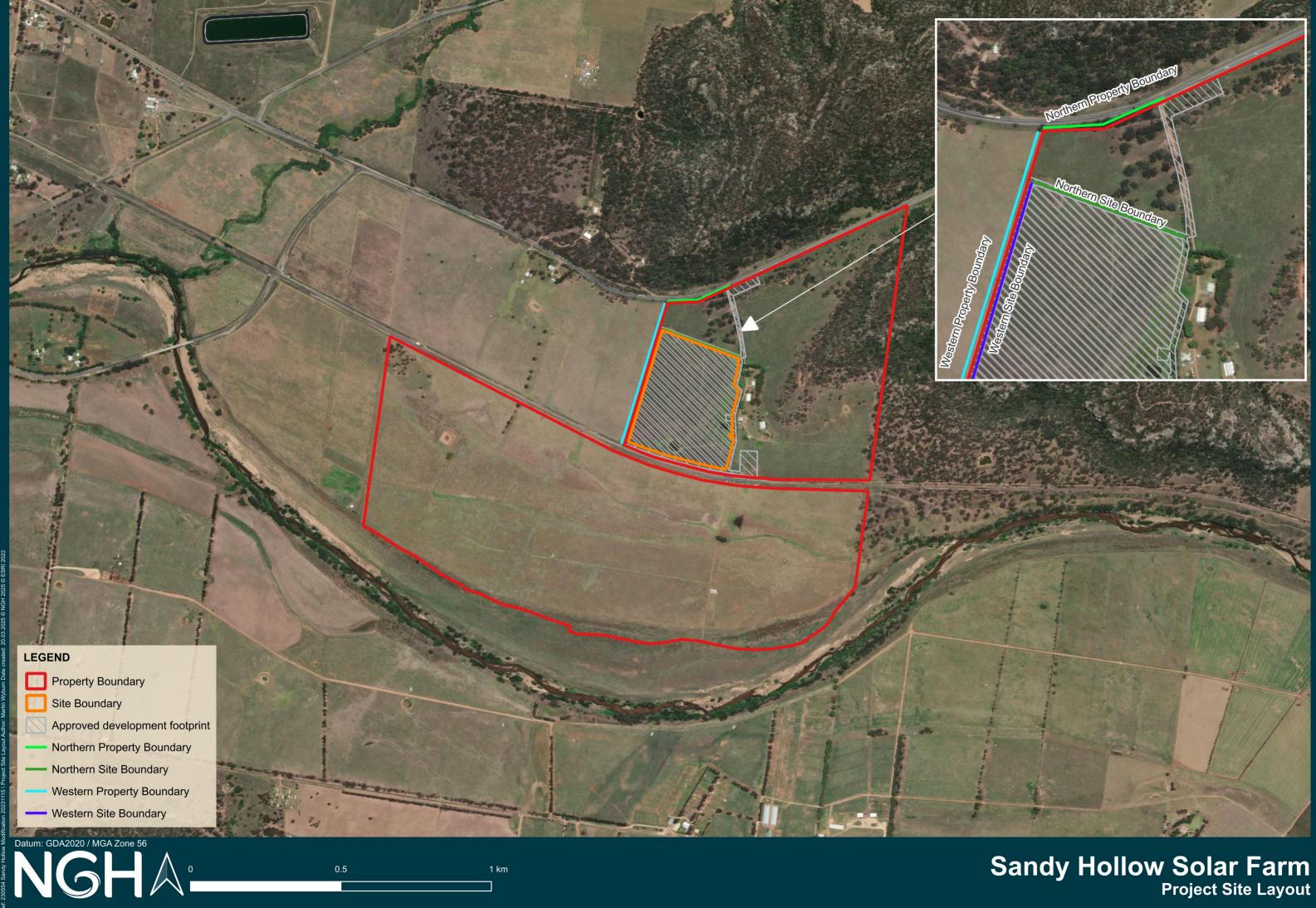
Property boundary Boundary of Lot 12 DP1042612

Western property boundary Western boundary of Lot 12 DP1042612

Northern property boundary Northern boundary of Lot 12 DP1042612

Subject land The full area of Lot 12 DP1042612

Subject site The proposed solar farm extent





1. Introduction

1.1. Overview

This Modification Report has been prepared to support an application under section 4.55(2) of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The application seeks Muswellbrook Shire Council's consideration for proposed modifications to development approval DA2019/102 for electricity generating works (a solar farm) at 511 Richmond Grove Road, Sandy Hollow. The subject land is Lot 12 DP1042612. It is noted the address of the land at the time of original approval was 1333 Merriwa Road, Denman.

The proposed development site is agricultural land with a history of clearing for grazing. It is currently used for cattle grazing. The development footprint would comprise an area of approximately 14 hectares (ha), located in the north-western sector of the subject land. The proposed development would include a solar farm (installation of solar photovoltaic (PV) cells on a ground-mounted tracking system of pole driven steel posts) with a capacity of approximately 4.95megawatts (MW) and a 4.95MW Battery Energy Storage System (BESS) (as modified). The proposed development would connect to the existing 33 kilovolt (kV) line (Denman to Merriwa) via a new switching station.

The proposal was recommended for approval by Muswellbrook Shire Council (Council) and subsequently granted consent by the HCCRPP on 06 May 2020. The project is physically commenced by way of engineering and survey work already completed.

The landholder and original applicant for the development was Mr. Andrew King of Vernon Trust. Mr King still holds ownership of the land as the sole director of Stroud Agricultural Company as trustee for Vernon Trust. Landholder consent accompanies this modification application. Birdwood Energy Pty Ltd (the proponent) has acquired the proposed Sandy Hollow Solar Farm project and intends to the develop the site.

Having conducted further detailed design to progress the proposal towards a construction certificate, Birdwood Energy (now, the proponent) proposes modifications to the development consent. A modification application was approved by Council on 21 June 2024 (Mod 1). This related to the inclusion of an ancillary BESS and associated layout and equipment changes and modification of the powerline route (overhead to underground).

The proposed modifications (Mod 2) are outlined below and in further detailed overleaf. The modification is proposed pursuant to Section 4.55(2) of the EP&A Act.

- 1. Modification of the landscaping screening requirements.
- 2. Remove references to a permanent amenities building.
- 3. Remove the requirement to seal part of the internal access road.

The proposed modifications to the solar farm would be generally consistent with the approved development.

Sandy Hollow Solar Farm



1.2. Background

Development consent for the original development was sought under Part 4 of the EP&A Act. The estimated development cost (EDC) of the original proposal was approximately \$5.6 million.

The estimated EDC of the modified proposal is approximately \$10 million. Falling within the range of \$5 million -\$30 million, the proposal is considered Regionally Significant Development (RSD).

The modification application relates to some conditions of consent (landscape screening) that were originally imposed by the RPP in addition to those originally recommended by Council. According to relevant Departmental directives, the section 4.55(1A) application must be determined by the RPP.



2. Modifications proposed

2.1. Summary of original development and approved modifications

Table 2-1 Summary of original development and approved modifications

Proposal element	Description
Capacity	4.95MW (AC) and will produce around 12,000MWh per year. Note: the capacity is based on products and technology available at the time of the proposal but may change through the life of the solar farm as advances in technology occur.
Development footprint	Approximately 14ha solar farm infrastructure area.
Solar array	Approximately 16,200 solar panels mounted in rows on tracker tables and approximately 2, 000 array posts. One containerised power station (Sungrow SG4950HV-MV or similar) on the eastern side of the solar array. The number of solar panels was reduced as part of Mod 1 to 13,888 (approximate), the number of posts was increased to 2,970 (approximate) and the power station was moved to the centre of the solar array; however, the development remained substantially the same as that which was originally approved.
Battery	Ancillary battery storage in the form of 8 skid-mounted battery containers (Sungrow ST2752UX or similar) was included as part of Mod 1; however, the development remained substantially the same as that which was originally approved.
Substations	A switching station at the northern property boundary is proposed for the connection to the existing 33kv transmission line along the Golden Highway. This would connect to a proposed internal substation kiosk within the solar farm perimeter, as per accompanying design plans.
Site compound	Temporary construction storage/ hardstand would be managed within the solar farm perimeter, as shown.
Access tracks	Internal access tracks and hardstand area would be constructed of engineered fill topped with crushed stone pavement would access the solar farm infrastructure for maintenance, as per accompanying design plans. Internal road sealing was not considered necessary for the original development proposal, nor the modified development proposal.
Perimeter fencing, lighting and CCTV	Wire mesh fencing installed around the site would indicatively be 1.94m high. Continuous infra-red security technology and CCTV cameras would be installed on posts through the site.
Landscaping screen	Landscape screening was not considered necessary for the original development proposal, nor the modified development proposal. The accompanying modification application seeks to amend the consent to provide a 10m wide landscape buffer is proposed along the western site boundary and 5m wide landscape buffer along the northern site boundary.
Construction hours	Standard daytime construction hours would be 7.00am to 6.00pm Monday to



	Friday and 8.00am to 1.00pm on Saturdays.
Construction timing	Estimated 9 months.
Workforce	Construction – approximately 30 workers Operation – 1 operation and maintenance contractor, stationed off-site
Operation period	Up to 40 years
Decommissioning	The site would be returned to its pre-works state. All above ground infrastructure would generally be removed to a depth of 1000mm. The site would be rehabilitated in consultation with the landowner, consistent with future land use requirements.
Capital investment value (now estimated development cost)	Calculated \$5.6 million. The estimated development cost of the modified proposal excl. GST is \$10 million.

2.2. Proposed Modification 2 overview

Having conducted further detailed design to progress the proposal towards a construction certificate, Birdwood Energy (now, the proponent) proposes modifications to the development consent. The proposed changes were presented as Mod 1 to Council and was approved on 21 June 2024. Further changes to consent conditions relate to some conditions imposed by the RPP, in addition to those recommended to the Panel by Council. Therefore, this modification is to be determined by the RPP.

The proposed modifications (Mod 2) are outlined below and in further detailed overleaf. The modification is proposed pursuant to Section 4.55(1A) of the EP&A Act.

1. Modification of the landscape screening requirements.

Reasons: Views of the proposed development are not readily available from surrounding receivers due to topography and existing vegetated areas. Landscape screening was not considered strictly necessary for the original development proposal, nor the modified development proposal, according to the outcomes of the Visual Impact Assessment (VIA). The proponent seeks consideration of alternative landscape screening arrangements as detailed in this report and supported by an updated Visual Impact Assessment and Landscape Plan prepared by Moir Landscape Architecture.

2. Removal of references to a permanent amenities building.

Reasons: The original development proposed an amenities building during the construction phase but it was not considered required during the operational phase of the solar farm. However, the condition was imposed by Council during assessment of the application. On-site activity during operation is very limited due to advancements in remote monitoring, tracking and equipment durability. Local subcontractors would be deployed during the operational phase, to replace minor components from time to time. Temporary toilet and washing facilities would be provided as outlined in this report.

3. Removal of the requirement to seal part of the internal access road.

Reasons: Sealing of internal roads was not considered necessary for the original development proposal, nor the modified development proposal and it is not conventionally required for this type of development. The internal roads are gently sloped and consistent with access requirements under Planning for Bushfire





Protection 2019 (PBP). The proponent seeks the removal of this requirement as the internal roads would be established and maintained to a satisfactory standard without bitumen sealing.

The proposed modifications to the solar farm would be generally consistent with the approved development as detailed in section 4 of this report.

A comparison of the current wording of the development consent and the suggested modified wording is provided in section 2.6 of this report.

2.3. Modification of the landscape screening requirements

The development consent conditions 6 and 17 impose the following landscape screening requirements:

- A 10m wide landscape buffer along the western site boundary, to achieve screening from ground level to a minimum height of 8m. Note: this requirement is referred to as both western site and western property boundary in the consent and Council assessment report.
- A minimum 5m wide landscape buffer along the Golden Highway frontage, to achieve screening from ground level to a minimum height of 8m.
- Tree planting on the western side of the internal access road between the Golden Highway and the northern boundary of the solar array.

The conditions as imposed would have an adverse effect on the operational capacity of the solar array. A shading impact analysis was conducted to determine the extent of the reduction. It was determined the conditioned landscape screening would adversely affect the irradiance the panels can access, by way of shading, and therefore would notably reduce the generation capacity. Accordingly, it would also significantly reduce the available land within the development footprint for solar infrastructure. Alternative landscape screening options were considered and modelled in an effort to balance the required filtering of views with the economic viability of the proposal. The report is summarised in section 3.1.5 and provided in full at Appendix C.

The original VIA has been updated and supplemented with photomontages prepared by Moir Landscape Architecture in section 3.1 and Appendix B. Existing vegetation and topography already filter views from the neighbouring dwelling and public viewpoints. As identified in section 3.1.3, twenty-one (21) receivers and nine (9) public viewpoints within 2.5km of the development site were assessed. The preliminary assessment tool under the Guideline excluded all bar three receivers and three viewpoints due to distance and limited field of view of the proposed solar farm. A further two receivers were excluded as they are surrounded by dense forest. The remaining receiver (R4/VPA06) was determined to have a low impact according to the Guideline. One remaining viewpoint was assessed as very low sensitivity and the other as moderate. The proposed amended landscape screening would address this viewpoint.

This modification application proposes to amend the landscape requirements, due to the VIA findings and shade impact analysis. A Landscape Plan and photomontages were developed to demonstrate the suitability of the proposed modified landscape arrangements in filtering views from Viewpoint 7.

A 10m wide landscape buffer along the western property boundary would not be necessary (i.e. between the railway line and the Golden Highway). The proponent intends to provide a 10m wide landscape buffer along the western *site* boundary (i.e. along the western side of the solar array) as this would lie within the area leased to the proponent. A landscape buffer along the full extent of the western property boundary would





partially lie outside the leased area and cannot be achieved by the proponent. Refer to terms defined on page iv and x of this document.

The 10m wide landscape buffer would consist of an 8m wide dense shrubby vegetation, supplemented by a 2m wide strip of managed turf. The 2m wide turf strip would be incorporated into the APZ, with 8m dedicated manicured APZ and 2m seeded turf to achieve a 10m cleared APZ in total. In total, there will be an 18m buffer from solar infrastructure to the security fence line. This is in line with the proposed landscape planning of the approved Denham Road Solar Farm.

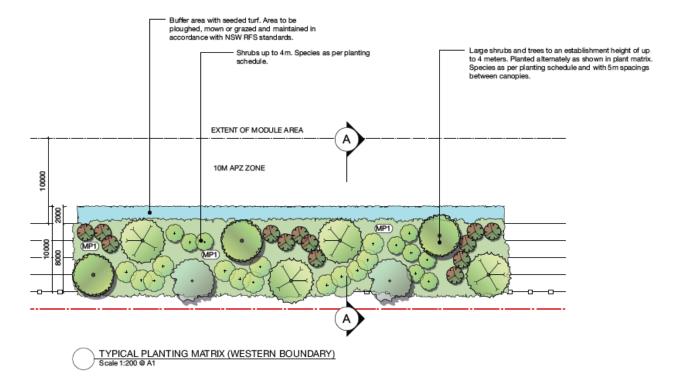


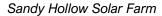
Figure 2-1 Landscape Plan view of the landscape buffer and adjoining APZ configuration along the western site boundary (Moir, 2025)

A 5m wide landscape buffer is proposed along the northern site boundary (ie. along the extent of the solar array) as this would lie within the area leased to the proponent. A landscape buffer along the northern property boundary/Golden Highway frontage would lie outside the leased area and cannot be achieved by the proponent.

Furthermore, the proponent intends to provide landscape screening along both the northern and western site boundaries to a height of 4m, to balance the filtering of views to the development and limit adverse shading impacts. This would ensure the proposed development can remain economically viable.

Tree planting along the western side of the internal access road between the Golden Highway and the northern site boundary is not considered necessary. Existing planted vegetation is already present in front setback of the solar farm to the Golden Highway, providing sufficient screening from the highway, and therefore is it considered unnecessary to disturb this area outside of the leased area. Views from the Golden Highway, along the internal access road, towards the proposed solar farm are non-existent.

The proposed modifications are in line with current landscape screening practices, which have evolved since the proposal was originally approved in 2020. The Department of Planning, Housing and Infrastructure has provided direct guidance around this issue in the Technical Supplement - Landscape and Visual Impact





Assessment - Large-Scale Solar Energy Guideline (the Guideline) (DPHI, 2022), clarifying the expectation of landscape screening is to "filter" views of the proposed infrastructure and not block or screen views.

Further detailed assessment and justification for the proposed modification to landscape screening requirements is provided in Section 3 of this report.



Figure 2-2 Planted areas to the north of the development site, within the subject land, taken from VPA08 (Moir Landscape Architecture, 2025)



Figure 2-3 Existing screening on the western side of the access road to be retained



2.4. Modification of amenity facilities

During the operational phase of the proposed development, no permanent staff would be required on-site. As such, the provision of a permanent amenities building during the operation phase of the development is unwarranted. The development would require the occasional monthly landscaping / mowing activities to the vegetation screening, APZ and around the solar arrays. However, these activities are temporary in nature and would not require permanent amenities buildings on-site.

In the event of larger maintenance events (extending for two continuous working days or more), where higher staff numbers are required, the proponent proposes temporary ablution facilities would be in place for the duration of that work.

By removing the requirement for providing permanent amenities buildings during the operational phase, the proposed development would limit the operational impact by reducing the disturbance footprint. Temporary ablution facilities would be smaller in scale and reduce water usage associated with larger permanent amenities buildings.

2.5. Modification of internal road sealing requirements

The development consent conditions impose a requirement that "vehicle access between the site boundary and Golden Highway road pavement should be bitumen sealed as a minimum construction standard". It is believed this condition requires sealing from the existing bitumen edge of the highway to the boundary of Lot 12 DP1042612 (property boundary). However, this condition could be interpreted to mean the boundary of the solar array.

The proposed modification seeks to confirm that bitumen sealing would be provided from the existing bitumen edge of the highway to the boundary of Lot 12 DP1042612. Sealing of the internal access road into the site to the solar farm boundary would be considered unwarranted.

Dust impacts to nearby receivers are considered due to separation distances. Potential dust impacts would be managed in accordance with standard construction protocols such as frequent conditions assessments of internal tracks and use of water carts as required. The proposal is also required to comply with Condition 37 in relation to the active management of dust on the site.

The internal access road between the highway and proposed solar farm is gently sloping from north to south. The grade and condition of the access road would meet the relevant requirements of Planning for Bushfire Protection and the associated requirements for a Fire Management Plan under Condition 41.

Bitumen sealing of the internal access road within the site to the proposed solar farm boundary would be inconsistent with other similar projects in the area including Allandale Solar Farm, Lovedale Solar Farm and Denman Road Solar Farm. Limiting the extent of bitumen seal to the public road reserve (ie. from the bitumen edge of the Golden Highway to the front boundary of Lot 12 DP1042612 would be consistent with other developments and reduce the project timeline. The WAD design currently being progressed with TfNSW.



2.6. Suggested wording of consent conditions

Table 2-1 Comparison of approved conditions and suggested modified wording

Approved conditions	Proposed conditions		
Condition 4: An amenities building providing hand washing and toilet facilities, and a place to eat meals, is to be provided on the site for the construction, operation and decommissioning phases of the development. The amenities building is to be installed within the area identified for temporary construction buildings. A separate development application is to be lodged with Council to obtain approval for the installation of the amenities building.	Condition 4: Temporary amenities providing hand washing and toilet facilities, and a place to eat meals, are to be provided on the site for the construction, operation and decommissioning phases of the development. Amenities are to be placed within the area identified for temporary construction buildings.		
Condition 6: An amended plan being submitted with the Construction Certificate that shows: a) 10 metre landscape strip along the western boundary in addition to the APZ b) 5 metre landscape strip along the Golden Highway frontage c) All vegetation required to be kept as shown on Site Works DWG No. 80219037-CI-1201 Revision 3 d) Vegetation requirement along the western side of the access road, between the northern boundary of the panels as required by Condition 17 e) Reduction in panels to accommodate the above - a to d	 Condition 6: An amended plan being submitted with the Construction Certificate that shows: a) 10 metre landscape strip along the western site boundary which may be partially incorporated into to the APZ b) 5 metre landscape strip along the northern site boundary c) All vegetation required to be kept as shown on Site Works DWG No. 80219037-CI-1201 Revision 3 d) Reduction in panels to accommodate the above - a to c 		
Condition 9: Vehicular access to the site is to be designed in accordance with the following	Condition 9: Vehicular access to the site is to be designed in accordance with the following		

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requirements:

- Vehicle access between the site boundary and Golden Highway road pavement should be bitumen sealed as a minimum construction standard.
- b) An Auxiliary left-turn treatment is to be provided to the development to allow for the safe movement of vehicles into and out of the development site.
- c) A protective safety barrier is required to be installed on the southbound approach to the proposed switching station.
- d) No temporary barriers are to be installed on the Golden Highway (over size, over mass vehicles regularly use the Golden Highway and a median barrier is not appropriate).

Prior to the issue of a Construction Certificate, the person acting on this consent is to provide suitable documentary evidence to the Certifying Authority, demonstrating that the vehicular access design prepared in relation to the development and the requirements referenced above, has been accepted by Transport for NSW, as the Roads Authority for the carrying out of works in relation to the Golden Highway (a classified State Road).

Council would consider either of the following to comprise suitable documentary evidence:

- a) A Works Authorisation Deed (WAD) entered into between the developer and Transport for NSW for the carrying out of the work referenced by this condition.
- b) Written correspondence from Transport for NSW approving the design plans prepared in relation to the worked referenced by this condition.

requirements:

- Vehicle access within the Golden Highway road reserve should be bitumen sealed as a minimum construction standard.
- b) An Auxiliary left-turn treatment is to be provided to the development to allow for the safe movement of vehicles into and out of the development site.
- A protective safety barrier is required to be installed on the southbound approach to the proposed switching station.
- d) No temporary barriers are to be installed on the Golden Highway (over size, over mass vehicles regularly use the Golden Highway and a median barrier is not appropriate).

Prior to the issue of a Construction Certificate, the person acting on this consent is to provide suitable documentary evidence to the Certifying Authority, demonstrating that the vehicular access design prepared in relation to the development and the requirements referenced above, has been accepted by Transport for NSW, as the Roads Authority for the carrying out of works in relation to the Golden Highway (a classified State Road).

Council would consider either of the following to comprise suitable documentary evidence:

- a) A Works Authorisation Deed (WAD) entered into between the developer and Transport for NSW for the carrying out of the work referenced by this condition.
- b) Written correspondence from Transport for NSW approving the design plans prepared in relation to the worked referenced by this condition.

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Condition 17:

A landscape plan is to be prepared in relation to the proposed development in accordance with the mitigation measure recommendations of the Visual Impact Assessment. The plan should:

- a) Identify the existing vegetation to be retained on the site. Wherever possible existing vegetation should be retained, and all vegetation identified as being retained by the BDAR and approved plans is to be retained on-site.
- b) Identify a 10m wide landscape screen planting adjacent the western site boundary, separate to the 10m wide asset protection zone (APZ). The landscape screen planting is to be planted with both shrub and tree species to achieve screening from the ground level to a minimum height of 8m. Where there is a conflict between this landscaping requirement and the location of solar panels marked on the approved plans, the landscape plan is to take precedence.
- c) Identify landscape screen planting along the Golden Highway frontage with a minimum width of 5m. The landscape screen planting is to be planted with both shrub and tree species to achieve screening from the ground level to a minimum height of 8m.
- d) Identify tree planting on the western side of the internal access road, between its intersection with the Golden Highway and the northern boundary of the solar panel array.
- e) Locally indigenous plant species should be used wherever possible.
- f) The plan should include botanical names; planting quantities; planted state of maturity of all proposed trees, shrubs and ground covers; and should be prepared in accordance with Council's Landscaping Guidelines.
- g) Show all vegetation to be retained on the site and additional landscape buffers.
- h) No approval is granted to any other vegetation removal.

The Landscape Plan is to be submitted to and approved by Council in writing

Condition 17:

A landscape plan is to be prepared in relation to the proposed development in accordance with the mitigation measure recommendations of the Visual Impact Assessment. The plan should:

- a) Identify the existing vegetation to be retained on the site. Wherever possible existing vegetation should be retained, and all vegetation identified as being retained by the BDAR and approved plans is to be retained on-site.
- b) Identify a 10m wide landscape screen planting for the length of solar panels adjacent the western site boundary, which may be partially incorporated into the 10m wide asset protection zone (APZ) as proposed. The landscape screen planting is to be planted with both shrub and tree species to achieve screening from the ground level to a height of 4m. Where there is a conflict between this landscaping requirement and the location of solar panels marked on the approved plans, the landscape plan is to take precedence.
- Identify 5m wide landscape screen planting along the northern site boundary. The landscape screen planting is to be planted with both shrub and tree species to achieve screening from the ground level to a height of 4m.
- d) Locally indigenous plant species should be used wherever possible.
- f) The plan should include botanical names; planting quantities; planted state of maturity of all proposed trees, shrubs and ground covers; and should be prepared in accordance with Council's Landscaping Guidelines.
- g) Show all vegetation to be retained on the site and additional landscape buffers.
- h) No approval is granted to any other vegetation removal.

The Landscape Plan is to be submitted to and approved by Council in writing prior to the issue of a Construction Certificate. Written confirmation demonstrating that the Landscape Plan has been approved by Council should be



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prior to the issue of a Construction Certificate. Written confirmation demonstrating that the Landscape Plan has been approved by Council should be provided to the Principle Certifying Authority with an application for a Construction Certificate.	provided to the Principle Certifying Authority with an application for a Construction Certificate.
Condition 45: A permanent amenities building as required by Condition 4 must be approved and constructed prior to the issue of any Occupation Certificate or commencement of operations	Condition 45: The proponent seeks the removal of this consent condition.
Condition 53: At all times the premises is in operation an amenities building is to be provided on-site for use by Staff in accordance with the requirements of this consent.	Condition 53: During operation, temporary amenities are to be provided on-site for use by Staff where on-site works would extend for two continuous working days or more.



3. Assessment of proposed modifications

3.1. Landscape screening and visual amenity

3.1.1. Methodology

The original Visual Impact Assessment (VIA) was updated in accordance with current practices, following the relevant sections of the Technical Supplement - Landscape and Visual Impact Assessment - Large-Scale Solar Energy Guideline (the Guideline) (DPHI, 2022).

Due to the small scale of the development and its limited visual impacts, the area within 2km of the proposed development footprint was considered for this visual impact assessment.

The visual impact of the modified development on key sensitive receivers would be measured based on the combination of the sensitivity of the sensitive receivers and the magnitude (scale, contrast, quality, distance) of the development on each sensitive receiver.

Visual Magnitude The visual magnitude of a development is its apparent size determined by the volume of the horizontal and vertical fields of view occupied. Any sensitive receiver warranting a detailed investigation is classified as impacted for this assessment. If a receiver does not warrant a detailed investigation, it is deemed as not impacted. It is to be noted that the receiver classified as not impacted might still have some views of the solar infrastructures. However, these views will be only partial and would not be prominent against the backdrop.

Viewpoint Sensitivity relates to the relative importance of viewpoints and the value that the community or visitors may place on landscapes viewed from public use areas, public travel ways and private viewpoints such as dwellings. For example, a view from a residence is more sensitive to change than from a local road where views are more intermittent and less frequent. Similarly, a view from a rural residence is more sensitive if it is from principal living spaces and the front and rear of the dwelling than from other areas. Viewpoint sensitivity is classified into four different classes namely:

- Very low viewpoint sensitivity
- · Low viewpoint sensitivity
- Moderate viewpoint sensitivity
- · High viewpoint sensitivity

Scenic quality refers to the relative scenic, cultural, or aesthetic value of the landscape within the viewshed based on the presence or absence of key landscape features known to be associated with community perceptions of low, moderate, or high scenic quality.

Visual sensitivity Once the viewpoint sensitivity and scenic quality are determined, these can be combined using the visual sensitivity matrix in Table 4-10 to determine the overall visual sensitivity of each assessable viewpoint.

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Table 3-1 Viewpoint sensitivity matrix

	High scenic quality	Moderate scenic quality	Low scenic quality
High viewpoint sensitivity	High	High	Moderate
Moderate viewpoint sensitivity	High	Moderate	Moderate
Low viewpoint sensitivity	Moderate	Low	Low
Very low viewpoint sensitivity	Low	Very low	Very low

The combination of sensitivity and magnitude then provides an overall visual impact on individual sensitive receivers as per Table 4-11.

Table 3-2 Overall impact on sensitive receivers

	High visual sensitivity	Moderate visual sensitivity	Low visual sensitivity	Very low visual sensitivity
Very high magnitude	High	High	Moderate	Moderate
High magnitude	High	Moderate	Moderate	Low
Moderate magnitude	Moderate	Moderate	Low	Low
Low magnitude	Moderate	Low	Low	Very low
Very low magnitude	Low	Low	Very low	Very low

Receivers/dwellings within 2km of the modified development footprint are shown in Figure 3-1 below. Receivers 1 and 2 are existing dwellings located on the same property as the proposed solar farm.





Field of view calculations

The Technical Supplement - Landscape and Visual Impact Assessment - Large-Scale Solar Energy Guideline provides two calculations for vertical and horizontal field of view. The vertical field of view shown in Figure 3-2 takes the highest and lowest points of the proposed development and compares that with the elevation of the viewpoint. The horizontal field of view is calculated and the viewing angle of the proposed development from the viewpoint as shown in Figure 3-3. These two measures are then plotted in accordance with the values in the table on the following page to determine whether further detailed photomontage assessment is required.

Project located above and below viewpoint (a-c)

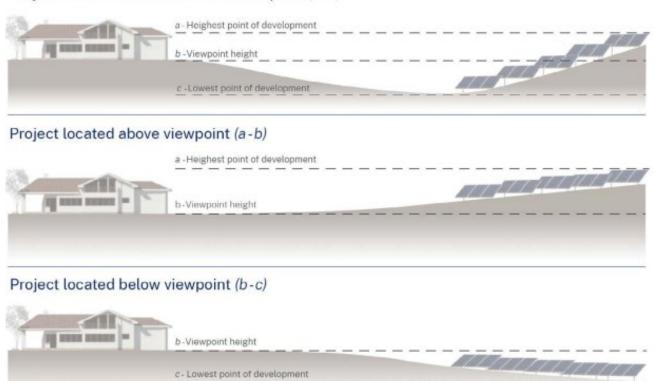


Figure 3-2 Relative height difference (DPIE, 2022)

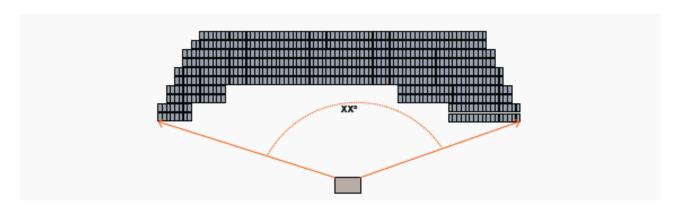


Figure 3-3 Horizontal field of view (DPIE, 2022)



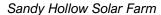
Table 3-3 Preliminary visual assessment requirements according to the Guideline (DPHI, 2022)

Horizontal field of view of development	1º vertical field of view	2º vertical field of view	3º vertical field of view	4°+ vertical field of view
1-10°	No assessment required	No assessment required	No assessment required	No assessment required
11-20°	No assessment required	No assessment required	No assessment required	Assessment required
21-30°	No assessment required	No assessment required	Assessment required for all viewpoints except road/rail	Assessment required
31-40°	No assessment required	Assessment required for all viewpoints except road/rail	Assessment required for all viewpoints except road/rail	Assessment required
41-50°	No assessment required	Assessment required for all viewpoints except road/rail	Assessment required	Assessment required
51-60°	No assessment required	Assessment required for all viewpoints except road/rail	Assessment required	Assessment required
61-70°	No assessment required	Assessment required	Assessment required	Assessment required
71-130°	Assessment required for all viewpoints except road/rail	Assessment required	Assessment required	Assessment required
130°+	Assessment required	Assessment required	Assessment required	Assessment required

3.1.2. Existing conditions

As described in the original assessments for the project, the Golden Highway runs east to west along the northern boundary of subject land. The Muswellbrook-Merriwa rail line runs east to west and forms the southern boundary of the subject land.

The proposed development site has been significantly cleared to facilitate farming practices. The remaining vegetation surrounding the development site comprises a modified dry sclerophyll forest characterised by the presence of Narrow-leaved Ironbark *Eucalyptus crebra*. Planted areas of non-local, non-NSW native and exotic vegetation, comprising trees and shrubs of such as Sugar Gum *Eucalyptus cladocalyx*, Pepper Tree *Schinus molle*, Lemon-scented Gum *Corymbia citriodora* and Silky Oak *Grevillea robusta* are planted along the driveway and surrounding the homestead.





The development site lies within a rural landscape 2.6km from the village of Sandy Hollow. The Goulburn River bisects the subject land east to west and is located south of the proposed development footprint. The development site gently slopes north to south towards the Goulburn River. The average site elevation is 140m Australian Height Datum (AHD), with a low of 133m AHD at the southern boundary and a high of 153m AHD on the northern boundary.

The surrounding topography is relatively flat, especially surrounding the township of Sandy Hollow, being a flood plain area for the Goulburn River. Surrounding the flood plain area are steep hills, creating a secluded valley for the township of Sandy Hollow and the development site.

The surrounding land along the Golden Highway and around Sandy Hollow contains medium-sized properties running small-scale grazing and other agricultural operations. The township of Sandy Hollow is at the same elevation, between 133 to 140m AHD however there is no view corridor to the subject site as detailed within photomontage PM01 from VPA02 (Appendix B). The residential properties that form Sandy Hollow are dispersed, with a cluster of local shops, some visitor accommodation, a community hall, and a public school. Sandy Hollow has a population of 188 according to the 2021 Australian Bureau of Statistics Census (ABS Census, 2021).

3.1.3. Potential impacts

Preliminary assessment tool was used to identify receivers that needed detailed assessment. The results are presented in Table 3-4. According to the assessment tool, receivers 3, 4 and 5, and viewpoints 6, 7 and 8 require further site assessment due to proximity and field of view.

Table 3-4 Results of preliminary visual assessment

Receiver ID	Horizontal field of view	Vertical field of view	Distance from Development area (m)	Detailed assessment required?
R1	Associated receiver no	t assessed.		
R2	Associated receiver no	t assessed.		
R3	51.7°	4°	221	Yes
R4	42.6°	3°	407	Yes
R5	41.7°	4°	386	Yes
R6	22°	1°	909	No
R7	15.8°	1°	1180	No
R8	15°	1°	1359	No
R9	13.6°	1°	1720	No
R10	12.2°	1°	1930	No





Receiver ID	Horizontal field of view	Vertical field of view	Distance from Development area (m)	Detailed assessment required?
R11	15°	1°	1614	No
R12	13.5°	1°	1993	No
R13	13.3°	1°	1987	No
R14	12.2°	1°	1851	No
R15	11.3°	1°	1948	No
R16	13.4°	1°	1822	No
R17	14.3°	1°	1597	No
R18	12.4°	1°	1948	No
R19	12.6°	2°	1669	No
R20	9.2°	1°	2062	No
R21	10.5°	2°	2099	No
VPA01	11.8°	1°	1865	No
VPA02	12.7°	1°	882	No
VPA03	14.9°	1°	1253	No
VPA04	9.3°	0	1586	No
VPA05	11.7°	1°	1784	No
VPA06	42.4°	2°	366	Yes
VPA07	65.5°	4°	92	Yes
VPA08	61.5°	4°	215	Yes
VPA09	16.4°	1°	1232	No

Sandy Hollow Solar Farm



Detailed assessment

As outlined above, the preliminary assessment tool indicates that receivers 3, 4 and 5, and viewpoints 6, 7 and 8 require further site assessment due to the theoretical proximity and field of view.

As noted above, the preliminary assessment only considers distance combined with angle of view. The impacts of existing vegetation in the assessment area are discussed below.

Receiver R3

R3 is located closest to the proposed development. As concluded with the original proposal, R3 is on the northern side of the Golden Highway in a densely vegetated area. The view of the proposed development would be entirely screened from this receiver. No further assessment or mitigation measures are considered necessary.

Receiver R4 and Viewpoint VPA06

R4 is located on the southern side of the Golden Highway approximately 407m west of the proposed development footprint. R4 is surrounded by scattered mature native vegetation, as indicated in the figure below.



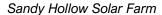
Figure 3-4 Viewpoint 6 looking southeast from the embankment on the northern side of the Golden Highway. R4 is on the right side of the image (Moir Landscape Architecture, 2025)).

R4 is categorised as a moderately sensitive viewpoint according to Table 4-1 adopted from the Guideline. The Guideline defines a moderately sensitive viewpoint as including "Primary view from dwellings in rural areas (zoned RU1, RU2, RU3, RU4 and RU6), large lot residential areas (zoned R5) and in environmental or conservation areas (zoned C2, C3 and C4)". Based on the orientation of R4, the primary view faces the Golden Highway. Views of the proposed solar farm to the east are likely a secondary view from R4. For the purpose of this assessment, the primary view, and therefore higher sensitivity rating, has been adopted for R4 to provide a conservative assessment.

Views from R4 would be categorised as of moderate scenic value according to the reference imagery in the Guideline.

According to the Guideline, R4 was assessed to have a low magnitude rating. Combined with the visual sensitivity rating of moderate, the visual impact on this receiver according to the Guideline is considered low.

The original assessment noted R4 "as a rural residence, is located on Lot 11 DP1042612. The view of the proposed solar farm would be largely screened by the existing topography and supplemented by existing planted vegetation immediately east of the residence".





The original assessment noted that each moderately affected viewpoint (including R4) is partially shielded by existing vegetation and visual impacts could be further reduced by the planting of vegetation screening. The original assessment concluded that "[s]hould vegetation screening be deemed necessary, a Landscape Plan would be prepared. The purpose of the Landscape Plan would be to address visual impact by establishing and maintaining a mature vegetation screening around the proposed solar farm, to complement established vegetation around the perimeter".

According to the Guideline, there is no expectation that visual screening as a mitigation measure should eliminate the view of the development entirely but must reduce the impact to an acceptable level. While there is no requirement to block views, the proposed vegetation screening outlined in this Mod 2 would minimise views of the proposed development from R4, while generally in line with the approved conditions.

Receiver R5

As concluded with the original proposal, R5 is on the northern side of the Golden Highway in a densely vegetated area. The view of the proposed development would be entirely screened. No further assessment or mitigation measures are considered necessary.

Viewpoint VPA07

VPA07 represents the view of motorists travelling east along the Golden Highway. As per the preliminary visual assessment above and the viewpoint matrix, it is considered that VPA07 is a moderately sensitive viewpoint. Figure 3-5 below illustrates that VPA07 would have clear views of the proposed development. Figure 3-6illustrates the views from VPA07 with the implementation of the proposed screening.

While the proposed development would still be in view along the Golden Highway (VPA07) with vegetation screening, views would be filtered. The impact is considered low, as motorists would be on the northern side of the highway when driving in an easterly direction, whilst the proposed solar farm lies on the southern slopes, approximately 90m from the highway. This would be a fleeting and indirect view when travelling 100km/h. With the implementation of the proposed modified landscape screening, the visual impact of the proposed development from this viewpoint is considered acceptable.





Figure 3-5 Views of the proposed development taken from the southern edge of the Golden Highway, VPA07 (Moir, 2025).



Figure 3-6 Views of the proposed development taken from the southern edge of the Golden Highway with the proposed vegetation screening, VPA07 (Moir, 2025)

Sandy Hollow Solar Farm



Viewpoint VPA08

VPA08 represents the view of the Golden Highway motorists travelling west towards Sandy Hollow.

VPA08 is categorised as a very low sensitivity viewpoint according to the visual sensitivity matrix adopted from the Guideline. According to the Guideline, this includes "State highways, freeways and classified main roads". In accordance with current practices, visual impacts from such roads are generally not considered cause for concern.

The proposed development would be setback from this viewpoint on the highway by approximately 150m and mostly obscured from view by existing mature vegetation, as well as being located at a noticeably lower elevation than the Golden Highway. Furthermore, it would be unlikely to fall within the natural sight lines of motorists on the Golden Highway and poses minimal visual risk in that regard.



Figure 3-7 View from Golden Highway looking south towards the proposed development site (Moir, 2025)

As stated in Section 2.2, Mod 2 proposed to remove Condition 6 (c) that requires vegetation screening along the western side of the access road. As demonstrated in Figure 3-7, existing remnant vegetation filters views such that additional landscape screening is unwarranted.

3.1.4. Proposed screening

Moir Landscape Architecture (Moir) prepared a Landscape Plan for the proposed development, (refer to Appendix D).

The proposed screening would be situated along the northern site boundary from the site access road to the site boundary fence. The proposed landscape screening would also be established along the western site boundary (i.e.) in line with the solar panels), refer to Figure 3-10.

The proposed landscape screening would be 8m wide, with a final established crown width of 10m, to achieve compliance with condition 6 (a). A supplementary 2m landscaping buffer area would be seeded turf and form part of the required 10m APZ. The buffer area is to be maintained as per NSW RFS standards. The APZ zone would be from the extent of the solar panels to the screen planting boundary (Figure 3-8)

The proposed screening would comprise of shrubs and small trees, maintained to an established height of up to 4m. The selected trees and shrubs would be planted alternatively as illustrated in the planting matrix of the Landscape Plan (Appendix D), with a 5m spacing between canopies (Figure 3-9).

The species selected for the screening as per the Planting Schedule is as follows:

- Small trees / large shrubs
 - Acacia linifolia Flax-leafed wattle
 - o Acmena smithii Lillypilly

Sandy Hollow Solar Farm



- Murraya panciculata Orange Jessamine
- Photinia x fraseri Red Robin Dwarf Photinia

Shrubs

- o Bursaria spinosa Sweet Bursaria
- Callistemon linearis Narrowed leaved Bottlebrush
- Correa alba White Correa
- o Dodonaea viscoa Giant Hop Bush
- o Melaeluca nodosa Prickly Leaved Paperbark
- Syzygium 'Cascade' Lilly Pilly

Mass Planting

- o Austroanthonia caespitosa Common Wallaby-grass
- Dianella caerulea Blue Flax-lily
- Lomandra longifolia Spiny-headed Mat-rush

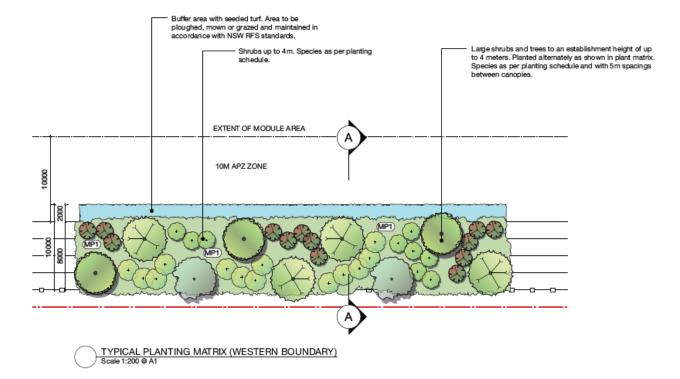


Figure 3-8 Typical planting matrix, as per the Landscape Plan (Moir, 2025)



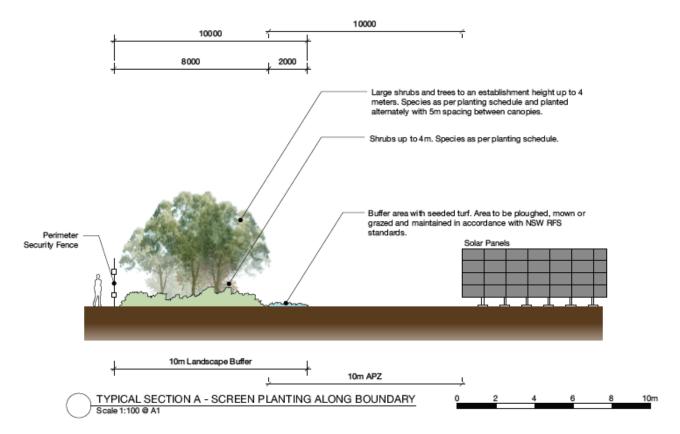


Figure 3-9 Typical screening along site boundary (Moir, 2025)



LANDSCAPE PLAN

Drawn By: JH

LEGEND

10 METER APZ ZONE

BUSHFIRE GUIDELINES

ACCESS ROAD

SECURITY FENCE

DENSE PERIMETER PLANTING

BUFFER AREA TO BE MAINTAINED TO A MINIMUM HEIGHT AS PER

ORIGINAL DRAWING AT A1.

Drawing No.

LP02

admin@moirla.com.au

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3.1.5. Shading

As outlined earlier in this report, a shading impact analysis was conducted for the proposed development. This was based on the landscape screening requirements as per current consent conditions, being a 10m wide x 8m high screen along the western site boundary and a 5m wide x 8m high screen along the northern site boundary.

The shading impact analysis determined the following:

- 10m screen 10m APZ 171kW affected modules
- Western boundary:
 - o 3pm shading 21 June 427kW affected modules
 - o 5pm shading 21 September 786 kW affected modules
- Northen boundary:
 - o 9am shading 21 June 786kW affected modules
 - o 3pm shading 21 June 0kW affected modules

The shading impact analysis determined the landscape screening required would notably reduce the generation capacity of the solar array. Accordingly, it would also significantly reduce the available land within the development footprint for solar infrastructure.

Alternative landscape screening options were considered and modelled in an effort to balance the required filtering of views with the economic viability of the proposal.

The shading impact analysis was remodelled based on the proposed changes to the landscape screening requirements, being an 8m wide x 4m high screen along the western site boundary and a supplementary 5m wide x 4m high screening along the northern site boundary. The updated shading impact analysis determined the following:

- 10m screening incorporated into 10m APZ (18m width) 154kW affected modules
- Western boundary:
 - o 3pm shading 21 June 68kW affected modules
 - o 5pm shading 21 September 205kW affected modules
- Northern boundary:
 - 9am shading 21 June 0kW affected modules
 - 3pm shading 21 June 0kW affected

As detailed above, the proposed changes to the vegetation screening requirements would reduce the potential kilowatt (kW) loss from the affected modules for the proposed development.



4. Statutory Framework

The proponent is seeking to modify development consent DA2019/102. The modified application has been submitted under Section 4.55(1A) of the EP&A Act. The relevant provisions are discussed in the table below.

Table 4-1 Relevant statutory framework for the proposed modifications

4.55 Modification of consents—generally	Response
(2) Other modifications A consent authority may, on application being made by the applicant or any other person entitled to act on a consent granted by the consent authority and subject to and in accordance with the regulations, modify the consent if—	
(a) it is satisfied that the development to which the consent as modified relates is substantially the same development as the development for which consent was originally granted and before that consent as originally granted was modified (if at all), and	From a land use perspective, the modified proposal remains the same as the development for which consent was originally granted and Mod 1 with no increase in footprint proposed. There is no change to the proposed capacity or output of the solar farm as detailed within Mod 1. Positive visual outcomes compared to the development for which consent was originally granted and Mod 1 are proposed.
(b) it has consulted with the relevant Minister, public authority or approval body (within the meaning of Division 4.8) in respect of a condition imposed as a requirement of a concurrence to the consent or in accordance with the general terms of an approval proposed to be granted by the approval body and that Minister, authority or body has not, within 21 days after being consulted, objected to the modification of that consent, and	Council would consult with any relevant concurrence authority.
 (c) it has notified the application in accordance with— (i) the regulations, if the regulations so require, or (ii) a development control plan, if the consent authority is a council that has made a development control plan that requires the notification or advertising of applications for modification of a development consent, and 	Council would notify this modification application as needed.



4.55 Modification of consents—generally	Response
(d) it has considered any submissions made concerning the proposed modification within the period prescribed by the regulations or provided by the development control plan, as the case may be.	Submissions may be made via the Planning Portal concerning the modification application.
(3) In determining an application for modification of a consent under this section, the consent authority must take into consideration such of the matters referred to in section 4.15(1) as are of relevance to the development the subject of the application. The consent authority must also take into consideration the reasons given by the consent authority for the grant of the consent that is sought to be modified.	 In terms of compliance with relevant provisions of the LEP, there are no material changes. The characterisation of the proposed development remains the same (though permissibility is still provided by the TI SEPP despite the LEP provisions), compatibility with the zone objectives and other relevant LEP provisions. In terms of compliance with relevant SEPPs, there are no changes. In terms of compliance with the DCP requirements, there are no material changes. The modified development is generally consistent with the relevant DCP requirements. Despite the proposed modification, the development would remain consistent with the reasons given by the Planning Panel in granting consent, specifically: The modified proposal would be generally consistent with the approved footprint. The visual impacts have been assessed against the detailed technical guidance that has been published by the Department since the development was originally approved.



5. Conclusion

This Modification Report has been prepared to support an application under section 4.55(2) of the EP&A Act. The application seeks Council's consideration for proposed modifications to DA2019/102 for electricity generating works (a solar farm) at 511 Richmond Grove Road, Sandy Hollow. The proposal was originally recommended for approval by Council and granted consent in 2020. Approval was granted on 21 June 2024 to modify the original application to add a BESS, change placement of PCU to a centralised location and to change the power connection option to underground cabling.

Birdwood Energy Pty Ltd intends to develop the site. Having conducted detailed design, a modification to the development consent is now sought to address the impacts of several consent conditions including a permanent amenities building and bitumen road sealing.

Based on the technical assessment in accordance with the DPHI Large-Scale Solar Energy Guideline – Technical Supplement – Landscape and Visual Impact Assessment, existing vegetation and topography provides sufficient filtering of views to the proposed development. Additionally, the landscape screening requirements would notably reduce the energy generation through shading of panels. The proponent has committed to providing landscape screening; however, seeks consideration of limited height and extent whilst still achieving sufficient screening.

This modification application has taken into consideration environmental and amenity factors relevant for such development and the rural setting. The proponent commits to carrying out the development in accordance with the safeguards and mitigation measures outlined in this report. Overall, the proposed development is expected to have minimal amenity impacts and would result in a positive impact for the community and local economy.



6. References

ABS Census. (2021). 2021 Census Quickstats - Sandy Hollow. Retrieved from Australian Bureau of Statistics: https://www.abs.gov.au/census/find-census-data/quickstats/2021/

DPHI. (2022). Technical Supplement - Landscape and Visual Impact Assessment - Large-Scale Solar Energy Guideline. DPHI.

Moir. (2024). Sandy Hollow Solar Farm Landscape Plan. Islington, NSW: Moir Landscape Architecture.



Appendix A Modified development plans



Appendix B Updated Viewpoints and Montages



Appendix C Shading Impact Analysis



Appendix D Landscape Plan



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