



**Jacobs**

## **Liddell Battery and Bayswater Ancillary Works Project**

### **Appendix K – Visual Impact Assessment**





# **Liddell Battery and Bayswater Ancillary Works Project**

**Visual Impact Assessment**

**| Final**

**February 2021**

**AGL Macquarie Pty Ltd**



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## 1. Introduction

### 1.1 Project background

AGL Macquarie Pty Limited (AGLM) own and operates the Bayswater Power Station (**Bayswater**), Liddell Power Station (**Liddell**), and the Hunter Valley Gas Turbines and associated ancillary infrastructure systems that operate to produce around 23,000 gigawatt hours (GWh) annually, or approximately 35 per cent (%) of New South Wales (NSW) electricity supply.

AGLM is seeking approval for the Liddell Battery and Bayswater Ancillary Works Project (**the Project**). As a State Significant Development (SSD) under the *State Environmental Planning Policy (State and Regional Development) 2011 (SEPP SRD)*. The Project is subject to Part 4, Division 4.7 of the *Environmental Planning and Assessment Act 1979 (EP&A Act)* which requires the preparation of an Environmental Impact Statement (EIS) in accordance with Secretary's Environmental Assessment Requirements (SEARs).

This visual impact assessment (VIA) has been developed in support of the EIS for the Project.

### 1.2 Purpose of this document

This VIA has been prepared in accordance with the SEARs issued for the Project on 29 September 2020 by the Planning Secretary of the NSW Department of Planning, Industry and Environment (DPIE).

The SEARs relevant visual impacts are summarised in **Table 1-1**, along with a reference to where these requirements have been addressed.

**Table 1-1 SEARs – Visual**

Environmental Assessment Requirement	Where addressed
An assessment of the likely visual impacts of the development on the amenity of the surrounding area, private residences near the development and local road network	Refer to <b>Section 4</b> of this report
A detailed description of the measures that would be implemented to minimise the visual impacts of the development	Refer to <b>Section 5</b> of this report

This report is intended to be read in conjunction with the EIS to inform the project approval authority, stakeholders and the community of the potential visual impact of the Project and the associated mitigation measures.

It is not the intention of this report to describe in detail the design of the Project.

### 1.3 Methodology

The methodology for this VIA includes the following steps:

- Describe the subject site and surrounding area
- Describe the planning instruments that are relevant to visual impact and apply to the subject site and the surrounding area
- Assess the visual impact of the Project from publicly accessible locations.

It should be noted that photography from GoogleMaps has been used to aid the understanding of the assessment. GoogleMaps photography is understood to be taken from a higher elevation than the viewpoint photography taken on-site by Jacobs.

## **1.4 Report structure**

The report structure is as follows:

- **Section 1** provides an introduction to the Project and document
- **Section 2** provides a description of the Project
- **Section 3** provides a contextual analysis
- **Section 4** provides a visual impact assessment
- **Section 5** outlines the proposed mitigation and management measures

## 2. Project description

### 2.1 Project overview

AGLM are progressing plans to facilitate the efficient, safe and reliable continuation of electricity generating works from Bayswater and Liddell. The Project would consist of the following:

- **The Battery:** A grid connected Battery Energy Storage System with capacity of up to 500 megawatt (MW) and 2 GWh
- **Decoupling works:** Alternative network connection arrangements for the Liddell 33 kilovolt (kV) switching station that provides electricity to infrastructure required for the ongoing operation of Bayswater and associated ancillary infrastructure and third-party industrial energy users
- **Bayswater Ancillary Works (BAW):** Works associated with Bayswater which may include upgrades to ancillary infrastructure such as pumps, pipelines, conveyor systems, roads and assets to enable maintenance, repairs, replacement or expansion
- **Consolidated consents:** A modern consolidated consent for the continued operation of Bayswater through the voluntary surrender and consolidation into this application of various existing development approvals required for the ongoing operation of AGLM assets.

Construction works associated with the Battery and Decoupling would likely involve as follows:

- Installation and maintenance of environmental controls including temporary and permanent water management infrastructure
- Establishment of a new access from Liddell access road
- Establishment of a hardstand pad and construction laydown areas
- Cut and fill to Battery compound, transformer compounds, footings and construction laydown area
- Trenching and installation of cable from the Battery to 330 kV/33 kV transformer compounds
- Structural works to support Battery enclosures, inverters, transformers, buildings and transformer compounds
- Delivery, installation and electrical fit-out of the Battery
- Delivery installation and fit out of transformers and ancillary equipment for decoupling works
- Testing and commissioning activities
- Removal of construction equipment and rehabilitation of construction areas.

The key components of the Project are shown on **Figure 2-1**. A detailed description of the Project and each component is provided in Chapter 2 of the EIS.

### 2.2 Construction program

The development of the Battery may be staged to respond to market demand. AGLM anticipates the construction occurring over multiple stages. These stages could potentially be:

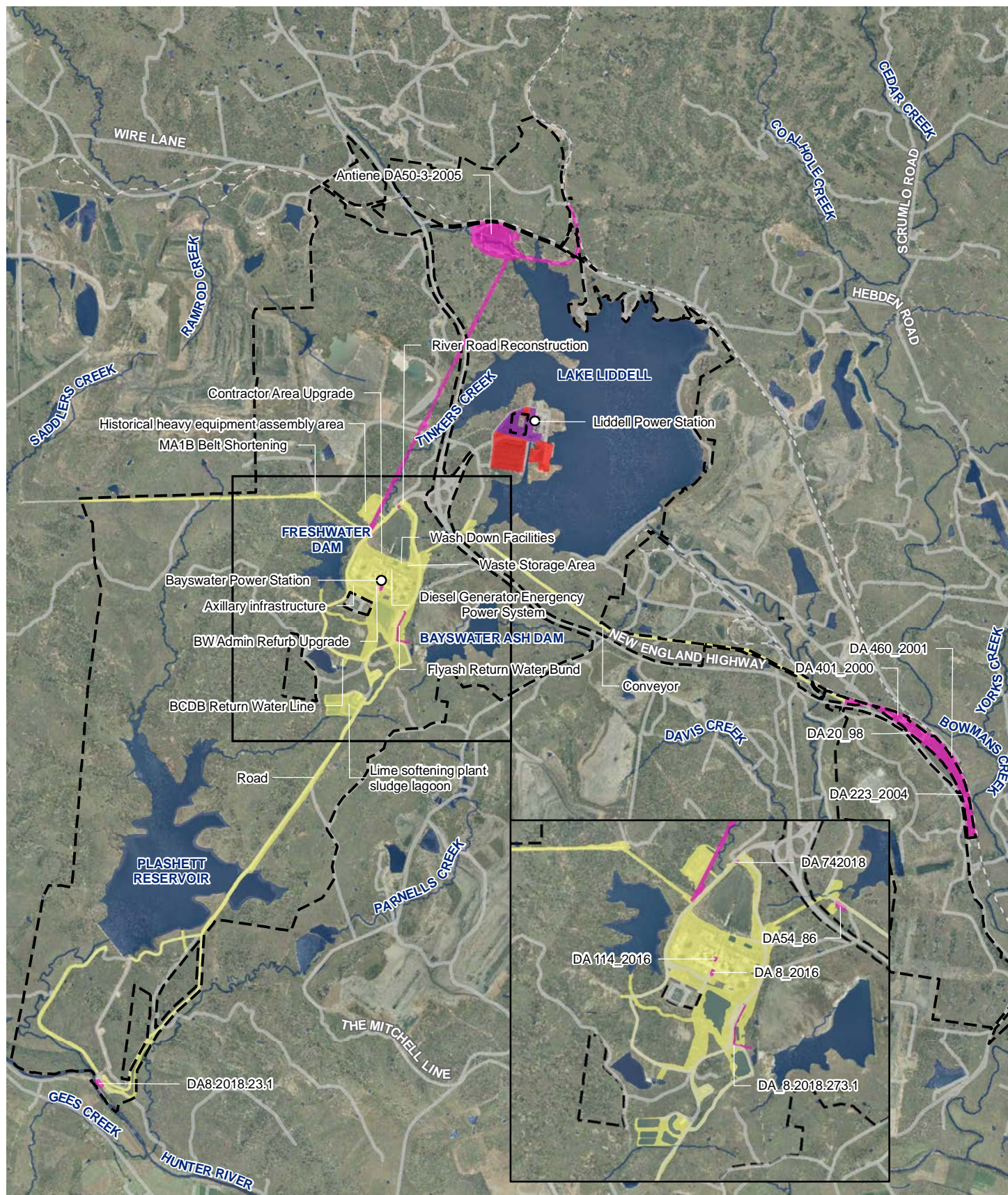
- Stage 1 consisting of 150 MW and 150 MWh
- Stage 2 consisting of 150 MW and 150 MWh
- Stage 3 consisting of 200 MW and up to 1700 MWh targeting construction in 2025 with storage capacity being added in response to the needs of the National Energy Market (NEM).

The construction of each Battery stage is anticipated to take up to 12 months consisting of the civil works component, a mechanical and structural component, electrical works and testing and commissioning. Stage 3 may be further divided into smaller stages subject to market demand which are likely to be delivered on a progressive basis.

The Decoupling works are proposed to be undertaken prior to 2024 to facilitate the planned closure and decommissioning of Liddell. Decoupling works are anticipated to take up to 12 months.

The BAW component would be undertaken at any time up to the planned retirement of Bayswater.





## Legend

Project area:

- Bayswater Ancillary Works
- Battery energy storage system
- Decoupling area
- Consolidated consent
- AGL owned land

- Railway
- Road
- Waterway
- Waterbody

0 2 4km

1:90,000 at A4



**Figure 2-1** Project overview

## Data sources

Jacobs 2021  
AGL 2020  
©Department of Finance,  
Service and Innovation Aug 2020

Imagery:  
© Department of Customer Service 2020

GDA94 MGA56





### 3. Contextual Analysis

#### 3.1 Site Context

The Project is located within the AGLM landholding, accessed from the New England Highway (A15) approximately 15 kilometres (km) south-east of Muswellbrook, 25 km north-west of Singleton and approximately 165 km north-west of Sydney (refer to **Figure 3-1**). The total area of the AGLM landholding is approximately 10,000 hectares (ha), including Bayswater and Liddell operational areas, the Ravensworth rehabilitation area, Lake Liddell and surrounding buffer lands.

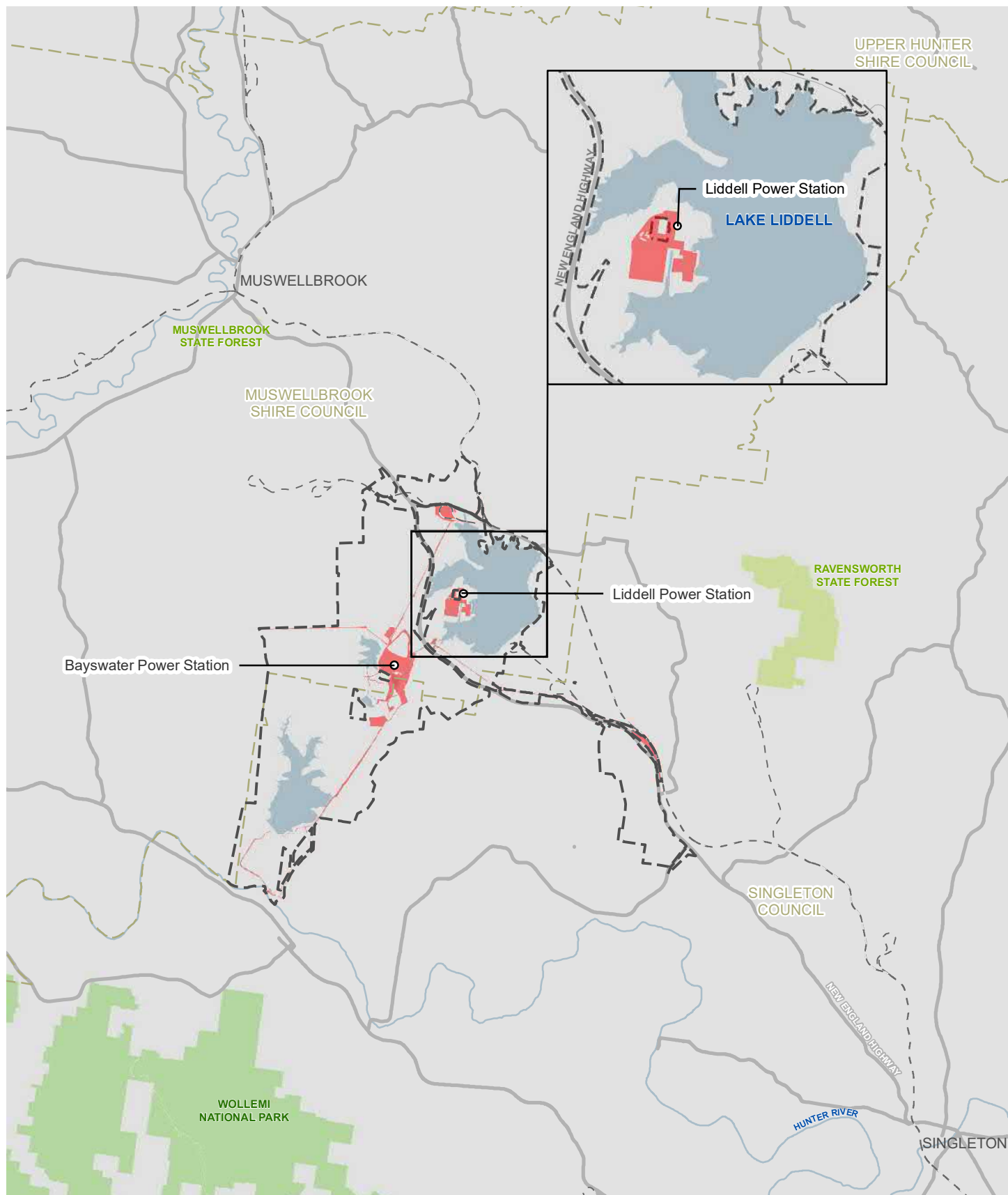
The Battery and Decoupling components would generally be undertaken in close proximity to Liddell and are targeting the use of previously disturbed operational lands no longer required for Liddell operations. The BAW would occur throughout the AGLM landholding and is located in close proximity to existing infrastructure where prior disturbance has typically occurred.

The Project is located within an area dominated by mining and power generation. The landscape local to Liddell and Bayswater is heavily influenced by industrial activity. Local land use is dominated by large-scale infrastructure associated with Bayswater and Liddell and open cut mining activities at Ravensworth Mine Complex, Mount Arthur Coal, Hunter Valley Operations, Liddell Coal Mine and the former Drayton Mine. Agricultural clearing for the purposes of grazing is also present within and surrounding the AGLM landholding.

There are limited sensitive receivers or social infrastructure in the locality of the Project. The closest social infrastructure is the Lake Liddell Recreation Area approximately 2 km north of the Battery and Decoupling areas across Lake Liddell. The nearest residential receiver is the Lake Liddell Recreation Area's owner's residence, located approximately 2.5 km north of the Battery and Decoupling areas. While the nearest sensitive receiver to BAW footprint is along at Jerrys Plains, approximately 700 metres (m) to the south of the Project.

Relevant contextual features of note include:

- Lake Liddell Recreation Area is located approximately 2 km north-east of the site, fronting the northern shores of Lake Liddell. The Recreation Area currently operates as a camping and recreation ground suitable for caravans and tents and offers panoramic views across the lake
- Public access onto Lake Liddell is currently not permitted
- There are a number of mining sites in the area, typically to the northwest and southeast of the site. The Main Northern Railway Line lies to the north-east of the site connecting the mines to the regional freight rail network and also carries passenger trains between Muswellbrook and Newcastle
- The area features a local road network that connects to the New England Highway (A15) which broadly follows a northwest to southeast alignment and passing between Bayswater and Liddell
- No residential properties or dwellings have been identified nearby the site or within close proximity to the site. The townships of Muswellbrook to the north-west and Singleton Heights to the south-east would be the closest residential areas to the site.



## Legend

- Project area
- State forest
- National park
- AGL owned land
- LGA boundary
- Railway
- Road
- Waterway
- Waterbody

0 5 10 km  
1:200,000 at A4



## Data sources

Jacobs 2020  
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AGL 2019  
GDA94 MGA56

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**Figure 3 - 1** Project location

### 3.2 Planning Context

The Battery and Decoupling components of the Project are located entirely within the Muswellbrook Shire Council Local Government Area (LGA).

The site is zoned SP2: Infrastructure under the *Muswellbrook Local Environmental Plan 2009 (Muswellbrook LEP)*. The objectives of the SP2 zone are:

- To provide for infrastructure and related uses
- To prevent development that is not compatible with or that may detract from the provision of infrastructure
- To recognise existing railway land and to enable future development for railway and associated purposes
- To prohibit advertising hoardings on railway land
- To recognise major roads and to enable future development and expansion of major road networks and associated purposes
- To recognise existing land and to enable future development for utility undertakings and associated purposes.

Any development type not listed as “permitted without consent” and “prohibited” are considered development that is permitted with consent. The Project purpose being for the development of electricity generation works is accordingly an activity that is permissible with development consent under the Muswellbrook LEP.

The Project is considered compatible with the objectives of the SP2 zone.

The BAW component of the Project is predominantly within the Singleton LGA, and some approvals to be surrendered and consolidated apply to land in the Singleton LGA.

The land within the Singleton LGA is zoned as RU1: Primary Production. The objectives of the RU1 zone are:

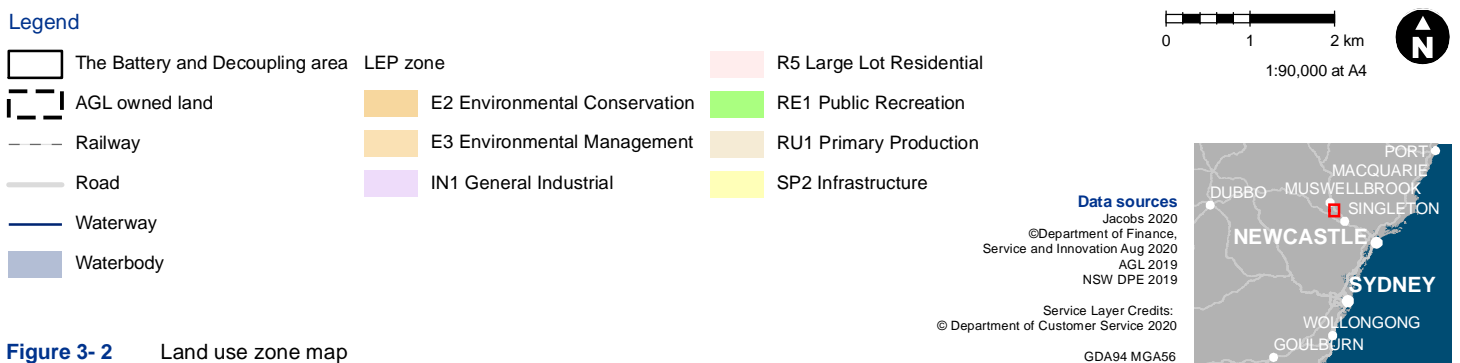
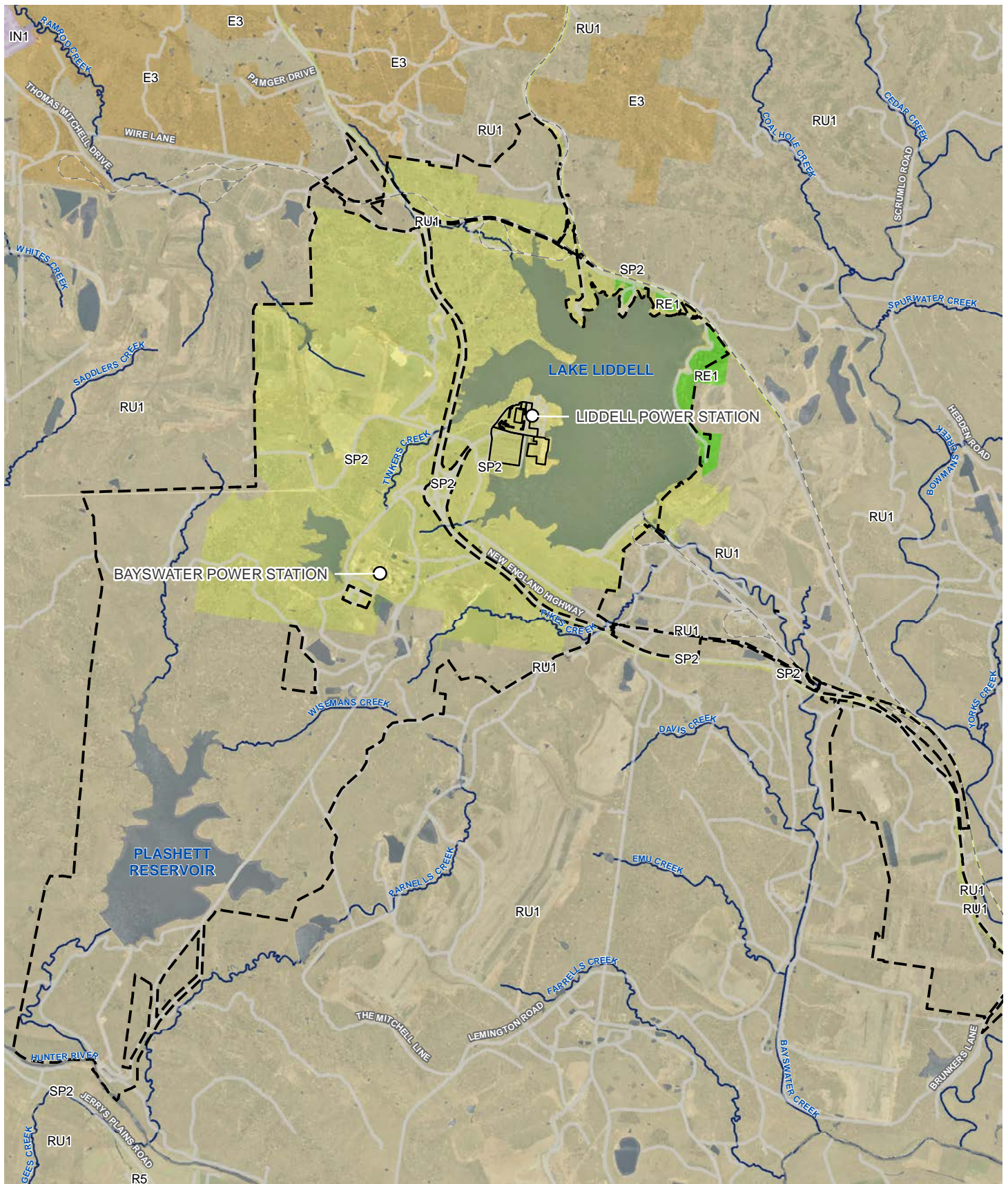
- To encourage sustainable primary industry production by maintaining and enhancing the natural resource base
- To encourage diversity in primary industry enterprises and systems appropriate for the area
- To minimise the fragmentation and alienation of resource lands
- To minimise conflict between land uses within this zone and land uses within adjoining zones.

Electricity generation, and associated infrastructure for the purposes of electricity generation, are not listed as permissible with or without consent under the zone and would therefore be prohibited under the provisions of Singleton LEP. However, under clause 34 of *State Environmental Planning Policy (Infrastructure) 2007 (ISEPP)*, development for the purpose of electricity generating works may be carried out by any person with consent on any land in a prescribed rural, industrial or special use zone. Land which is zoned RU1 - Primary Production is a prescribed rural zone for the purposes of clause 34 of ISEPP. Accordingly, the Project is permissible.

The Project is compatible with the objectives of the RU1 zone and would not restrict the future use of the site following closure of Liddell and Bayswater for permissible purposes under the LEP.

Refer to **Figure 3-2** for the land use context of the Project.





### 3.3 Visual Context

The Battery and Decoupling works would be located on north-facing land within Liddell, facing the western arm of Lake Liddell. Battery and Decoupling works are located to the east of the New England Highway, with Bayswater located on the opposite side of the highway.

Lake Liddell is an artificial water body and surrounds Liddell operation areas to the north, east, and south. The lake is a local landmark with a small recreation area for camping and caravanning on the northern shore. There are a number of open cut coal mines in the locality to the east, south, and west of the lake.

The site comprises land immediately adjacent to Liddell turbine hall and TransGrid switchyard. This area is not visually prominent within the landscape due to mature trees that heavily filter intervisibility and existing power-related infrastructure surrounding the site.

A number of images from publicly accessible areas have been included to illustrate the visual context of the Battery and Decoupling works. The area to the east of the lake is generally inaccessible to the public with any publicly accessible views towards the site obstructed by intervening undulating landform.

**Figure 3-3** shows the location of each image. The images shown are:

- **Image 3-1:** Location A – Looking south from Hebden Road into the Lake Liddell Recreation Area
- **Image 3-2:** Location B – Looking south from Hebden Road towards the site
- **Image 3-3:** Location C – Extractive industry located to the south-east of the site.

The location of the Battery and Decoupling works would be at ground level below the two cooling towers that can be discerned from locations B and C.





Figure 3-3: Visual context image locations



Image 3-1: Location A – Looking south from Hebden Road into the Lake Liddell Recreation Area



Image 3-2: Location B – Looking south from Hebden Road towards the site





Image 3-3: Location C – Extractive industry located to the south-east of the site

## 4. Visual Impact Assessment

### 4.1 Introduction

When considering the predicted effect of changes upon views/ visual receptors, the sensitivity of the view to change is combined with the magnitude of the change to give an overall judgement of significance of impact supported by analysis of evidence and professional judgement. The *Guideline for landscape character and visual impact assessment* (Transport for NSW, 2020) is regarded as best practice for visual impact assessments within NSW and provides the following definitions:

**Sensitivity** refers to the qualities of an area, the number and type of receivers and how sensitive the existing character of the setting is to the proposed nature of change. For example, a pristine natural environment is likely to be more sensitive to a change of the nature of a four-lane motorway than a built-up industrial area.

**Magnitude** refers to the physical scale of the project, how distant it is and the contrast it presents to the existing condition. For example, a large interchange would have a very different impact on landscape character than a localised road widening in the same area.

Table 4-1 is taken from the Transport for NSW (TfNSW) guidelines and has been used to rank the criteria above and provide an overall impact assessment as a conclusion to this assessment. The assessment should also include a description to support the degree of sensitivity and magnitude assigned by the assessor.

**Table 4-1: Impact assessment rating matrix**

SENSITIVITY	MAGNITUDE				
		High	Moderate	Low	Negligible
	High	High	Moderate/High	Moderate	Negligible
	Moderate	Moderate/High	Moderate	Moderate/Low	Negligible
	Low	Moderate	Moderate/Low	Low	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

### 4.2 Sensitivity, Magnitude and Impact

The sensitivity to change within the selected views is evaluated using the criteria set out below:

- **High** - Views and/ or receptors from or within areas of recognised national or local importance for their landscape value. Residential areas and occupied properties afforded existing, attractive views. Recreational users of footpaths including walkers and riders. Recreational road users. Visual receptors that are likely to contemplate, spend long periods of time and focus on particular views and, through the position of the receptor relative to the development have the capacity to experience the view.
- **Moderate** - Recreational users of the landscape that are site or activity focussed (i.e. hunting, shooting, nature conservation, golf, etc.) and outdoor workers where time to appreciate the view is limited. Visual receptors whose attention is likely to be focussed on their work or activity rather than the wider view.
- **Low** - Travellers and people at their place of work or users of indoor facilities. Visual receptors where exposure to the view is short-term and whose attention is likely to be focussed on their work or activity

within an indoor environment. Receptors that are less sensitive to the type of changes to the pre-development view that would result from the Project.

- **Negligible** - Views from areas of low landscape quality/value within which visual receptors would not value the view. Travellers and people at their place of work where exposure to/appreciation of the view would be short-term and likely screened / heavily filtered. Receptors that are less sensitive to the type of changes to the predevelopment view that would result from the Project.

The magnitude of change upon views resulting from the project is evaluated using the criteria set out below:

- **High** - Complete or very substantial adverse change in view: change very prominent involving complete or very substantial obstruction of existing view or complete change in character and composition of baseline i.e. predevelopment view through removal of key elements or addition of uncharacteristic elements.
- **Moderate** - Partial obstruction of existing view or partial change in character and composition of pre-development view through the introduction of new elements or removal of existing elements. Change may be prominent but not substantially different in scale and character from the surroundings and the wider setting. Composition of the view will alter. View character may be partially changed through the introduction of features which, though uncharacteristic, may not be visually discordant.
- **Low** - Minor adverse change in baseline i.e. predevelopment view – change will be distinguishable from the surroundings whilst composition and character (although altered) will be similar to the pre-change circumstances.
- **Negligible** - Very slight change in baseline i.e. predevelopment view – change barely distinguishable from the surroundings. Composition and character of view substantially unaltered.

### 4.3 Visual impact mechanisms

The Battery and Decoupling components have the potential to introduce a change within the landscape that may be visible from publicly accessible locations. This would include the installation of extensive areas of containerised batteries, electrical infrastructure and overhead powerlines. The Battery and Decoupling works would be installed within an area dominated by existing, larger energy generation and transmission infrastructure but does introduce new components with visual implications.

The BAW components of the Project are limited to areas of existing Bayswater infrastructure and may include upgrades to ancillary infrastructure such as pumps, pipelines, conveyor systems, roads and assets to enable maintenance, repairs, replacement, upgrades, expansion and/or removal. Potential visual impacts for components that form part of the current application include:

- MA1B Conveyor shortening which would result in the removal of redundant coal conveyor and rehabilitation of footprint with improved visual outcomes that are unlikely to be visible off site
- Various environmental improvement projects limited to minor bunding works around existing assets that would not be visible off-site
- Brine concentrator return water pipeline involving a small diameter pipe installed at ground level adjacent to an existing pipeline that would not be visible off-site
- Chemical storage tank upgrades involving the replacement of two current tanks with two slightly larger tanks at the Lime Softening Plant that would not be noticeable from off site
- Ancillary infrastructure upgrades limited in scale to that of existing infrastructure which would not be noticeable from off-site
- Waste storage area formalisation involving environmental controls such as bunding, runoff management and roofing located between Bayswater operational area and coal yards and not visible from off-site
- Cultural heritage storage area involving the installation of a small building within the Bayswater operational area not visible from off-site



- Contractor area formalisation involving upgrades to the current informal contractor area established between Bayswater turbine hall and coal handling yards including electrical works, earthworks, drainage improvements and establishment of carparks and offices for use during maintenance shutdowns that would not be visible from off-site
- Administration building and social club refurbishment involving internal works with no visual impacts
- River road refurbishment involving the replacement of road surface only with no visual impacts
- Emergency power system upgrade involving the installation of replacement diesel generators immediately adjacent to Bayswater turbine hall that would not be noticeable from off-site.

Other works under the BAW component include ongoing clearing and maintenance of existing assets that would not result in changed visual outcomes. This is particularly the case for pumping and water transfer assets to the south of the landholding which are the only works within 2 km of residential dwellings or residentially zoned land.

The visual impacts of the BAW are negligible as limited views exist and the composition and character of views of Bayswater and its ancillary infrastructure would be substantially unaltered.

The remainder of this visual impact assessment focusses on the Battery and Decoupling components of the Project, on the basis that the BAW is considered highly unlikely to be noticeable and is mostly not visible off-site.

#### 4.4 Viewshed

The viewshed comprises the area from within which the Project site would likely be visible. The extent of the viewshed is influenced by a combination of factors including elevation, landform and vegetation. The diagram below illustrates the area from which the Battery and Decoupling works may be visible.

The Project has the potential to involve localised modification to landform levels using a combination of cut and fill and introduces new structures however it is considered that the nature of the works would not significantly alter the vertical prominence of the site within the landscape. The viewshed has been computer generated using the visibility of an area 5 m in height above the existing ground level extending across the Battery and Decoupling footprint to reflect a “worst-case” scenario and allow for flexibility in the location that will undergo change. It is noted that while some components such as the transformers may exceed the 5 m height used to calculate the viewshed, this is limited and would be located such that impacts to viewpoints would be immaterial.

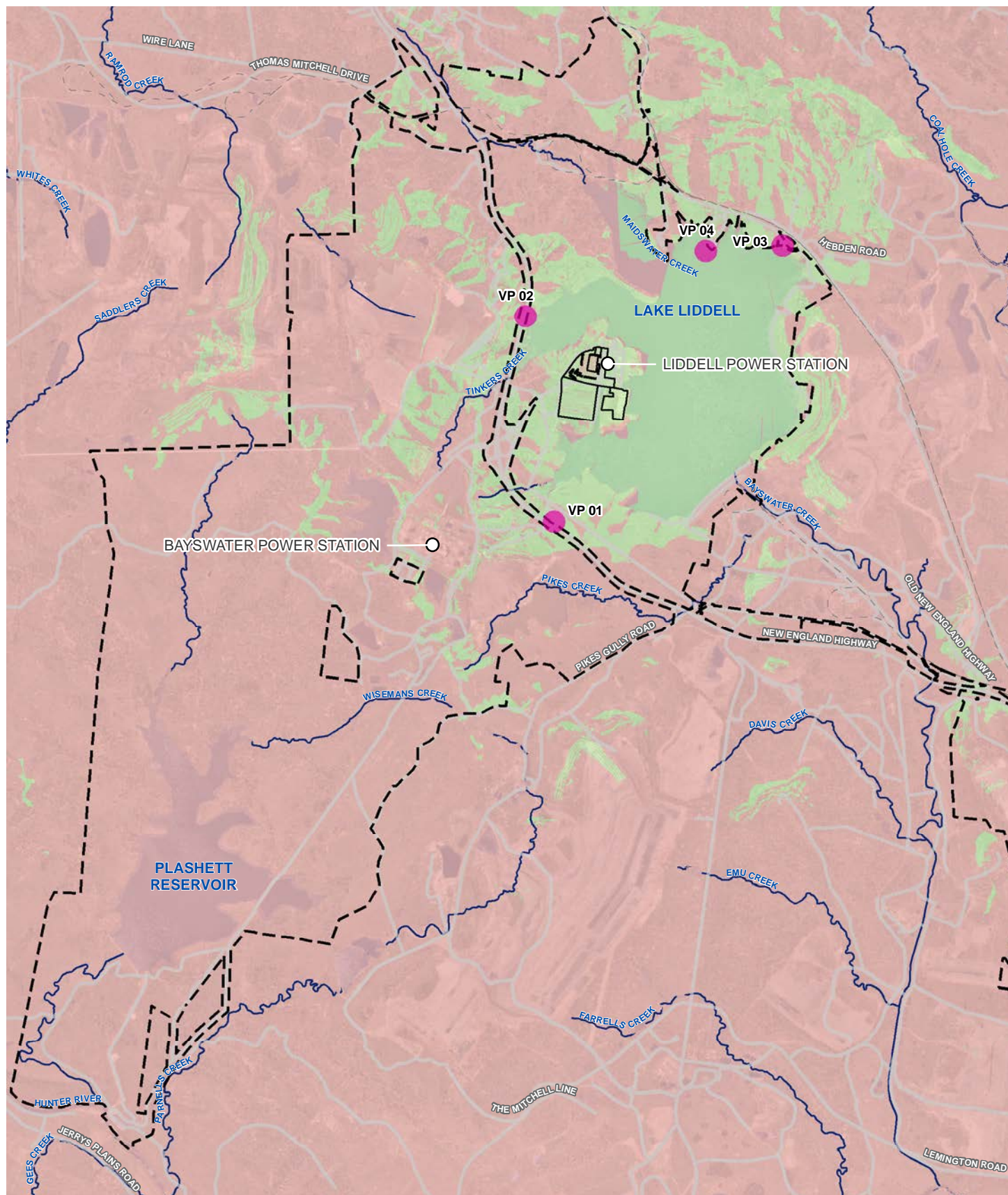
As illustrated by the area coloured green in **Figure 4-1**, the Project site does not appear as being visually prominent from publicly accessible areas within the immediate locality. Filtered views towards the site are available from a section of the New England Highway to the west and Hebden Road to the north-east, filtered by intervening vegetation and power infrastructure. The site is visible from various points along these transient routes where potential viewers are likely to be travelling at speed and would be unlikely to notice the addition of the proposed change to the existing power station.

The Project area is not visible from residential properties and is filtered in views from Lake Liddell Recreation Area. There are no publicly accessible areas to the east of the site which would view the site.

#### 4.5 Viewpoints

Four representative viewpoints from publicly accessible locations (refer to **Figure 4-2**) have been selected from within the viewshed to illustrate both the existing view and the potential visual impacts of the Project.

- **VP01** – Looking north from New England Highway
- **VP02** – Looking south from New England Highway
- **VP03** – Looking south-west from Hebden Road
- **VP04** – Looking south-west from Lake Liddell Recreation Area.



## Legend

The Battery and Decoupling area

AGL owned land

Visual impact assessment

Areas not visible from battery/decoupling area boundary

Areas visible from battery/decoupling area boundary

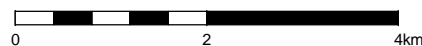
Viewpoint

Railway

Road

Waterway

Waterbody



1:79,000 at A4



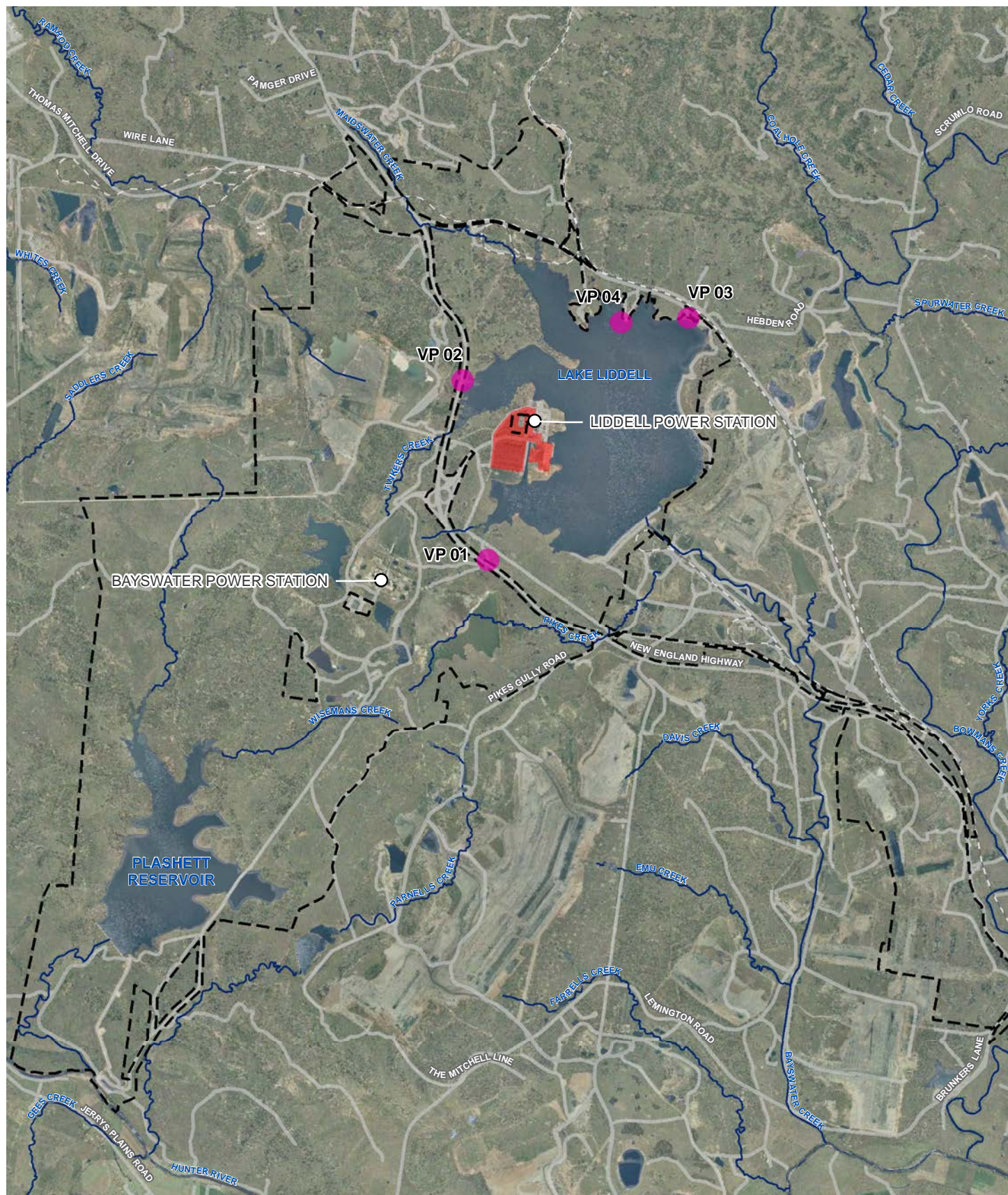
**Figure 4-1**

Viewshed diagram

**Data sources**  
 Jacobs 2020  
 © Department Finance,  
 Services and Innovation 2019  
 AGL 2019  
 Geoscience Australia 2020  
 Service Layer Credits:  
 © Department of Customer Service 2020  
 GDA94 MGA56







## Legend

Project area

The Battery and Decoupling area

AGL owned land

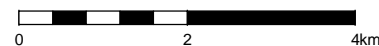
Viewpoint

Railway

Road

Waterway

Waterbody



1:90,000 at A4



## Data sources

Jacobs 2020  
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AGL 2019

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**Figure 4 - 2** Viewpoint location plan



## 4.6 Viewpoint Analysis

### 4.6.1 Viewpoint 01 – Looking north from New England Highway

#### Description

This view looks north across Chilcotts Gully towards the site, refer to Image 4-1. The landform is below this elevated section of the highway as it passes over dirt roads that connect the power stations and other infrastructure in the locality. The site is partially visible beyond the trees to the right of the view, set amongst the existing power station infrastructure.



Image 4-1 View from viewpoint 01

#### Sensitivity

The sensitivity of the view is low. Viewers in this location would be moving either by bicycle or within a vehicle where views would be brief and glimpsed at speed. The distance between the view and site would reduce the visibility of the proposed changes and the scale of the change would likely not be dominant within the view.

#### Magnitude

The magnitude of change is negligible within this view. The visible changes would likely be minimal from this location given the visual screening provided by the existing power infrastructure surrounding the site and the intervening vegetation. The composition and character of the existing view would remain substantially unaltered following the proposed change.

#### Summary

The impact of the Project on VP01 has been assessed as negligible.

#### 4.6.2 Viewpoint 02 – Looking south from New England Highway

##### Description

The view looks south from the New England Highway towards Liddell across areas of open grassland and mature trees as shown in **Image 4-2**. The view also features highway infrastructure, and high voltage power lines running parallel with the road corridor. Both Liddell and Bayswater are visible on the horizon and views towards their chimneys and infrastructure above the tree line are characteristic of the area. This view would typically be experienced from vehicles or by cyclists travelling at speed along the highway.



Image 4-2: View from viewpoint 02

##### Sensitivity

The sensitivity of the view is low. Viewers in this location would be travelling either by bicycle or within a vehicle where views would be brief, filtered by highway vegetation and glimpsed at speed. The distance between the viewer and site would reduce the visibility of the proposed changes and the scale of the change would likely not be dominant within the view in the context of the surrounding existing power infrastructure.

##### Magnitude

The magnitude of change is negligible within this view. The proposed changes would likely be visible above the existing vegetation on the horizon but would be seen in the context of the existing power station and would not exceed the height of any elements within the existing infrastructure. The composition and character of the existing view would remain substantially unaltered following the proposed change.

##### Summary

The impact of the Project on VP02 has been assessed as negligible.

#### 4.6.3 Viewpoint 03 – Looking south-west from Hebden Road

##### Description

This broad view looks south-west towards the site from Hebden Road, a minor road that connects the New England Highway to the Lake Liddell Recreational Area, refer to **Image 4-3**. This view looks across Lake Liddell



towards the power station and site. This view would typically be experienced by vehicles or cyclists traveling at speed along the road however the attractiveness of the lake as a recreational area may result in travellers slowing to appreciate the view. It should be noted that there are no stopping places along this section of the road. The view may also be representative of travellers on the Main Northern Railway between Newcastle and Muswellbrook.



Image 4-3: View from viewpoint 03

### Sensitivity

The sensitivity of the view is low. Viewers in this location would be moving either by bicycle or within a vehicle or train where views would be brief and glimpsed at speed. The distance between the view and site would reduce the visibility of the proposed changes.

### Magnitude

The magnitude of change is negligible within this view as the visible changes would likely be adjacent to or located amongst the existing power infrastructure surrounding the site and would be barely distinguishable from their surroundings. The distance between the viewer and the power station result in the composition and character of the existing view remaining substantially unaltered following the proposed change.

### Summary

The impact of the Project on VP03 has been assessed as negligible.

#### 4.6.4 Viewpoint 04 – Looking south-west from Lake Liddell Recreation Area

### Description

This view looks south-west from Lake Liddell Recreation Area across Lake Liddell towards the site and power station, refer to **Image 4-4**. The Recreation Area is accessed from Hebden Road on land that gently slopes down towards the lake. The land has open access to the shore of the lake and is used as a caravan and camping ground

featuring open grassland and scattered mature trees. Liddell is a notable feature on the opposite side of the lake within panoramic views with minor screening of built form provided by mature trees along the far shore.



Image 4-4: View from viewpoint 04

### **Sensitivity**

The sensitivity of the view is high due to use of the viewpoint for recreational and tourism purposes and where visitors are likely to contemplate, spend long periods of time and focus on particular views. Viewers at this location would likely be static on camping pitches as well as undertaking leisure activities within the Recreation Area. It should be noted that the lake is not currently accessible. The mature vegetation within the Recreation Area would partially filter views.

Viewers from this location are unlikely to solely focus on the view of the power station across the landscape given the panoramic views available across the lake.

### **Magnitude**

The magnitude of change is considered to be negligible within this view. The visible changes would likely be indistinguishable and would be seen within the context of the existing power infrastructure from this viewpoint and the composition and character of view would be substantially unaltered.

### **Summary**

The impact of the Project on VP04 has been assessed as negligible.

## **4.7 Visual Impact Assessment Summary**

The assessment reveals the visibility of the Project as being relatively limited from publicly accessible areas within the locality with existing vegetation within the power station and the presence of other significant infrastructure adjacent to the site.

Four viewpoints were selected from areas surrounding the site. All four views would experience negligible impacts due to the distance over which the change would be viewed, the presence of intervening vegetation and the adjacent/ surrounding power-related built form/ infrastructure within the view.



A summary of the visual impact assessment is provided in Table 4-2.

Mitigation strategies relating to the Project site are described in Section 5.

Table 4-2 Summary of visual impact assessment

Viewpoint	Sensitivity	Magnitude	Rating
VP 01	Low	Negligible	Negligible
VP 02	Low	Negligible	Negligible
VP 03	Low	Negligible	Negligible
VP 04	High	Negligible	Negligible

## 4.8 Changing land use context

It is noted that the Project would be operational beyond the end of life of Liddell and occur within a changing land use context. At this stage a future land use has not been confirmed however the current land use zoning, and the draft *Muswellbrook Local Strategic Planning Statement 2018-2038* envisage the ongoing use of the AGLM landholding for energy generation purposes (Muswellbrook Shire Council, 2018).

The Battery and Decoupling works are generally low laying, containerised infrastructure established in a formalised layout, as shown in Figure 4-3. Such a layout is unlikely to be detrimental from a visual perspective for likely future land uses of the site. In the event that more visually sensitive land uses are proposed the low-lying nature of the infrastructure can be readily screened with mitigation planting.



Figure 4-3 Indicative Battery layout

## 5. Mitigation Measures

AGLM will seek to minimise disturbance associated with the Project, for example by retaining existing mature vegetation and limiting areas of disturbance where possible in order to limit the overall environmental impact of the Project. This would have the effect of also mitigating any visual impacts of the Project.

The following recommendations would be considered for the Project:

- Retention and enhancement of existing landscape features (areas of scrub, individual trees) will be considered where feasible
- Limit the area of disturbance during construction where possible
- Mitigation tree and shrub planting will be considered to visually integrate the Project within the surrounding landscape
- Colour of proposed structures and built form will be considered in a suitable muted palette to visually integrate the Project within the landscape where possible
- Where possible consider minimal use of reflective surfaces to avoid drawing attention to the site within views due to reflective glare.

## **6. References**

Muswellbrook Shire Council. (2018). *Muswellbrook Local Strategic Planning 2018-2038 Draft*.

Transport for NSW. (2020). *Guideline for landscape character and visual impact assessment*.