# Liddell battery and Bayswater Ancillary Works Project

## Environmental Impact Statement

## Response to submissions

July 2021

**AGL Macquarie Pty Limited**

## Contents

# Glossary of terms and abbreviations

| Terms and abbreviations | Definition |
|---|---|
| ACHAR | Aboriginal Cultural Heritage Assessment Report |
| AGL | AGL Energy Limited |
| AGLM | AGL Macquarie Pty Limited |
| APZ | Asset Protection Zone |
| BAM | Biodiversity Assessment Method |
| BAW | Bayswater Ancillary Works |
| BCD | Hunter Central Coast Branch of the Biodiversity and Conservation Division |
| BDAR | Biodiversity Development Assessment Report |
| BESS | Battery energy storage solution |
| CEMP | Construction Environmental Management Plan |
| CHMP | Cultural Heritage Management Plan |
| CTMP | Construction Traffic Management Plan |
| CVA | Cultural Values Assessment |
| DCP | Development Control Plan |
| DPI Agriculture | Department of primary industries – Agriculture |
| DPIE | NSW Department of Planning, Industry and Environment |
| DRAINS model | A Stormwater Drainage System design and analysis program |
| EIS | Environmental Impact Statement |
| EMF | Electromagnetic fields |
| EPA | Environment Protection Authority |
| EPBC Act | *Environment Protection and Biodiversity Conservation Act 1999* |
| EPL | Environment Protection Licence |
| FHA | Final Hazard Analysis |
| FMP | Fire Management Plan |
| FRNSW | Fire and Rescue NSW |
| FSS | Fire Safety Study |
| GHG | Greenhouse gas |
| GIS | Geographic Information System |
| Heritage NSW – ACH | Heritage NSW – Aboriginal Cultural Heritage |
| HIPAP | Hazardous Industry Planning Advisory Paper |

| Terms and abbreviations | Definition |
|---|---|
| HNSW | Heritage NSW |
| ICNG | Interim Construction Noise Guideline (DECC 2009) |
| ICNIRP | International Commission on Non-Ionizing Radiation Protection |
| ISP | Integrated System Plan (AEMO 2020) |
| LFP | Lithium Iron Phosphate battery |
| LGA | Local Government Area |
| MEG | Geological Survey of NSW – Mining, Exploration and Geoscience |
| Minister | NSW Minister for Planning and Public Spaces |
| MSC | Muswellbrook Shire Council |
| MSD | Mine Subsidence District |
| MUSIC | Model for Urban Stormwater Improvement Conceptualisation |
| NEM | National Energy Market |
| NMC | Nickel Manganese Chloride battery |
| NRAR | Natural Resources Access Regulator |
| NSW | New South Wales |
| OSOM | Over-sized over-mass |
| PCT | Plant community type |
| PHA | Preliminary Hazard Analysis |
| PPE | Personal protective equipment |
| RAP | Registered Aboriginal Party |
| RER | Recycling Efficiency Rate |
| RFS | NSW Rural Fire Service |
| RTS | Response to Submissions |
| SEPP SRD | State Environmental Planning Policy (State and Regional Development) 2011 |
| SHR | State Heritage Register |
| SSD | State Significant Development |
| VPA | Voluntary Planning Agreement |
| WOAOW | Bayswater Water and Other Associated Operational Works Project |

# Executive Summary

AGL Macquarie Pty Limited (**AGLM**) owns and operates the Bayswater Power Station (**Bayswater**) Liddell Power Station (**Liddell**), MW Hunter Valley Gas Turbines and associated ancillary infrastructure systems.

AGLM is seeking approval for the Liddell Battery and Bayswater Ancillary Works Project (**the Project**). The Project is a State Significant Development (**SSD**) under the *State Environmental Planning Policy (State and Regional Development) 2011* (**SEPP SRD**) and 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**).

The EIS was placed on public exhibition for a period of 28 days, between 15 April 2021 to 12 May 2021. During the exhibition period, the general public, organisations and government agencies were invited to make submissions.

A total of 17 submissions were received during the public exhibition period, including 14 from public authorities, one from an organisation, and two from the general public. Of the 17 submissions, 16 submissions provided comments and one submission objected to the Project.

This Submissions Report addresses the requirement to consider and respond to all submissions received. The RTS report also describes minor clarification of the Project description, amendments to proposed mitigation measures and provides additional information to address submissions.

In response to the submission received, the Aboriginal Cultural Heritage Assessment Report (**ACHAR**) and Biodiversity Development Assessment Report (**BDAR**) have been updated. The updated ACHAR was issued to the Registered Aboriginal Parties (**RAPs**) for review on the 10 June 2021. Updates to the ACHAR have been made as a result of comments received from the RAPs.

# 1. Introduction

This section provides an overview of the Liddell Battery and Bayswater Ancillary Works Project (**the Project**) as described in the Environmental Impact Statement (**EIS**) and a summary of the assessment that has been carried out to date.

## 1.1 Background

AGL Macquarie Pty Limited (**AGLM**) owns and operates the Bayswater Power Station (**Bayswater**), Liddell Power Station (**Liddell**), the Hunter Valley Gas Turbines and associated ancillary infrastructure systems. Together, Bayswater, Liddell and the Hunter Valley Gas Turbines operate to produce around 23,000 gigawatt hours (**GWh**) annually, or approximately 35 percent (**%**) of New South Wales (**NSW**) electricity supply. AGL Energy Limited (**AGL**) acquired these assets, from the NSW Government in September 2014 and in doing so formed the subsidiary AGLM.

AGL has publicly announced its intention to transition towards a low-carbon future and respond to the National Energy Market (**NEM**) and customer requirements. Liddell is approaching its end of life and is scheduled for closure in 2023. Bayswater would continue to be operated through to 2035 to support the transition of the NEM toward net-zero emissions and then is intended to be retired. AGL has committed to closing all coal fired generation assets in its portfolio by 2050. As such, AGLM are now progressing an application to facilitate the efficient, safe and reliable continuation of electricity generating works from the Bayswater and Liddell site (**AGLM landholding**). As such AGLM propose to construct and operate a Battery Energy Storage System, decouple Liddell and Bayswater power stations and carry out ancillary works. This would help to facilitate the improved safety, reliability, efficiency and environmental performance of Bayswater Power Station.

The Project is located on AGLM Landholding located approximately 15 kilometres (**km**) south-east of Muswellbrook, 25 km north-west of Singleton, and approximately 165 km west north west of Sydney.

Further information on the Project's background, location, approval requirements, strategic need, options and alternatives are provided in Chapters 1 to 5 of the EIS. The results of the assessment of the potential impacts of the Project during construction and operation are described in Chapters 7 of the EIS.

Once operational, the Project would benefit communities, businesses and industry by increasing the reliability in the NEM, as well as supporting the transition to a low carbon energy future. The key benefits of the Battery are in providing energy storage and firming capacity to enable the transition from thermal generation to a renewable future. The key benefits of the remainder of the Project is in facilitating the ongoing operation of Bayswater which has been identified as a critical component of NSW's energy future until its planned retirement in 2035.

## 1.2 Assessment process

The Project is classified as State significant development (**SSD**) under the *State Environmental Planning Policy (State and Regional Development) 2011* (**SEPP SRD**) and requires consent from the NSW Minister for Planning and Public Spaces (Minister) under Part 4 Division 4.7 of the *Environmental Planning and Assessment Act 1979* (**EP&A Act**). An EIS was prepared by Jacobs to support the application and carry out environmental assessment for the Project. The EIS was submitted to the Department of Planning, Industry and Environment (**DPIE**) and, in accordance with the EP&A Act and *Environmental Planning and Assessment Regulation 2000* (**EP&A Regulation**), placed on public exhibition for a period of 28 days, between 15 April 2021 and 12 May 2021. During the exhibition period, the general public, organisations and government agencies were invited to make submissions and could access the EIS via the DPIE Major Projects website: https://www.planningportal.nsw.gov.au/major-projects/project/39631.

A total of 17 submissions were received during the public exhibition period, including 14 from public authorities, one from an organisation, and two from the general public. Of the 17 submissions, 16 submissions (94 percent (**%**)) provided comments and one submission (6 %) objected to the Project. A detailed analysis of matters raised in the submissions is set out in **Chapter 2**.

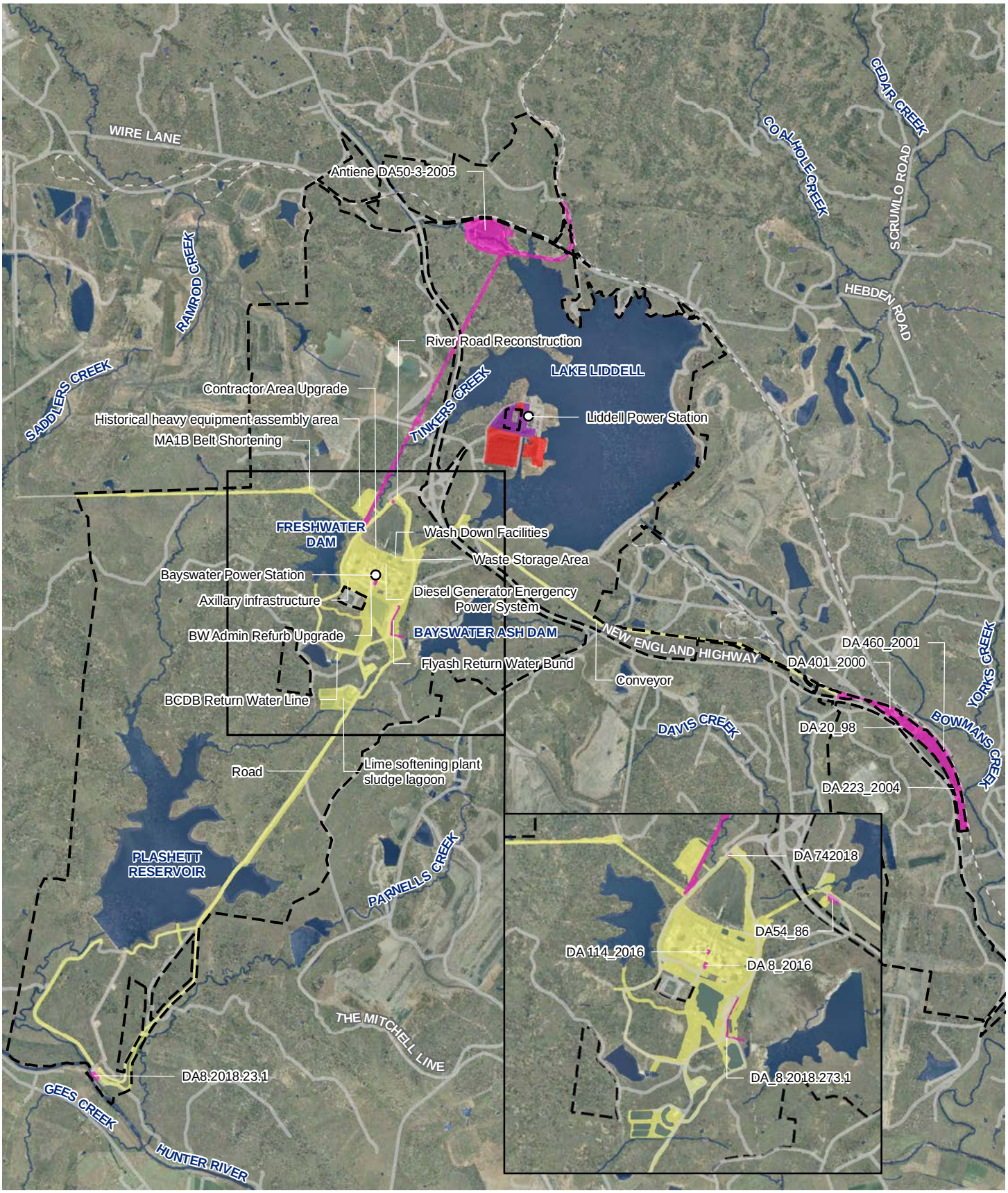
## 1.3 Key elements of the exhibited Project

AGLM are progressing plans to facilitate the efficient, safe and reliable continuation of electricity generating works from Bayswater and the Liddell site. The Project elements are shown on **Figure 1-1** and consist of the following:

- **Liddell Battery (the Battery)**: A grid connected Battery Energy Storage System with capacity of up to 500 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 potential third-party industrial energy users
- **Bayswater Ancillary Works** (**BAW**): Works associated with the ongoing operation of Bayswater which includes (but is not limited to), upgrades to ancillary infrastructure such as pumps, pipelines, conveyor systems, roads and assets to enable maintenance, repairs, replacement, expansion or demolition
- **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 works would likely involve as follows:

- Installation and maintenance of environmental controls including temporary and permanent water management infrastructure
- Establishment of access from the existing Liddell access roads
- Demolition or deconstruction of existing equipment as required
- 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 / 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.




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

N


**Data sources**
Jacobs 2021
AGL 2020
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Imagery:
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**Figure 1 - 1** Project overview as displayed in the EIS

## 1.4 Purpose of this report

The Planning Secretary of DPIE provided copies of the submissions received on the EIS to AGLM. In accordance with clause 82 of the EP&A Regulation, the Planning Secretary requested AGLM to provide a response to the issues raised in those submissions. This Submissions Report documents and considers the issues raised in community, government agency, organisation and other submissions received by DPIE during public exhibition of the EIS in accordance with the EP&A Act. AGLM has carefully considered the content of the submissions and has prepared responses to the issues raised, with the responses provided in this report.

This report has been prepared generally in accordance with the form and content requirements of *Preparing a Submissions Report – State Significant Development Guide Exhibition Draft* (DPIE 2020).

This report provides additional information and clarification in relation to some design features and information presented in the EIS. It also provides a summary of the results and outcomes of additional design work (Project refinements) and investigations undertaken since exhibition commenced.

The report also provides a final set of mitigation measures, which incorporates amendments made to respond to issues raised in submissions and/or take into account additional information and Project refinements.

The report is structured as follows:

- **Chapter 1: Introduction.** This chapter provides an overview of the Project as exhibited, a summary of the assessment process and provides an introduction to the Response to Submissions (**RTS**)
- **Chapter 2: Analysis of submissions.** This chapter provides an overview and analysis of the submissions received, including numbers, types of submitters and any key issues
- **Chapter 3: Action taken since exhibition.** This chapter describes the actions that were undertaken during and following the exhibition period, including stakeholder and community consultation, Project refinements, clarifications, any additional information and further environmental assessment
- **Chapter 4 Response to Submissions.** This chapter provides responses to the issues raised with updated mitigation measures for the Project
- **Chapter 5: Updated evaluation of Project.** This chapter provides an updated Project evaluation incorporating any relevant issues raised in submissions.

# 2. Analysis of submissions

This chapter provides a summary of the exhibition process and the submissions received during exhibition, including a breakdown of the types and numbers of submissions received and the key issues raised.

The receipt of submissions was coordinated and managed by the DPIE. Submissions were received and registered by the Department and uploaded onto the NSW major projects planning portal website (https://www.planningportal.nsw.gov.au/major-projects/project/39631) where they were allocated a submitter ID. Submissions were accepted by electronic online submission or post, and were forwarded to AGLM for review and consideration. **Appendix A** lists these submitter IDs and provides a reference to where the issues raised are responded to in this report.

## 2.1 Submissions received

The DPIE received 17 submissions in response to the EIS during the public exhibition period which were allocated to three categories as shown in **Table 2-1**. Of the 17 submissions, 16 submissions (94 percent (**%**)) provided comments and one submission (6 %) objected to the Project. No petitions or form letters were received.

**Table 2-1 Summary of submissions received**

| Source/type | Object | Support | Comment | Total |
|---|---|---|---|---|
| Community members – individual | 1 | 0 | 1 | 2 |
| Public authorities or local council | 0 | 0 | 14 | 14 |
| Organisation | 0 | 0 | 1 | 1 |
| **Total** | **1** | **0** | **16** | **17** |

As shown in **Table 2-1**, one organization and two community members (public) provided submissions with public authorities being the majority submitter type (82.3 %).

The only local submissions (those within either the Singleton or Muswellbrook Local Government Area (**LGA**)) were received from MSC. The other submissions were made by submitters located in non-local LGAs within NSW.

## 2.2 Analysis of submissions

All submissions received were collated and categorised based on who they were from, in accordance with the following submitter types:

- Public – individual
- Public authority
- Organisation.

Each submission was reviewed, summarised and categorised according to the issues raised. The analysis of submissions involved identifying the issues raised and categorising the issues into key issue (eg procedural matters) and sub-issue categories (eg assessment and approval). These categories and sub-categories were determined through consideration of key issues and topics raised and with respect to the *Preparing a Submissions Report – State Significant Development Guide Exhibition Draft* (DPIE 2020). The categories and subcategories identified through the review of key matters are provided in **Table 2-2**.

Due to the small number of submissions received, AGLM have chosen to respond to each submission individually as opposed to responding to each category, refer to **Chapter 4.**

Table 2-2 Themes identified to categorise submissions

| Issue type | Key issue categories |
|---|---|
| The Project | Design features |
| | Construction method |
| Procedural matters | Assessment and approval |
| Economic, environmental and social impacts of the Project (**Project impacts**) | Construction |
| | Operation |
| | Mitigation |
| | Other (such as acquisitions) |
| Project evaluation | Project need and justification |
| | Strategic context |
| | Costs and funding |
| Issues beyond the scope of the Project | Out of scope |

## 2.3 Overview of issues raised

### 2.3.1 Summary of matters raised

The frequency of categories raised in the submissions are summarised and shown comparatively in **Table 2-3.** As demonstrated, the key categories for which most submissions provided comment or objection were:

- Procedural matters (10 submissions).
- Project impacts (4 submissions).

A visual breakdown of the key issues raised by submissions is provided in **Figure 2-1**. As some of the submissions raised more than one issue, the number of issues identified is greater than the total number of submissions received.

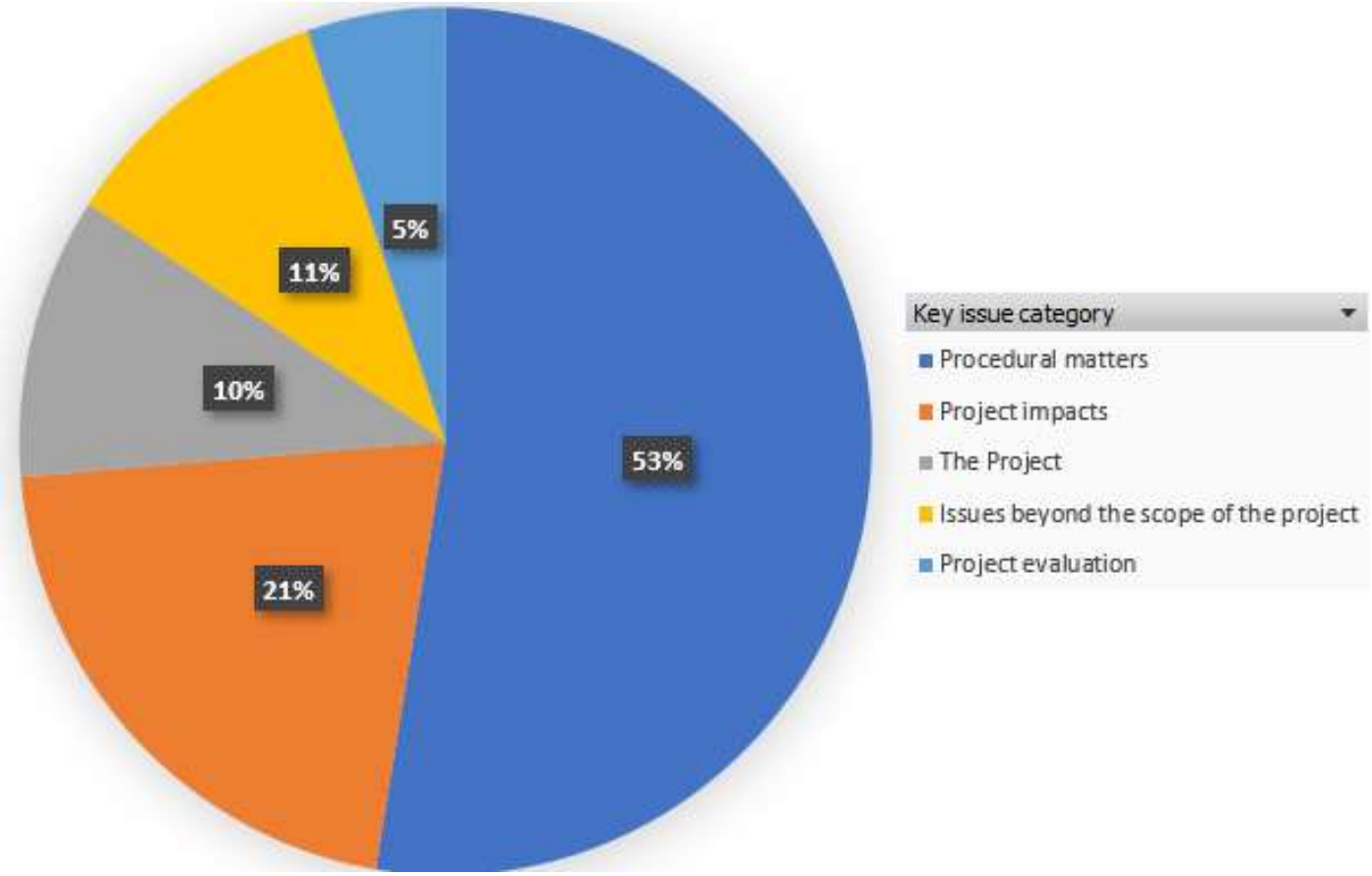


Figure 2-1 Breakdown of key issues categories

Table 2-3 Summary of key issues raised

| Key issue category | Sub-issue | Number of submissions identifying issue | Percentage of submissions identifying issue (%) |
|---|---|---|---|
| The Project | Design features | 1 | 5 |
| | Construction method | 1 | 5 |
| Procedural matters | Assessment and approval | 10 | 53 |
| Project impacts | Visual impacts | 1 | 5 |
| | Hazards | 1 | 5 |
| | Waste | 2 | 11 |
| Project evaluation | Costs and funding | 1 | 5 |

| Key issue category | Sub-issue | Number of submissions identifying issue | Percentage of submissions identifying issue (%) |
|---|---|---|---|
| Issues beyond the scope of the Project | Out of scope | 2 | 11 |

### 2.3.2 Key stakeholder submissions

Submitters classified as public authorities and organisations group by DPIE were considered to be 'key stakeholders' for the purposes of this report. Submissions were received from the following public authorities:

- Fire and Rescue NSW (**FRNSW**):
- Subsidence Advisory NSW (**SA NSW**)
- Crown Lands
- Heritage Council of NSW
- Department of Primary Industries (**DPI**) Agriculture
- Transport for NSW (**Transport**) (Identical submission documented under Department of Transport and Roads and Maritime Services Division)
- Hunter Central Coast Branch of the Biodiversity and Conservation Division (**BCD**)
- Environment Protection Authority (**EPA**)
- Geological Survey of NSW – Mining, Exploration and Geoscience (**MEG**)
- Heritage NSW – Aboriginal Cultural Heritage **(Heritage NSW – ACH**)
- NSW Rural Fire Service (**RFS**)
- Muswellbrook Shire Council (**MSC**)
- DPIE: Water
- TransGrid (organisation).

In addition, comments were also received from the DPIE Hazards Group. These comments are not technically counted as a submission as the comments are received from DPIE.

No response was received from Singleton Council.

A summary of the submissions received from Public authorities and organisations and issue categories is provided in **Appendix A**. Responses to the comments, recommendations and issues are provided in **Chapter 4.**

### 2.3.3 Community submissions

Key issues raised in the two community submissions are as follows:

- Project impacts
- Issues beyond the scope of the Project.

A summary of the Public submissions received and issues categories is provided in **Appendix A**. Responses to the comments, recommendations and issues are provided in **Section 4.2**.

# 3. Actions taken since exhibition

This chapter summarises the actions undertaken to address the issues raised in the submissions received since the public exhibition period closed including:

- Undertaking further engagement with the community and key stakeholders
- Clarifying Project design details
- Refining and amending the Project
- Undertaking further assessment of the impacts of the Project.

## 3.1 Consultation

### 3.1.1 Consultation during EIS exhibition

The EIS for the Project was on public exhibition from 15 April 2021 until 12 May 2021.

Copies of the EIS were available at the following locations during the exhibition period:

- Online through the DPIE Major Projects website at https://www.planningportal.nsw.gov.au/major-projects/project/39631
- Muswellbrook Shire Council Administration Office
- Singleton Council Administration Office.

During the exhibition period, an email with a link to the EIS and supporting documents on the planning portal was also provided to:

- AGLM Community Dialogue Group
- AGLM neighbours
- Nature Conservation Council.

Newspaper advertisements were run in the following newspapers informing the public of the commencement of exhibition and inviting submissions via DPIE website:

- Sydney Morning Herald – 14 April 2021
- Daily Telegraph– 14 April 2021
- Hunter Valley News & North Coast & Country Leader – 19 April 2021
- Singleton Argus– 15 April 2021.

Additionally, DPIE conducted statutory notification procedures.

### 3.1.2 Consultation post EIS exhibition

AGLM has maintained ongoing consultation with agencies that submitted detailed responses. This was primarily to clarify submission details and gain a deeper understanding as to response expectations. A summary of consultation is as follows:

- BCD - AGLM issued a memo to DPIE on 10 June 2021 outlining the approach to address BCD's comments and queries
- Heritage NSW – ACH- AGL issued a memo to DPIE on 11 June 2021 outlining the approach to address Heritage NSW's comments and queries

- MSC – AGLM met with MSC representatives on 26 May 2021
- Singleton Council (**SC**) – AGL met with SC representatives on 25 May 2021
- DPIE - AGLM met with DPIE representatives on 9 June 2021. In this meeting DPIE requested further details on components of the BAW. The additional details have been provided in **Section 3.3.1**.
- AGLM Community Dialogue Group on 7 July 2021

The content of the memos and the outcomes of these meetings have shaped the detailed responses provided in **Chapter 4**.

### 3.1.3 Aboriginal stakeholder consultation

The submission from Heritage NSW (refer to **Section 4.1.10**) raised concerns regarding the Aboriginal Cultural Heritage Assessment Report (**ACHAR**). Updates to the ACHAR have been made as a result of these comments, which related to the cultural values and landscape assessment and the significance statement. No new information has been added to these sections, however additional text has been expanded to clarify statements that were previously included.

The revised ACHAR (Jacobs, 2021) was sent back to the Registered Aboriginal Parties (**RAPs**) for another 28-day review period on the 10 June 2021. All RAPs were contacted seeking feedback. Three RAPs provided detailed feedback, four RAPs stated they were satisfied with the finding of the revised ACHAR, one RAP acknowledged receipt of the revised ACHAR, and four RAPs confirmed they had no further comments. The updated final ACHAR is provided in **Appendix C**.

## 3.2 Key refinements since public exhibition

Designs are yet to be finalised and no changes to the Project have been requested based on the submissions received. However, one Project refinement has been made since the display of the EIS. This change is the updated list of consents to be voluntarily surrendered and consolidated into the Project application. This is discussed further in **Section 3.2.1**.Some mitigation and management commitments have also been updated in response to the submissions received (refer to **Appendix B**).

### 3.2.1 Consolidation and surrender of other approvals

Further consultation and review of existing consents with DPIE, MSC and Singleton Council has resulted in an updated list of consents to be voluntarily surrendered and consolidated into the Project application if approved, refer to **Table 3-1** and **Figure 3-1.** DA 50-3-2005 Antiene Coal Unloader as shown as strikethrough text in **Table 3-1,** will no longer be included in the consolidation of consents on the basis that it is already regulated by DPIE.

Table 3-1: Updated list of existing consents proposed to be voluntarily surrendered and consolidated into the Project application

| Consent / DA No. | Determining authority | Description |
|---|---|---|
| ~~DA 50-3-2005 Antiene Coal Unloader~~ | ~~DPIE (Mining and resources)~~ | ~~Construction and operation of a rail coal unloader and associated infrastructure (approximately 8 km south west of Muswellbrook at Antiene).~~ |
| DA 8/2016 – Blast Wall | MSC | Construction of a new blast wall at Bayswater. |

| Consent / DA No. | Determining authority | Description |
|---|---|---|
| DA 74/2018 Bayswater security shed | MSC | Construction of office premises and car parking area ancillary to security and traffic control at Bayswater. |
| DA 8.2018.23.1 Feed water Pipeline | Singleton Council | Water reticulation system (relocation of water pipeline). |
| 8.2018.23.1 Low Pressure Pump Station Stabilisation | Singleton Council | Alterations to water supply system (water reticulation system). |
| 8.2018.23.2 Low Pressure Pump Station Modification | Singleton Council | Alterations to water supply system (water reticulation system), this modification is required to remove vegetation. |
| DA 54-86 Hunter Valley Gas Turbines | MSC | Construction and operation of gas turbines. |
| DA 20_98 Ravensworth Coal Unloader | Singleton Council | Develop a rail coal unloading facility. |
| DA 114_2016 Change of Use | MSC | Change of use from storage shed to operations center. |
| DA 223_2004 Rail Sidings | Singleton Council | Construction of four rail sidings and associated facilities. |
| DA 401_2000 Coal Rail Unloader Augmentation | Singleton Council | Coal/rail unloader augmentation. |
| DA 460_2001 Unloader Upgrade | Singleton Council | Ravensworth rail unloader upgrade. |

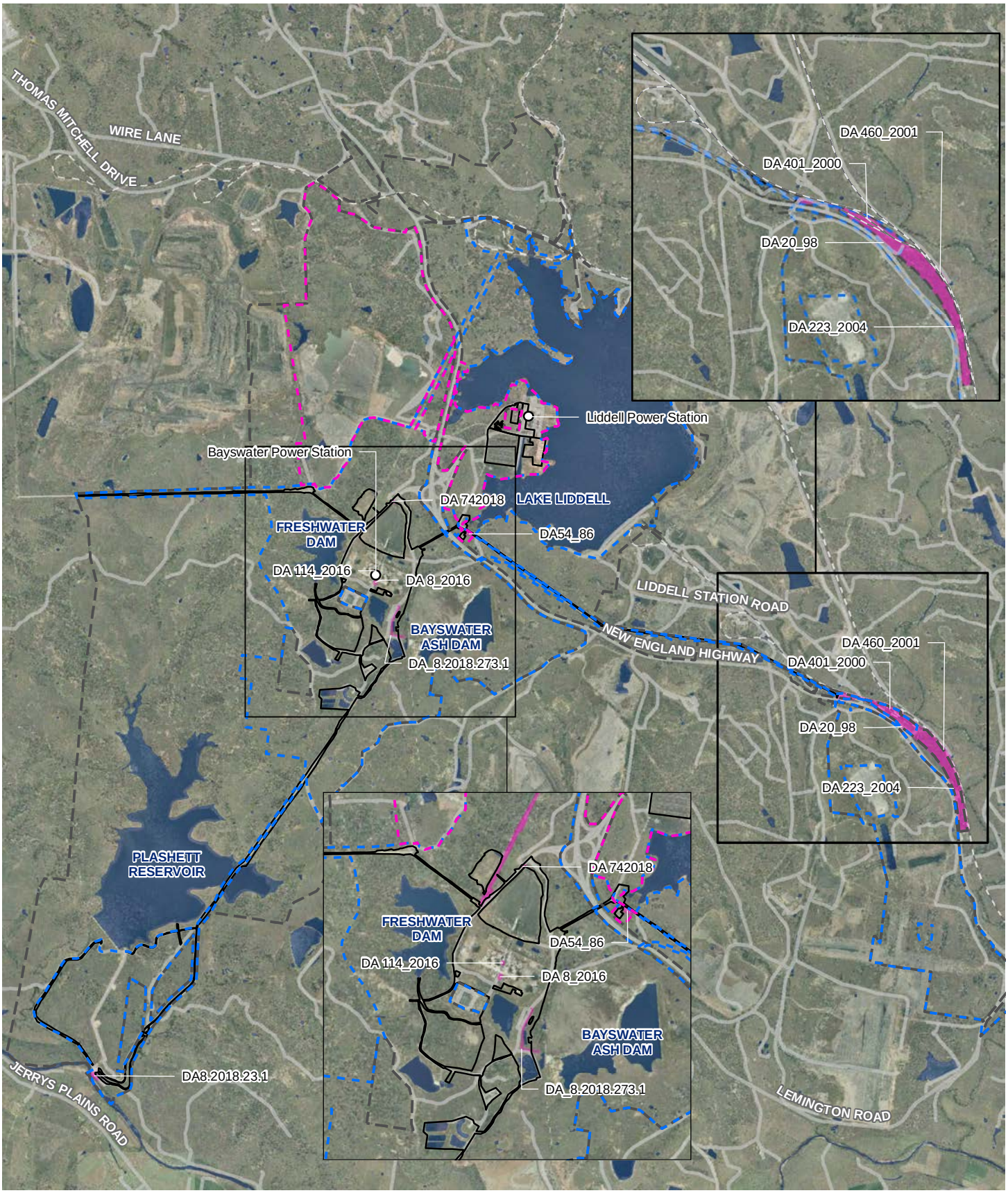


**Figure 3 - 1** EPL boundaries and updated consolidation of consents

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## 3.3 Project clarifications

This section identifies general clarifications, minor errors and discrepancies identified in the EIS for the Project. These errors or discrepancies have been identified through the submissions received and/or by the Project team.

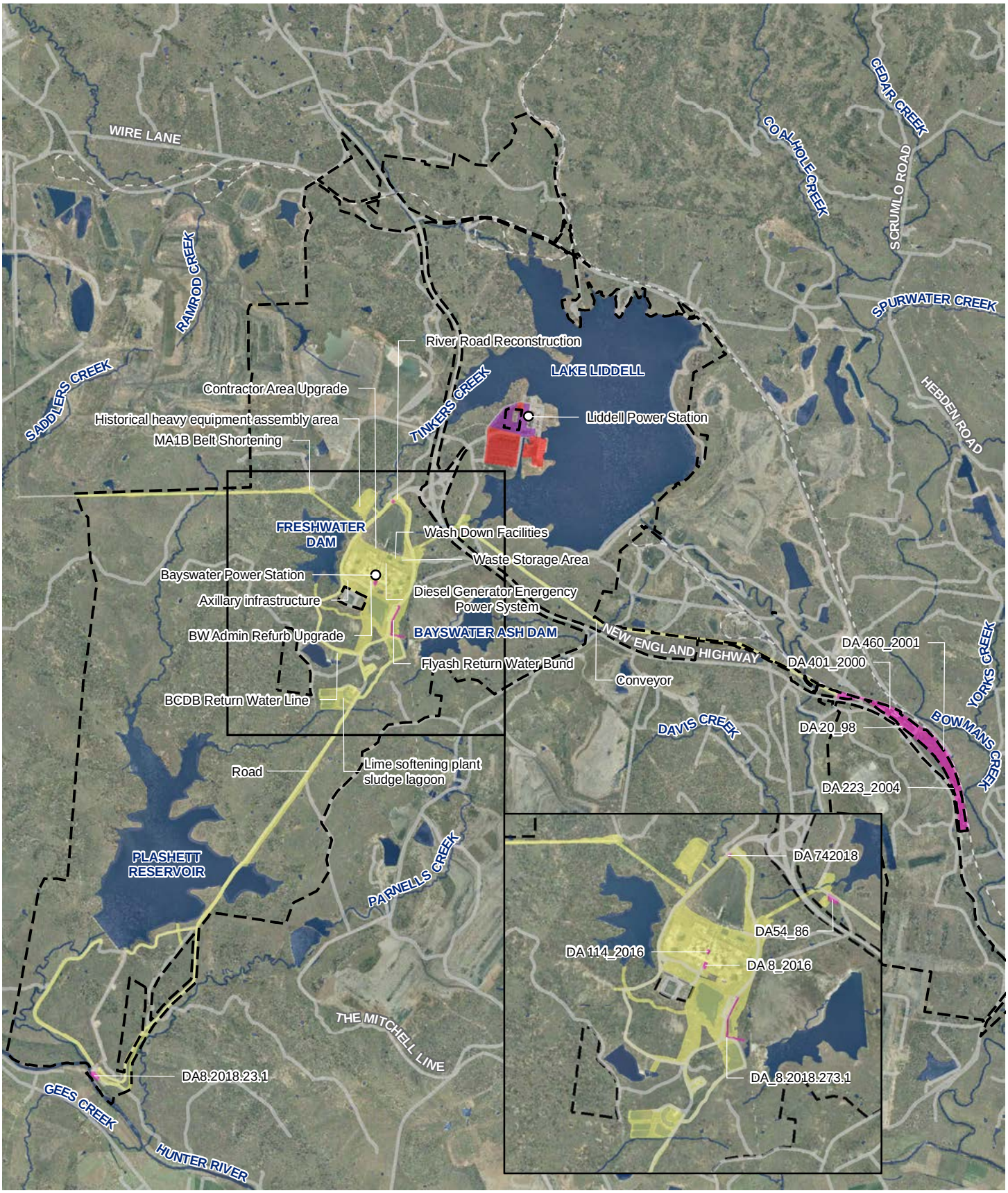
### 3.3.1 BAW details

The various components of the BAW were described in Section 2.4 of the EIS in as much detail as available at the time, whilst Appendix M of the EIS illustrated the location of the main components in proximity to the Bayswater main operational area. In response to DPIE consultation, EIS Appendix M mapping has been expanded to identify the location and a brief description of the nature of works across the full BAW footprint (refer to **Figure 3-3**). Specifically:

- Works to the western extent of the MA1B conveyor are as described in Section 2.4.2 of the EIS with works west of the existing drive house limited to removal of redundant conveyor infrastructure and rehabilitation only
- Works at direction changes of the M Series coal conveyors are limited to water management improvements as described in Section 2.4.4 of the EIS. The remainder of the Ravensworth Conveyor and access tracks would be subject to ongoing use and routine maintenance consistent with existing uses only
- Works associated with the high-pressure water pipeline are included to facilitate emergency repairs or replacement in the event of a leak or rupture being detected. Works would involve salvage of identified Aboriginal heritage items, vegetation clearing as necessary, excavation, removal of existing below ground high pressure pipeline and replacement of pipeline and backfill as necessary to maintain supply
- Roads within the BAW footprint (with the exception of the identified River Road upgrade), would be subject to ongoing use and minor maintenance as per existing uses only
- Canals within the BAW footprint would be subject to routine maintenance that may include removal of sediment build-up and vegetation which are obstructing flows as per existing uses only
- The high pressure pumping station would be subject to water management improvements only.

There are no changes to the BAW components as described in the EIS.

The location and maximum disturbance areas of these components are illustrated in Figure 2-4 of the EIS. The updated Project overview is provided in **Figure 3-2** and further BAW details and clarifications are shown in **Figure 3-3**. While a large footprint is shown, only portions of it are currently proposed to be directly impacted in any way.




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

N


**Data sources**
Jacobs 2021
AGL 2020
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Imagery:
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**Figure 3 -2** Updated Project overview

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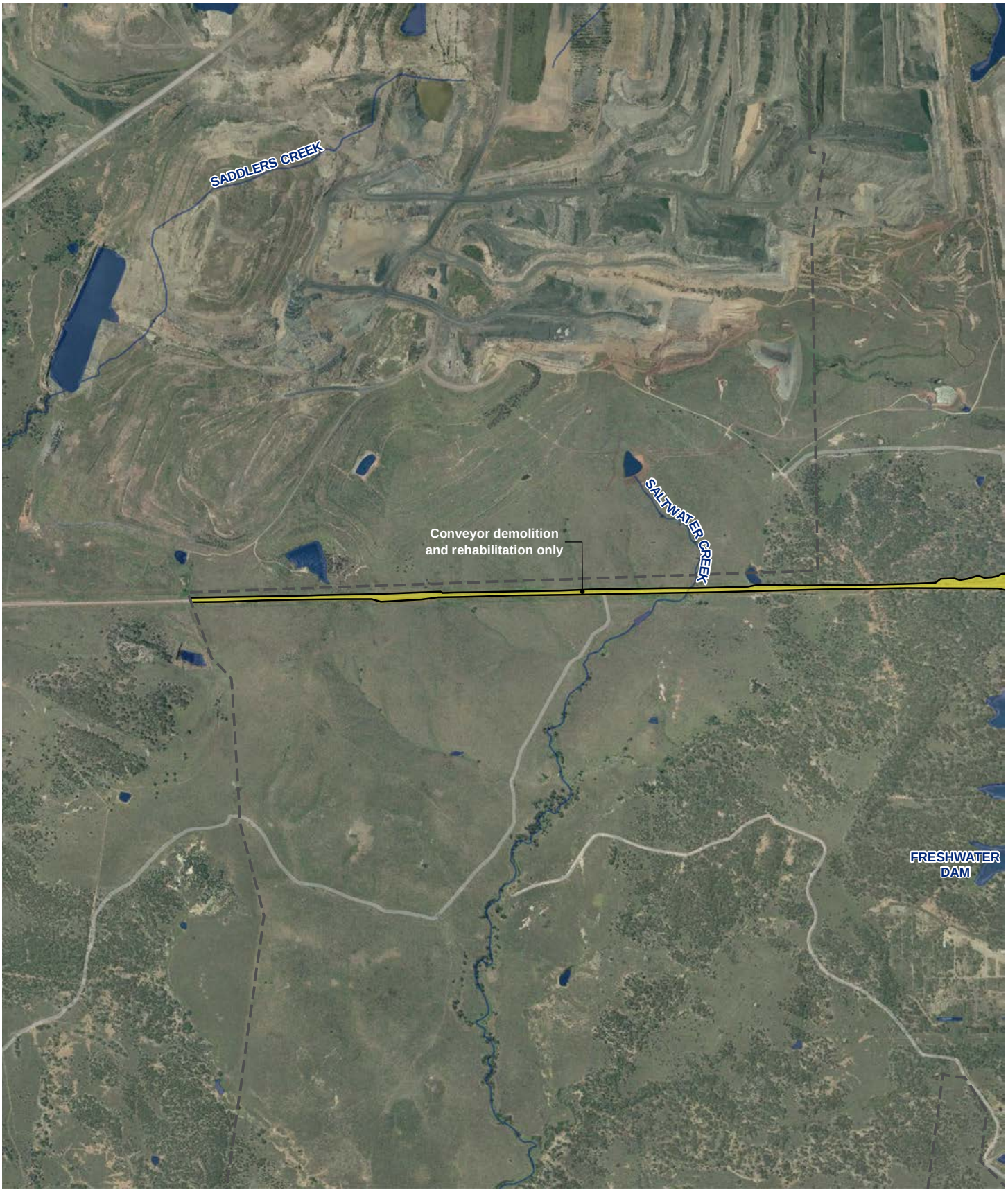


Legend

AGL owned land
Bayswater Ancillary Works
Road
Waterway
Waterbody

**Bayswater Ancillary Works**
MA1B belt shortening

0 0.5 1km

1:25,000 at A4

N

**Data sources**

Jacobs 2021
AGL 2020
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Imagery: © Department of Customer Service 2020

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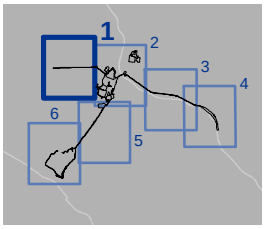


**Figure 3 - 3** BAW items


## Legend

- AGL owned land
- Bayswater Ancillary Works
- Road
- Waterway
- Waterbody

**Bayswater Ancillary Works**

- Road
- Canal
- Lime softening plant and sludge lagoons
- Bayswater Power Station and infrastructure
- Auxillary infrastructure
- Building and equipment upgrades
- Consolidated consents
- MA1B belt shortening
- Historical heavy equipment assembly area
- BCDB return water line
- Fly ash return water bund
- River Road reconstruction

**Other works**

- Battery energy storage system
- Decoupling area
- Consolidated consent

0 0.5 1km

1:25,000 at A4

N

**Data sources**

Jacobs 2021
AGL 2020
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Imagery: © Department of Customer Service 2020

GDA94 MGA56

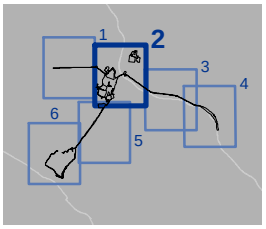
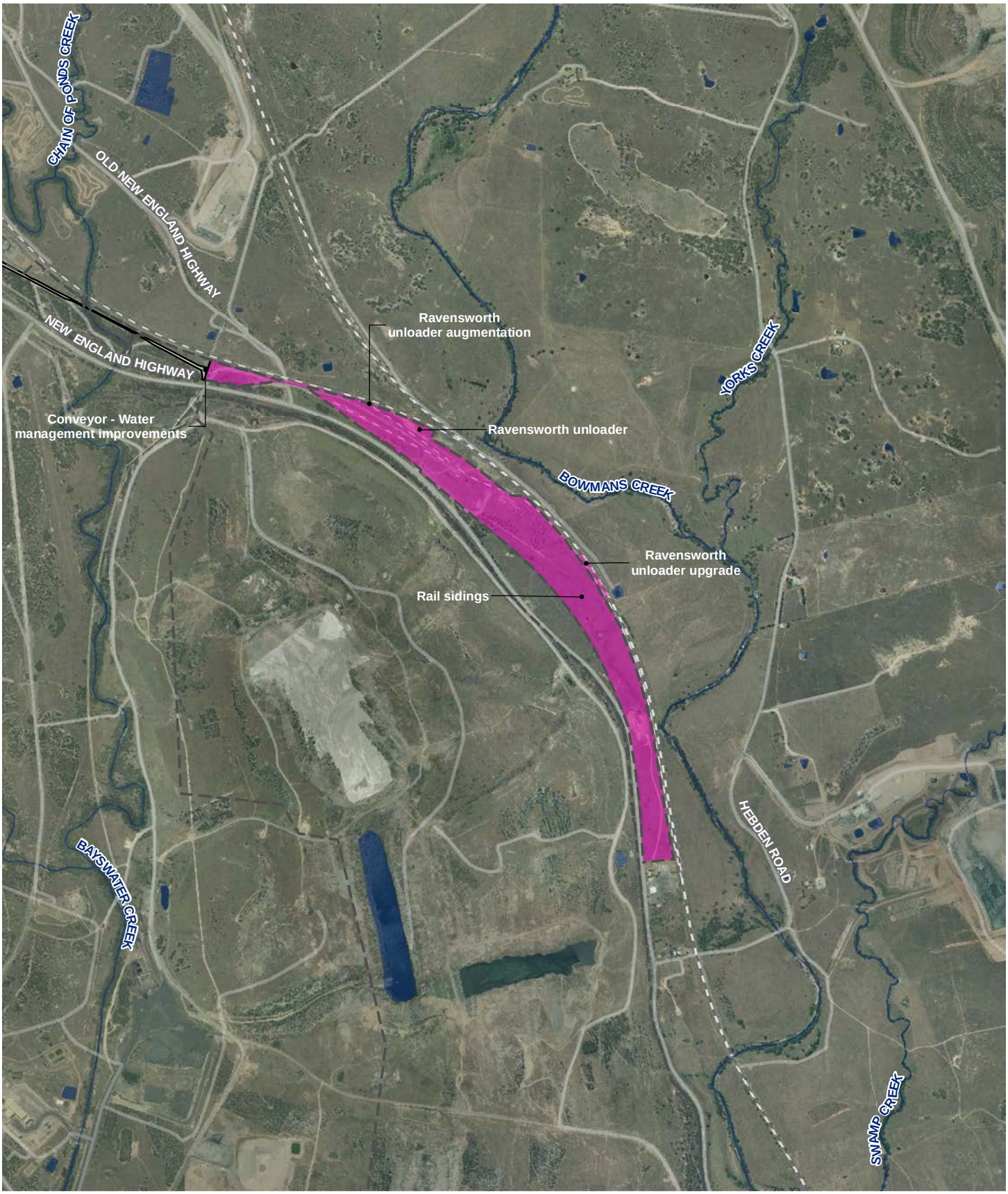



**Figure 3 -3** BAW items

Date: 8/07/2021 Path: J:\04_Eastern\IS334000\22_Spatial\GIS\Directory\Templates\Figures\RtS\IS334000_RtS_F001_BAWComponents_r1v2_SR.mxd
Created by : SR | QA by : NT


**Figure 3 - 3** BAW items

Date: 8/07/2021 Path: J:\04_Eastern\IS334000\22_Spatial\GIS\Directory\Templates\Figures\RtS\IS334000_RtS_F001_BAWComponents_r1v2_SR.mxd
Created by : SR | QA by : NT




Legend

- AGL owned land
- Bayswater Ancillary Works
- Road
- Railway
- Waterway
- Waterbody

**Bayswater Ancillary Works**

- Bayswater Power Station and infrastructure

**Other works**

- Consolidated consent

0 0.5 1km

1:25,000 at A4

N

**Data sources**

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

GDA94 MGA56

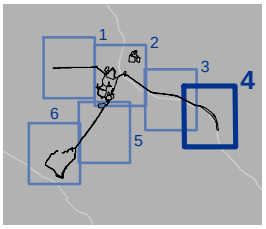



**Figure 3 - 3** BAW items


Legend

- AGL owned land
- Bayswater Ancillary Works
- Road
- Waterway
- Waterbody

**Bayswater Ancillary Works**

- Road
- Lime softening plant and sludge lagoons
- High pressure water pipeline

0 0.5 1km

1:25,000 at A4

N

**Data sources**

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

GDA94 MGA56

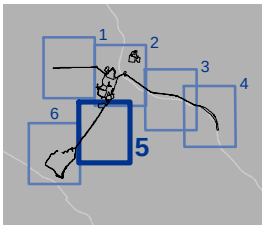



**Figure 3 - 3** BAW items

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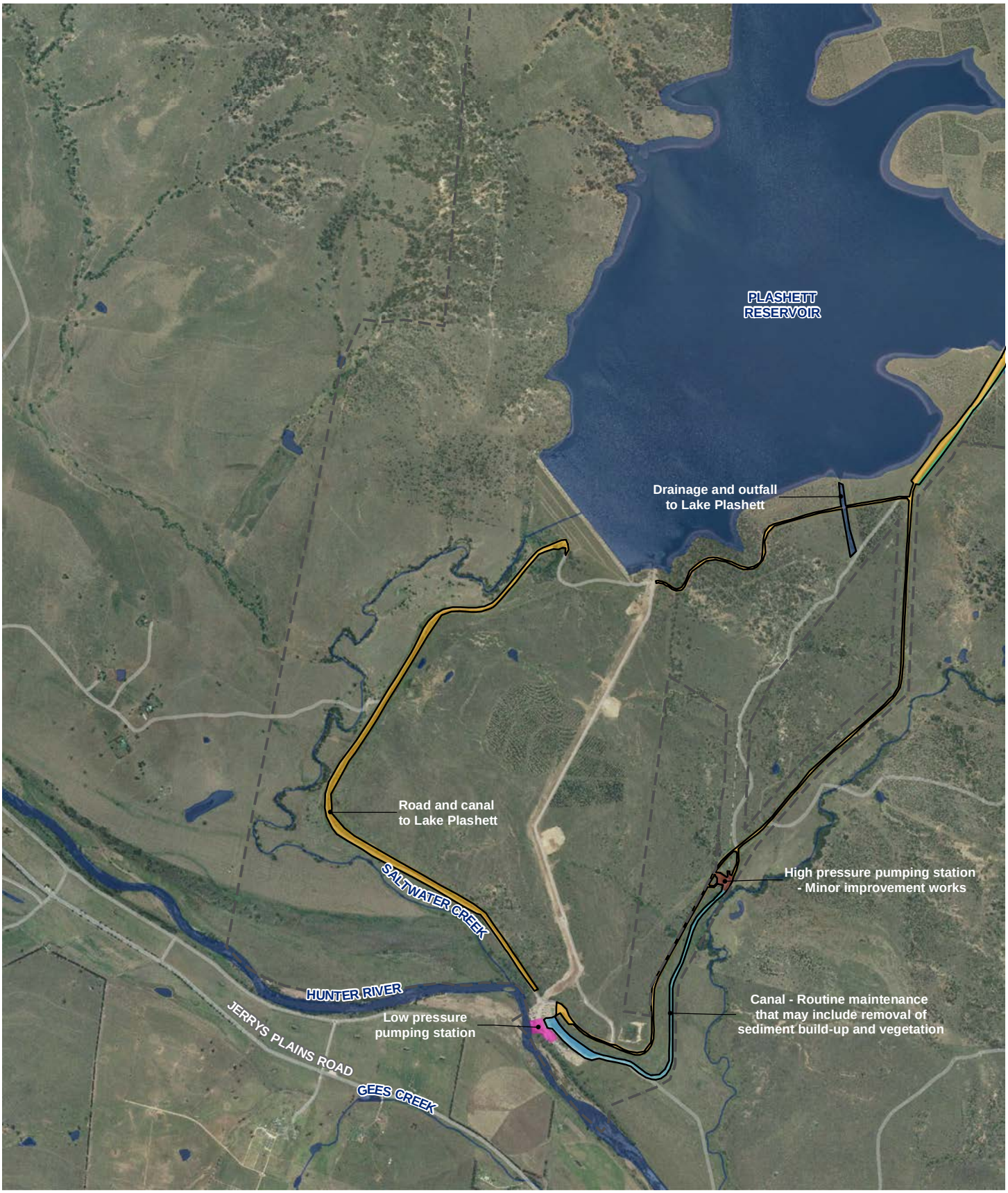
Created by : SR | QA by : NT




Legend

AGL owned land
Bayswater Ancillary Works
Road
Waterway
Waterbody

**Bayswater Ancillary Works**
Road
Drainage and outfall
Canal
High pressure pumping station
High pressure water pipeline

**Other works**
Consolidated consent

0 0.5 1km

1:25,000 at A4

N

**Data sources**

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

GDA94 MGA56

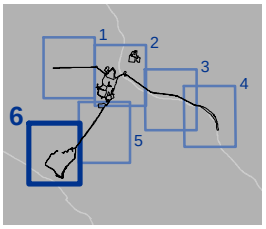



**Figure 3 - 3** BAW items

# 4. Response to Submissions

This section provides a summary of the issues raised by key stakeholder and community submissions, and a response to the issues raised. Due to the small number of submissions received, AGLM have chosen to respond to each submission individually.

## 4.1 Key stakeholder submissions and response

### 4.1.1 Fire and Rescue NSW

FRNSW have indicated that large-scale battery energy storage solution (**BESS**) present unique hazards and risks to their personnel when fulfilling their emergency duties.

FRNSW recommended the following conditions be considered by DPIE:

- The Preliminary Hazard Analysis (**PHA**) be progressed to a Final Hazard Analysis (**FHA**) once the design of the development has been finalised
- A Fire Safety Study **(FSS**) be prepared for the BESS. This should be submitted to FRNSW for review and determination prior to the issuing of the relevant construction certificate. This is to ensure that the facility's proposed fire prevention, detection, protection, and firefighting measures and systems are appropriate to the specific hazards and adequate to mitigate the extent of potential fires. The FSS should be developed in accordance with the requirements of Hazardous Industry Planning Advisory Paper No. 2 – Fire Safety Study Guidelines (HIPAP No. 2) and in consultation with FRNSW.

As outlined in **Section 4.3.1**, AGLM have committed to the preparation of a FHA for the Project during detailed design.

The EIS also commits to the preparation of an FSS for the Project. The FSS will determine the active firefighting requirements and the need for fire water containment at the BESS. The FSS would be developed and prepared in consultation with FRNSW, RFS and DPIE.

### 4.1.2 Subsidence Advisory NSW

SA NSW raised the following issues in their submission:

- Advised that some of the portions of the ancillary works are located within declared mine subsidence districts (**MSD**) and within current mining titles. Some elements of the proposal are located over existing mine workings and in proximity to mine openings. Applications for development within a declared MSD require SA NSW approval in order to be eligible for compensation under the *Coal Mine Subsidence Compensation Act 2017*
- For Project elements that overlay existing mine workings, SA NSW may require that an assessment by a specialist engineer is carried out. If a risk is identified as part of the assessment, SA NSW may also require specific engineered mitigation measures or ground remediation measures as part of the CoA.

As described in Section 6.1.2 of the EIS, the only works occurring within land mapped as mine subsidence district are limited to BAW components where no new infrastructure is proposed and the ongoing maintenance of the Ravensworth coal conveyors (M Series coal conveyors). The works associated with the BAW within the mine subsidence district would not involve new infrastructure or new risks as they relate to ongoing use and maintenance of existing assets and minor water management improvements only.

The comments from SA NSW are noted and a commitment that the detailed design of components would consider subsidence risks where they are relevant. AGLM will consult with SA NSW as the detailed design develops.

#### 4.1.3 Crown Lands

Crown Lands has no comments for this Project.

#### 4.1.4 Heritage Council of NSW

Heritage Council of NSW stated that the subject site is not listed on the State Heritage Register (**SHR**), nor is it in the immediate vicinity of any SHR items. Heritage Council of NSW further note that the site does not contain any known historical archaeological deposits and that no further heritage comments are required.

#### 4.1.5 DPI Agriculture

DPI Agriculture has no comments for this Project.

#### 4.1.6 Transport for NSW (Identical submission documented under Department of Transport and Roads and Maritime Services Division)

TfNSW raises no objection to or requirements for the Project.

#### 4.1.7 Biodiversity and Conservation Division

BCD provided a submission which included a list of recommendations for addressing information gaps or improvements to the Biodiversity Development Assessment Report (**BDAR**). A revised BDAR has been prepared and is attached as **Appendix D.** The additional findings and details provided in the updated BDAR have been summarised **in Section 4.3.3.**

A summary of how each recommendation has been addressed is summarised in **Table 4-1** and detailed in Appendix J of the BDAR (**Appendix D**).

Table 4-1: BCD Recommendations and response

| BCD Comment and recommendations | Applicant Response |
|---|---|
| The Biodiversity Assessment Method (**BAM**) accredited assessor certifies that the BDAR was finalised within 14 days of the exhibition of the EIS | Prior to exhibition, the EIS and technical assessments including the BDAR were provided to DPIE (including BCD) for adequacy review. The BDAR was subsequently updated to include a certification statement (located before the table of contents and dated within 14 days of exhibition) prior to exhibition. |
| The BDAR should describe how the survey effort for the striped legless lizard (*Delma impar*) meets the Survey Guidelines for Australia's Threatened Reptiles (Department of Agriculture, Water and the Environment, 2011) | As required by the BAM, and on the basis that the survey effort cannot demonstrate beyond reasonable doubt the absence of the species within the development site, the revised BDAR assumes presence within applicable plant community types (**PCTs**) and includes an amended species polygon and associated credit obligations unless otherwise agreed. The striped legless lizard is further discussed in **Section 4.3.2.1.** |

| BCD Comment and recommendations | Applicant Response |
|---|---|
| Further justification should be provided for the exclusion of the Red Goshawk (*Erythrotriorchis radiatus*) from further assessment | The BDAR has been updated with further details on the Red Goshawk (*Erythrotriorchis radiatus*). The Red Goshawk has now been added to the BAM-C Candidate species list, refer to **Section 4.3.2.2.** |
| A new version of Figure 6-1 'Threatened flora surveys' is prepared, at 1:1,000 scale, that clearly shows the location of targeted flora surveys, and the vegetation zones in which they were conducted | New figures have been prepared for the revised BDAR, refer to **Appendix D**. A 1:1000 scale figure would require about 150 pages. As such 1:1000 scale figure has not been generated. The figures have been updated so that they do provide clearer illustration of survey effort and vegetation zones. Geographic Information System (**GIS**) data has also been provided to BCD for their reference. |
| The BDAR should describe the habit, and the ability to develop seeds and suckers of the planted *Acacia pendula* (Weeping Myall) plants and state whether they are of the indigenous Hunter Valley form or the inland form of the species | The description of the planted specimens of *Acacia pendula* (Weeping Myall) has been updated to better describe the habit and reproductive characteristics observed, refer to **Appendix D**. The planted *Acacia Pendula* (Weeping Myall) is not considered to be of the indigenous Hunter Valley form, refer to **Section 4.3.2.3**. |
| There is text currently obscured by the photo on page 53 of the BDAR | This formatting issue was corrected in the final version of the BDAR that was placed on public display correcting the pre-exhibition version supplied to BCD as part of DPIE adequacy process. |
| Provide details to meet the requirements of Table 25 of the BAM | The BDAR has been updated to be compliant with Table 25 of the BAM, refer to **Appendix J** of the BDAR (Appendix D). This has included updating all of the mitigation measures to describe staging, outcomes and responsibility of impact mitigation measures, refer to Section 11 of the BDAR and **Appendix B.** |
| The flood risks from local catchment flooding should be considered during the detailed design | A commitment is included to consider the flood risk during detailed design. |

#### 4.1.8 Environment Protection Authority

The EPA responded that they do not object to the Project and that the existing statutory requirements under the *Protection of the Environment Operations Act 1997* and the respective Environment Protection Licences (EPL) for Bayswater and Liddell are considered appropriate for setting environmental performance standards in respect of air, noise, waste and water.

The EPA also recommends that AGLM contacts the EPA to discuss issues relating to its EPLs or the need to vary them. AGLM would liaise with EPA as required.

#### 4.1.9 Geological Survey of NSW – Mining, Exploration and Geoscience.

MEG have acknowledged that offsets would be required. MEG would appreciate the opportunity for early consultation in relation to the proposed location of any biodiversity offset areas or any supplementary

biodiversity measures to ensure there is no consequent reduction in access to prospective land for mineral exploration, or potential for sterilisation of mineral or extractive resources.

AGLM will consult with MEG as any offsetting strategy develops.

#### 4.1.10 Heritage NSW – Aboriginal Cultural Heritage

Heritage NSW – ACH submission raised three main concerns regarding the ACHAR. These related to an incorrect statement which should have been removed from the published ACHAR stating that consultation with RAPs had not been fully completed and closed.

Of relevance, a particular statement that "the assessed significance of individual sites provided here does not incorporate, at the time of writing, any input from RAPs on the cultural significance of individual sites" was left in the Final ACHAR in error. This statement, and the assigned cultural heritage significance of individual sites, were included in the draft version of the ACHAR issued to RAPs for review as documented in Appendix A of the ACHAR and should have been removed following closure of the RAP review period. The statement of significance presented to RAPs in the draft ACHAR was developed on site in consultation with the RAPs and no additional input was received from the RAPs during subsequent consultation. All responses received from the RAPs supported the statement of significance as presented in the ACHAR.

The three main concerns raised by Heritage NSW – ACH and a summary of how each recommendation has been addressed is provided in **Table 4-2**.

The ACHAR was updated in response to these concerns and a revised ACHAR was issued to the RAPs for another 28 day review period, refer to **Section 3.1.3**. The changes made to the ACHAR as a result of Heritage NSW's comments related to the cultural values and landscape assessment (Section 7) and the significance statement (Section 9.2). No new information has been added to these sections, however, the text has been expanded to clarify statements that were previously included.

The project description and findings remain unchanged, and no additional mitigation measures are required. The final ACHAR is provided in **Appendix C**.

Table 4-2 Heritage NSW – ACH recommendations and responses

| Main concern raised by Heritage NSW | Applicants' response |
|---|---|
| **Further Aboriginal Cultural Heritage Assessment is required**<br>1. Further significance assessment should be undertaken to augment the current assessment of values and a comprehensive significance statement prepared. This must include an assessment of the social or cultural values of all sites which will be impacted by the Project.<br>Heritage NSW (HNSW) guidelines indicate that the findings from the assessment of significance should be integrated with the findings from the assessment of Aboriginal archaeology to support the harm mitigation strategies and management recommendations in the ACHAR. HNSW is of the view that where further assessment is recommended, this must be completed as part of the EIS rather than being deferred until post-approval. The significance assessment must be | The Cultural Values Assessment (**CVA**) that was provided in the ACHAR (Jacobs, 2021) was based on and further developed from the CVA completed by AECOM (2020) for the Bayswater Water and Other Associated Operational Works Project (**WOAOW**) project site. The CVA (AECOM, 2020) is provided in **Appendix E** for reference.<br>The WOAOW project is also located within the AGLM landholding at Bayswater and is immediately adjacent to the location of the Aboriginal objects identified as part of the assessment for this Project. The statement of significance provided in Section 7.3 of Jacobs (2021) was based on that initially developed by AECOM for the broader area and updated to address the findings of the assessment for this Project, for all sites that will be impacted by this |

| Main concern raised by Heritage NSW | Applicants' response |
|---|---|
| undertaken in consultation with the Registered Aboriginal Parties (RAPs) and the results of the values assessment incorporated into the statement of significance documented in the ACHAR. | Project. This included conversations with the RAPs onsite about broader cultural values and specific significance during the survey.<br>The ACHAR including CVA and assessment of Significance was reviewed by RAPs as part of Stage 3 consultation and no additional input was received (see clarification below).<br>No assessment is proposed to be deferred to post approval on the basis that the ACHAR as reviewed and supported by the RAPs did not recommend further assessment. |
| **Further Aboriginal community consultation should be undertaken, and documentation provided.**<br>HNSW have reviewed the supplied consultation documentation and recommend further consultation be undertaken and additional documentation be provided, as follows:<br>1. Further Aboriginal community consultation is required to be undertaken in relation to the assessment of significance in accordance with Stage 3 of the Consultation Requirements, as recommended in 1. above. Ensuring that the social or cultural values of the RAPs have been considered.<br>2. HNSW recommends that the ACHAR be updated to include additional documentation, clearly articulating how all stages of the Consultation Requirements have been addressed by the proponent. | All stages (Stages 1-4) of consultation have been completed for this Project in accordance with the applicable guidelines and presented in the ACHAR. The inclusion of the statement that "the assessed significance of individual sites provided here does not incorporate, at the time of writing, any input from RAPs on the cultural significance of individual sites" is an error and should have been removed prior to submitting the EIS. Jacobs and AGLM did consult and seek input from the RAPs so this statement is incorrect.<br>The statement of significance presented in the ACHAR was developed on site in consultation with the RAPs. No additional input was received from the RAPs during subsequent consultation. All responses received from the RAPs supported the statement of significance as presented in the report.<br>The ACHAR was updated in response to comments from Heritage NSW and a revised ACHAR issued to the RAPs for another 28 day review period, refer to **Section 3.1.3**. The changes made to the ACHAR were in response to Heritage NSW's comments relating to the cultural values and landscape assessment (Section 7) and the significance statement (Section 9.2). These changes were identified in the cover letter/ email to the RAPs that accompanied the revised ACHAR.<br>All RAPs were contacted seeking feedback on the revised ACHAR. Three RAPs provided detailed feedback, four RAPs stated they were satisfied with the finding of the revised ACHAR, one RAP acknowledged receipt of the revised ACHAR, and four RAPs confirmed they had no further comments. The themes of feedback received included: |

| Main concern raised by Heritage NSW | Applicants' response |
|---|---|
| | ▪ Whether an interpretation plan would be developed<br>▪ RAPs connection to the Project area<br>▪ Consideration of Ceremonial Place, stone arrangement and a section 10 application under the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984 Act.*<br>▪ Long term management of recovered artefacts.<br>Following the completion of the additional RAP consultation period the revised ACHAR was finalised to include outcomes of the additional RAP consultation. The additional consultation, RAP responses and their consideration are summarised in Table 4-3 of the final ACHAR. The Project description and findings remain unchanged, and no additional mitigation measures are proposed. The final ACHAR is provided in **Appendix C.** |
| HNSW recommends a consent condition is created that requires an Aboriginal CHMP be prepared, in consultation with RAPS and to the satisfaction of HNSW prior to any ground disturbance works occurring within the Project area. | The HNSW recommendation is aligned with the commitments made in the ACHAR and EIS and is accepted. |

#### 4.1.11 NSW Rural Fire Service

The RFS provided a submission recommending the following conditions be considered by DPIE:

- A Fire Management Plan (**FMP**) should be prepared for the BESS in consultation with RFS Hunter Valley Fire Control Centre.
- The entire BESS footprint is to be managed as an Asset Protection Zone (**APZ**) as outlined within section 4.1.3 and Appendix 5 of 'Planning for Bush Fire Protection 2006' and the NSW Rural Fire Service's document 'Standards for Asset Protection Zones'.
- A 20,000 litre water supply (tank) fitted with a 65 mm storz fitting should be located adjoining the internal property access road (BESS) within the required APZ.
- To allow for emergency service personnel to undertake property protection activities, a 10 m defendable space (APZ) that permits unobstructed vehicle access is to be provided around the perimeter of the Battery Storage and solar array development sites including associated infrastructure

As outlined in **Section 4.3.1**, AGLM will prepare an FSS. The FSS will be developed and prepared in consultation with FRNSW, RFS and determine the active firefighting requirements and the need for fire water containment at the BESS.

#### 4.1.12 Muswellbrook Shire Council

MSC's submission stated that they are generally supportive of renewable energy initiatives and infrastructure that supports a transition to renewable energy. This Project aligns with Council's Community Strategic Plan goals and

Community Strategic Plan principles. MSC's submission also provided detailed recommendations, comments and suggested conditions to be considered by DPIE. A summary of issues raised and AGLM's response is provided in **Table 4-3**.

MSC representatives during a meeting with AGLM requested clarification on the Project disturbance footprint. For the purposes of identifying and assessing environmental impacts of the Project, a disturbance area was defined in the EIS. This was called the 'development site'. The development site consists of the sum of the Battery footprint, Decoupling works footprint and BAW footprint and encompasses the extent of physical disturbance that may be required to accommodate construction activities and Project operational areas. The total area of the development site is approximately 353 ha within the Project area consisting of:

- Battery footprint of approximately 56 ha of which approximately 20 ha would be selected
- Decoupling works areas of approximately 23 ha with only a limited proportion of which would ultimately be disturbed
- BAW works areas of approximately 274 ha with a limited proportion impacted by the BAW works forming part of this application.

The development site has not been amended and is consistent with the EIS.

**Table 4-3 Key issues raised and responses to submission by MSC**

| Recommendation / comment | Applicants Response |
|---|---|
| Consolidation of consents: | |
| MSC supports the consolidation of various approvals, from various dates, into a single approval | AGLM welcomes MSC's support in this regard. AGLM is committed to consolidating consents as indicated recently through the WOAOW and Liddell Battery and Decoupling SSD projects, refer to **Section 3.2.1**. |
| Site disturbance, erosion and stormwater | |
| ▪ The assessment does not describe the extent of impacted areas, for example, if there are cuttings and batters, extra clearing, infrastructure relocations, supporting drainage structures and the like.<br>▪ Management of erosion and rehabilitation of disturbed areas will be a critical element of the Project. The Project needs to satisfy the following:<br>- Limiting disturbance of development footprint to areas than can be reasonably managed in terms of batter slopes and extents<br>- Avoiding large cut and fill on steep areas of the site<br>- Avoiding clearing anywhere near established creek lines, and where existing vegetation is essential to maintaining slope stability<br>- Capturing and appropriately detaining runoff from disturbed areas, prior to discharge to decrease sediment loss<br>- Similarly capturing and appropriately detaining runoff from roofed structures<br>- Stabilising and re-establishing disturbed areas in a timely manner in accordance with the Landcom Blue Book guidelines.<br>▪ The CoA should include a requirement for a comprehensive stormwater management plan for the battery compound that addresses how stormwater will be collected, conveyed, treated and safely managed. | Detailed design information is not available yet, however, as described in the EIS, all works would be limited to the assessed disturbance site and is likely to impact a much smaller area.<br><br>Commitments are made in the EIS to the implementation of detailed stormwater, erosion control, sediment control, and rehabilitation measures. These would be documented in the Construction Environmental Management Plan (**CEMP**).<br><br>Where possible, clearing near creek lines would be avoided. The BDAR (**Appendix D**) describes the areas where clearing is proposed. |

| Recommendation / comment | Applicants Response |
|---|---|
| ▪ Emergency isolation measures for the drainage systems are to be detailed including in case of a fire, as well as drainage of the hardstand areas, with all drainage infrastructure be designed for construction, operational and decommissioning traffic loading. Overflow routes and erosion management controls for stormwater should also be included, and form part of a DRAINS model<br>▪ Additional access points for buried drainage infrastructure should be included as required to ensure regular maintenance is possible. Selection of materials for drainage infrastructure should consider the potential for fire within the catchment area, and for superheated oils and hydrocarbons<br>▪ The gradient for the hardstand area, its location and integration in the wider site, should be clearly demonstrated within the plan<br>▪ This plan shall also include stormwater treatment measures such as secondary treatment systems that capture fine sediments as well as oils and hydrocarbons, and provided in the form of Model for Urban Stormwater Improvement Conceptualisation (**MUSIC**) model, and in accordance with Council's Development Control Plan (**DCP**). Sizing methodology for all systems to be provided as part of the stormwater management report, and the report shall be accompanied by a maintenance plan for all stormwater infrastructure. All Stormwater Quality Improvement Device units must be structurally suitable for construction, operational and decommissioning traffic loading<br>▪ Council requests a weed management plan be required, including regular monitoring and weed management activities, to ensure the Battery Compound and other works on the Bayswater site do not become a source of weeds for nearby rehabilitation areas<br>▪ Any proposed retaining walls must be designed and certified by a practicing structural engineer as complying with Australian Standard AS4678 "Earth Retaining Structures" where the design includes dead and live loads expected to arise from the intended use of the retaining wall in its location, including but not limited to the installation of fencing, filling, plantings, parking of vehicles | The specific requirements for water quality controls would be determined during detailed design and documented in the CEMP.<br><br>The CEMP would detail the procedures for management of weeds on the development site (which will be in accordance with the requirements of the *Biosecurity Act 2015*).<br><br>Noted |
| Visual Impacts | |

| Recommendation / comment | Applicants Response |
|---|---|
| MSC identifies that:<br>▪ It is noted that the Battery Compound will be operational beyond the end of life of both Liddell and Bayswater Power Stations and their associated infrastructure. As a result, the immediate land uses and landscape values will change significantly in the next 15 years.<br>▪ Screen planting may not be necessary to reduce visual impacts to locations beyond the AGLM site, it should be considered so that it is established ahead of incoming uses on the AGLM site.<br>▪ The muted palette with minimal use of reflective surfaces to visually integrate the Project within the landscape where possible is supported by Council. It is noted that diagrams included in the EIS show many structures in the Battery Compound as being white. White is not considered to be a muted colour. | Noted<br><br>The EIS included commitments that tree and shrub planting will be considered to visually integrate the Project within the surrounding landscape. This would be considered further in detailed design.<br><br>AGLM acknowledges MSCs support of the mitigation measures to visually integrate the Project within the landscape.<br><br>**Figure 2-2** of the EIS, which shows the indicative battery layout does show the battery enclosure in white. The battery enclosure would be white to minimise heat absorption. AGLM will consider the use of a vegetation screen for the Battery. Mitigation measure V2 has been updated to reflect this, refer to **Appendix B**. |
| VPA - Community Enhancement Fund | |
| ▪ The EIS advises that no contributions are proposed to be offered<br>▪ Typically, developments of this scale would offer to enter into a Voluntary Planning Agreement (**VPA**)<br>▪ The Liddell and Bayswater Power Stations were approved prior to the concept of development contributions and VPAs. To date, the impacts of the Power Station on resources, services and facilities in the Muswellbrook Shire has effectively been subsidised by ratepayers and other businesses<br>▪ If no VPA is offered the typical condition would be: Section 7.12 Contributions Pursuant to section 4.17(1) of the EP&A Act, and the MSC Section 94A *Development Contributions Plan 2010*, a contribution of $xxx shall be paid to MSC<br>▪ MSC council requests that a condition of approval be included requiring a contribution in accordance with Section 7.12 Contributions Pursuant to section | AGLM does not propose entering into a VPA with MSC for this Project. The Project does not have impacts on services provided by MSC and the proposed surrender and consolidation of consents would reduce Council's involvement in the regulation of the site.<br>However, AGLM will continue to engage with Council regarding appropriate mechanisms for community support through transition, which may also form part of future applications. |

| Recommendation / comment | Applicants Response |
|---|---|
| 4.17(1) of the EP&A Act, and the Muswellbrook Shire Council Section 94A Development Contributions Plan 2010. | |
| Decommissioning | |
| MSC requests a condition requiring preparation of a Decommissioning and Rehabilitation Plan for any part of the site disturbed and/or built upon as part of this approval. | Following end of operations and demolition, the development site would be rehabilitated in accordance with all regulatory requirements. It is expected that all above ground, built infrastructure associated with the Battery would be removed and the Battery site would be graded and rehabilitated to a vegetated, safe, sustainable and non-polluting landform.<br>The Project does include infrastructure essential to the ongoing operation of Bayswater and this infrastructure is proposed to be decommissioned and the subject land rehabilitated aligned with the overall process of decommissioning and repurposing Bayswater.<br>The AGL Rehabilitation Report (AGL, 2017a) outlines how AGL is approaching the challenges associated with rehabilitating large, long-lived assets and infrastructure and provides an overview of processes, strategies and timelines that are considered in the development of rehabilitation plans.<br>AGL's approach to rehabilitation of power generation infrastructure is available at: https://www.agl.com.au/-/media/agl/about-agl/documents/media-center/asx-and-media-releases/2017/170810-agl-rehabilitation-report.pdf?la=en&hash=E1759AA8468DC6FD0E7DD3C7DBEEC3E4).<br>AGLM welcomes a condition to commence planning for the closure and decommissioning of infrastructure, the subject of the application, five years prior to the end of life of Bayswater for the BAW component. This process will make provision for consultation with MSC, Singleton Council and DPIE as well as relevant stakeholders. |

#### 4.1.13 DPIE: Water

DPIE: Water and the Natural Resources Access Regulator (NRAR) made the following post approval recommendations:

- The Project should ensure that the works located on waterfront land are completed in accordance with NRAR's guidelines for controlled activities on waterfront land and consider setbacks and offsetting requirements detailed in the guideline - https://www.industry.nsw.gov.au/__data/assets/pdf_file/0004/156865/NRAR-Guidelines-forcontrolled-activities-on-waterfront-land-Riparian-corridors.pdf.
- Water take under existing water access licences must be appropriately metered where the rules apply. AGLM are to review the DPIE Non-urban water metering in NSW guide here to understand what metering requirements apply - https://www.industry.nsw.gov.au/__data/assets/pdf_file/0006.

Detailed design information for works on waterfront land is not yet available. A commitment that all works within waterfront land would be undertaken in accordance with Guidelines for Controlled Activities on Waterfront Land (NRAR, 2018) has been added to the summary of proposed mitigation measures, refer to **Appendix B**.

In addition, AGLM will review the DPIE Non-urban water metering in NSW guide and comply with the metering requirements where required.

#### 4.1.14 DPIE Hazards Group

Comments were received from the DPIE Hazards Group. DPIE noted that their advice is not technically counted as a submission as the comments were received from within DPIE.

The DPIE Hazards Group are however satisfied that the PHA has been prepared in accordance with the Department's HIPAP 6, showing that the SSD can comply with the Department's HIPAP 4 land use safety risk criteria.

The DPIE Hazards Group have noted that there are some differences between FRNSW's submission for this Project compared to prior BESS-related SSDs. The DPIE Hazards Group indicated discussions with FRNSW would occur to ensure that their expectation of the FSS would be consistent with PHA safeguards, commitments and recommendations.

As discussed in **Section 4.1.1**, the FSS would be developed and prepared in consultation with FRNSW, RFS and DPIE.

#### 4.1.15 TransGrid (Organisation)

TransGrid have reviewed the Project and advise that they do not have property issues to raise. TransGrid have requested that AGLM provide further details and continue to consult with them.

AGLM will continue to consult and provide Project details with TransGrid as the Project design is developed.

## 4.2 Community submissions and response

### 4.2.1 Submitter SE-18545215

| Issue | Key issue category | Sub-issue | Applicant Response |
|---|---|---|---|
| Government incentivisation of renewable energy | Issues beyond the scope of the Project | Out of scope | The Project is aligned with global, national, state and local strategic policy as described in Chapter 4 of the EIS. No government funding or incentives have been provided for the Project "to date". The incentivisation of solar/wind/battery by the government is a matter for the Department of Environment and Energy or the NSW Department of Industry (Division of Resources and Energy). |
| Grid scale batteries have risk including spontaneous combustion/ Thermal runaway. It is not clear that the PHA adequately addresses the hazards and risks of grid-scale batteries. | Project impacts | Hazards | The PHA considers fire at the battery including thermal runaway in detail in **Section 5.2.1** of the PHA (refer to Appendix G of the EIS). AGLM is confident that the Project will not represent a safety risk to its staff, offsite receptors or emergency services. The safety of the BESS is discussed further in **Section 4.3.1**. |
| The Project would generate battery cores as part of the operational waste stream. There is currently no recycling solution for battery cores.<br>Until recycling solutions are available, the waste issue remains with AGLM and the EIS should reflect their solution.<br>The Project should have conditions of consent that don't allow battery commissioning until the battery waste issue is solved. | Project impacts | Waste | Waste impact of batteries is discussed further in **Section 4.3.4.** |

### 4.2.3 Submitter SE-19425633

| Issue | Key issue category | Sub-issue | Applicants Response |
|---|---|---|---|
| Objection to AGL's energy transition plans adopting such energy battery storage. | Issues beyond the scope of the Project | Out of scope | AGL's energy transition plans respond to identified needs within the NEM and are aligned with global, national, state and local strategic policy as described in Chapter 4 of the EIS. No government funding or incentives have been provided for the Project to date. The incentivisation of solar/wind/battery by the government is a matter for the Department of Industry, Science, Energy and Resources or DPIE (Energy NSW). |
| Government incentivisation of renewable energy | Issues beyond the scope of the Project | Out of scope | |
| Lithium batteries - are reliant on mining cobalt from the Congo - using child slave labour. | Issues beyond the scope of the Project | Out of scope | Cobalt is not used in the Battery selected for this project.<br>AGL must, and will, comply with *the Modern Slavery Act 2018* (Cwth). AGL's *Modern Slavery Act Statement 2020* describes the steps AGL have taken during FY20 to identify and address modern slavery risks in their operations and supply chain.<br>This statement is available here: https://www.agl.com.au/-/media/aglmedia/documents/about-agl/sustainability/agl-modern-slavery-statement-fy2020.pdf?la=en&hash=20C4354423FB7C312639BFCCC9ADA82D |
| Lithium batteries are easily combustible | Project impacts | Safety | The PHA considers fire at the battery including thermal runaway in detail in **Section 5.2.1** of the PHA (refer to **Appendix G** of the EIS). AGLM is confident that the Project will not represent a safety risk to its staff, offsite receptors or emergency services. The safety of the BESS is discussed further in **Section 4.3.1**. |
| Large-scale battery storage, PV Solar & Wind energy causes extensive environmental vandalism, toxic contamination that threatens healthy food production, destruction of ecological habitat & creates a massive, toxic waste burden - with these lithium-ion batteries having a relatively short life span & being easily combustible - hence even more ongoing, toxic waste! | Project impacts | Waste | Waste impact of batteries is discussed further in **Section 4.3.4.** |

## 4.3 Further assessment of the impacts of the Project

A brief description of additional assessment in response to submissions is provided in the sections below.

### 4.3.1 Hazards and risks

The EIS considered fire risks to and from the BESS in **Section 6.1** and commits to the preparation of an emergency response plan for the Project.

The hazard and risk assessment as summarised in **Section 6.1** of the EIS, included a review of information provided by AGLM's Battery technology provider and consideration of site and surrounding land-uses. As part of this assessment, a PHA was also prepared for the Project. This was provided as **Appendix G** of the EIS.

The PHA focused on potential high consequence incidents that may affect the health and safety to people and the environment outside of the site boundaries. A FHA will be completed once the design of the development has been finalised.

AGLM is confident that the Project will not represent a safety risk to its staff, offsite receptors or emergency services. The BESS under consideration complies with all current safety standards for batteries which have been developed and refined to historic industry incidents and are applied and accepted by various authorities in the US for systems being installed in built-up areas.

AGLM have a commitment to workplace health and safety and have numerous policies and procedures to achieve a safe workplace. These include, but are not limited to:

- The operation of the existing and proposed new facility will be monitored and controlled from a central control room via a Supervisory Control and Data Acquisition system
- An incident reporting and response system will be established, providing 24-hour coverage
- The elements included in the Project will comply with all codes and statutory requirements with respect to design and work conditions
- All personnel required to work with Dangerous Goods substances and with electricity will be trained in their safe use and handling, and will be provided with all the relevant safety equipment and documentation e.g. Safety Data Sheets and Personal Protective Equipment
- Emergency procedures, including for pollution incident response, will be developed and personnel trained in emergency response
- The site will have Operations Managers with overall responsibility who are supported by suitably qualified personnel trained in the operation, maintenance and support of the facility
- A Permit to Work system, including Hot Work Permit for any work that could provide an ignition source, and control of modification systems will be in use on site to control work and to protect plant and structures from substandard and potentially hazardous modifications
- Protective systems will be routinely inspected and tested to ensure they are, and remain, in a good state of repair and function reliably when required to do so. This will include scheduled testing of shutdown valves, trips and alarms, and relief devices associated with the Project
- All personnel on site will be provided with appropriate personal protective equipment (PPE) suitable for use with the specific type of activity i.e. handling of hazardous substances
- Multiple first aid stations will be present and provide appropriate first aid kits and first aid instructions, i.e. Safety Data Sheets, for all substances kept or handled on the premises

In addition, the BESS will operate with multiple layers of redundancy and autonomous layers of control, and will perform comprehensive hazard monitoring, detection, and response. Specifically, it would include the following safety features:

- Rigorous approach to design, testing, installation and maintenance of the BESS including automatic shut down in case of any safe limits of voltage, current and temperature being exceeded
- Establishment and maintenance of an APZ
- Installation of gas venting, fire barrier, deflagration panel/plate, and (if required) automatic fire quenching inside the enclosure as required
- Fitting of smoke and temperature sensors so that, if there is a fire/ smoke/ high temperature the module is isolated and shut down
- Access that ensures that people inside the battery enclosure can escape through appropriate openings, and warnings that people outside of the battery enclosures have sufficient space to move through and egress from the Battery compound
- Restricted access into the enclosure during a hazardous event is prevented, e.g., through visible annunciation fitted on the outside of the enclosure
- Sufficient separation between enclosures and to other Battery infrastructure such that a fire in a battery cell and potentially within an enclosure can be allowed to burn without the need for external fire-fighting to control escalation
- Installation of firefighting fire prevention, detection, protection, and firefighting measures and systems as determined by the **FSS**
- The equipment layout and orientation would be optimised to ensure minimal electromagnetic field (**EMF**) generation and warning signs would be placed within the site and surrounds. Incidental EMF shielding would be provided where required (i.e. the Battery enclosure, switch room).

### 4.3.2 Biodiversity

The submission from BCD (refer to **Section 4.1.7**) provided a list of recommendations for addressing information gaps or improvements to the **BDAR**. As such the updates to the BDAR have been made as result of these comments. The BDAR (Jacobs, 2021a) is provided in **Appendix D** and the updates are summarised below.

#### 4.3.2.1 Striped legless lizard (*Delma impar*)

The Survey Guidelines for Australia's Threatened Reptiles (Department of the Environment Water Heritage and the Arts, 2011) recommends that tile arrays are installed three months prior to initiating the surveys. Due to the condensed timeframe of the assessment, the five tile arrays were installed only one month prior to survey. The remaining three WOAOW Project tile arrays were installed over a year prior to survey. As such the duration of surveys (installation of tile arrays) did not meet the requirements.

The Striped Legless Lizard was not recorded within the development site despite being known to occur in the larger woodland patches to the west of the Project and toward Drayton Mine. One Striped Legless Lizard was recently recorded (2019) within 1 km of the development site during surveys for the WOAOW Project (Kleinfelder, 2020). This observation was made in a large area of high quality PCT 1692 Bull Oak grassy woodland of the central Hunter Valley.

Under the BAM, where a survey is deemed as insufficient, the target species must be assumed present. Therefore, the Striped Legless Lizard is assumed to be present within the development site.

The habitat for the Striped Legless Lizard within the development site is considered to be low-quality given that much of the land was cleared for cattle grazing in the past and has been modified to accommodate power station infrastructure. Areas of native vegetation still exist as small and isolated patches and may provide potential habitat for this species, refer to **Figure 4-1**. The PCTs associated with the Striped Legless Lizard include:

- PCT 1691 Narrow-leaved Ironbark - Grey Box grassy woodland of the Central and Upper Hunter – Moderate (all conditions)
- PCT 1692 Bull Oak grassy woodland of the central Hunter Valley -Moderate.

#### 4.3.2.1.1 Assessment of impacts

Approximately 38.5 ha of potential habitat for the Striped Legless Lizard may be impacted by the Project which is mostly regrowth vegetation in poor ecological condition.

The direct impacts on Striped Legless Lizard (species credit threatened species assumed present) habitat associated with the clearing of native vegetation is outlined in **Table4-4**and the offsets are outlined in **Section 4.3.2.4**.

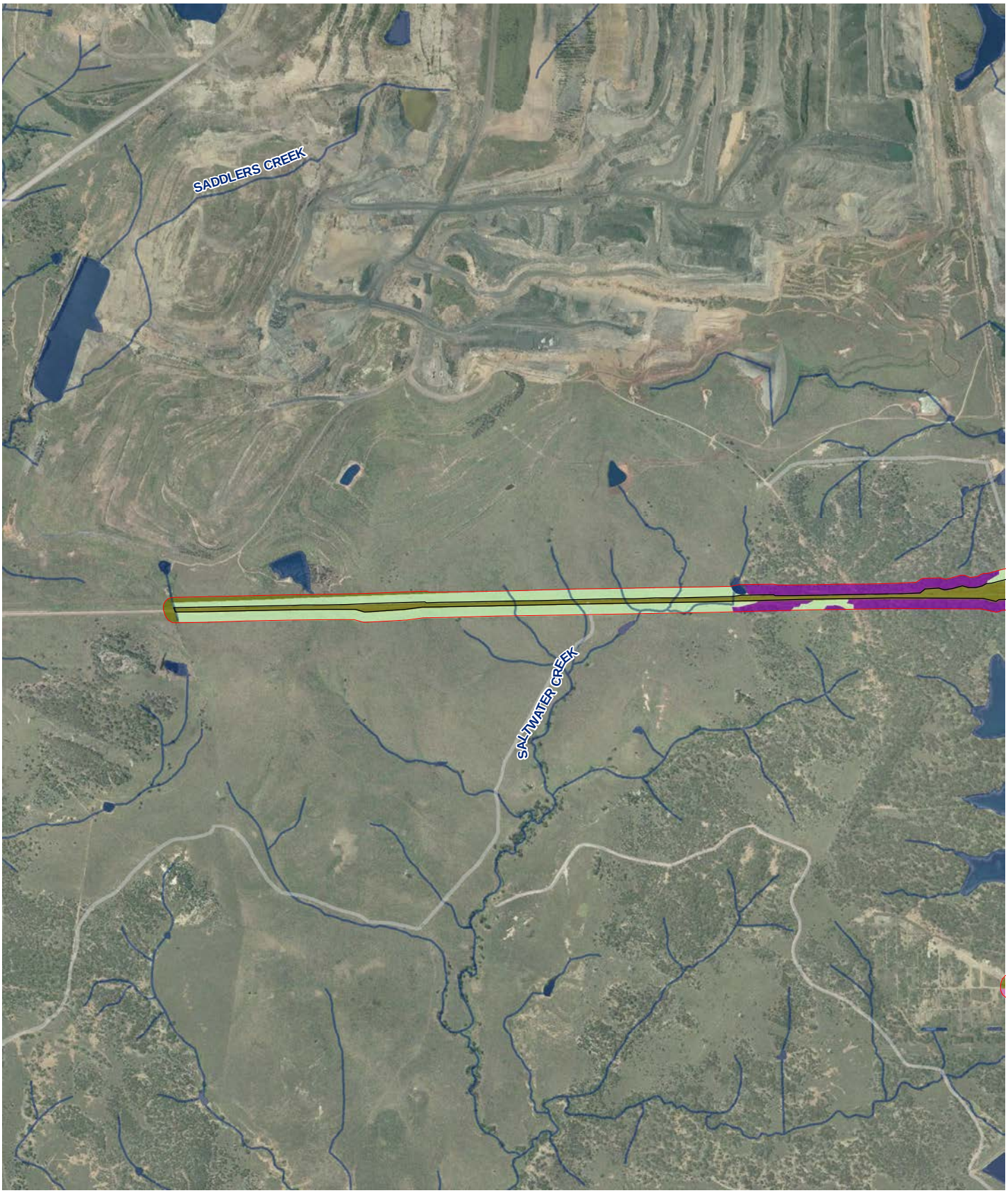
Table 4-4 **Summary of direct impacts on threatened species habitat (species credit species).**

| Species name | Common name | *EPBC Act | BC & FM Act | Area (ha) | Sensitivity to gain class |
|---|---|---|---|---|---|
| *Delma impar* | Striped Legless Lizard | V | V | Approximately 38.5 ha of potentially suitable habitat. 33 ha of this is regrowth and rehabilitated vegetation. | Moderate |

***EPBC Act**: *Environment Protection and Biodiversity Conservation Act 1999*

As outlined above, the Striped Legless Lizard is known to inhabit the higher-quality woodland habitats to the west of the development site. As such this species could potentially disperse eastward across the development site on occasion, although habitats within this area are already isolated by significant infestations of exotic grasses, coupled with movement barriers such as roads, water canals and power station infrastructure. The ground surfaces of the development site have historically been modified and generally lack shelter features such as rocks, logs, wood debris and native tussock grasses. Future detailed design would further retain vegetation within the development site and the Project is unlikely to exacerbate barriers to dispersal for the Striped Legless Lizard.

The breeding habitat for the Striped Legless Lizard is also considered to be poor condition.




## Legend

- Assessment area
- Development site
- Road
- Waterway
- Waterbody

**Plant community type (PCT) and condition**

- PCT 1691 Narrow-leaved Ironbark - Grey Box grassy woodland of the central and upper Hunter: Good
- PCT 1691 Narrow-leaved Ironbark - Grey Box grassy woodland of the central and upper Hunter - Rehabilitation (Veg zone 3)

**Non-Native**

- Exotic grassland
- Excluded/artificial surface

0 0.5 1 km

N

1:25,000 at A4

**Data sources**

Jacobs 2021
AGL 2020
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**Figure 4-1** Threatened species polygon for Striped Legless Lizard *(Delma impar)*



Date: 22/06/2021 Path: J:\04_Eastern\IS334000\22_Spatial\GIS\Directory\Templates\Figures\EIS\Ecology\BDAR\IS334000_BDAR_F014_StripedLeglessLizard_r1v2.mxd
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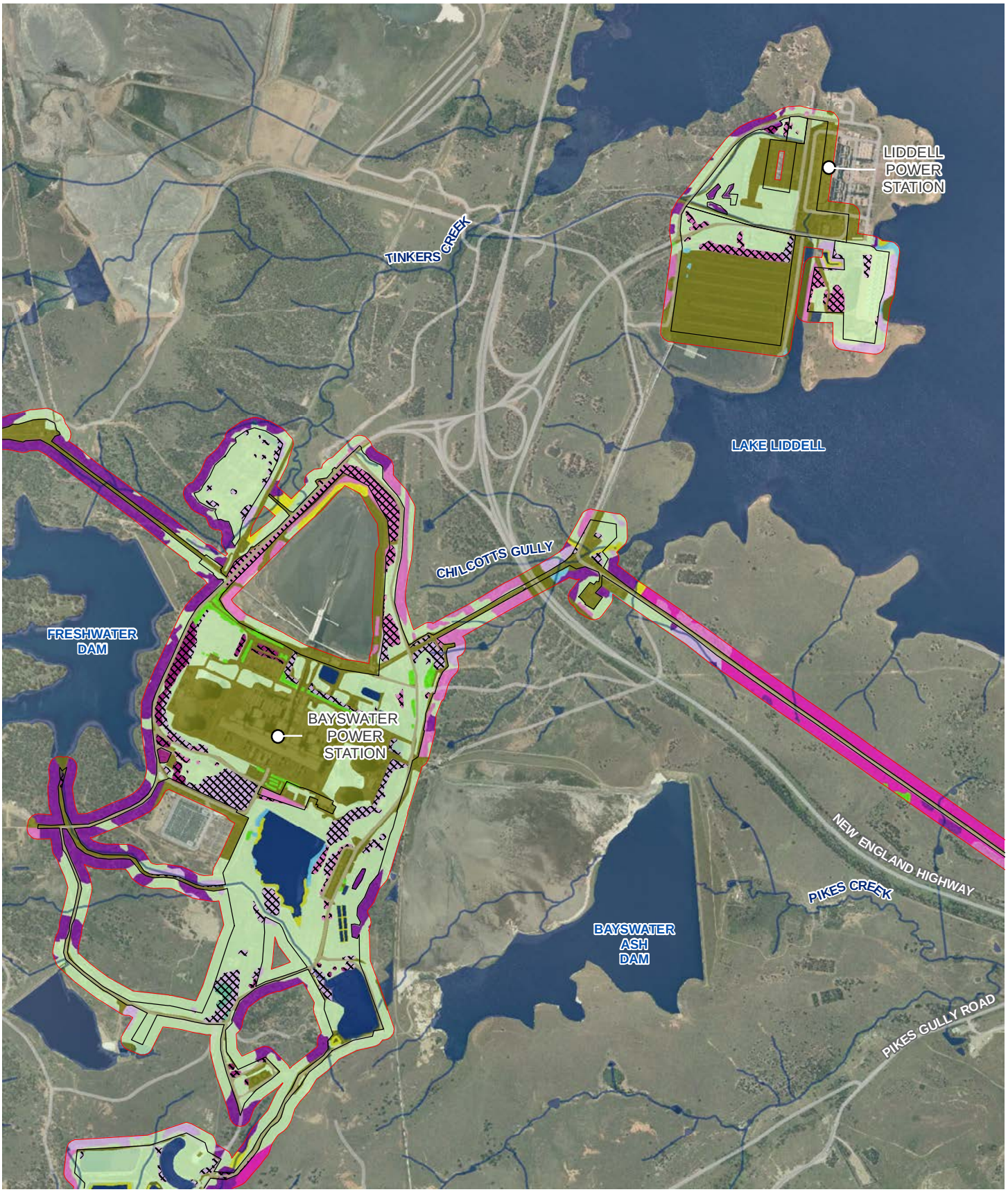


## Legend

- Assessment area
- Development site
- Species polygon for Striped Legless Lizard (*Delma impar*)
- Road
- Waterway
- Waterbody

**Plant community type (PCT) and condition**

- PCT 1071 Phragmites australis and Typha orientalis coastal freshwater wetlands of the Sydney Basin Bioregion - Moderate (Veg zone 7)
- PCT 1691 Narrow-leaved Ironbark - Grey Box grassy woodland of the central and upper Hunter: Good
- PCT 1691 Narrow-leaved Ironbark - Grey Box grassy woodland of the central and upper Hunter - Moderate (Veg zone 1)
- PCT 1691 Narrow-leaved Ironbark - Grey Box grassy woodland of the central and upper Hunter - Native Grassland (Veg zone 4)
- PCT 1691 Narrow-leaved Ironbark - Grey Box grassy woodland of the central and upper Hunter - Rehabilitation (Veg zone 3)
- PCT 1691 Narrow-leaved Ironbark - Grey Box grassy woodland of the central and upper Hunter - Regrowth (Veg zone 2)
- PCT 1692 Bull Oak grassy woodland of the central Hunter Valley - Moderate-good (Veg zone 6)
- PCT 1731 Swamp Oak - Weeping Grass grassy riparian forest of the Hunter Valley - Moderate-good (Veg zone 5)

**Non-Native**

- Planted trees
- Exotic grassland
- Excluded/artificial surface

0 0.5 1 km

1:25,000 at A4

N

**Data sources**

Jacobs 2021
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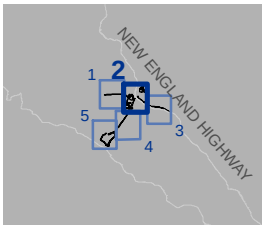


**Figure 4 -1** Threatened species polygon for Striped Legless Lizard *(Delma impar)*



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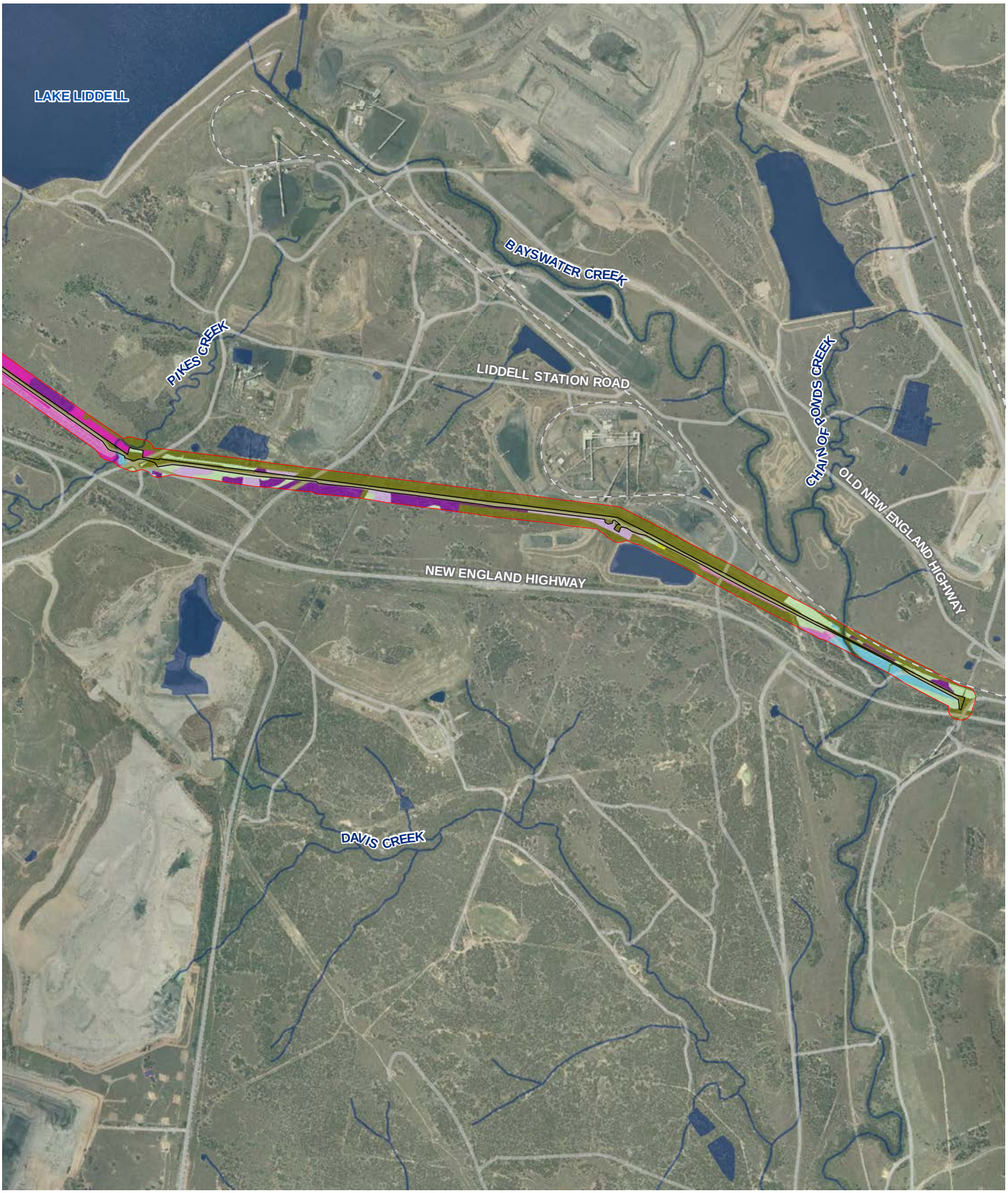


## Legend

- Assessment area
- Development site
- Species polygon for Striped Legless Lizard (*Delma impar*)
- Railway
- Road
- Waterway
- Waterbody

**Plant community type (PCT) and condition**

- PCT 1071 Phragmites australis and Typha orientalis coastal freshwater wetlands of the Sydney Basin Bioregion - Moderate (Veg zone 7)
- PCT 1691 Narrow-leaved Ironbark - Grey Box grassy woodland of the central and upper Hunter: Good
- PCT 1691 Narrow-leaved Ironbark - Grey Box grassy woodland of the central and upper Hunter - Native Grassland (Veg zone 4)
- PCT 1691 Narrow-leaved Ironbark - Grey Box grassy woodland of the central and upper Hunter - Rehabilitation (Veg zone 3)
- PCT 1691 Narrow-leaved Ironbark - Grey Box grassy woodland of the central and upper Hunter - Regrowth (Veg zone 2)
- PCT 1731 Swamp Oak - Weeping Grass grassy riparian forest of the Hunter Valley - Moderate-good (Veg zone 5)

**Non-Native**

- Exotic grassland
- Excluded/artificial surface

0 0.5 1 km

1:25,000 at A4

N

**Data sources**

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**Figure 4 -1** Threatened species polygon for Striped Legless Lizard *(Delma impar)*



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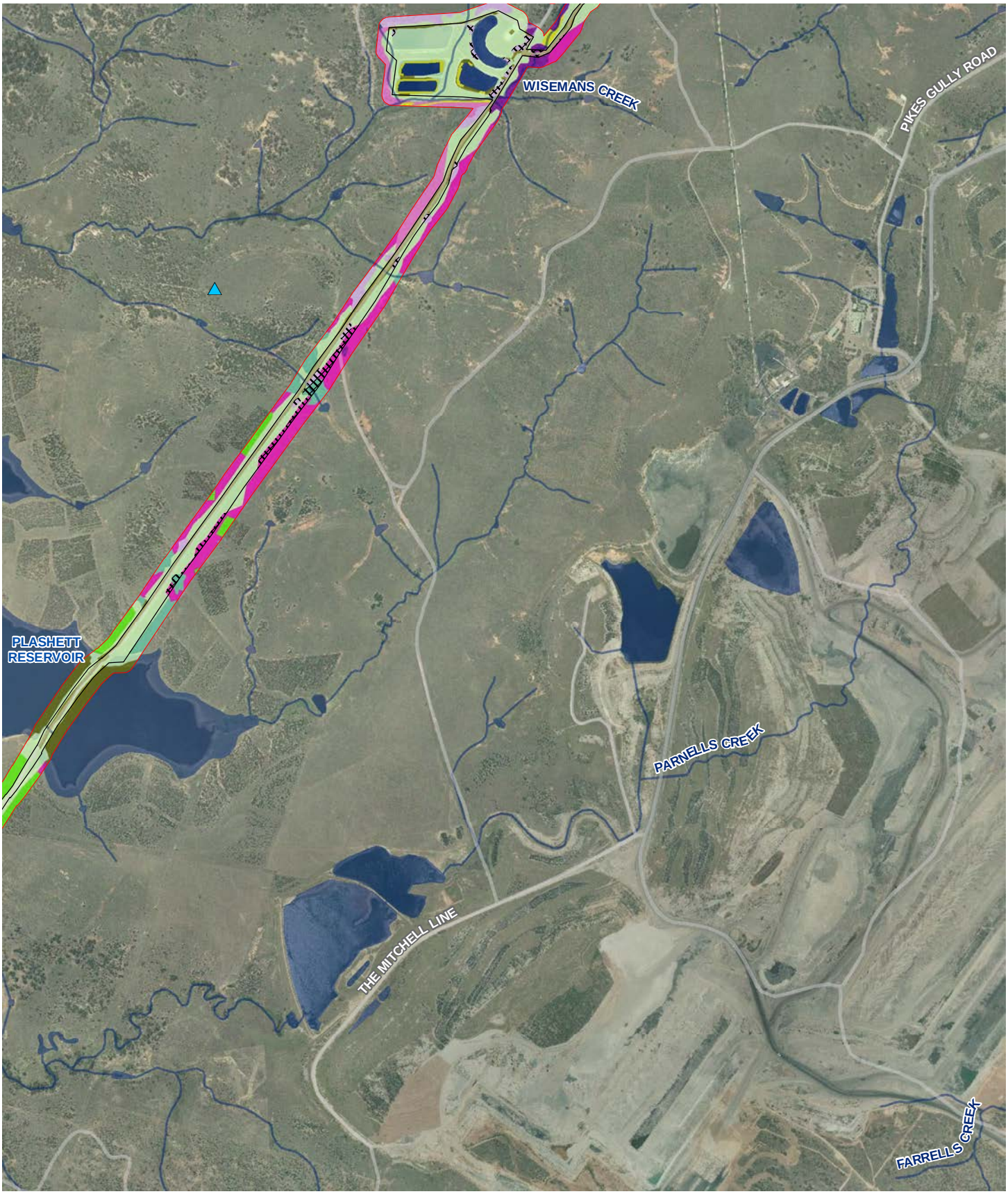


## Legend

- Assessment area
- Development site
- Species polygon for Striped Legless Lizard (*Delma impar*)
- Striped Legless Lizard observation (Kleinfelder, 2020)
- Road
- Waterway
- Waterbody

**Plant community type (PCT) and condition**

- PCT 1071 Phragmites australis and Typha orientalis coastal freshwater wetlands of the Sydney Basin Bioregion - Moderate (Veg zone 7)
- PCT 1691 Narrow-leaved Ironbark - Grey Box grassy woodland of the central and upper Hunter: Good
- PCT 1691 Narrow-leaved Ironbark - Grey Box grassy woodland of the central and upper Hunter - Moderate (Veg zone 1)
- PCT 1691 Narrow-leaved Ironbark - Grey Box grassy woodland of the central and upper Hunter - Native Grassland (Veg zone 4)
- PCT 1691 Narrow-leaved Ironbark - Grey Box grassy woodland of the central and upper Hunter - Rehabilitation (Veg zone 3)
- PCT 1691 Narrow-leaved Ironbark - Grey Box grassy woodland of the central and upper Hunter - Regrowth (Veg zone 2)
- PCT 1692 Bull Oak grassy woodland of the central Hunter Valley - Moderate-good (Veg zone 6)

**Non-Native**

- Planted trees
- Exotic grassland
- Excluded/artificial surface

0 0.5 1 km

1:25,000 at A4

N

### Data sources

Jacobs 2021
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**Figure 4 -1** Threatened species polygon for Striped Legless Lizard *(Delma impar)*



Date: 22/06/2021 Path: J:\04_Eastern\IS334000\22_Spatial\GIS\Directory\Templates\Figures\EIS\Ecology\BDAR\IS334000_BDAR_F014_StripedLeglessLizard_r1v2.mxd
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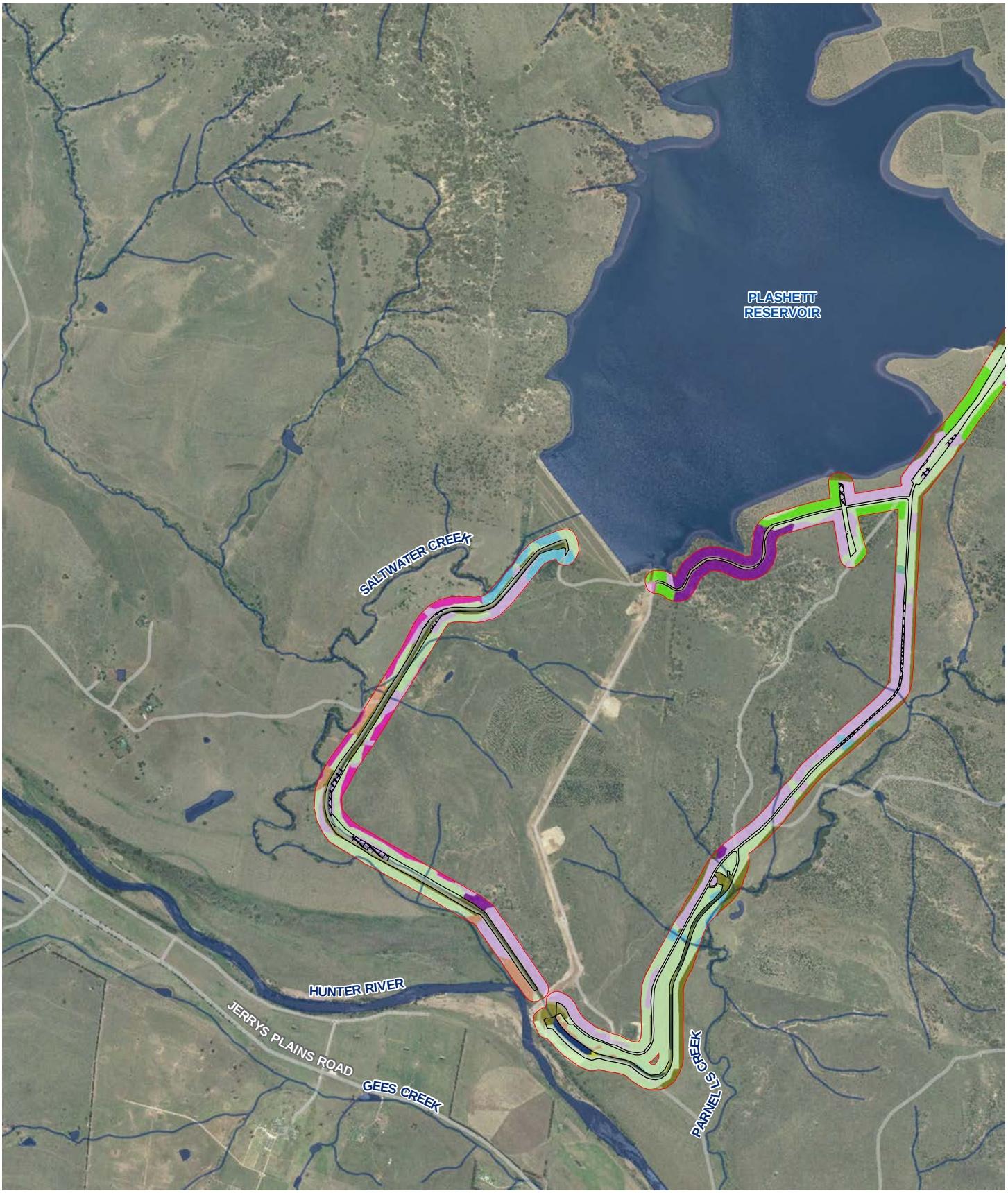


## Legend

- Assessment area
- Development site
- Species polygon for Striped Legless Lizard (*Delma impar*)
- Road
- Waterway
- Waterbody

**Plant community type (PCT) and condition**

- PCT 485 River Oak riparian grassy tall woodland of the western Hunter Valley (Brigalow Belt South Bioregion and Sydney Basin Bioregion)
- PCT 1071 Phragmites australis and Typha orientalis coastal freshwater wetlands of the Sydney Basin Bioregion - Moderate (Veg zone 7)
- PCT 1691 Narrow-leaved Ironbark - Grey Box grassy woodland of the central and upper Hunter: Good
- PCT 1691 Narrow-leaved Ironbark - Grey Box grassy woodland of the central and upper Hunter - Moderate (Veg zone 1)
- PCT 1691 Narrow-leaved Ironbark - Grey Box grassy woodland of the central and upper Hunter - Native Grassland (Veg zone 4)
- PCT 1691 Narrow-leaved Ironbark - Grey Box grassy woodland of the central and upper Hunter - Regrowth (Veg zone 2)
- PCT 1692 Bull Oak grassy woodland of the central Hunter Valley - Moderate-good (Veg zone 6)
- PCT 1731 Swamp Oak - Weeping Grass grassy riparian forest of the Hunter Valley - Moderate-good (Veg zone 5)

**Non-Native**

- Planted trees
- Exotic grassland
- Excluded/artificial surface

0 0.5 1 km

1:25,000 at A4

N

### Data sources

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**Figure 4 -1** Threatened species polygon for Striped Legless Lizard *(Delma impar)*



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#### 4.3.2.2 Red Goshawk (Erythrotriorchis radiatus)

The Red Goshawk has previously been recorded to the north of Singleton and east of Ravensworth (approximately 11 km from the Project). According to the NSW Bionet Atlas, the population in NSW is naturally small (probably only one pair) and lies at the extreme of the natural range of species.

The Red Goshawk was not generated by the BAM-C and is not associated with any of the PCTs within the development site, however, it has been added to the BDAR.

In NSW, preferred habitats of Red Goshawk include mixed subtropical rainforest, Melaleuca swamp forest and riparian Eucalyptus forest of coastal rivers, which are absent from the development site. Resident pairs of red goshawks prefer intact, extensive woodlands and forests with a mosaic of vegetation types. The development site does not contain intact or extensive woodlands and consists of only small and isolated patches which are in close proximity to power stations, roads and other high-disturbance areas. Furthermore, evidence of this species was not recorded in the adjacent lands (and better habitats) during comprehensive avifauna surveys undertaken for the WOAOW project (Kleinfelder, 2020). Furthermore, the development site lacks large mature trees, no stick nests were recorded and breeding habitat for this species is absent.

As suitable habitat for the Red Goshawk was deemed absent, this species has not been considered further.

#### 4.3.2.3 *Acacia pendula* (Weeping Myall)

There are eight individual *Acacia pendula* (Weeping Myall) adjacent to the northern carpark of Bayswater. The patch they are planted in is not remnant and has been planted as part of historic landscaping activities. These individuals occur in an artificial setting alongside Crimson bottlebrush and Swamp Paperbark plantings and do not represent a naturally occurring patch of Hunter Valley Weeping Myall Woodland of the Sydney Basin bioregion.

The *Acacia pendula* trees display obvious characteristics of the inland form of this species including a strongly pendulous habit (branches), abundance of seed capsules, and absence of suckering stems (unlike the Hunter Valley form which often lacks pendulous habit, has seed generation deficiencies and often suckers from roots).

The *Acacia pendula* within the development site are not a naturally occurring population and would likely be genetically dissimilar to the naturally occurring Hunter Valley populations. As shown in **Photo 4-1**, the planted *Acacia pendula* trees display obvious characteristics of the inland form of this species including a strongly pendulous habit (branches), abundance of seed capsules, and absence of suckering stems (unlike the Hunter Valley form which often lacks pendulous habit, has deficient seed generation and often suckers from roots). The abundance of seed recorded on these trees indicates that they are not of the naturally occurring Hunter Valley form, which is renowned for being unable to generate fruit, and instead reproduces through suckering. These planted individuals do not constitute the *Acacia pendula* population in the Hunter Catchment - Endangered Population.

Photo 4-1: Planted Weeping Myall trees display features associated with the inland form of this species including a strongly pendulous habit (branches), abundance of fruit, and absence of suckering stems

#### 4.3.2.4 Biodiversity credit requirements and offsets

The Biodiversity Offset Strategy is discussed in Section 14 of the BDAR. A summary of the biodiversity credit requirements for the Striped Legless Lizard are provided in **Table 4-5**.

Table 4-5 Species credits required for Striped Legless Lizard

| Striped Legless Lizard (*Delma impar)* | Credits |
|---|---|
| 1691 Narrow-leaved Ironbark - Grey Box grassy woodland of the central and upper Hunter – Moderate | 28 |
| 1691 Narrow-leaved Ironbark - Grey Box grassy woodland of the central and upper Hunter – Regrowth | 81 |
| 1691 Narrow-leaved Ironbark - Grey Box grassy woodland of the central and upper Hunter – Rehabilitation | 139 |
| 1691 Narrow-leaved Ironbark - Grey Box grassy woodland of the central and upper Hunter – Native Grassland | 16 |
| 1692 Bull Oak grassy woodland of the central Hunter Valley -Moderate | 15 |
| **Total** | **279** |

Total offsets per credit type have been calculated for the potential clearing of native vegetation and a credit requirement has been calculated using the BAM-C. Offsets were also identified as being required for the Striped Legless Lizard. The updated total number of credits to be retired for each stage of the development have been divided on a pro rata basis on a credit / ha (of impact) calculation as shown in **Table 6-4**.

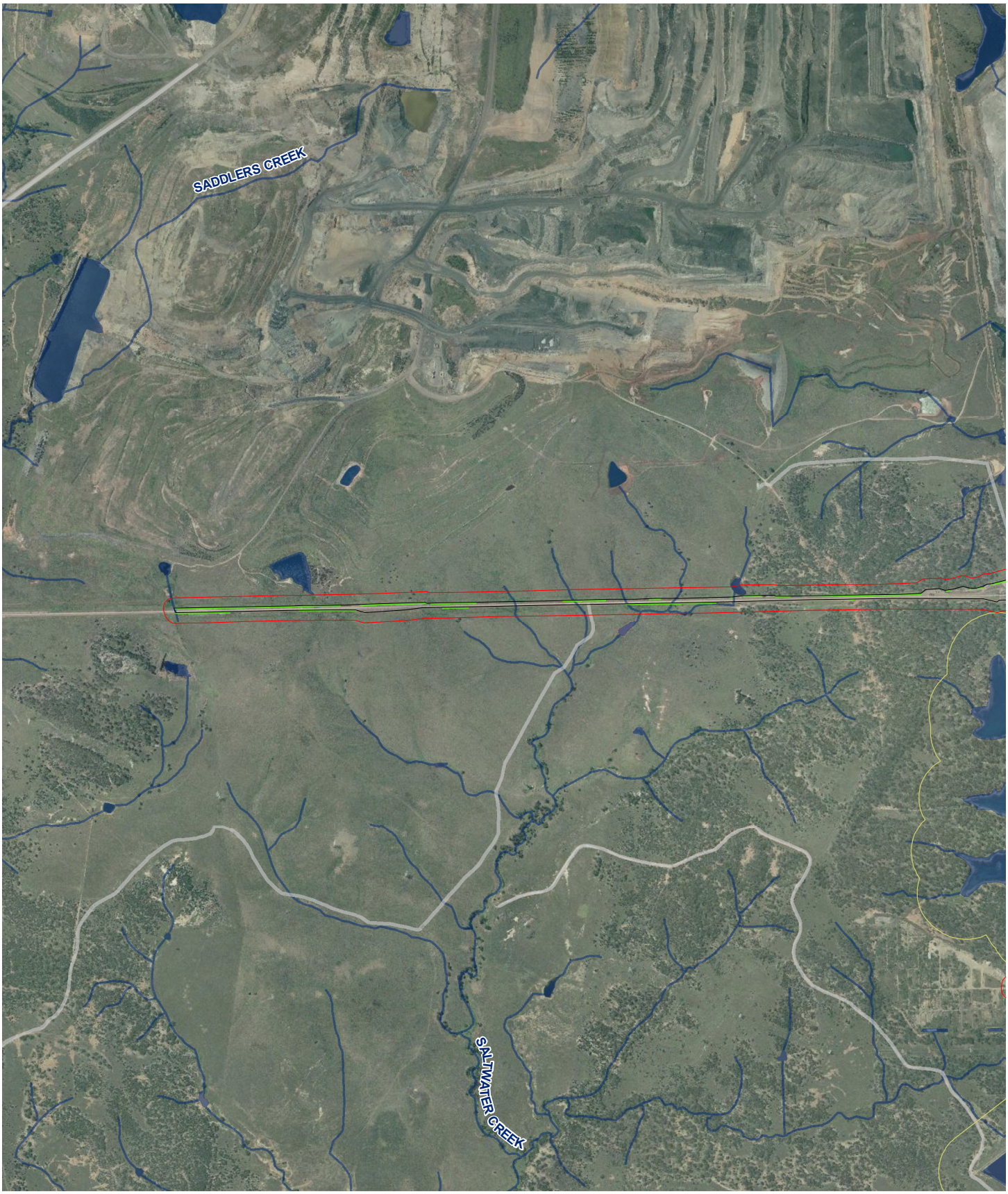
AGLM has further confirmed that much of the development site is highly unlikely to be impacted by the Project. That is more native vegetation is likely to be retained during later design or prior to construction, and to

accommodate for this an amount of credits are grouped as 'unlikely' (ie. it is unlikely that these credits would be required to be offset). Areas unlikely to be impacted are identified in **Figure 4-2** and credits within these areas are calculated as presented in brackets in **Table 4-6.**

The detailed design would confirm impacts requiring credits to be retired and AGLM would retire these credits prior to commencing each stage.

Table 4-6 Credit requirements for each stage of Project

| Stage of Development | PCT 1691 Moderate Credits | PCT 1691 Rehabilitation Credits | PCT 1691 Native Grassland Credits | PCT 1731 Moderate_ Good Credits | PCT 1692 Moderate_ Good Credits | PCT 1071 Moderate Credits | Southern Myotis credits | Striped Legless Lizard credits |
|---|---|---|---|---|---|---|---|---|
| Battery | - | 57 (57) | - | 1 (1) | - | - | 37 (37) | 32 (32) |
| Decoupling | 2 | 3 (3) | - | - | - | - | 2 (2) | 4 (4) |
| BAW | 36 (17.5) | 126 (71.5) | 24 (0) | 6 (0) | 17 (1.3) | 82(0) | 157 (32.9) | 243 (61) |
| Total credits | **38 (17.5)** | **186 (131.5)** | **24 (0)** | **7 (1)** | **17 (1.3)** | **82 (0)** | **196 (71.9)** | **279 (97)** |




Legend

- Assessment area
- Development site
- 200m waterbody buffer
- PCT impacts
  - No offset required
- Road
- Waterway
- Waterbody

0 0.5 1 km

1:25,000 at A4

**Data sources**

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**Figure 4 -2** Impacts requiring offsets and impacts not requiring offsets



Date: 22/06/2021 Path: \\Jacobs.com\ANZIE\Projects\04_Eastern\IS334000\22_Spatial\GIS\Directory\Templates\Figures\EIS\Ecology\BDAR\IS334000_BDAR_F013_ImpactOffsets_r2v1.mxd
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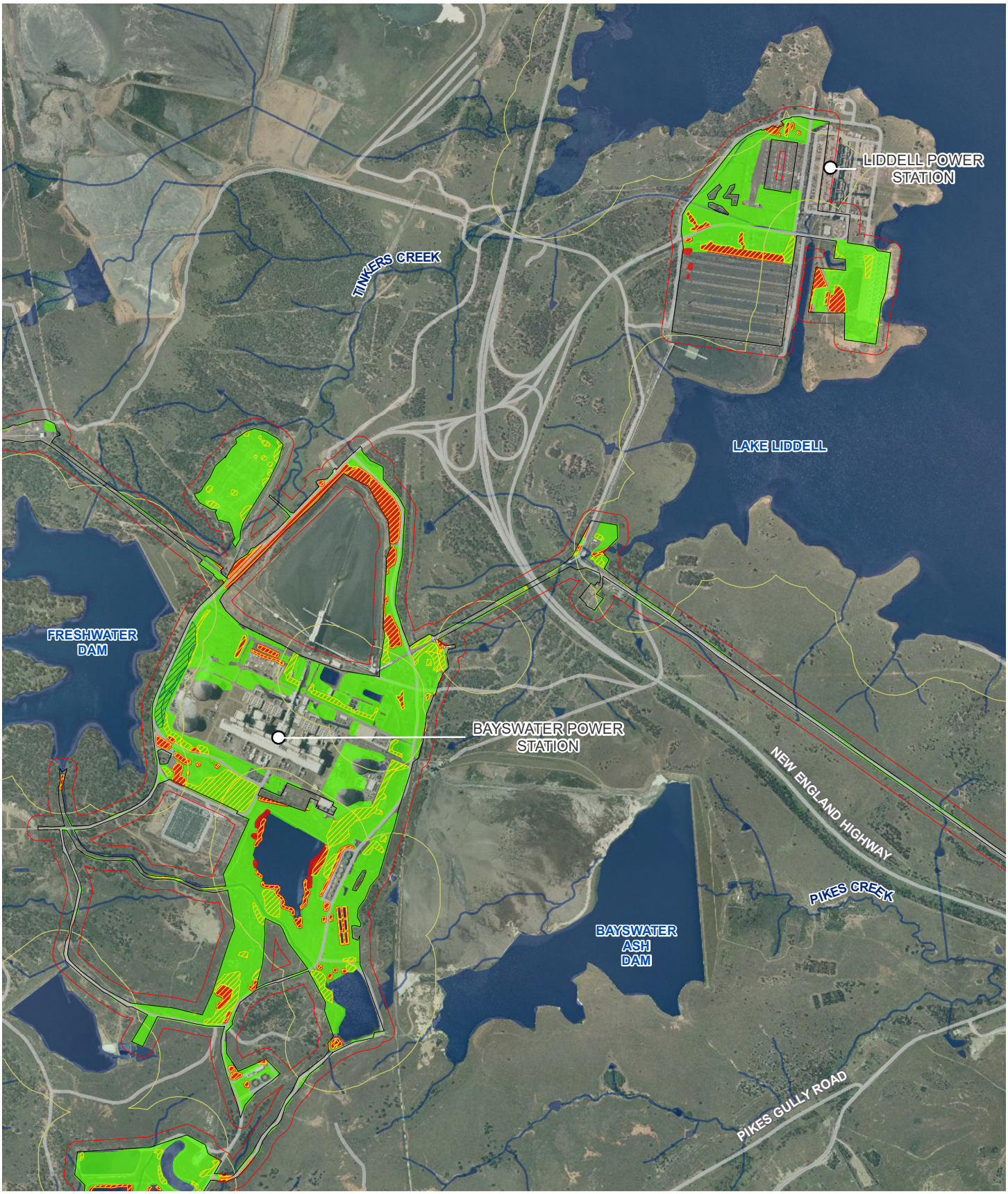


Legend

- Assessment area
- Development site
- 200m waterbody buffer
- Vegetation to be retained
- Species impact (Southern Myotis and Striped Legless Lizard)
- Road
- Waterway
- Waterbody

PCT impacts

- Offset required
- No offset required

0 0.5 1 km

1:25,000 at A4

N

**Data sources**

Jacobs 2021
AGL 2020
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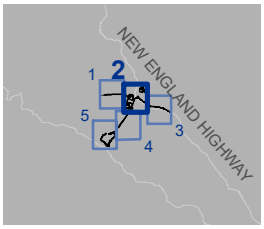


**Figure 4 -2** Impacts requiring offsets and impacts not requiring offsets



Date: 22/06/2021 Path: \\Jacobs.com\ANZIE\Projects\04_Eastern\IS334000\22_Spatial\GIS\Directory\Templates\Figures\EIS\Ecology\BDAR\IS334000_BDAR_F013_ImpactOffsets_r2v1.mxd
Created by : NT | QA by : SR


Legend

- Assessment area
- Development site
- 200m waterbody buffer
- Species impact (Southern Myotis and Striped Legless Lizard)
- PCT impacts
  - No offset required
- Road
- Railway
- Waterway
- Waterbody

0 0.5 1 km

1:25,000 at A4

N

**Data sources**

Jacobs 2021
AGL 2020
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**Figure 4 -2** Impacts requiring offsets and impacts not requiring offsets



Date: 22/06/2021 Path: \\Jacobs.com\ANZIE\Projects\04_Eastern\IS334000\22_Spatial\GIS\Directory\Templates\Figures\EIS\Ecology\BDAR\IS334000_BDAR_F013_ImpactOffsets_r2v1.mxd
Created by : NT | QA by : SR


Legend

- Assessment area
- Development site
- 200m waterbody buffer
- Species impact (Southern Myotis and Striped Legless Lizard)
- Road
- Waterway
- Waterbody

PCT impacts

- Offset required
- No offset required

0 0.5 1 km

1:25,000 at A4

N

**Data sources**

Jacobs 2021
AGL 2020
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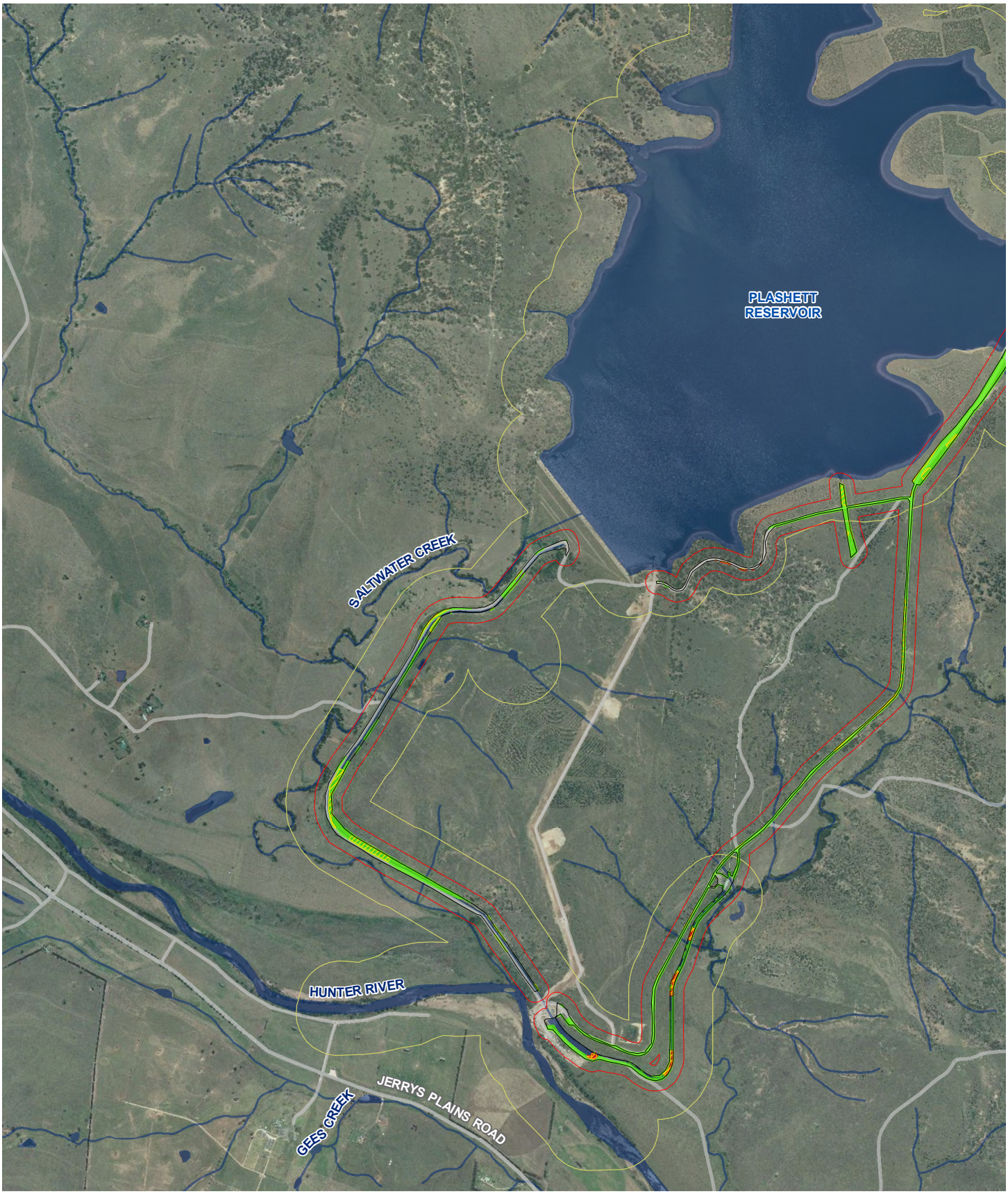
**Figure 4 -2** Impacts requiring offsets and impacts not requiring offsets



Date: 22/06/2021 Path: \\Jacobs.com\ANZIE\Projects\04_Eastern\IS334000\22_Spatial\GIS\Directory\Templates\Figures\EIS\Ecology\BDAR\IS334000_BDAR_F013_ImpactOffsets_r2v1.mxd
Created by : NT | QA by : SR




Legend

- Assessment area
- Development site
- 200m waterbody buffer
- Species impact (Southern Myotis and Striped Legless Lizard)
- Road
- Waterway
- Waterbody

PCT impacts

- Offset required
- No offset required

0 0.5 1 km

1:25,000 at A4

**Data sources**

Jacobs 2021
AGL 2020
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**Figure 4 -2** Impacts requiring offsets and impacts not requiring offsets



Date: 22/06/2021 Path: \\Jacobs.com\ANZIE\Projects\04_Eastern\IS334000\22_Spatial\GIS\Directory\Templates\Figures\EIS\Ecology\BDAR\IS334000_BDAR_F013_ImpactOffsets_r2v1.mxd
Created by : NT | QA by : SR

### 4.3.3 Aboriginal Cultural Heritage Impact Assessment

The Submission from HNSW (refer to **Section 4.1.10**) provided recommendations for further consideration of Aboriginal Cultural Values of the Development site including additional consultation with RAPs. The updated ACHAR is provided in **Appendix C**.

### 4.3.4 Waste

#### 4.3.4.1 Battery waste

As stated in the EIS, where possible, all components of the BESS would be recycled or reused so as to align with the preferences of the waste hierarchy. The EIS also acknowledges that Battery technology is in its early stages of deployment and maturity and the rapid increase in deployment makes end of life planning for batteries an important consideration.

The EIS also notes that Federal Government listed batteries as a priority product, first appearing on the product priority list in 2014-15, moving to a top priority in the product priority list 20-21. For this reason, the Battery Stewardship Council is progressing toward a voluntary industry scheme commencing in 2020.

The operational design life for replacement of the battery depends on the C-rating of the battery and the average daily throughput in terms of number of cycles per day. Currently, that is a 1C (1Hr) battery with an average throughput of 1 cycle per day can have an operational design life of 17-18 years while a 0.7 average cycles per day the same battery as above can operate for 20 years. While in comparison a 0.5C (2Hr) battery can provide up to two cycles per day for 20 years.

AGLM and the potential Battery supplier have consideration of the ability / economics of recycling / repurposing the proposed BESS. The potential Battery supplier in partnership has conducted recycling pilot studies on LFP (Lithium Iron Phosphate – LiFePO4) and NMC (Nickel Manganese Chloride) Li-ion battery modules in the United States of America for transporting, disassembling, analysing for reuse, and ultimately recycling of the battery modules.

The trial used a Samsung SDI M2F battery module (with NMC Li-ion sub-chemistry). The trial found that the Recycling Efficiency Rate (RER) reached 77% inclusive of all components including battery cells, metal housing, plastic cell casing, circuit boards, copper breakage, wiring harness and fan.

In Australia and globally, the recycling industry capable of handling Li-Ion modules is still in a start-up phase and currently ramping up to be able to handle larger quantities of battery modules with different chemistries. The potential Battery supplier is currently discussing with several Companies within and outside Australia, which have the capacity to recycle LFP or NMC battery modules.

One Battery supplier's strategy is to partner with Recycling companies (such as Call2recycle, TES Australia, Ecocycle) and/or with Battery manufacturers directly in order to offer the Recycling service to our Customers in Australia. As a result, today's costs for recycling Li-Ion battery modules is still high and only indicative, however this is expected to decrease over the coming decade.

The potential A Battery supplier is also in discussions with the battery manufacture regarding recycling at end of Battery life. The discussions include the potential to open a recycling facility in Australia rather than sending complete battery modules back to their country of Origin.

## 4.4 Updated mitigation measures

The EIS identified the proposed approach to environmental management and the mitigation measures that would be adopted to avoid or reduce the potential impacts of the Project. These measures were summarised in **Section 7.3** of the EIS.

Following public exhibition of the EIS and after consideration of the issues raised in the submissions, revisions to the mitigation measures included in the EIS have been identified. Mitigation measures have been revised to further minimise environmental impacts and meet the expectations and requirements of stakeholders. The full list of mitigation measures including all revised environmental mitigation measures is provided in **Appendix B**.

# 5. Updated evaluation of the Project

This section provides the final evaluation of the Project. It includes the Project justification and conclusion of the environmental impact assessment process. The project justifications as set out in this section have considered the updated BDAR and ACHAR.

## 5.1 Justification of the Project

The Project is necessary to facilitate the efficient, safe and reliable continuation of electricity generating works from the AGLM landholding. The essential nature of the Project is considered to outweigh the identified adverse impacts. While some environmental impacts cannot be avoided, in all cases they would be minimised to the extent possible through the design process and implementation of environmental management measures. The Project as described in **Chapter 2** is considered to best meet the Project objectives when compared to all other alternatives and options (refer to **Section 1.5**).

The Site is largely developed as a power station and the Project represents a continuation of the electricity generation uses, being a form of industrial development, currently carried out on the site and does not conflict with the ongoing operations or any other currently proposed land uses.

The biophysical, economic and social considerations are as follows:

- Biophysical costs and benefits: The Project would result in the direct removal of up to 46.2 ha of vegetation, of which about 42.3 ha is native vegetation. Where impacts on biodiversity cannot be avoided or minimised, appropriate offsets would be provided
- Economic and social considerations: Most social impacts are localised and would be temporary during construction. Economic benefits are anticipated for local businesses during construction due to increased demand for goods and services and direct and indirect employment opportunities for up to 250 people. During operation, the Project would help to facilitate the transition towards a low-carbon future by providing network services not able to be otherwise provided by renewable energy projects. Therefore, the Project supports the AGLM's planned transition to a low carbon energy future
- The Project is considered to be in the public interest. The Project represents a significant and cost-efficient private investment in electricity infrastructure. It results in strong net public benefits by delivering the Battery which would provide essential energy storage and firming capacity as part of the energy transition. The Project will furthermore facilitate the efficient, safe and reliable continuation of electricity generation at Bayswater until its planned retirement in 2035
- In addition, the Project is consistent with the Integrated System Plan **(ISP**) (AEMO 2020), COP21 and the *NSW Climate Change Policy Framework* and not inconsistent with the *Net Zero Plan*.

## 5.2 Concluding statement

This RTS report addresses the requirement to consider and respond to all submissions received. The RTS report also describes minor clarification made to the Project description and provides additional information to address submissions.

Updated mitigation and management measures are included to provide greater confidence that the Project detailed design for each component would consider applicable guidelines, meet performance outcomes assessed in the EIS and avoid, minimise and offset residual impacts to the extent reasonable and feasible. The revised mitigation measures would be implemented to minimise potential negative impacts of the Project. Where supporting technical assessments have been updated post exhibition in response to consultation and recommendations, these are also identified and attached.

The Project has been developed to avoid and minimise impacts on the local and regional environment, and on the local community and businesses, as far as practicable. Measures to minimise the identified potential impacts would be implemented throughout the detailed design and construction planning phases.

A Project of this scale and location would inevitably have some impacts on the local environment and community, however provided the approach to environmental management as described is applied and the final set of mitigation measures presented in this document are effectively implemented, the identified environmental impacts are considered to be acceptable and manageable.

# 6. References

Australian Energy Market Operation (AEMO), 2020. Integrated System Plan 2020

Department of Environment and Climate Change (DECC), 2009. Interim Construction Noise Guideline

Department of the Environment Water Heritage and the Arts, 2011. Survey Guidelines for Australia's Threatened Reptiles

Department of Planning, Industry and Environment (DPIE), 2020. *Preparing a Submissions Report – State Significant Development Guide Exhibition Draft*

Jacobs, 2021. *Liddell Battery and Bayswater Ancillary Works Project: Amended Aboriginal Cultural Heritage Assessment Report*

Jacobs, 2021a. *Liddell Battery and Bayswater Ancillary Works Project*: *Amended Biodiversity Development Assessment Report*

Planager Pty Ltd, 2021. *Preliminary Hazard Analysis for Liddell Battery and Bayswater Ancillary Works* , s.l.: s.n.

# Appendix A. Submissions register

| Group | Reference number | Name | Section where issues addressed in Submissions Report |
|---|---|---|---|
| Public authorities | SE-18026458 | Fire and Rescue NSW | **Section 4.1.1** and **Section 4.3.1** |
| | SE-17729716 | Subsidence Advisory NSW | **Section 4.1.2** |
| | SE-18195716 | Crown lands | **Section 4.1.3** |
| | SE-18398488 | Heritage council of NSW | **Section 4.1.4** |
| | SE-18604072 | DPI Agriculture | **Section 4.1.5** |
| | SE-18602554 | TfNSW (Maritime Services Division) | **Section 4.1.6** |
| | SE-18604077 | TfNSW | **Section 4.1.6** |
| | SE-19061794 | Hunter Central Coast Branch of the Biodiversity and Conservation Division | **Section 4.1.7, Section 3.4.**1 and **Appendix D** |
| | SE-19062473 | EPA | **Section 4.1.8** |
| | SE-19061853 | Geological Survey of NSW – Mining, Exploration and Geoscience | **Section 4.1.9** |
| | SE-19063237 | Heritage- ACH | **Section 4.1.10, Section 3.1.3** and **Appendix C** |
| | SE-19236082 | NSW rural fire service | **Section 4.1.11** |
| | SE-19261959 | Muswellbrook Shire Council | **Section 4.1.12** and **Section 3.2.1** |
| | SE-19887501 | DPIE water | **Section 4.1.13** |
| | N/A | DPIE Hazards Group | **Section 4.1.14** |
| Organisation | SE-19599716 | TransGrid | **Section 4.1.15** |
| Public – individual | SE-18545215 | Anthony Gardner | **Section 4.2.1, Section 4.3.2**. and **Section 4.3.4** |
| | SE-19425633 | Name withheld | **Section 4.2.1** and **Section 4.3.4** |

# Appendix B. Updated mitigation measures

Where new commitments have been added or new text has been added to an existing measure, it appears as **bold text**. Where a commitment has been deleted or text from the commitment deleted, it appears as ~~strikethrough text~~.

As some new mitigation measures have been included and some mitigation measures have been removed, the mitigation measures IDs have been renumbered as outlined in **Table 6-1**.

This table supersedes the mitigation measures presented in the EIS. These revised mitigation measures represent the commitments of the Project through delivery and operation.

Table 6-1: Updated environmental management and mitigation measures

| Reference | Environmental management measures | Timing |
|---|---|---|
| Hazard and risk | | |
| HR1 | During detailed design for the Project:<br>▪ A detailed bushfire threat assessment will be conducted for the Project, including establishment of an APZ, in consultation with the **RFS**<br>▪ The separation distance between infrastructure within the Battery will be determined in accordance with applicable Codes and Standards and manufacturer's recommendations so that the preferred strategy of allowing a fire in one Battery enclosure or inverter to burn without the risk of propagating to other infrastructure can be maintained without the need for external firefighting<br>▪ The separation distance within the Battery will be determined in accordance with applicable Codes and Standards and manufacturer's recommendations to allow safe escape in case of a fire<br>▪ The need for active firefighting requirements at the Battery will be determined in consultation with RFS, **FRNSW** and the DPIE. Detailed fire fighting response and any need for fire water containment will be assessed and reported (e.g. in the format of a Fire Safety Study) post development approval, for review by DPIE, Fire rescue NSW and the RFS. **The FSS will be developed in accordance with the requirements of Hazardous Industry Planning Advisory Paper No. 2 – Fire Safety Study Guidelines (HIPAP No. 2)**<br>▪ The health and safety associated with EMF on the site and the potential exposure to EMF will be considered for AGLM staff and contractors as part of AGLM's obligations for their health and wellbeing under the *Work Health and Safety Regulations **2011 (NSW)***<br>▪ Measures to prevent a leak occurring from the brine pipeline, the emergency diesel generators and at the Battery, and for secondary containment should a leak occur, will be included as part of the detailed of the Project. The likelihood of a significant loss of | Detailed design |

| Reference | Environmental management measures | Timing |
|---|---|---|
| | containment event associated with this Project (Level 4) will be designed to Rare in accordance with AGL's Risk Management and Assessment Standard<br>▪ **The PHA be progressed to a FHA once the design of the development has been finalised. Commitments identified in the PHA will be integrated into the management for the Project.**<br>▪ ~~The register of commitments (Appendix 1 of the PHA (Planager Pty Ltd, 2021)) will be integrated into the management for the Project. This includes integration of 84 individual commitments, including for the design, installation and maintenance of the Battery automatic shutdown system on exceedance of safe limits; installation of deflagration venting and fire protection inside the Battery enclosures; design of the brine pipeline, waste oil facility, emergency diesel generators and the Battery such that the risk of pollution from a release is reduced to ALARP; installation of protective barriers, including at the transformers; and application of a rigorous and formal management of change process for the Project, including detailed hazard identification and risk assessment processes.~~ | |
| HR2 | Design and selection of all electrical equipment is to minimise EMF levels and comply with International Commission on Non-Ionizing Radiation Protection (ICNIRP) reference levels | Detailed design |
| HR3 | Risks associated with the Project will be managed through a Management of Change process. AGLM implements an Asset Change Management Standard, and any major change (defined as a change that has major implications to the strength, stability, operation and design of the asset and/or health and safety of employees) must undergo a detailed risk assessment using the AGL Risk Management and Assessment Standard to assess the risks that may be introduced by the proposed change. This will be undertaken for all Project components and appropriate controls implemented to reduce the risk to an acceptable level. | Prior to construction |
| HR4 | Storage and management of dangerous goods and hazardous materials (if required) will occur in a safe, secure location consistent with the requirements of applicable Australian Standards. | Construction/ operation |
| HR4 | The need to store or handle additional dangerous goods or hazardous substances will be subject to additional risk consideration prior to being undertaken. | Construction/ operation |
| HR5 | Refueling will take place in a designated area within the works area, away from ignition sources and trees or vegetation and with appropriate controls to prevent any spills coming into contact with the ground. | Construction/ operation |
| HR6 | Appropriately stocked emergency spill kits will be available at all work areas at all times. All staff will be made aware of the location of the spill kit and trained in its use. | Construction/ operation |

| Reference | Environmental management measures | Timing |
|---|---|---|
| HR78 | Temporary construction compounds will be maintained in a tidy and orderly manner to minimise potential fuel loads in the event that any construction compounds are affected by fire. | Construction |
| HR8 | Construction activities involving flammable materials and ignition sources (for example, welding) will be proactively managed to ensure that the potential for fire is effectively minimised. High risk construction activities, such as welding and metal work, would be subject to a risk assessment on total fire ban days and restricted or ceased as appropriate. Construction personnel will be inducted into the requirement to safely dispose of cigarette butts. | Construction |
| HR9 | An emergency response plan for the Battery would be prepared for the Project and provided to the Local Emergency Management Committee. | Construction/ operation |
| Air quality | | |
| AQ1 | The following will be undertaken to manage fugitive emissions from stored chemicals:<br>▪ Limiting the quantity of chemical products stored at the site to the extent practical<br>▪ Ensure that all storage tanks are fitted with the appropriate controls in-line with the Protection of the Environment Operations (Clean Air) Regulation 2010. | Construction /operation |
| AQ2 | During loading and unloading of materials, the following will be undertaken:<br>▪ Water sprays as applicable<br>▪ Minimising drop heights<br>▪ Reviewing and where necessary modifying or suspending activities during dry and windy weather and elevated background air quality conditions. | Construction |
| AQ3 | While hauling materials in trucks, the following will be undertaken:<br>▪ Regular watering of unsealed haulage routes<br>▪ Regular inspection and removal of debris from plant and equipment to avoid the tracking of materials on to the adjacent road network. | Construction |
| AQ4 | The following will be undertaken to manage exhaust emissions from plant and equipment:<br>▪ Inspecting all plant and equipment before it is used on-site<br>▪ Ensuring that all vehicles, plant, and equipment are operated in a proper and efficient manner<br>▪ Switching off all vehicles, plant and equipment when not in use for extended periods<br>▪ Avoiding the use of diesel or petrol-powered generators and use mains electricity or battery powered equipment where practicable. | Construction |

| Reference | Environmental management measures | Timing |
|---|---|---|
| AQ5 | Activities will be coordinated between the Project and the WOAOW project to limit the potential for cumulative dust impacts where possible. | Construction |
| AQ6 | The following will be undertaken to manage wind erosion from stockpiles and exposed surfaces:<br>▪ Watering stockpiles and exposed surfaces<br>▪ Progressive rehabilitation of exposed surfaces (as feasible) where no longer required for construction. | Construction |
| Greenhouse gases | | |
| GHG1 | The CEMP will include requirements for identification and minimise greenhouse gases (GHG) during construction. | Construction |
| Noise and vibration | | |
| NV1 | The CEMP would identify Project construction activities with the potential to have noise impacts and the controls required to avoid, minimise and mitigate these impacts.<br>The standard techniques for controlling noise impacts during construction are presented in the Interim Construction Noise Guideline (ICNG). During construction relevant standard measures as outlined in Section 6 of the ICNG will be implemented. | Construction |
| Traffic and transport | | |
| TT1 | The haulage contractor will prepare and implement a Construction Traffic Management Plan (CTMP) for oversized overmass vehicle movements, which will include:<br>▪ Identification of the routes<br>▪ Measures to provide an escort for the loads<br>▪ Times of transporting to minimise impacts on the road network<br>▪ Communication of strategy and liaising with emergency services and police. | Pre-construction and construction |
| TT2 | An oversized vehicle permit will be sought for all oversized overmass (OSOM) movements where required. The OSOM movements would be in accordance with the permit requirements and be outside of peak traffic periods where possible. | Pre-construction and construction |
| TT3 | The CEMP and general site induction will inform construction and operational personnel of the risk of collisions, particularly with animals during rain or periods of low light. | Construction and operation |
| Biodiversity | | |
| **BIO** | **Future detailed design phase will increase retainment of native vegetation.** | **Pre-construction** |
| **BIO1** | **Exclusion zones, or 'No-Go' zones, will be mapped in CEMP and mapping made available to all construction personnel.** | **Pre-construction** |

| Reference | Environmental management measures | Timing |
|---|---|---|
| BIO2 | Woody debris (logs and mulch) produced during vegetation clearing will be re-spread over any cleared areas to protect the soil surface from erosion and to aid habitat restoration where appropriate. | During construction |
| BIO3 | An inspection of native vegetation to be impacted (within the construction footprint) will be conducted by an ecologist immediately prior to vegetation clearing works (to confirm absence of fauna species). A Spotter/Catcher ecologist must supervise vegetation clearing. In the unlikely event that fauna is present, works will cease until animals can be captured and removed from the construction footprint. Construction crews will be made aware that any native fauna species encountered must be allowed to leave site without being harassed.<br>Trenches / holes will be inspected each morning and any trapped fauna removed or provide a mechanism for fauna to escape. | Immediately prior to vegetation clearing / During construction |
| BIO4 | Vehicle movements on newly formed access tracks or construction zones will be limited to 20km/h speed limit to reduce the risk of vehicle strike to fauna. | During construction |
| BIO5 | Where native vegetation is removed topsoil is to be retained from excavation areas within construction footprint (where possible). Topsoil stockpiles will be delineated and protected from machinery compaction and contamination during construction. Following construction and infill, topsoil will be re-spread over impacted native vegetation areas (to retain native seedbank and assist with natural revegetation). Avoid stockpiling in the vicinity of drainage lines. | During construction |
| BIO6 | Accurately and clearly mark out the limits of the construction footprint (only where native vegetation exists). No activities including parking and turning of vehicles and plant/ equipment will occur beyond the construction footprint. The Construction footprint will be demarcated prior to commencement of works in areas where native vegetation exists. | Pre-construction |
| BIO7 | Materials, plant, equipment, work vehicles and soil/rock stockpiles to be placed to avoid damage to surrounding vegetation and will be outside tree drip-lines. Construction workers and vehicles will not access areas beyond delineated construction footprints. | During construction |
| BIO8 | Where possible, avoid entering areas of significant weed infestations with machinery or personnel. Weed infestations are predominantly located in the Exotic grassland areas, or the PCT 1691 'regrowth' areas mapped within the development site (Figure 5-2). | During construction |
| BIO9 | If required, weed control will be undertaken by suitably qualified and/or experienced personnel. This may include:<br>▪ Manual weed removal in preference to herbicides. | Pre-construction or during construction |

| Reference | Environmental management measures | Timing |
|---|---|---|
| | ▪ Replacing non-target species removed/killed as a result of weed control activities.<br>▪ Protecting Non-target species from spray drift.<br>▪ Using only herbicides registered for use within or near waterways for the specific target weed.<br>▪ Not applying herbicide if it is raining or if rain is expected.<br>Mixing and loading herbicides and cleaning equipment away from waterways and drains.<br>The CEMP will detail the procedures for management of weeds on the development site (which will be in accordance with the requirements of the Biosecurity Act 2015). | |
| BIO10 | During the clearing works, weeds will be disposed and managed appropriately to stop the spread of existing weed species. | During construction |
| BIO11 | Ensure vehicle and machinery hygiene measures are applied during construction and operation. Vehicle washdowns may be required for removal of mud and plant materials. | During construction |
| BIO12 | Pathogen management measures will be implemented to prevent introduction and spread of amphibian chytrid fungus, *Phytophthora cinnamomi* and Exotic Rust Fungi. The CEMP will provide a protocol for construction vehicles driving to and from site to prevent the spread or introduction diseases. | During construction |
| BIO13 | Avoid excessive noise and vibration during construction activity. Construction activities to be carried out during diurnal hours. | During construction |
| BIO14 | Erosion and sediment controls will remain in place until all rehabilitation has been completed. Drainage lines will be protected from runoff and stockpiling of spoil. | During construction |
| BIO15 | Revegetation of slopes or exposed soil areas will be undertaken as soon as possible, in accordance with the CEMP. Landscaping of exposed surfaces using native indigenous species only. Soil loss will be prevented by immediate stabilisation of exposed surfaces (e.g. use of Jute mesh and/or soil binder). | During construction / post construction |
| B016 | Future detailed design phase will enhance retainment of native vegetation. Patches of native vegetation which are located near larger patches of native vegetation will be prioritised for retainment. | Pre-construction |
| ~~B01~~ | ~~Opportunities to limit the extent of vegetation clearance required would be considered as part of detailed design and construction planning. This would include:~~<br>~~▪ Detailed design to avoid PCTs with higher integrity scores to the extent practicable~~<br>~~▪ Confirmation of actual disturbance footprint for each Project component~~<br>~~▪ Recalculation of biodiversity credit requirements~~ | ~~Pre-construction~~ |

| Reference | Environmental management measures | Timing |
|---|---|---|
| | ▪ Provision of final layout plans and agreement of associated biodiversity credit requirements to DPIE and BCD<br>▪ Retirement of biodiversity credits prior to commencement of construction for each Project component (or sub-component). | |
| B02 | The regime for managing biodiversity impacts would be documented and implemented through a Flora and Fauna Management Plan and include the following requirements:<br>▪ Clearly delineate the boundaries of the development site as refined through the detailed design process to prevent any unnecessary clearing beyond its extent. This would include delineation and protection of the 2.04 ha patch of PCT 1691 to the west of Bayswater which is to be retained.<br>▪ Ensure vehicle and equipment parking areas and stockpile areas are identified and sited to avoid areas containing ecological value<br>▪ Install appropriate signage such as 'No Go Zone' or 'Environmental Protection Area'<br>▪ Identify and communicate the location of any 'No Go Zones' in site inductions<br>▪ Speed limits within the Project area would be limited to 40 km/hr to minimise the risk of vehicle collision with fauna.<br>The Flora and Fauna Management Plan would also consider measures to mitigate impacts on flora and fauna from noise, vibration, waste, and air pollution, in accordance with the mitigations identified in this EIS.<br>The Flora and Fauna Management Plan would also include how impacts to biodiversity would be reported and is expected to include documentation of evidence of commitments and conditions of approval being implemented for inclusion in post approval compliance auditing and reporting. | Pre-construction |
| B03 | The following measures will be established to manage impacts to vegetation adjacent to the development site:<br>▪ Materials, plant, equipment, work vehicles and soil/rock stockpiles will be placed to avoid damage to surrounding vegetation and outside tree drip-lines. Construction workers and vehicles will not access areas beyond the delineated development site. Detailed design will determine if further retainment of native vegetation is possible<br>▪ Erosion and sediment controls will remain in place until rehabilitation has been completed. Drainage lines will be protected from runoff and stockpiling of spoil<br>▪ Limits of the development site (only where native vegetation exists) will be accurately and clearly marked out prior to commencement of works. No activities including parking and turning of vehicles and plant / equipment will occur beyond the development site in association with the Project. | Design, pre-construction, construction |

| Reference | Environmental management measures | Timing |
|---|---|---|
| ~~B04~~ | ~~An inspection of native vegetation to be impacted (within the development site) will be conducted by an ecologist immediately prior to vegetation clearing works (to confirm absence of fauna species). A Spotter/Catcher ecologist will supervise vegetation clearing. Construction machinery will be checked for sheltering fauna prior to use. In the unlikely event that fauna is present, works should cease until animals can be captured and removed from the development site. Construction crews will be made aware that any native fauna species encountered must be allowed to leave site without being harassed.~~<br>~~Trenches / holes will be inspected each morning and any trapped fauna will be removed or a mechanism for fauna to escape will be provided, such as a soil or timber ramp.~~ | ~~Pre-construction, construction~~ |
| ~~B05~~ | ~~The following measures will be in place to manage impacts to soil and soil seed bank:~~<br>~~▪ Where native vegetation is removed, top soil will be retained from excavation areas within the development site (where possible). Top soil stockpiles must be delineated and protected from machinery compaction and contamination during construction. Following construction and infill, top soil will be re-spread over impacted native vegetation areas (to retain native seedbank and assist with natural revegetation). Stockpiling in the vicinity of drainage lines will be avoided~~<br>~~▪ Woody debris (logs and mulch) produced during vegetation clearing will be re-spread over any cleared areas to protect the soil surface from erosion and to aid habitat restoration where appropriate.~~ | ~~Construction~~ |
| ~~B06~~ | ~~If required, weed control will be undertaken by suitably qualified and / or experienced personnel. This may include:~~<br>~~▪ Manual weed removal in preference to herbicides~~<br>~~▪ Replacing non-target species removed / killed as a result of weed control activities~~<br>~~▪ Protecting non-target species from spray drift~~<br>~~▪ Using only herbicides registered for use within or near waterways for the specific target weed~~<br>~~▪ Not applying herbicide if it is raining or if rain is expected~~<br>~~▪ Mixing and loading herbicides and cleaning equipment away from waterways and drains.~~<br>~~The CEMP will detail the procedures for management of weeds on the development site (which will be in accordance with the requirements of the *Biosecurity Act 2015*).~~ | ~~Construction~~ |
| ~~B07~~ | ~~Pathogen management measures will be in place to prevent introduction and spread of amphibian chytrid fungus, *Phytophthora cinnamomi* and Exotic Rust Fungi. The CEMP will provide a protocol~~ | ~~Construction~~ |

| Reference | Environmental management measures | Timing |
|---|---|---|
| | ~~for construction vehicles driving to and from site to prevent the spread or introduction diseases.~~ | |
| Land and contamination | | |
| L01 | The internal bunding and environmental controls for hazardous substances management suitable for the Battery and transformers will be in accordance with applicable guidelines. | Detailed design |
| L02 | Potential contamination-related impacts associated with the Project will be managed by the implementation of a CEMP that includes (but not limited to):<br>▪ An unexpected finds protocol for the appropriate assessment and management of encountered contamination to mitigate impacts to the development<br>▪ Procedures to ensure that all material excavated during the construction of the development is appropriately assessed and classified before being disposed of in accordance with environmental laws<br>▪ Specific control measures to mitigate impacts to soil, water, air, noise, traffic, structures and clear protocols for measurement of affected media and validation of results during construction of the development. | Construction |
| L03 | The Asbestos Management Procedure would be updated as required to provide appropriate control measures during the construction phase (as well as the operational phase if maintenance activities are required) to mitigate any risks of worker exposure to airborne asbestos fibers during work activities. | Construction/ operation |
| L04 | Detailed design of each Project component would consider and address geotechnical stability risks in accordance with applicable design standards. | Detailed design |
| Aboriginal heritage | | |
| AH1 | A Cultural Heritage Management Plan (**CHMP**) will be developed. It will include the methodologies developed in the ACHAR (Section 11.1, 11.2 and 11.3 **of the ACHAR**). It will specify that Project works will be restricted to the disturbance site. It will include provisions to ensure workers are made aware of cultural heritage places and their value, for example through Project inductions. The CHMP will include provisions to guard against indirect impact to the Aboriginal sites near the development site. **The CHMP will also include a detailed methodology for the salvage and long-term management of any Aboriginal objects that may be impacted by the proposed works.** | Pre-construction |
| AH2 | If repair or maintenance works on the Liddell to Jerrys Plains High Pressure Pipeline are required, the area of works will be subject to surface collection in accordance with Section 11 of the ACHAR (**Appendix F**) of impacted sites. The sites that maybe impacted include: | Pre-construction |

| Reference | Environmental management measures | Timing |
|---|---|---|
| | ▪ Liddell Jerrys Plains Pipeline AS1 (37-2-6280)<br>▪ Liddell Jerrys Plains Pipeline IF2 (37-2-6281)<br>▪ Liddell Jerrys Plains Pipeline AS3 (37-2-6279)<br>▪ Liddell Jerrys Plains Pipeline IF4 (37-2-6291)<br>▪ Liddell Jerrys Plains Pipeline AS5 (37-2-6290)<br>▪ Liddell Jerrys Plains Pipeline AS6 (37-2-6289)<br>▪ Liddell Jerrys Plains Pipeline IF7 (37-2-6287)<br>▪ Liddell Jerrys Plains Pipeline IF8 (37-2-6288)<br>▪ Liddell Jerrys Plains Pipeline AS9 (37-2-6286)<br>▪ Liddell Jerrys Plains Pipeline AS10<br>▪ BAYS AS06 (37-2-6145).<br>If no works are required in the vicinity of a site, the site will be conserved. | |
| AH3 | If practicable, the design and construction of the Brine Pipeline will avoid the two recorded site areas (Liddell Pipeline AS1 (37-2-6285) and Liddell Pipeline AS2 (37-2-6282)).<br>The sites will be protected with high visibility fencing. If impact cannot be avoided, the sites will be salvaged through surface collection. | Design, pre-construction, construction |
| AH4 | During any works on the Liddell M1 Conveyor the site (Liddell M1 Conveyor AS1 (37-2-6284)) will be conserved and protected by high visibility exclusion fencing to prevent impact. | Construction |
| AH5 | The Unanticipated Finds Protocol in the ACHAR will be followed for any previously unidentified Aboriginal heritage objects found during the works. | Construction and operation |
| Non-Aboriginal heritage | | |
| NAH1 | Should any historical archaeological remains be discovered during construction, all works will stop, the area cordoned off and a heritage professional engaged to examine and advise on the significance of the archaeological finds.<br>If deemed to be of significance, under section 146 (**s146**) of the Heritage Act, a s146 form would be submitted to notify the Heritage Council of the discovery of relics. Further investigation may be required, and appropriate management will be agreed through consultation with Heritage NSW. | Construction |
| NAH2 | In the unlikely event that human remains are uncovered, all work must cease immediately in the vicinity of the remains and the area cordoned off. The local NSW Police must be notified, who would make an initial assessment as to whether the remains are part of a crime scene, or Aboriginal remains.<br>If the remains are thought to be Aboriginal, Heritage NSW must be contacted as per AH4. | Construction |

| Reference | Environmental management measures | Timing |
|---|---|---|
| Landscape character and visual | | |
| V1 | Retention and enhancement of existing landscape features (areas of scrub, individual trees) will be considered where feasible. | Design |
| V2 | 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.<br>**Where a muted palette is not possible, such as for the battery enclosures, AGLM will consider the use of vegetation screen instead.** | Design |
| V3 | Where possible, consider minimal use of reflective surfaces to avoid drawing attention to the site within views due to reflective glare. | Design |
| V4 | Limit the area of disturbance during construction where possible. | Construction |
| V5 | Mitigation tree and shrub planting will be considered to visually integrate the Project within the surrounding landscape. | Construction |
| V6 | ▪ All construction plant, equipment, waste and excess materials will be contained within the designated boundaries of the work site and will be removed from the site following the completion of construction<br>▪ Stockpiles will be stabilised to prevent erosion by wind and water and avoid the development of dust plumes adversely impacting air and visual quality<br>▪ On completion of the work disturbed areas will be stabilised and rehabilitated. | Construction |
| Waste | | |
| WR01 | A Waste Management Plan will be developed for the Project with the following criteria:<br>▪ A hierarchical waste management approach will be used, from the most preferable (reduce, reuse or recycle wastes) to the least preferable (disposal) to prioritise waste management strategies to avoid waste generation<br>▪ The plans will promote the use of materials with minimal packaging requirements, removal of packaging offsite by suppliers and fabrication of parts offsite<br>▪ Where waste cannot be avoided, waste materials will be segregated by type for collection and removal (for processing or disposal) by licensed contractors<br>▪ All waste types will be separated at source for recycling<br>▪ A licensed service provider will be appointed to collect waste during construction and operation<br>▪ Each waste type will be classified for transport to ensure correct handling.<br>▪ Any waste that cannot be recovered or recycled will be disposed of at a suitably authorised or licensed treatment or disposal facility | Detailed design |

| Reference | Environmental management measures | Timing |
|---|---|---|
| | where it will be treated and disposed of according to its classification. | |
| WR02 | ▪ Cleared vegetation will be either mulched for onsite reuse or used to created habitat piles, noting that any weeds and pathogens will be managed according to requirements under the *NSW Biosecurity Act 2015.* | Construction |
| Water (surface water and groundwater) | | |
| W1 | The specific requirements for water quality controls will be confirmed as the detailed design develops and prior to commencement of construction of each Project component, to ensure the objectives of the Project are achieved. | Pre-construction |
| W2 | The following measures will be undertaken to manage activities in proximity to waterways:<br>▪ **The design and implementation of works within waterfront land would be undertaken in accordance with Guidelines for Controlled Activities on Waterfront Land (NRAR, 2018)**<br>▪ ~~Works within waterfront land will be managed in accordance with the relevant guideline as deemed appropriate~~<br>▪ Implementing practices to minimise disturbance of banks and undertake bank stabilization<br>▪ Appropriate drainage features will be incorporated into the design of the Project components by a suitably qualified and experienced professional. All Project components will be designed and constructed in accordance with relevant guidelines. | Pre-construction and construction |
| W3 | Stockpiles would be managed to minimise the potential for mobilisation and transport of dust, sediment and leachate in runoff. This would include:<br>▪ Minimising the number of stockpiles, area used for stockpiles, and time that they are left exposed<br>▪ Locating stockpiles away from drainage lines, waterways and areas where they may be susceptible to wind erosion<br>▪ Stabilising stockpiles, establishing appropriate sediment controls and suppressing dust as required. | Construction |
| W4 | Erosion and sediment control measures will be implemented and maintained at all work sites in accordance with the principles and requirements in *Managing Urban Stormwater – Soils and Construction, Volume 1* (Landcom, 2004) and Volume 2D commonly referred to as the "Blue Book" where appropriate. Additionally, any water collected from worksites will be treated and discharged (where able) to avoid any potential contamination or local storm water impacts. Measures will be designed in accordance with the relevant guideline where appropriate. | Construction |

| Reference | Environmental management measures | Timing |
|---|---|---|
| W5 | Water use during construction will be minimised where possible and measures to reduce water use will be applied. | Construction |
| W6 | The Bayswater site operational water quality monitoring program will be updated and implemented as required. | Pre-operation and operation |
| Social and economic | | |
| SE1 | AGLM will keep the community and stakeholders updated on the Project via the existing community engagement forum and AGL website | Pre-construction |
| SE2 | Identify opportunities to maximise the use of local suppliers, labour and businesses in the provision of goods and services for construction. | Construction |
| SE3 | Consultation with local tourist accommodation providers to identify peak tourist periods and consider timing of these periods in the planning of non-time-critical construction activities. | Construction |
| Infrastructure | | |
| I1 | AGLM will continue to consult with TransGrid and ETMC regarding any perceived impacts on the Liddell switchyard. | Pre-construction |
| I2 | AGLM will consult with Ausgrid as the network provider responsible for other onsite supply regarding continued supply. | Pre-construction / construction |
| Cumulative | | |
| CL1 | The CEMP will include a process to review and update management measures if any other development commences in proximity to the Project. | Pre-construction |

# Appendix C. Updated ACHAR

# Appendix D. Updated BDAR

# Appendix E. WOAOW Cultural Values Assessment (AECOM (2020))