

# Ash Dam Augmentation Project

Construction Environmental Management Plan

22-Sep-2023

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## Construction Environmental Management Plan

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## Quality Information

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## Acronyms / Definitions

Acronym	Definition
ADTOAC	Awabakal Descendants Traditional Owners Aboriginal Corporation
AECOM	AECOM Australia Pty Ltd
AHD	Australian Height Datum
AHIMS	Aboriginal Heritage Information Management System
ATOAC	Awabakal Traditional Owners Aboriginal Corporation
The Blue Book	Managing Urban Stormwater: Soils and Construction Volume 1 (Landcom 2004)
BC Act	<i>Biodiversity Conservation Act 2016 (NSW)</i>
BCD	Biodiversity Conservation Division
BLMP	Biodiversity and Land Management Plan
CCP	Coal Combustion Products
CEMP	Construction Environmental Management Plan
Cth	Commonwealth
DPE	Department of Planning and Environment
EA	Environmental Assessment
EEC	Endangered Ecological Community
EP&A Act	<i>Environmental Planning and Assessment Act 1979 (NSW)</i>
EPA	Environment Protection Authority (NSW)
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Cth)</i>
EPL	Environment Protection Licence
EMS	Environmental Management System
EMP	Environmental Management Plan
EPS	Eraring Power Station
Friable asbestos	Any material that contains asbestos and is in the form of a powder or can be crumbled, pulverised or reduced to powder by hand pressure when dry.
GHG	Greenhouse Gases
GTLAC	Guringai Tribal Link Aboriginal Corporation
Heritage Act	<i>Heritage Act 1977 (NSW)</i>
IRR	Improvement Request Register
LALC	Local Aboriginal Land Council
LEP	Local Environmental Plan
LGA	Local Government Area
MVRP	Mine Void Rehabilitation Plan
NATF	Native Animal Trust Fund
NP&W Act	<i>National Parks and Wildlife Act 1974 (NSW)</i>
Origin	Origin Energy

Acronym	Definition
PCT	Plant Community Type
PIRMP	Pollution Incident Response Management Plan
POEO Act	<i>Protection of the Environment Operations Act 1997 (NSW)</i>
PPE	Personal Protective Equipment
RAPs	Registered Aboriginal Parties
TEC	Threatened Ecological Community
WM Act	<i>Water Management Act 2000 (NSW)</i>
WNAC	Wonnarua National Aboriginal Corporation
Yarrawalk	Yarrawalk Enterprises Pty Ltd (now Tocumwal)

## 1.0 Introduction

### 1.1 Background

Origin Energy (Origin) owns and operates Eraring Power Station (EPS) and the associated Eraring Ash Dam (ERAD) on Rocky Point Road, in the Lake Macquarie Local Government Area (LGA). EPS has been operating since 1982 and is Australia's largest power station with a generation capacity of 2,880 megawatts. Coal Combustion Products (CCP) generated during the production of electricity are either reclaimed for beneficial reuse or deposited hydraulically via pipelines into the ERAD. The ERAD has a finite ash storage capacity and the efficient and effective utilisation of this critical asset is vital to the continued operation of EPS to cater for the needs of the National Electricity Market.

Origin prepared an Environmental Assessment (EA) to accompany an application to modify Project Approval MP 07\_0084 for the Ash Dam Augmentation Project, which aims to extend the storage capacity of the ERAD in order to enable the ongoing operation of EPS towards its planned closure. The modification to the Project Approval was granted on 23 December 2019 (Project Approval MP 07\_0084 MOD1).

Following approval of MOD1, Origin undertook detailed engineering design which clarified that the ash storage volume from the project would be significantly lower than originally anticipated. As such, in consultation with the Department of Planning and Environment (DPE), Origin amended the project to incorporate dry stacking of ash, instead of the hydraulic placement of ash as a dense phase slurry. The revised ash placement strategy would involve placement of ash in two cells (a Northern Cell and a Southern Cell), rather than one large emplacement area. The revised ash placement strategy would remove the need to construct the western saddle embankment and would instead require construction of a smaller, raised dividing bund between the Northern Cell and Southern Cell. The proposed changes also include a revised approach to clean water diversion systems.

In addition, further hydrogeological investigations found that there is no hydraulic connectivity between the mine voids underlying the ERAD and Muddy Lake (an environmentally sensitive area). As such, grouting of mine voids is not required for the purpose of managing groundwater impacts to the Muddy Lake catchment. The removal of a western saddle embankment from the revised Project also removes the need for grouting of mine voids to ensure stability of the large embankment. Therefore, there is now no requirement for extensive grouting of the existing Awaba mine voids underlying the ERAD. This assists in the significant reduction of vegetation clearing now required compared to that proposed in the EA as part of MOD1. Further details are provided in **Section 3.0**.

A consistency assessment (EMM, 2021b) was undertaken to compare the project as approved under Project Approval 07\_0084 MOD 1 against the proposed changes, to determine whether the changes are consistent with the approved development. The consistency assessment concluded that the proposed changes are consistent with the approved development and can be undertaken generally in accordance with the EA and the conditions of Project Approval 07\_0084 without requiring further modification of Project Approval 07\_0084. Throughout this document, a reference to the Project is taken to refer to the revised project as described in the consistency assessment (EMM, 2021b).

This Construction Environmental Management Plan (CEMP) details environmental management procedures to be implemented during the construction phase of the Project. This CEMP has been developed from the following documents:

- *Ash Dam Augmentation Project Environmental Assessment* (AECOM, 2018a)
- *Response to Submissions Report – Origin Eraring Power Station – Ash Dam Augmentation MOD1* (AECOM 2018b)
- *Eraring Ash Dam Western Development – Southern Cell Dry Stack Conceptual Design*, (ATC Williams, 2021)
- *Memorandum: Alternative clean water management approach: Eraring Ash Dam Western Catchments* (EMM Consulting, 2021a) and
- *Memorandum: Eraring ash dam – consistency assessment* (EMM Consulting, 2021b).

## 1.2 Scope of the CEMP

The Project includes some project elements that do not require discrete construction works, as they relate to ongoing operational ash management practices (e.g. the change to the ash placement strategy). Management of these project elements will be discussed within the Operational Environmental Management Plan for the Project.

Activities described in the EA that relate to the remediation of mine voids underlying the ERAD are no longer proposed as part of the revised Project and do not form part of the scope of works for this CEMP. Geotechnical and hydrogeological analysis undertaken since approval of MOD1 has established that grouting of the mine voids is not required, due to the lack of hydraulic connectivity between the underlying mine voids and Muddy Lake catchment as well as the removal of the western saddle embankment from the revised Project. A Mine Void Remediation Plan (JBS&G, 2021, Draft) has been prepared in accordance with Condition 4.6 of the Project Approval (MP 07\_0084 MOD1) and describes the geotechnical and hydrogeological investigations that were undertaken.

The construction activities that form part of the scope of works for this CEMP include:

- site establishment, including vegetation clearing
- earthworks for the establishment of the Northern Cell and Southern Cell, construction of the raised dividing bund, construction of the new clean water detention basin and reconfiguration of the RL140 m access road
- installation and modification of ancillary infrastructure including stormwater diversion systems and ash delivery pipelines.

## 1.3 Purpose of the CEMP

The purpose of this CEMP is to identify environmental commitments outlined in the EA and management measures to mitigate potential adverse environmental impacts associated with the construction phase of the Project. This CEMP will be submitted to the Planning Secretary for approval prior to the construction of the Project.

This CEMP has been prepared to provide a document that:

- describes Origin's commitments regarding environmental performance and the minimisation of adverse impacts
- specifies the actions that would be taken to implement the commitments (such as monitoring)
- identifies the need for corrective actions to rectify any deviation from performance standards
- provides an action program to enable delivery of the environmental commitments so they are achieved and implemented
- promotes frequent review against the action program so that compliance with relevant conditions of Project Approval MP 07\_0084 MOD1 can be demonstrated.

## 1.4 Legislative Framework for the CEMP

### 1.4.1 Project Approval

Project Approval MP 07\_0084 was issued on 29 April 2008 for the staged expansion of the ERAD in conjunction with changes in the CCP disposal method from lean phase to dense phase. Modification of the Project Approval was approved on 23 December 2019 (MP 07\_0084 MOD1) for the Ash Dam Augmentation Project.

As outlined in Condition 4.1 of Project Approval MP 07\_0084 MOD1, Origin is required to submit the CEMP to the Planning Secretary for approval, no later than one month prior to the commencement of construction of the Project, or within such period otherwise agreed by the Planning Secretary. The requirements of Conditions 4.1 and 4.2 are provided in **Table 1** along with the location in the CEMP where they have been addressed.

Table 1 Requirements of Conditions 4.1 and 4.2 of Project Approval MP 07\_0084 MOD1

Condition reference	Condition requirement	Section where addressed in CEMP
4.1	<i>The Applicant shall prepare and implement a Construction Environmental Management Plan to outline environmental management practices and procedures to be followed during construction of the project. The Plan shall be consistent with Guideline for the Preparation of Environmental Management Plans (DIPNR, 2004) and shall include, but not necessarily be limited to:</i>	This document
4.1(a)	<i>A description of all activities to be undertaken on the site during construction including an indication of stages of construction, where relevant</i>	<b>Section 3.0</b>
4.1(b)	<i>Statutory and other obligations that the Applicant is required to fulfil during construction including all approvals, consultations and agreements required from authorities and other stakeholders, and key legislation and policies</i>	<b>Section 1.4</b>
4.1(c)	<i>Details of how the environmental performance of the construction works will be monitored, and what actions will be taken to address identified adverse environmental impacts. In particular, the following environmental performance issues shall be addressed in the Plan:</i> <ul style="list-style-type: none"> <li>• <i>Measures to monitor and manage dust emissions</i></li> <li>• <i>Measures to monitor and minimise soil erosion and the discharge of sediment and other pollutants to lands and/ or waters during construction activities</i></li> <li>• <i>Measures to monitor and control noise emissions during construction works.</i></li> </ul>	<b>Section 5.0 - 7.0</b>  <b>Section 5.6</b>  <b>Section 5.2</b>  <b>Section 5.5</b>
4.1(d)	<i>A description of the roles and responsibilities for all relevant employees involved in the construction of the project</i>	<b>Section 4.3</b>
4.1(e)	<i>The additional studies listed under condition 4.2 of this approval</i>	<b>Section 5.1 - 5.5</b>
4.1(f)	<i>Complaints handling procedures during construction</i>	<b>Section 6.3</b>
4.2	<i>As part of the Construction Environmental Management Plan for the project, required under condition 4.1 of this approval, the Applicant shall prepare and implement the following:</i>	
4.2(a)	<i>a <b>Flora and Fauna Management Plan</b> to outline measures to protect and minimise loss of native vegetation and native fauna habitat. The Plan must include, but not necessarily be limited to:</i>	<b>Section 5.1</b>
	<i>(i) plans showing terrestrial vegetation communities; important flora and fauna habitat areas; locations where threatened species, populations or ecological communities were recorded; and areas to be cleared. The plans must also identify vegetation adjoining the Site where this contains important habitat areas and/or threatened species, populations or ecological communities;</i>	<b>Figure 4 - Figure 6</b> shows plant community types and threatened species records within and around the project area. Vegetation clearing would be limited to development footprint boundary shown in <b>Figure 4</b> .
	<i>(ii) details of the timing of clearing to ensure that it does not adversely affect critical periods in the lifecycles of significant species;</i>	<b>Table 4 and Section 5.1.4</b>

Condition reference	Condition requirement	Section where addressed in CEMP
	<i>(iii) methods to manage impacts on flora and fauna species (terrestrial and aquatic) and their habitat which may be directly or indirectly affected by the project;</i>	<b>Section 5.1.4</b>
	<i>(iv) flora and fauna monitoring programs to be implemented during both construction and operation; and</i>	<b>Section 5.1.4</b>
	<i>(v) a Vegetation Clearance Protocol.</i>	<b>Section 5.1.4 and Appendix A</b>
4.2(b)	<b>a Traffic Management Plan</b> to outline management of traffic conflicts that may be generated during construction of the project. The Plan must be prepared in consultation with Council and TfNSW and must include, but not necessarily be limited to:	<b>Section 5.4</b> This CEMP was provided to Lake Macquarie City Council (LMCC) and Transport for New South Wales (TfNSW) for comment. No issues were raised by these agencies (refer to <b>Section 5.4.1</b> ).
	<i>(i) details of traffic routes for heavy vehicles, including any necessary route or timing restriction for oversized loads;</i>	<b>Section 5.4.1</b>
	<i>(ii) detailed consideration of measures to be employed to ensure traffic volume, acoustic and amenity impacts along the heavy vehicle routes are minimised;</i>	<b>Section 5.4.4</b>
	<i>(iii) detailed consideration of alternative routes (where necessary);</i>	Given the low number of truck movements required for construction ( <b>Section 5.4.1</b> ), consideration of alternative routes is not required.
	<i>(iv) provisions for the management of disruptions to traffic, particularly on Wangi Road; and</i>	<b>Section 5.4.4</b>
	<i>(v) demonstration that all statutory responsibilities with regard to road traffic impacts have been complied with</i>	<b>Table 1 and Section 5.4.3</b>
4.2(c)	<b>a Construction Noise Management Plan</b> to detail how construction noise and vibration impacts would be minimised and managed, including, but not necessarily be limited to:	<b>Section 5.5</b>
	<i>(i) details of construction activities and a schedule for construction works;</i>	<b>Section 3.3</b>
	<i>(ii) identification of construction activities that have the potential to generate noise and/ or vibration impacts on surrounding land uses, particularly residential areas;</i>	<b>Section 5.5.1</b>
	<i>(iii) a detailed description of what actions and measures would be implemented to ensure that these works would comply with the relevant noise and vibration criteria/ guidelines;</i>	<b>Section 5.5.3 and 5.5.4</b>
	<i>(iv) procedures for notifying residents of construction activities that are likely to affect their noise and vibration amenity, as well as procedures for dealing with and responding to noise complaints; and</i>	<b>Section 5.5.4</b>
	<i>(v) a description of how the effectiveness of these actions and measures would be monitored during the proposed works, clearly indicating how often this monitoring would</i>	<b>Section 5.5.4</b>

Condition reference	Condition requirement	Section where addressed in CEMP
	<i>be undertaken and how the results of this monitoring would be recorded.</i>	
4.2(d)	<i>an <b>Erosion and Sedimentation Management Plan</b> to detail measures to minimise erosion and discharge of sediment and other pollutants to land and/or water during site preparation and construction works. The Plan must include, but not necessarily be limited to:</i>	<b>Section 5.2</b>
	<i>(i) identification of the construction activities that could cause soil erosion or discharge sediment or water pollutants from the site;</i>	<b>Section 5.2.1</b>
	<i>(ii) description of the management methods to minimise soil erosion or discharge of sediment or water pollutants from the site, including a strategy to minimise the area of bare surfaces during construction;</i>	<b>Section 5.2.4</b>
	<i>(iii) demonstration that proposed erosion and sediment control measures will conform with, or exceed, the relevant requirements of Managing Urban Stormwater: Soils and Construction (Landcom, 2004);</i>	<b>Section 5.2.3 and 5.2.4</b>
	<i>(iv) details of an erosion monitoring program during construction of the project, including measures to address erosion, should it occur, and to rehabilitate/ stabilise disturbed areas of the Site.</i>	<b>Section 5.2.4</b>
4.2(e)	<i>an <b>Aboriginal Heritage Management Plan</b> to detail outcomes of consultation with the Aboriginal stakeholders and the measures that will be implemented to identify, protect, monitor and/or manage Aboriginal heritage sites. The Plan must include, but not necessarily be limited to:</i>	<b>Section 5.3</b>
	<i>(i) the outcome of consultation with the Aboriginal stakeholders, including a site visit(s) to identify any heritage items;</i>	<b>Section 5.3.4</b>
	<i>(ii) managing the discovery of any human remains;</i>	<b>Section 5.3.4</b>
	<i>(iii) maintaining and managing reasonable access for Aboriginal stakeholders to heritage items on site; and</i>	<b>Section 5.3.4</b>
	<i>(iv) ongoing consultation with the Aboriginal stakeholders.</i>	<b>Section 5.3.4</b>

#### 1.4.2 Environmental Protection Licence

EPS is managed in accordance with the Environment Protection Licence (EPL) No. 1429 issued under the *Protection of the Environment Operations Act 1997* (POEO Act).

There are two licenced discharge locations associated with the operation of the ERAD. EPS currently has a licence to discharge from the ERAD to either the outfall canal or Crooked Creek (both locations ultimately discharge to Myuna Bay). Generally, discharge occurs in accordance with licence conditions via the outfall canal, however, under emergency conditions (e.g. as a result of sustained heavy rainfall) it may be necessary to discharge to Crooked Creek to lower the water level in the ERAD.

Comprehensive air quality, surface water and groundwater monitoring programs are maintained in accordance with EPL 1429. Results are reported on an ongoing basis in accordance with the requirements of the licence and the POEO Act.

### 1.4.3 Standards and Legislation

The Project will be conducted in a manner consistent with the legislative requirements and guidance set out in the documents listed below:

- *Biodiversity Conservation Act 2016* (BC Act)
- *Coal Mine Subsidence Compensation Act 2017*:
  - Part 3 of the Act requires approval from the Chief Executive for development within a mine subsidence district.
- *Dams Safety Act 2015*:
  - the ERAD is a Prescribed Dam under the Act.
- Dams Safety NSW Guidelines where relevant
- *Environmental Planning and Assessment Act 1979* (EP&A Act):
  - Project Approval (MP 07\_0084 MOD1).
- *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (Cth)
- *Heritage Act 1977* (Heritage Act)
- *National Parks and Wildlife Act 1974* (NP&W Act)
- *Protection of the Environment Operations Act 1997* (POEO Act):
  - EPL 1429.
- *Protection of the Environment Operations (General) Regulation 2021*
- *Protection of the Environment Operations (Clean Air) Regulation 2021*
- *Protection of the Environment Operations (Waste) Regulation 2014*
- Waste Classification Guidelines (NSW EPA 2014)
- *Water Management Act 2000* (WM Act)
- Managing Urban Stormwater: Soils and Construction Vol. 1 (Landcom 2004).

## 2.0 Site Details

### 2.1 Site Description

The EPS site is located on Rocky Point Road, Eraring, about 40 km southwest of Newcastle in the Lake Macquarie LGA. The entire EPS site comprises approximately 1200 ha of land owned by Origin, with the power station itself located on approximately 150 ha and the ERAD occupying approximately 250 ha. The remainder of the land is largely undeveloped consisting of open grassland, canals and bushland (refer to **Figure 1**).

Operations at the EPS are separated from surrounding land uses by extensive land holdings. Existing development in the vicinity of the site includes the West Wallsend, Newstan, Myuna and Mandalong Collieries, as well as the Vales Point Power Station. The Sydney to Newcastle Railway Line is located west of the EPS and further west the Pacific Motorway (M1) also runs parallel to the Site.

There is a mix of vegetated buffer lands and cleared agricultural land for grazing purposes west of the EPS, and Lake Macquarie lies to the east. The closest residential area is situated in Border Street in the suburb of Eraring approximately 1 km south of the power station itself.

The ERAD is located adjacent to Main Road 217 (Wangi Road) at Myuna Bay, about 6 km north-east of Dora Creek. The ERAD is accessed via the ash pipeline bench or coal conveyor access road from the EPS.

The ERAD was constructed on Crooked Creek, approximately 2 km northeast of the EPS. The dam consists of a zoned earth filled embankment some 25 m high with upstream and downstream slopes of approximately 40%. A bund, around 30 m wide, is incorporated into the dam wall design of the downstream face of the dam for stability and seepage control.

The regional topography in the vicinity of the ERAD is relatively flat. Ground surface elevation decreases from west to east, towards Lake Macquarie. The regional geology associated with the ERAD encompasses Quaternary Alluvium, including sand, gravel, silt and clay, overlaying conglomerate, sandstone, siltstone and claystone of the Narrabeen Group (Gosford-Lake Macquarie Special 1:100,000 Geological Map (Sheet 9131 & 9231)).

## 2.2 Hydrology

### 2.2.1 Surface Water

The ERAD is located within the Macquarie-Tuggerah Lakes catchment. Surface water features of note include Jigadee Creek, Dora Creek, Lake Macquarie and the Pacific Ocean. Jigadee Creek flows from north to south and is located to the west of the Project. Jigadee Creek eventually joins Dora Creek, which flows from west to east and discharges into Lake Macquarie.

The ERAD receives flow from a range of sources including:

- incidental rainfall and adjacent contributing catchment
- power station fly ash (solid tailings and water) via a pipe
- power station bottom ash (solid tailings and water) via an open channel
- outflows from the transfer pond via an open channel
- captured seepage pumped from the Toe Drain Pond
- treated drainage water from designated station hard stand areas
- pumped outflow from the Demin Plant
- pumped flow from the Return Water Tank and Outfall Canal as required for maintaining water level in the ERAD
- pumped excess water from Awaba Mine.

In addition to evaporative processes, captured water is discharged by:

- outflow via a siphon pipe controlled by a valve to the Return Water Dam
- overflow discharge via a spillway to the Return Water Dam
- seepage, some of which is collected in the Toe Drain Pond and re-circulated to the ERAD
- some minor losses due to moisture content of the ash which is harvested and transported offsite.

### 2.2.2 Groundwater

The ERAD is situated within the Sydney Basin and comprises relative limited alluvium (to the west of the EPS) as well as weathered and fractured rock near surface sediments of the Narrabeen Group. The Newcastle Coal Measures underlie the Narrabeen Group and the coal seams themselves are the primary groundwater aquifers.

Groundwater beneath the site is expected to be present within the shallow soils and former ash placement areas of the former Wangi Power Station. Groundwater monitoring undertaken at locations around the ERAD indicate that the depth to groundwater ranges from approximately 1.6 to 24.6 m below ground level.

Groundwater modelling (JBS&G, 2021) established that the major groundwater flowpath from the ERAD expansion area is vertically downwards through the former Awaba Colliery workings into the underlying strata. This study also established that a groundwater flowpath from the ERAD expansion area, through the former Awaba Colliery workings and into Muddy Lake did not exist.

### 2.2.3 Receiving environments

There are a number of off-site water bodies which receive or have potential to receive surface water and/or groundwater discharge from the site (refer to **Figure 1**), including the following:

- Whiteheads Lagoon: located approximately 100 m east of the site and discharges into Myuna Bay. Crooked Creek, which is located on-site and south of the ERAD, flows into Whiteheads Lagoon.
- Myuna Bay: located approximately 100 m east of the site and forms part of Lake Macquarie
- Muddy Lake: located approximately 250 m south-west of the site and discharges into Lake Eraring. Dora Creek flows into Muddy Lake
- Lake Eraring: located approximately 400 m south of the site and discharges into Lake Macquarie.



**Figure 1 - Site Overview**



Origin EPS Landholdings

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Source: Origin 2018, DFSI 2018

## 3.0 Project Description

### 3.1 Approved MOD1 project

The key aspects of the approved MOD1 project included:

- Amendment of the ash deposition strategy using a hydraulic ash placement technique to achieve the desired dam stability and landform design
- Establishment of the Western Emplacement Area to enable ash deposition to a relative level (RL) of 140 m within existing operational areas, requiring:
  - construction of a western saddle embankment to contain hydraulically placed fly ash
  - reconfiguration of the RL140 m access road (to connect to the crest of the western saddle embankment)
  - grouting of existing Awaba mine voids underlying the ash emplacement area.
- Upgrades to stormwater diversion systems, including:
  - stormwater diversion works along the RL140 m access road for a length of approximately 1km to the north-west of the ERAD to divert clean water runoff to Ulan Pond
  - construction of a gravity drain (using directional drilling methods) to divert water from Ulan Pond to an existing drainage line located 350 m west of Ulan Pond
- Reconfiguration of ash delivery pipelines
- Decommissioning and relocation of bottom ash recycling infrastructure.

### 3.2 Revised Project

Following approval of MOD1, further engineering investigations identified that the ash storage volume from the approved MOD1 project would be significantly lower than originally anticipated. An alternative ash placement strategy was developed to incorporate dry stacking rather than hydraulic placement of ash. A consistency assessment (EMM, 2021b) concluded that the proposed changes are consistent with the approved MOD1 project and the revised Project can be undertaken generally in accordance with the EA and the conditions of Project Approval 07\_0084.

While some components of the approved MOD1 project are still included in the revised Project, other components are no longer required. The key aspects of the revised Project are shown on **Figure 2** and **Figure 3** and include the following:

- Amendment of the ash deposition strategy using a dry stacking technique (rather than hydraulic placement) to achieve the desired dam stability and landform design, within a reduced footprint compared to the approved MOD 1 project
- Dry stacking of ash into the Northern Cell and Southern Cell (rather than one large emplacement area) to RL140 m within existing operational areas, including
  - construction of a smaller raised dividing bund between the Northern Cell and Southern Cell (instead of the western saddle embankment proposed in MOD1, which removes the need to grout the existing Awaba mine voids to ensure stability of the larger embankment)
  - minor reconfiguration of the RL140 m access road (with a revised alignment compared to MOD1, as the western saddle embankment is no longer required)
  - remediation of mine voids is no longer required as part of the revised Project (as discussed in **Section 1.1**)

- Upgrades to stormwater diversion systems, with a revised approach to managing clean water runoff, including:
  - Ulan Pond will remain part of the process water system (rather than the clean water system) to remove the risk of pollution entering receiving environments from Ulan Pond if it were converted to a clean water pond
  - a new clean water detention basin will be constructed (refer to **Figure 3**)
  - stormwater diversion works along the RL140 m access road will still be required, with minor changes to the downstream portion of the diversion works so that flow is diverted into the new clean water detention basin
  - diversion of water from the clean water basin will be via overground pumped pipeline (removing the need for construction of the underground gravity drain proposed in MOD1) to an existing drainage line 350 m west of Ulan Pond
  - the discharge point for the revised clean water diversion system will be in a similar location to that proposed in MOD1, although consideration may be given to changing the diversion point to the inlet of the culvert that passes under the coal stockpile. The location would be confirmed during detailed design.
- reconfiguration of the ash delivery pipelines has already been completed
- the bottom ash recycling facilities no longer require relocation from their current location.

### 3.3 Construction Activities

The following construction activities would be undertaken during the course of the Project:

- Site establishment, including vegetation clearing
- Earthworks for the construction of the Northern Cell and Southern Cell, the raised dividing bund, the new clean water detention basin and reconfiguration of the RL140 m access road and
- Installation and modification of ancillary infrastructure, including stormwater diversion systems and ash delivery pipelines.

Material excavated during clearing and establishment works would be reclaimed and used, where suitable, as material for the construction of embankments and other structures as required, such as internal divider berms. The potential use of material would need to be confirmed by engineering investigation and evaluation. Therefore, suitable construction material may need to be transported to site for construction of the Project.

### 3.4 Construction Period

Construction of the Project would be staged to ensure the ongoing operation of the ERAD during the construction period. Construction works are anticipated to occur according to the following indicative schedule:

- Construction of the stormwater management works will be undertaken over a 10-month period prior to the construction of dry stack infrastructure, to ensure separation of dirty and clean water.
- Construction of the dry stack infrastructure will be undertaken as two separate activities: firstly, the Northern Cell works (including Cell 6) and secondly the Southern Cell works (including Cell 7). The dividing bund will be constructed as part of the Northern Cell works.
- Site establishment, preliminary vegetation clearing and early works for the Northern Cell will take approximately 13 weeks. Construction will take a further six weeks to complete works for phase 1 dry stacking with another eight weeks to complete works for future phases.
- For the Southern Cell, site establishment, preliminary vegetation clearing, and early works will take about 13 weeks and construction works will take about 12 weeks.

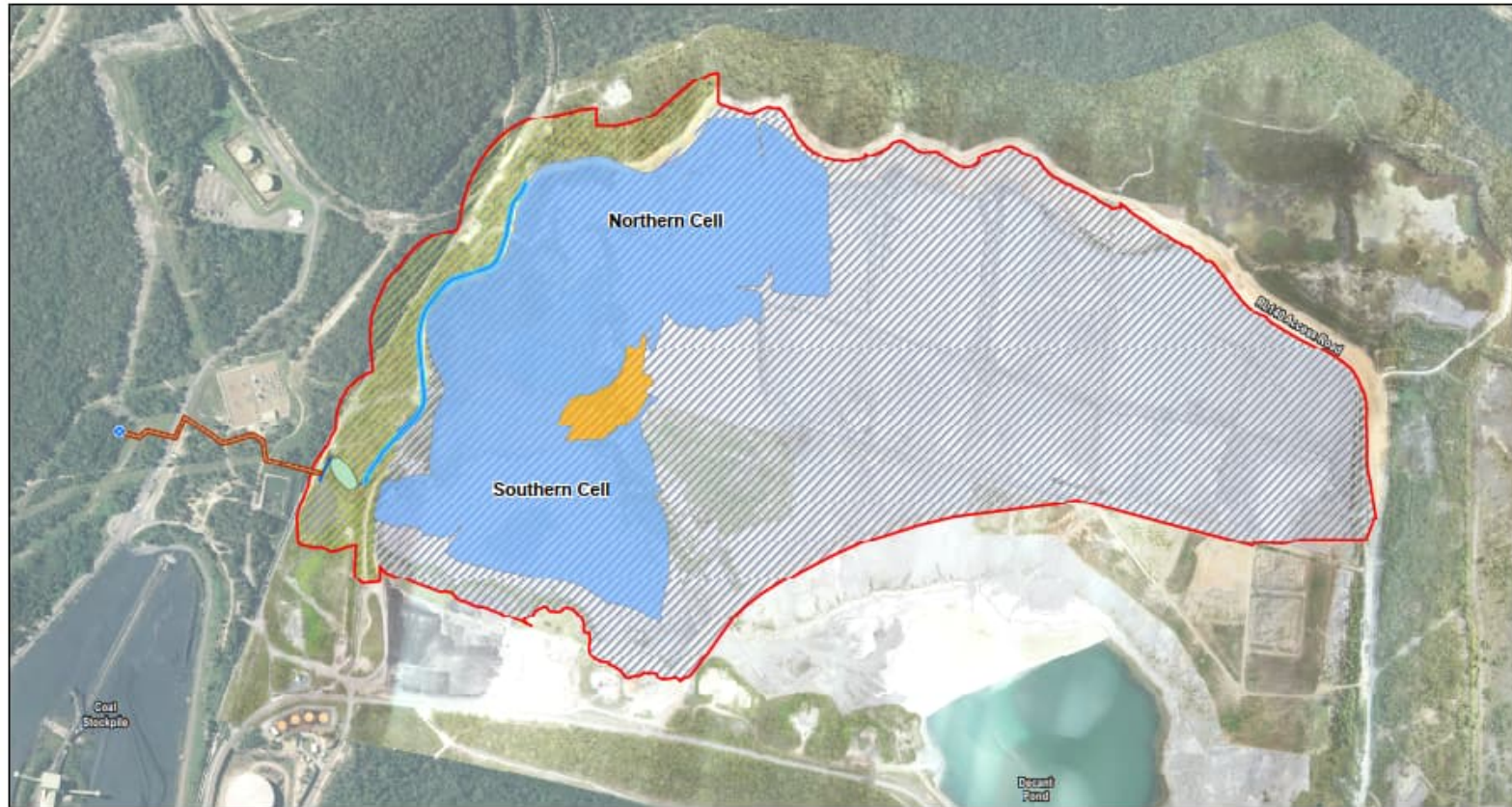
Construction works potentially audible at residential premises would only be undertaken during hours specified in Condition 2.4 of Project Approval 07\_0084 MOD1:

- 7am to 6pm Monday to Friday
- 8am to 1pm Saturdays and
- at no time on Sundays and Public Holidays.

### **3.5 Construction Equipment**

An indicative list of plant and equipment that would be used at various stages of the construction of the Project is provided below:

- Backhoe/mini excavator
- Generators
- Mobile crane up to 20t
- Dozers up to D9/D10
- Compactors
- Excavator 12-20t, 32 tonne, long arm excavator
- Hand held power tools such as metal and timber cut off saw, electric hand saw, hammer drill etc
- Heavy vehicles to transport excavated material and material for establishment of embankments
- Light vehicles and utility vehicles
- Loader and
- Water cart.



**Figure 2 - Project Elements**

- █ Project Boundary
- █ Stormwater Discharge Point
- █ Eraring Ash Dam Extent
- █ Stormwater Diversion Alignment
- █ Limit of Surface Disturbance
- █ Overground pumped pipeline
- █ Proposed Dividing Bund
- █ Rising Main to the Ulan Road Culvert
- █ Proposed Ash Placement - Northern and Southern Cells
- █ Clean Water Basin

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**Figure 2 Project elements**

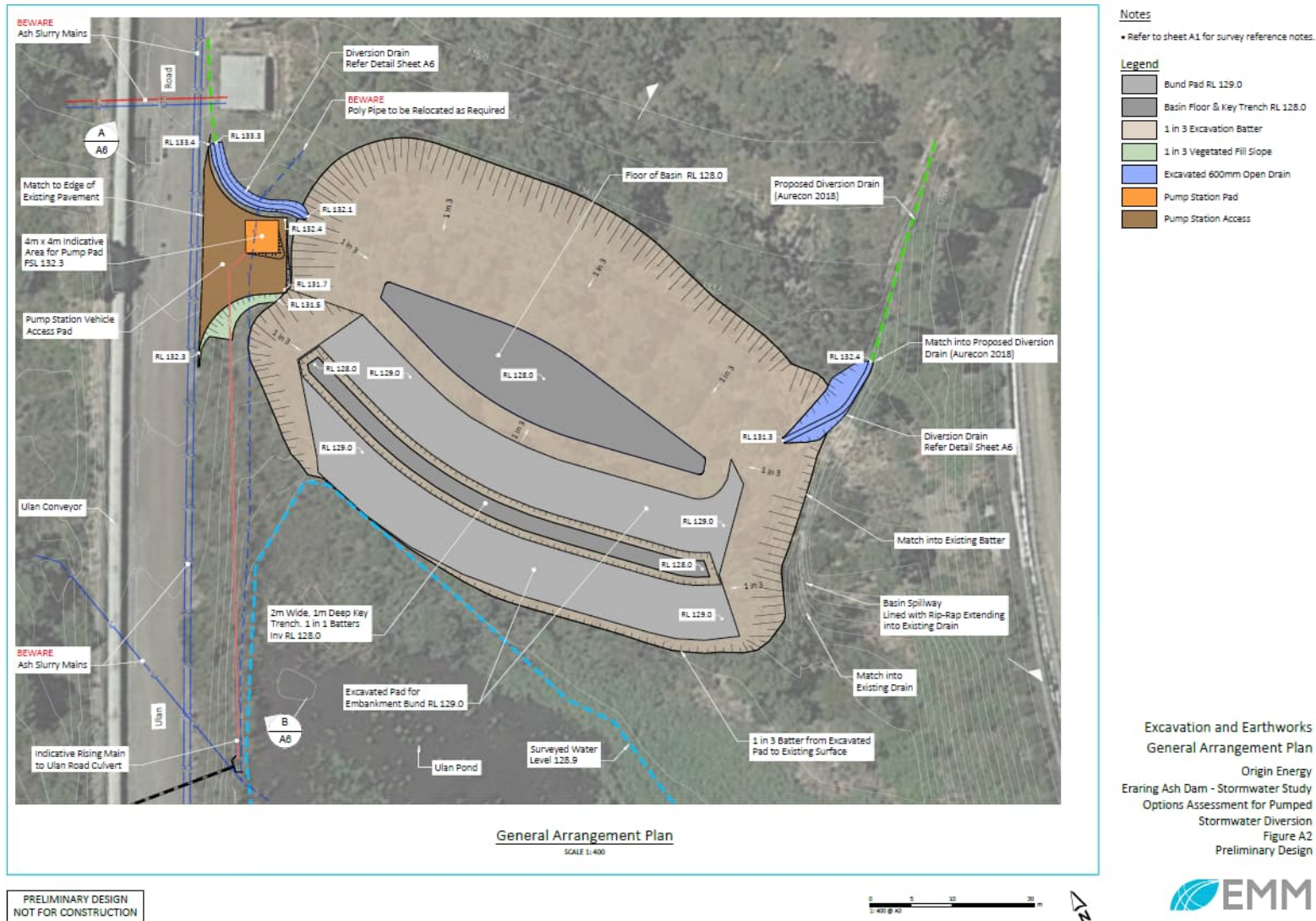


Figure 3 Indicative general arrangement for new clean water basin (Source: EMM, 2021a)

## 4.0 Environmental Management and Responsibilities

### 4.1 Environmental Management System

EPS operates and maintains an Environmental Management System (EMS) to the ISO14001 Standard, which supports continual improvement within EPS operations.

The overall framework for environmental management is governed by the EPS Environmental Management Plan (EMP) and subsidiary Biodiversity and Land Management Plan (BLMP) (AECOM, 2022) and Water Management Plan (AECOM, 2021). These plans are based on the principals ISO14001:2015, with focus on achieving continual improvement in environmental management practices.

Detailed procedures have been developed within the EMS to provide guidelines for completing tasks that are repeated on a regular basis in order to ensure they are performed correctly and consistently across the organisation.

### 4.2 Supporting Documents

The following documents are implemented at EPS:

- *Eraring Power Station: Environmental Management Plan* (GEN-HSE-EMP-EPS)
- *Biodiversity and Land Management Plan* (AECOM, 2022)
- *Origin Eraring Power Station: Water Management Plan* (AECOM, 2021)
- *Eraring Power Station: Emergency Response Plan* (DOC ID: 35204622) and
- *Eraring Power Station: Pollution Incident Response Management Plan* (EPS-ENV-PLN-002).

### 4.3 Roles and Responsibilities

Table 2 Environmental management roles and responsibilities

Role	Environmental responsibility
Origin Project Manager	<ul style="list-style-type: none"> <li>• Ensure overall implementation of this CEMP during construction.</li> <li>• Administer all contracts related to the supply of services and materials for construction between construction contractor(s).</li> <li>• Complete weekly site inspections and attend meetings with key stakeholders as required to ensure overall environmental compliance throughout the project.</li> <li>• Ensure all contractor personnel undertake relevant Origin inductions.</li> <li>• Monitor changes to the project scope to assess the requirement for CEMP amendments.</li> <li>• Promote a high level of environmental awareness at all times with all personnel who participate in construction work.</li> <li>• Ensure the audit schedule for this project is maintained, audit reports are completed and reviewed.</li> </ul>
Origin Senior Environment Business Partner	<ul style="list-style-type: none"> <li>• Ensure compliance with the EPS site's EPL (1429) and Project Approval.</li> <li>• Assist the Project Manager in undertaking inspections to inform compliance assessments.</li> <li>• Track and report on environmental performance against the management actions specified in this CEMP and relevant project approval conditions.</li> <li>• Monitor the effectiveness of the CEMP, weekly inspections, incidents, and complaints and make recommendations for CEMP amendment as required.</li> </ul>

Role	Environmental responsibility
	<ul style="list-style-type: none"> <li>• Review any proposed CEMP amendments made by the construction contractor and make recommendations to the Project Manager for adoption.</li> <li>• Ensure internal and external audits and associated monitoring programs are established and maintained.</li> </ul>
Construction Contractor Site Manager	<ul style="list-style-type: none"> <li>• Manage subcontractors and construction activities on a weekly basis to ensure the appropriate environmental controls defined in this CEMP are implemented and maintained through the duration of construction works.</li> <li>• Ensure all staff members are inducted onto the site and have an appropriate level of training as required for a particular task.</li> <li>• Ensure all site personnel are provided with, utilise and are appropriately trained in the requirements of Personal Protective Equipment (PPE).</li> <li>• Undertake weekly site inspections and maintain records of environmental actions.</li> <li>• Ensure that all machinery, plant and equipment necessary for construction are operated and maintained in a proper and efficient condition.</li> <li>• Ensure that environmental controls, such as erosion and sediment controls, are maintained and working effectively.</li> <li>• Monitor the effectiveness of the CEMP and propose amendments to the Project Manager to improve environmental management practices on site.</li> <li>• Report incidents in accordance with the requirements of the CEMP.</li> <li>• Report all community complaints to the Project Manager.</li> </ul>
Construction personnel, including all sub-contractors	<ul style="list-style-type: none"> <li>• Comply with the requirements of this CEMP.</li> <li>• Undertake day to day site activities in accordance with site safety rules and environmental management requirements.</li> <li>• Maintain on site environmental controls.</li> <li>• Maintain site cleanliness and housekeeping.</li> <li>• Carry out corrective actions issued as a result of any site inspections, audits, or meetings as directed by the Project Manager or Site Manager.</li> <li>• Notify the Site Manager of incidents or community complaints.</li> </ul>

## 4.4 Training and Awareness

### 4.4.1 EPS General Site Inductions

All construction personnel will attend the Origin Energy EPS General Site Induction and Ash Dam Induction prior to commencing work at the EPS. These inductions cover site familiarisation, legislative requirements, environmental management commitments and site safety rules for EPS. The Origin Project Manager is responsible for coordinating Origin EPS inductions. Origin maintains records of attendance for all inductions.

### 4.4.2 Project Environmental Induction

All construction personnel and contractors will attend a Project specific Environmental Induction prior to commencing. The Construction Contractor Site Manager is responsible for staff inductions. The EPS Project specific Environmental induction covers:

- Environmental commitments and measures contained within this CEMP
- Work health and safety hazards and associated controls
- Environmental awareness

- Minimum PPE requirements
- Plant and equipment competency requirements
- Duties and obligations
- Site safety rules
- Hours of construction specified in Project Approval (MP 07\_0084 MOD1)
- Traffic, vehicle and pedestrian movement
- First aid facilities
- Hazard, incident and emergency reporting protocols and
- Emergency management.

All induction records will be maintained on-site during the construction of the Project.

#### **4.4.3 Training and Competence**

Environmental issues will be discussed at daily pre-starts and weekly 'toolbox' talks. Pre-start meetings will be conducted prior to commencing works each day to raise potential safety and environmental issues, works to be completed and emergency response procedures when required.

'Toolbox' talks will be one method of raising awareness and educating personnel on issues related to all aspects of construction including environmental issues. The toolbox talks are used to ensure environmental awareness continues throughout construction.

Additional training requirements will be assessed and implemented as required. Attendance is mandatory and attendees of pre-start and toolbox talks will be required to sign an attendance form. All records will be maintained.

The Construction Contractor Site Manager will be responsible for ensuring that all construction personnel are appropriately qualified and experienced to undertake the specific tasks to which they are appointed.

## 5.0 Implementation of the CEMP

This CEMP is intended to provide an action program to enable delivery of the environmental commitments and promote frequent review against the action program so that compliance with relevant conditions of Project Approval MP 07\_0084 MOD1 can be demonstrated.

The sections below provide management measures for identified potential impacts associated with the project as assessed in the EA and Consistency Assessment. Condition 4.2 of Project Approval MP 07\_0084 MOD1 requires several management plans to be prepared and implemented as part of the CEMP, including:

- Flora and Fauna Management Plan (**Section 5.1**)
- Traffic Management Plan (**Section 5.4**)
- Construction Noise Management Plan (**Section 5.5**)
- Erosion and Sedimentation Management Plan (**Section 5.2**) and
- Aboriginal Cultural Heritage Management Plan (**Section 5.3**).

Relevant conditions of Project Approval MP 07\_0084 MOD1 have been identified throughout the following sections where relevant.

### 5.1 Flora and Fauna Management Plan

#### 5.1.1 Issues

The works to be undertaken covered by this CEMP include removal and disturbance of native vegetation. The EA concluded that up to 8.95 hectares of native vegetation would be directly impacted, however the revised Project will result in a smaller area of land disturbance.

The area to be disturbed during construction activities covered under this CEMP will be limited to the area shown within the red development footprint boundary on **Figure 4**. Vegetation clearing would be limited to the development footprint boundary (**Figure 4**). The Project area comprises previously disturbed remnant vegetation within the EPS site adjacent to the ERAD. Two Plant Community Types (PCTs) were identified (refer to **Table 3**) and were assessed to be in good condition. These PCTs are not consistent with any Threatened Ecological Community (TEC) listed under the BC Act or EPBC Act. No TECs were recorded within the Project area. The PCTs and other vegetation zones within the Project area are shown in **Figure 4**.

**Table 3 Plant Community Types within the project area**

Plant Community Type	Vegetation Class	Area (ha)
PCT 1627 Smooth-barked Apple – Turpentine – Sydney Peppermint healthy woodland on sandstone ranges on the Central Coast	Sydney Coastal Dry Sclerophyll Forests	0.95
PCT 1636 Scribbly Gum – Red Bloodwood – Angophora inopina healthy woodland on lowlands on the Central Coast	Sydney Coastal Dry Sclerophyll Forests	8.0

Three ecosystem-credit species were recorded during surveys or were considered likely to occur within the Project area, including:

- Black-eyed Susan (*Tetratheca juncea*)
- Squirrel glider (*Petaurus norfolcensis*) and
- Stephen's banded snake (*Hoplocephalus stephensii*).

These species, along with other threatened species recorded around the Project area, are shown in **Figure 5** and **Figure 6**.

The Project area also contains a range of exotic vegetation and a number of weeds that are classed as High Threat Weed species. Other minor indirect impacts to flora and fauna as a result of construction of the Project may be associated with noise, dust emissions, and the spread of weeds and feral animals.

### 5.1.2 Objectives

The objective of the Project with regard to flora and fauna is to undertake construction works in a manner that:

- Reduces the overall surface disturbance footprint
- Minimises adverse impacts to flora and fauna
- Minimises the spread of pest species and
- Reduces the disturbance of existing biodiversity offset areas.

### 5.1.3 Relevant Regulatory Requirements

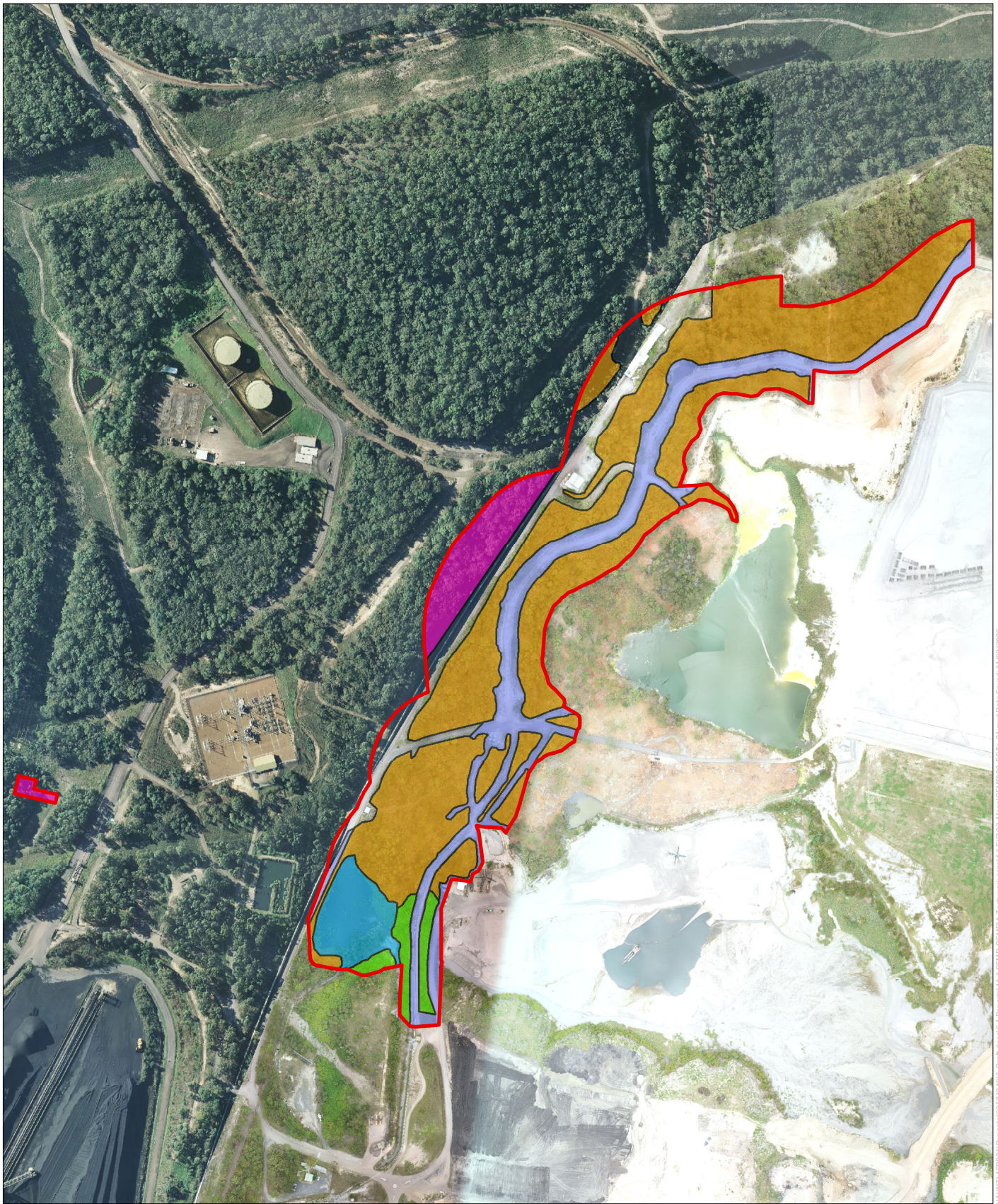
This Flora and Fauna Management Plan addresses the requirements of Condition 4.2(a) of the Project Approval MP 07\_0084, as described in **Section 1.4.1**.

Construction of the Project will be undertaken in accordance with the following standards and regulatory requirements:

- BC Act and EPBC Act and
- *Biosecurity Act 2015*.

### 5.1.4 Management Measures

The management measures listed in **Table 4** will be implemented during the construction period to minimise the potential impacts to flora and fauna.



**Figure 4 - Plant Community Types identified within the project area**

- Development footprint
- 1627 Smooth-barked Apple - Turpentine - Sydney Peppermint heathy woodland on sandstone ranges of the Central Coast - Good condition
- 1636 Scribbly Gum - Red Bloodwood - Angophora inopina heathy woodland on lowlands of the Central Coast - Good condition
- Cleared
- Constructed Waterbody
- Non-native vegetation



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Source: Origin 2018, DFSI 2018 and Umwelt 2019

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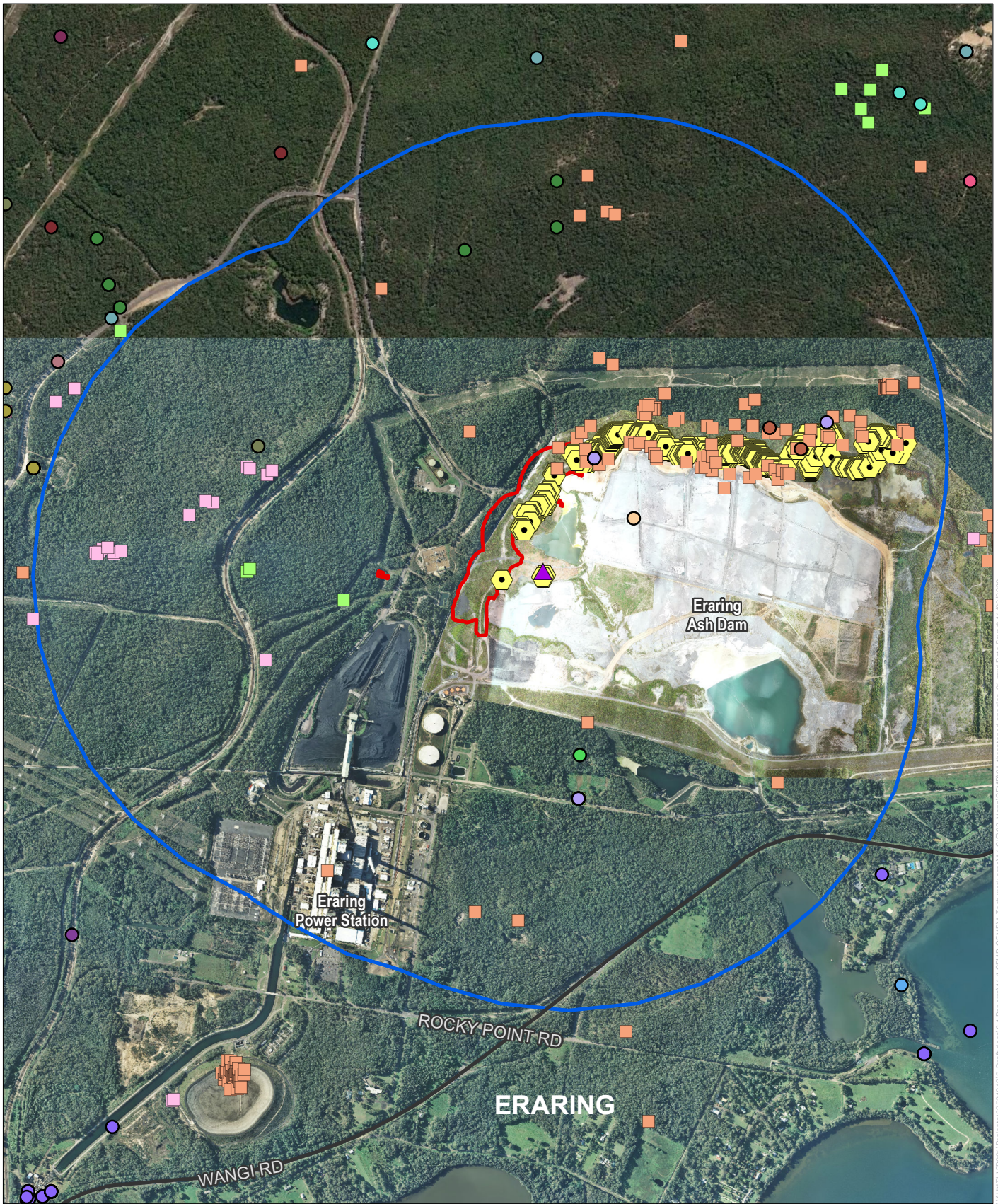


Figure 5 - Threatened species records



- |                            |                        |                            |   |
|----------------------------|------------------------|----------------------------|---|
| 1500m buffer area          | Green Turtle           | Spotted-tailed Quoll       | <i>Angophora inopina</i>                      |
| Development footprint      | Grey-headed Flying-fox | Squirrel Glider            | <i>Grevillea parviflora subsp. parviflora</i> |
| <b>Atlas fauna records</b> | Koala                  | Stephens' Banded Snake     | <i>Tetradlea juncea</i>                       |
| Dusky Woodswallow          | Little Bentwing-bat    | Swift Parrot               | <b>Umwelt Fauna records</b>                   |
| Eastern Bentwing-bat       | Little Lorikeet        | Varied Sittella            | Squirrel Glider                               |
| Eastern False Pipistrelle  | Loggerhead Turtle      | Wallum Froglet             | <b>Umwelt flora records</b>                   |
| Eastern Freetail-bat       | Masked Owl             | White-bellied Sea-Eagle    | <i>Tetradlea juncea</i>                       |
| Eastern Osprey             | Powerful Owl           | <b>Atlas flora records</b> |   |
| Glossy Black-Cockatoo      | Sooty Owl              | <i>Acacia bynoeana</i>     |   |

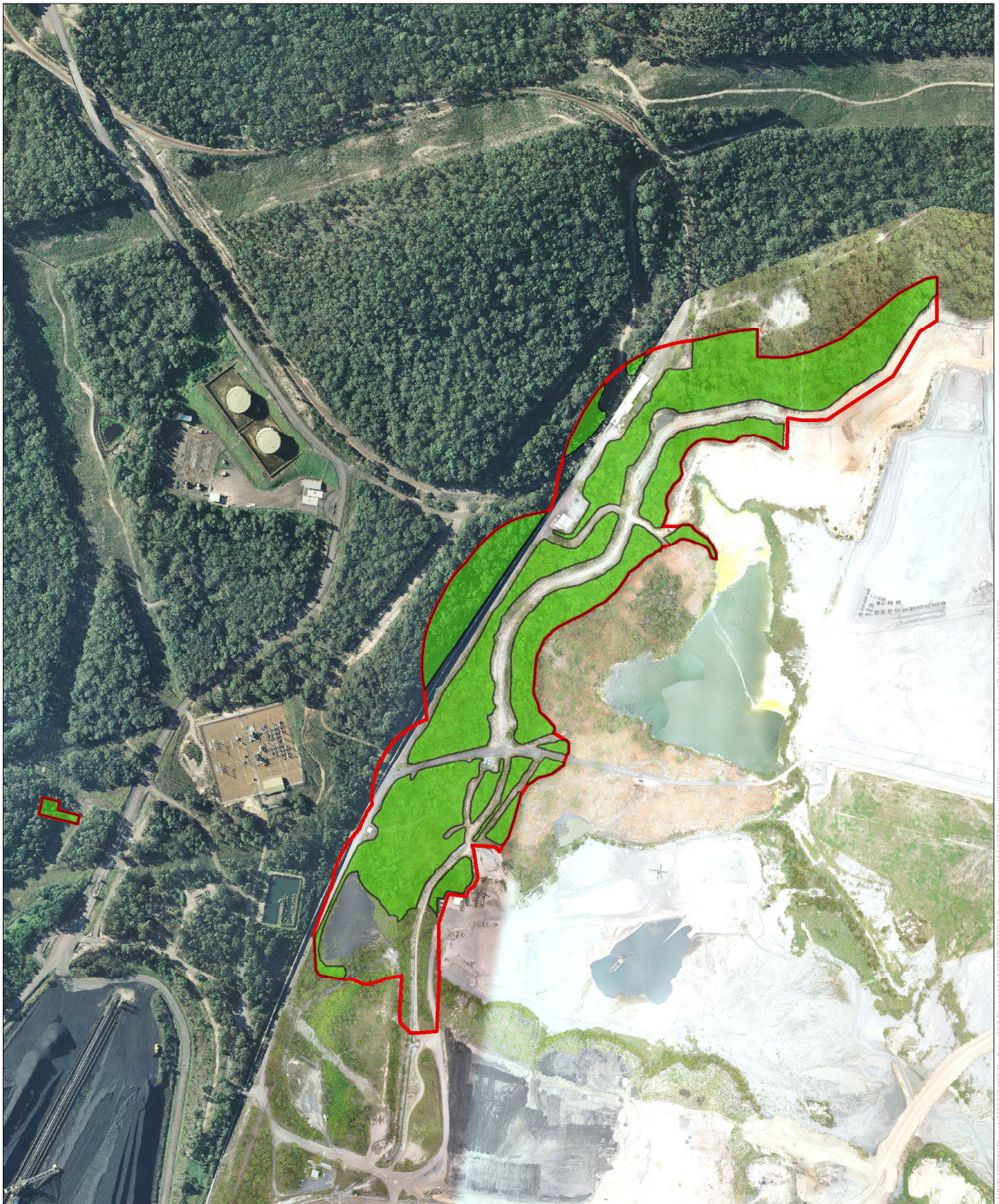
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**Figure 6 - Threatened species polygon**

- Development footprint
- Threatened species area for:
  - Stephen's banded snake - *Hoplocephalus stephensii*
  - Squirrel glider - *Petaurus norfolcensis*
  - Black-eyed Susan - *Tetradlea juncea*



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**Table 4 Flora and fauna management measures and monitoring program to be implemented during the construction period**

Management measure	Responsibility	Timing
Vegetation clearing activities will be undertaken in accordance with existing procedures outlined in the BLMP. The procedures will incorporate: <ul style="list-style-type: none"> <li>• A documented risk assessment prior to clearing commencing</li> <li>• Establishment of exclusion zones</li> <li>• Identification of habitat trees and inspections pre and post felling and</li> <li>• Staged clearing activities.</li> </ul>	Construction contractor	Prior to and during vegetation clearing
A risk assessment will be prepared in accordance with existing procedures outlined in the BLMP, prior to the clearing of vegetation, which considers, but is not limited to: <ul style="list-style-type: none"> <li>• Risk of noise impact</li> <li>• Risk of air quality impact via dust emissions</li> <li>• Risk of weed and pest species invasion and</li> <li>• Risk of disturbance to surrounding vegetation and biodiversity offset areas.</li> </ul>	Construction contractor	Prior to vegetation clearing
Pre-clearance inspections will be undertaken to identify if there are any breeding or hibernating individuals or populations of the threatened species known to occur within or adjacent to the project area. In the event threatened species are detected within the clearing limits, work will cease, and further investigations will be carried out.	Construction contractor	Prior to vegetation clearing
Vegetation clearing will be undertaken in accordance with the Vegetation Clearance Protocol (attached at Appendix A) which includes: <ul style="list-style-type: none"> <li>• The delineation of areas that require vegetation clearing</li> <li>• Pre-clearance vegetation inspections</li> <li>• Fauna management strategies</li> <li>• Vegetation clearance procedures and</li> <li>• A Threatened Species Management Protocol.</li> </ul>	Construction contractor	Prior to and during vegetation clearing
Vegetation clearing in spring would be avoided if possible, to ensure it does not affect critical periods in the lifecycles of significant species.	Construction contractor	During construction
Areas disturbed by construction activities which are not required for future operational use will be progressively stabilised and rehabilitated as soon as practical following disturbance. Rehabilitation activities would be undertaken in accordance with the BLMP.	Construction contractor	During construction
Cleared vegetation containing weeds will be contained and disposed of to an appropriately licensed vegetation waste disposal facility.	Construction contractor	During construction

Management measure	Responsibility	Timing
Before entering or leaving the site, vehicles, clearing equipment and general construction equipment (such as excavators, graders etc) will be cleaned so they are free of soil, seeds and plant material to prevent the spread of exotic plant species and pathogens.	Construction contractor	During construction
Construction personnel will keep to designated roads and existing access tracks.	Construction contractor	During construction
Monitoring Program		
<p>An existing monitoring program for flora and fauna is currently carried out, as detailed in the BLMP. The minimum requirements of the flora and fauna inspection and maintenance during the construction period are outlined as follows:</p> <ul style="list-style-type: none"> <li>• Biodiversity surveys prior to commencement of construction work</li> <li>• Pre and post clearance surveillance for any fauna present</li> <li>• Within one week of any localised flooding event.</li> </ul> <p>Flora monitoring prior to commencement of clearing will be carried out in accordance with the Biodiversity Assessment Methodology (NSW OEH, 2017). Fauna monitoring prior to commencement of clearing will be carried out in accordance with NSW and/or Commonwealth guidelines for threatened species surveys.</p>	Origin Senior Environment Business Partner and a qualified ecologist	During construction

## 5.2 Erosion and Sedimentation Management Plan

### 5.2.1 Issues

Potential impacts of the Project include increased erosion and sedimentation resulting from removal of vegetation, ground disturbance and construction of the clean water detention basin. These activities may result in the liberation of sediments during rain events which may discharge into the ERAD or receiving waters. Exposed surfaces could contribute to sediment leaving the site through air borne dust, vehicle tracking or run-off if not managed correctly. Sediments can negatively impact on both aquatic and terrestrial environments by entering surface waters and increasing turbidity or smothering terrestrial vegetation.

There are potential risks associated with exposure of contaminated soils or other sources of contamination during construction works involving ground disturbance given the historical and current use of the site for industrial activities associated with power generation.

There is also potential for fuel, oil and chemical spills and leaks during the construction period from plant and machinery or the refuelling of plant and machinery.

### 5.2.2 Objectives

The objective of the Project with regard to soil and water is to undertake construction works in a manner that minimises erosion and sedimentation and minimises adverse impacts to soil and water (both surface and groundwater).

### 5.2.3 Relevant Regulatory Requirements

This section provides the Erosion and Sedimentation Management Plan and addresses the requirements of Condition 4.2(d) of the Project Approval MP 07\_0084, as described in **Section 1.4.1**.

Construction of the Project will be undertaken in accordance with the following standards and regulatory requirements:

- *Water Management Act 2000* and its associated Regulations
- POEO Act and its associated Regulations
- Managing Urban Stormwater: Soils and Construction Vol. 1 (Landcom 2004)
- Project Approval (MP 07\_0084 MOD1) including the following relevant conditions:
  - *Condition 2.6: Except as may be expressly provided by an EPL for the project, the Applicant shall comply with section 120 of the POEO Act which prohibits the pollution of waters*
  - *Condition 2.7 Soil and water management controls shall be employed to minimise soil erosion and the discharge of sediment and other pollutants to lands and/or waters during construction activities, in accordance with Landcom's Managing Urban Stormwater: Soils and Construction.*
  - *Condition 2.8 The Applicant shall design and construct the CCP storage facility expansion in a manner that minimises the interception of underlying groundwater.*

### 5.2.4 Management Measures

The management measures listed in Table 5 will be implemented during the construction period to minimise the impacts on soil and water.

Table 5 Soil and water management measures and monitoring program to be implemented during the construction period

Management measure	Responsibility	Timing
<b>Erosion and Sediment Control Plan</b>		
Erosion and sediment control measures will be installed prior to construction work commencing and will be implemented in accordance with Landcom's <i>Managing Urban Stormwater: Soils and Construction</i> .	Construction contractor	Prior to construction
Erosion and sediment controls will be implemented in accordance with the following: <ul style="list-style-type: none"> <li>Clean water diversions will be constructed upslope of areas to be disturbed to convey clean water runoff away from disturbed areas and prevent water from entering active areas and the saline/dirty water systems. Clean water runoff will be diverted into nearby watercourses. Appropriate protection will be established where diverted waters enter creeks through the use of level spreaders or other protection measures.</li> <li>Catch drains will be established to convey runoff from the disturbed areas to the Ulan Pond or the Decant Pond.</li> <li>Sediment fences, sediment traps, rock checks and other temporary erosion and sediment control measures as per the Blue Book will be installed in advance of, or in conjunction with, earthworks to prevent sediment laden water leaving the site or entering clean water systems.</li> </ul>	Construction contractor	Prior to construction
Sediment controls will be installed down slope of the project area to catch sediment (eg silt fences or bunds).	Construction contractor	Prior to construction
Runoff will be diverted from upslope land away from the project area by suitable catch drains.	Construction contractor	Prior to construction
Areas required to be disturbed will be clearly delineated and disturbance will be limited to those areas. Temporary fences will be installed to define any no go areas that are not to be disturbed.	Construction contractor	Prior to construction
Gypsum will be applied, where required, to reduce the dispersibility of the subsoils that will be disturbed and to minimise the potential for erosion and sedimentation of disturbed or reshaped areas.	Construction contractor	During construction
Where possible, the area to be disturbed will be staged to minimise the area of bare surfaces during construction. Ground disturbance will be minimised where possible and disturbed areas which are not required for future operational use will be stabilised by progressive rehabilitation as soon as practicable. Rehabilitation activities would be undertaken in accordance with the BLMP.	Construction contractor	During construction
<b>Soil and water</b>		
Ground disturbance and soil handling activities will be undertaken in accordance with existing procedures outlined in the BLMP. The procedures will incorporate: <ul style="list-style-type: none"> <li>Weed management activities</li> <li>Soil handling protocols including stockpiling procedures.</li> </ul>	Construction contractor	During construction

Management measure	Responsibility	Timing
Excess excavated material that cannot be returned to excavations or reused in construction activities will be stockpiled on site prior to being assessed in accordance with NSW <i>Waste Classification Guidelines</i> (EPA, 2014). Excess material will be reused in rehabilitation activities where suitable or appropriately disposed of in accordance with the <i>Waste Avoidance and Resource Recovery Act 2001</i> .	Construction contractor	During construction
Except as may be expressly provided by EPL 1429, the Project will comply with section 120 of the POEO Act which prohibits the pollution of waters.	Construction contractor	During construction
The Project will be designed and constructed in a manner that minimises the interception of underlying groundwater.	Project Manager / Construction contractor	Prior to and during construction
Contamination		
Construction workers would be made aware of the following general indicators of potential contamination: <ul style="list-style-type: none"> <li>• Illegal or uncontrolled dumping of wastes adjacent to the construction site</li> <li>• Discolouration or staining of soil</li> <li>• Abnormal colouration of surface water or groundwater</li> <li>• Chemicals floating on the water table</li> <li>• Odours emanating from the water or soil</li> <li>• Dead vegetation within or adjacent to areas of otherwise normal growth</li> <li>• Liquid or solid chemicals or chemical wastes found on or in the soil (including abandoned drums or containers)</li> <li>• Inadvertent chemical spills during construction (hydraulic fluid, fuel etc) and</li> <li>• Materials suspected of containing asbestos.</li> </ul>	Construction contractor	During construction
An unexpected finds protocol will be implemented during the construction of the Project: <ul style="list-style-type: none"> <li>• in the event of an unexpected find, all work in the immediate vicinity should cease and the Project Manager should be contacted immediately</li> <li>• temporary fencing should be erected to isolate the area from access to the public and workers,</li> <li>• the Project Manager will engage an appropriately qualified specialist to attend the site and assess the extent of the problem in order to assess the risk it may pose to the receptors</li> <li>• in the event potential friable asbestos material is encountered, a qualified occupational hygienist and / or asbestos consultant must be contacted</li> <li>• In the event that the area of environmental concern poses a risk to receptors, appropriate management procedures will be put in place to minimise / mitigate the risk. This could include a remediation action plan, environmental management plan, asbestos management plan or similar,</li> </ul>	Construction contractor	During construction

Management measure	Responsibility	Timing
<ul style="list-style-type: none"> <li>Additional sampling and analysis may be required to better characterise the area of environmental concern and</li> <li>Works will only proceed when the area of environmental concern is considered to pose a low to no risk to receptors.</li> </ul>		
<p>The following procedures will be implemented to minimise the risk of chemical or fuel spills during construction:</p> <ul style="list-style-type: none"> <li>All substances will be stored in accordance with the relevant Australian Standard</li> <li>Refuelling of plant and equipment will be carried out in a bunded area in accordance with EPL1429</li> <li>All personnel will be trained in procedures for the management of spills and the location of spill kits and</li> <li>An emergency spill kit will be accessible during construction and will be appropriately sized for the volume of substances used at the site.</li> </ul>	Construction contractor	During construction
<p>Accidental chemical spills (such as hydraulic fluid from equipment) will be quickly attended to, contained and reported immediately and contaminated material disposed of appropriately.</p>	Construction contractor	During construction
Monitoring Program		
<p>Regular inspections will be undertaken to ensure erosion and sediment controls are maintained and remain appropriate for the duration of the construction works. The minimum requirements of the inspection and maintenance of the controls will be:</p> <ul style="list-style-type: none"> <li>Weekly during construction works</li> <li>Monthly upon completion of construction works and for permanent erosion and sediment control structure (if required) and</li> <li>After significant rainfall events.</li> </ul> <p>If inspections identify areas of erosion or failure of erosion and sediment control measures, the area will be stabilised and if required control measures will be rectified in accordance with the BLMP. Control measures will only be removed upon completion of construction works when all disturbed surfaces have been stabilised.</p>	Construction contractor	During and post construction
<p>Water quality in the Ulan Pond and Decant Pond will be monitored in accordance with existing monitoring requirements as described in the EPS Water Management Plan (AECOM, 2021).</p>	Construction contractor	During construction

## 5.3 Aboriginal Cultural Heritage Management Plan

### 5.3.1 Issues

Potential impacts of the Project on Aboriginal heritage include damage to Aboriginal sites during construction works, in particular the vegetation clearing and earthworks required for construction of dry stack infrastructure, the new clean water detention basin and stormwater diversion systems.

An Aboriginal heritage due diligence assessment was undertaken for the project as part of the EA, including a review of existing Aboriginal Heritage Information Management System (AHIMS) data.

No existing Aboriginal archaeological sites (as indicated on the AHIMS database) are located within the Project area, nor were Aboriginal archaeological sites located during the visual inspection component of the assessment. Spatial data within the AHIMS database indicates that a single Aboriginal site (45-7-0070 Eraring Crooked Creek) lies within the existing ash dam, approximately 700m east of the project area. Although the site card for 45-7-0070 lacks a map indicating the location, the description identifies the approximate position along the foreshore of Lake Macquarie, placing it outside the Project area.

### 5.3.2 Objectives

The objective of the Project with regard to Aboriginal heritage is to minimise adverse impacts to Aboriginal sites as a result of construction activities.

### 5.3.3 Relevant Regulatory Requirements

An Aboriginal Cultural Heritage Management Plan has been prepared and is attached to this CEMP at **Appendix B**. The Plan details the consultation that was undertaken with Registered Aboriginal Parties (RAPs) and sets out the procedures for the management of Aboriginal cultural heritage values or potential Aboriginal objects identified within the Project area during construction.

The Plan addresses the requirements of Condition 4.2(e) of the Project Approval MP 07\_0084, as described in **Section 1.4.1**.

Construction of the Project will be undertaken in accordance with the following standards and regulatory requirements:

- *National Parks and Wildlife Act 1974.*

### 5.3.4 Management Measures

The management measures listed in **Table 6** will be implemented during the construction period to minimise the potential impacts on Aboriginal heritage.

Table 6 Aboriginal heritage management measures to be implemented during the construction period

Management measure	Responsibility	Timing
<p><u>Aboriginal Sites</u> Should a previously unidentified Aboriginal site or object be identified at any point during construction of the Project, the following standard procedure will be followed:</p> <ol style="list-style-type: none"> <li>1. All works must cease immediately in the area to prevent any further impacts to the site/object</li> <li>2. Notify the Origin Energy EPS Senior Environmental Business Partner</li> <li>3. Engage a suitably qualified heritage consultant and RAP representative(s) to determine the nature, extent and significance of the site and provide appropriate management advice. Management action(s) will vary according to the type of evidence identified, its significance (both scientific and cultural) and the nature of potential impacts and</li> <li>4. Prepare and submit an AHIMS site card for the site.</li> </ol> <p><u>Human Skeletal Remains</u> In the event that potential human skeletal remains are identified within the Project area during construction of the Project, the following standard procedure will be followed.</p> <ol style="list-style-type: none"> <li>1. all work in the vicinity of the remains must cease immediately</li> <li>2. the location should be cordoned off – construction work can continue outside of this area as long as there is no risk of interference to the remains or the assessment of the remains</li> <li>3. where uncertainty over the origin (i.e., human or non-human) of the remains exists, a physical or forensic anthropologist should be commissioned to inspect the exposed remains <i>in situ</i> and make a determination of origin, ancestry (Aboriginal or non-Aboriginal) and antiquity (pre-contact, historic or modern) <ul style="list-style-type: none"> <li>- If the remains are identified as modern and human, the area will become a crime scene under the jurisdiction of the NSW Police</li> <li>- If the remains are identified as pre-contact or historic Aboriginal, the site will be secured and Heritage NSW will be notified and</li> <li>- If the remains are identified as historic (non-Aboriginal), the site will be secured and Heritage NSW will be notified.</li> </ul> </li> </ol>	Construction contractor	During construction
Origin is committed to addressing the concerns of RAPs during construction of the Project. Should RAPs wish to discuss any aspect of this ACHMP or the Project, Origin Energy will facilitate this through confidential meetings and/or phone discussions. Meetings and/or site visits with Origin will be arranged upon RAP request. When/if revisions to the ACHMP are required, Origin will provide RAPs with a copy of the revised ACHMP with a 14-day review period to provide feedback.	Origin Project Manager	During construction

Management measure	Responsibility	Timing
Origin Energy requires all employees and contractors working on-site to undertake a Site Induction prior to commencing work. This induction will include basic information on Aboriginal cultural heritage including: <ul style="list-style-type: none"><li>• employee and contractor legal responsibilities with respect to Aboriginal cultural heritage</li><li>• a summary of potential Aboriginal site types located within the vicinity of the Project Area and</li><li>• procedures for the management of recorded and previously unrecorded Aboriginal cultural heritage.</li></ul>	Origin Project Manager	Prior to and during construction

## 5.4 Traffic Management Plan

### 5.4.1 Issues

Potential impacts of the project include increased traffic (light and heavy vehicles) on the surrounding road network as a result of construction vehicles movements. The EA estimated that construction of the Project may generate up to 50 additional truck movements per week. However, this was largely due to the transport of fill material and cement for construction of the western saddle embankment and grouting of the underlying Awaba mine voids. As these construction elements are no longer included in the revised Project, truck movements are likely to be much lower than estimated in the EA.

Construction activities would result in an additional 10 truck movements for the transport of minor quantities of construction materials and wastes to and from the EPS site. The majority of equipment required for construction (e.g. earthmoving equipment) are already available on site and will not need to be transported to site. Construction vehicle movements will have minimal impact on the surrounding traffic network.

The EPS site is currently accessed via an entry point on Construction Road and internal site roads provide access to the ERAD. Heavy vehicles travel to the EPS site via Construction Road, Rocky Point Road, Wangi Road, Macquarie Street, Dora Street and then Mandalong Road to the Pacific Motorway (M1) (refer to **Figure 7**). Access arrangements to the EPS site and internal access to the ERAD would remain unchanged compared to existing conditions (refer to **Figure 8**).

A copy of this CEMP was provided to LMCC and TfNSW for review and comment. Responses were received from these agencies (TfNSW correspondence dated 21 September 2023 and LMCC correspondence dated 19 September 2023) and no comments or objections were raised.

### 5.4.2 Objectives

The objective of the project with regard to traffic is to undertake construction works in a manner that minimises disruption to the surrounding road network and minimises adverse impacts on local traffic.

### 5.4.3 Relevant Regulatory

This Traffic Management Plan addresses the requirements of Condition 4.2(b) of the Project Approval MP 07\_0084, as described in **Section 1.4.1**.

Construction of the Project will be undertaken in accordance with the following standards and regulatory requirements:

- *Roads Act 1993*.

### 5.4.4 Management Measures

The management measures listed in **Table 7** will be implemented during the construction period to minimise traffic related impacts.

**Table 7** Traffic management measures to be implemented during the construction period

Management measure	Responsibility	Timing
Access arrangements will be communicated with all truck drivers (e.g. using route maps) to ensure that they access the site from the proposed route (being via the Pacific Motorway (M1), Mandalong Road and through Morisset onto Wangi Road, Rocky Point Road and Construction Road).	Construction contractor	During construction
Heavy vehicle truck movements will be staged in order to minimise impacts on the surrounding traffic network.	Construction contractor	During construction
All additional car and truck parking will be managed wholly within the EPS site in accordance with Origin's Traffic Management Plan for the site.	Construction contractor	During construction
Truck drivers will be advised of parking locations, acceptable delivery hours or other relevant practices (i.e. minimising the use of engine brakes, and no extended periods of engine idling). The use of reversing alarms will be minimised from regular/repeatable movements (e.g. trucks transporting spoil). Where feasible and reasonable, non-tonal reversing alarms will be used, taking into account the requirements of the <i>Work Health and Safety Act 2011</i> and associated regulation.	Construction contractor	During construction



**Figure 7 - External construction haulage routes**



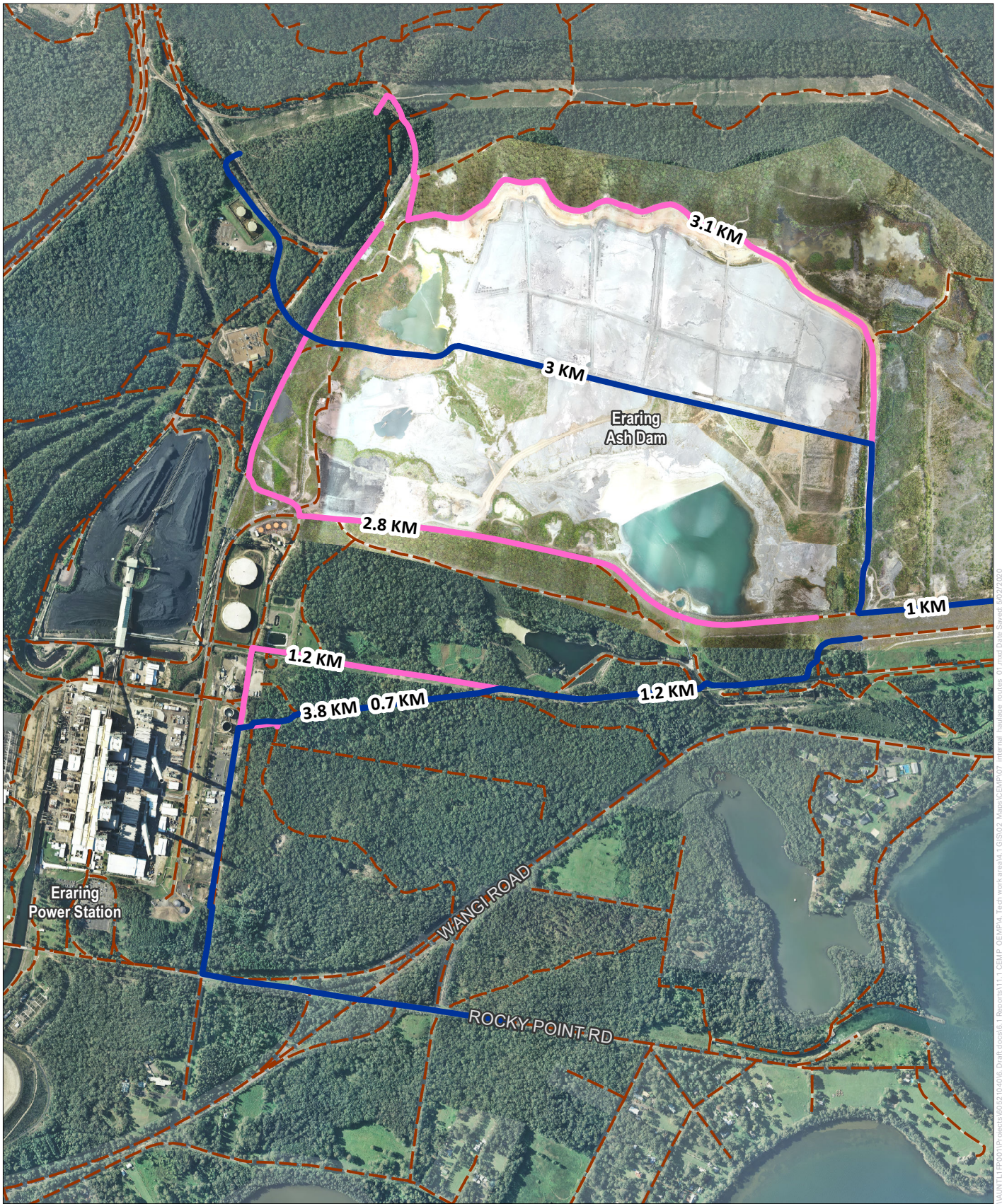
- Construction haulage route
- Origin EPS Landholdings

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Source: Origin 2018, DFSI 2018



**Figure 8 - Internal construction haulage routes**



- Existing Access
- Primary Haul Route
- Alternate Haul Route

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Source: Origin 2018, DFSI 2018

## 5.5 Construction Noise Management Plan

### 5.5.1 Issues

There may be temporary noise impacts associated with vehicles and equipment used for the construction of the Project. There are sufficient areas of buffer land located between the Project area and nearby sensitive receivers to minimise potential noise impacts.

The closest sensitive receivers include residential receivers on Biddulph Street, Wharf Street and Payten Street, Eraring, located over 1 km to the south.

Construction activities likely to generate noise include the movement of construction vehicles for transport of materials to and from the site and the use of plant and machinery required for earthworks and other construction activities. The indicative schedule for construction works is outlined in **Section 3.4** of this CEMP.

### 5.5.2 Objectives

The objective of the project with regard to construction noise is to undertake construction works in a manner that minimises noise impacts on surrounding sensitive premises.

### 5.5.3 Relevant Regulatory Requirements

This Construction Noise Management Plan addresses the requirements of Condition 4.2(c) of the Project Approval MP 07\_0084, as described in **Section 1.4.1**.

Construction of the Project will be undertaken in accordance with the following standards and regulatory requirements:

- POEO Act and its associated Regulations
- Noise Policy for Industry (2017) (EPA, 2017)
- Project Approval (MP 07\_0084 MOD1) including the following relevant conditions:
  - *Condition 2.4: The Proponent shall only undertake construction activities associated with the project that would generate an audible noise at any residential premises during the following hours:*
    - a. 7:00 am to 6:00 pm, Mondays to Fridays, inclusive
    - b. 8:00 am to 1:00 pm on Saturdays and
    - c. At no time on Sundays or public holidays.

*This condition does not apply in the event of a direction from police or other relevant authority for safety reasons.*
  - *Condition 2.5: The hours of construction activities specified under condition 2.3 of this approval may be varied with the prior written approval of the Planning Secretary. Any request to alter the hours of construction specified under condition 2.3 shall be:*
    - a. Considered on a case-by-case basis
    - b. Accompanied by details of the nature and need for activities to be conducted during the varied construction hours and
    - c. Accompanied by written evidence of the EPA's agreement with the proposed variation in construction times, after providing any information necessary for the EPA to reasonably determine that activities undertaken during the varied construction hours will not adversely impact on the acoustic amenity of receptors in the vicinity of the site.

### 5.5.4 Management Measures

The management measures listed in **Table 8** will be implemented during the construction period to minimise noise impacts.

**Table 8 Noise management measures and monitoring program to be implemented during the construction period**

Management measure	Responsibility	Timing
<p>Construction activities associated with the Project that will generate an audible noise at any residential premises will only be undertaken during the following hours:</p> <ul style="list-style-type: none"> <li>• 7:00 am to 6:00 pm, Mondays to Fridays, inclusive</li> <li>• 8:00 am to 1:00 pm on Saturdays and</li> <li>• at no time on Sundays or public holidays.</li> </ul> <p>This does not apply in the event of a direction from police or other relevant authority for safety reasons.</p>	Construction contractor	During construction
Residents will be notified if construction activities are planned that are considered likely to affect their noise and vibration amenity.	Construction contractor	During construction
<p>Where practicable, standard noise mitigation measures would be implemented during construction, such as:</p> <ul style="list-style-type: none"> <li>• all plant and machinery will be regularly maintained to ensure it is in good working order</li> <li>• use of reversing alarms will be minimised from regular repeatable movements</li> <li>• where feasible, non-tonal reversing alarms will be used and</li> <li>• use of engine brakes will be minimised, with no extended periods of engine idling.</li> </ul>	Construction contractor	During construction
Complaints will be managed in accordance with the Environmental Management Plan for Eraring Power Station and recorded in the Incident Management System (further described in <b>Section 6.0</b> of this CEMP).	Construction contractor	During construction
Monitoring Program		
In the event of any noise complaint an investigation will be undertaken. Where validated noise complaints are identified, mitigation measures will be implemented and follow up monitoring conducted. A written response will be provided on completion of an investigation. The results of the investigation will be recorded within Origin's Incident Management system and corrective actions will be reviewed to determine the effectiveness of these actions.	Construction contractor	During construction

## 5.6 Management of Other Environmental Issues

Environmental aspect	Consideration
Air Quality	<p>Potential air quality impacts of the Project would primarily relate to the generation of dust associated with vegetation clearing, earthworks and stockpiling of construction and waste materials. Emissions may also be generated as a result of diesel-powered plant and equipment and the transport of construction / waste materials to and from the site.</p> <p>In accordance with Condition 2.9 of the Project Approval (MP 07_0084 MOD1), construction will be undertaken in a manner that minimises dust emission from the site, including wind blown and traffic-generated dust. All activities will be undertaken with the objective of preventing visible emissions of dust from the site. Should visible emissions occur, all practicable dust mitigation measures, including cessation of relevant works, would be implemented to ensure that emissions of visible dust cease.</p> <p>Construction works will not cause or permit the emission of any offensive odours, as defined in section 129 of the POEO Act, beyond the boundary of the site.</p> <p>Construction activities will be managed in accordance with <i>the Eraring Power Station Coal Combustion Management Facility: Air Quality Management Plan</i> (Jacobs, 2022). This document outlines the controls to be implemented for the management and monitoring of air quality associated with the ERAD, including:</p> <ul style="list-style-type: none"> <li>• wetting surface during dry, high wind conditions</li> <li>• progressive rehabilitation where possible</li> <li>• observation of weather conditions during truck unloading and ceasing unloading if excessive wind-blown dust is visible</li> <li>• watering of unsealed haulage routes if dust is observed with vehicle movements</li> <li>• ambient air quality monitoring including real time PM<sub>10</sub> concentration monitoring and meteorological monitoring</li> <li>• visual monitoring of dust emissions</li> <li>• automated dispersion modelling of site dust (and air) emissions using forecast meteorological conditions.</li> </ul>
Waste	<p>During construction of the Project, waste materials generated are likely to consist of minor quantities of vegetation waste and construction wastes such as concrete, metals and pipes.</p> <p>Where possible, materials will be reused or recycled to minimise the quantities of waste disposed in landfill. Vegetation waste (excluding weeds, which will be separated) will be mulched and used in landscaping around the EPS site where appropriate to do so.</p> <p>All waste generated during construction of the Project will be assessed and classified in accordance with the EPA's <i>Waste Classification Guidelines</i> (EPA, 2014) prior to disposal and transport to a licensed waste disposal facility.</p> <p>Only those wastes permitted under EPL 4129 will be received at the premises for use in construction activities. Permitted wastes are described in the BLMP.</p>

Environmental aspect	Consideration
Non-Aboriginal Heritage	<p>The EPS site including the ERAD is listed as a heritage item under the LEP 2014. The significance of EPS is considered to relate primarily to electricity generation infrastructure and technology associated with the power station building.</p> <p>The Project will not directly or indirectly impact key electricity generation infrastructure or technology at EPS. The Project will be primarily located within the existing operational footprint of the ERAD. The EA concluded that impacts to the heritage item would be negligible.</p> <p>Construction personnel will be made aware of the heritage significance of the EPS site during the Project-specific Environmental Induction.</p> <p>Should any items of potential non-Aboriginal cultural heritage significance be uncovered during earthworks, the immediate area of the potential find will be isolated and the Origin Energy EPS Senior Environmental Business Partner will be notified.</p>

## 6.0 Incidents and Complaints

Reporting and management of incidents will be in accordance with the EPS Environmental Management Plan. Where an incident occurs, the appropriate immediate response will be taken to ensure the safety of workers, the community and the environment.

### 6.1 Reporting of Environmental Incidents

In accordance with the EPS site's EMS, all hazards, near misses and incidents are to be reported in the Incident Management System immediately.

An environmental incident is an unplanned event that causes or has potential to cause material harm to the environment. Environmental incidents include but are not limited to:

- spills of chemicals including oils and fuels
- unintended damage to native vegetation
- injury to wildlife and
- dust and noise impacts on the surrounding community.

Incidents causing or threatening material harm to the environment, as defined by section 147 of the POEO Act, will be managed in accordance with the Pollution Incident Response Management Plan (PIRMP). A requirement of the PIRMP is to notify the EPA and other relevant authorities immediately after becoming aware of the incident.

The DPE must be notified in writing to [compliance@planning.nsw.gov.au](mailto:compliance@planning.nsw.gov.au):

- immediately after Origin becomes aware of an incident and
- within seven days after Origin becomes aware of any non-compliance with the conditions Project Approval.

A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.

All incidents will be investigated, and corrective actions identified and implemented where relevant. Incidents will be closed out as quickly as possible, taking all required action to resolve each environmental incident. The Site Manager will maintain all records relating to environmental incidents.

### 6.2 Emergency Contacts

Any environmental emergency or incident will be notified to the Project Manager and Environmental Manager (refer to **Section 4.3**) who will notify the relevant emergency services or regulatory authorities where applicable. **Table 9** identifies emergency contacts likely to be relevant to the project.

**Table 9** Emergency contacts phone or other contact details

Contact	Name / Type of Emergency	Primary contact
EPA Pollution Line	General contact	131 555 (hotline) or (02) 4908 6800 (Newcastle Office)
Fire Brigade	Emergency	000
	NSW Rural Fire Service	(02) 8741 5555 (Headquarters)
Police	Emergency	000
	Toronto Police Station	(02) 4088 1099
Ambulance	Life threatening situations	000 or 112
	Non-life threatening situations	131 233
State Emergency Service	Duty Officer	132 500

Contact	Name / Type of Emergency	Primary contact
Native Animal Trust Fund	NATF	0418 628 483
Poison centre	Bites, stings and poisons	13 11 26
WIRES Wildlife Rescue	Injury to Wildlife	1300 094 737

### 6.3 Complaints handling

Complaints can be made via the following methods:

- **Phone call:** (02) 4973 0700
- **Postal mail:** PO Box 5044, Dora Creek, NSW 2264
- **Website:** <https://www.originenergy.com.au/contact-us/general-enquiries.html>

Initial contact for complaints will be dealt with verbally by the Community Relations Business Partner with the complaint logged in Origin's Incident Management System.

Complaints logged via the Incident Management System will be reviewed and a corrective action initiated depending on the level of action required, with a written response provided on completion of any investigation.

### 6.4 Corrective actions

Corrective actions may be identified through investigations of any environmental incidents or non-compliances. Any non-conformance resulting in an environmental incident will be managed in accordance with **Section 6.1**.

An environmental non-conformance is taken to be any deviation from performance standards. The non-conformance may be identified from routine inspections, audits or monitoring, or it can be from an external complaint.

## 7.0 Monitoring and Review

The Project Manager will ensure the Project's identified environmental aspects are consistently monitored and any deviation from planned control programs are identified and corrected in an effective manner.

### 7.1 Internal Auditing

Internal audits will be conducted during the construction phase in accordance with Origin's Compliance Tracking Program and these audits will review:

- procedures, process control plans, associated work procedures and work instructions forming part of this CEMP
- completion and maintenance of Project documentation and
- management of Project records and completion of records.

All audit reports will be filed in the Project filing system. Condition 5.5 of Project Approval MP 07\_0084 requires Compliance Reports to be prepared in accordance with DPE's *Compliance Reporting Post Approval Requirements* (DPE, 2020) or its latest version. In accordance with these guidelines, Compliance Reports are not required during the construction phase of the project.

An Independent Environmental Audit will be undertaken within one year of the date of physical commencement of the MOD 2 project, and every three years thereafter, in accordance with Condition 5.11 of Project Approval MP07\_0084 and the specific requirements of the Independent Audit Post Approval Requirements (NSW Government 2020).

### 7.2 Monitoring and Reporting

Regular inspections of the Project area will be carried out to ensure environmental controls and required processes are being implemented appropriately and are being maintained.

The Site Manager will undertake weekly site inspections of the Project area using an inspection checklist to evaluate the effectiveness of the environmental controls and to ensure ongoing compliance with the requirements of this CEMP. Inspections of the site will also be undertaken within 24 hours following significant rainfall events.

Records will be kept of all environmental monitoring, management and corrective actions undertaken during construction of the Project. Records will include information on the environmental performance of the construction activities and will include the following details, where relevant:

- incidents or non-compliances with environmental obligations and legislative requirements
- deficiencies in the standard of environmental performance
- environmental management or corrective action required
- complaints associated with the construction activities and
- any other relevant issue.

### 7.3 Review of CEMP

CEMPs require ongoing review during the construction phase and will be amended as necessary to allow new or changing environmental risks relating to the construction works to be addressed. The Contractor will ensure that feedback systems will be in place for the duration of the project to enable the CEMP to be updated and responsive to learning from any incidents or complaints.

This CEMP will be reviewed by the Project Manager and updated to reflect knowledge gained during the course of construction and changes in construction activities and conditions.

Changes to the CEMP may be developed and implemented in consultation with relevant authorities and stakeholders over time as required.

In accordance with Condition 5.14 of Project Approval MP 07\_0084, the CEMP will be reviewed within three months of:

- the submission of an incident report required under Condition 5.1 of Project Approval MP 07\_0084 or
- any modifications to the conditions of Project Approval (MP 07\_0084) (unless the conditions require otherwise).

Where this review leads to a revision of the CEMP, the revised document will be submitted to the Planning Secretary for approval.

Other triggers for CEMP review may include:

- findings and recommendations of site inspections and/or work procedures
- changes to the Contractors organisational structure, roles and responsibilities
- changes in environmental legislation and/or policies and
- new technologies/innovation relevant to applied methods and controls that provide innovative means of executing work in order to meet environmental performance criteria.

## 8.0 References

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EMM (2021a) *Memorandum: Alternative clean water management approach: Eraring Ash Dam Western Catchments*, EMM Consulting, Newcastle, 20 November 2021.

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NSW Government (2020) *Independent Audit Post Approval Requirements*, NSW Government Department of Planning and Environment, May 2020.

# Appendix A

## Vegetation Clearance Protocol

## Appendix A Vegetation Clearance Protocol

This Vegetation Clearance Protocol is based on information from Origin's current Biodiversity and Land Management Plan (BLMP) (AECOM, 2022) prepared the EPS. If there is any update to the BLMP, the updated version would supersede the Vegetation Clearance Protocol contained within this CEMP. During construction of MOD 1, the procedures set out in the BLMP (as current at the time of construction) would be implemented.

Protocols and procedures have been developed within the BLMP to ensure that the potential impacts on biodiversity from any land disturbance / vegetation clearing activities undertaken at the Site are minimised and mitigated.

Any disturbance activity on Site will be strictly managed in accordance with the EPS Surface Disturbance Protocol (**Figure A1**). The key features of the Surface Disturbance Protocol are outlined in the following sections, and include (in chronological order of implementation):

- determine whether development approval must be obtained for clearing
- delineation of areas to be disturbed, including:
  - interrogation of the EPS GIS database for potential presence of threatened species or communities and procedures to be followed to manage potential impacts on threatened species or communities, as relevant
  - Threatened Species Management Protocol (**Figure A2**)
  - acid sulfate soils management
  - other considerations.
- pre-clearance vegetation assessments
- habitat and fauna management strategies
- vegetation clearance procedures, including:
  - topsoil management
  - erosion and sediment controls.

### 1.0 Determine whether development approval must be obtained for clearing

Determination of pre-clearance approval requirement would be obtained using the Pre-clearance Vegetation Assessment Form.

### 2.0 Delineation of Disturbance Areas

Where it is necessary to disturb areas of native vegetation within approved disturbance areas, the following due diligence processes will be implemented: *EPS GIS Database searches*

The EPS GIS database will be interrogated and areas of known ecological significance will be avoided where possible. These include areas containing known records of threatened species, endangered populations and TECs.

If the GIS database shows that threatened flora and/or fauna and/or communities occur within the proposed disturbance area and cannot be avoided, the Threatened Species Management Protocol will apply.

#### *Threatened Species Management Protocol*

The Threatened Species Management Protocol (**Figure A2**) defines the procedure to follow should threatened species or communities occur within an area proposed for disturbance.

If the development/activity that is the source of the proposed disturbance requires consent or approval from an external regulatory authority (i.e. Council, State or Commonwealth), a detailed ecological impact assessment to determine the significance of impact on the species / community will be prepared

as part of the approval application process. The management of impacts will then be as per the relevant conditions of approval / consent.

If the development/activity is self-assessed and does not require an approval from an external authority, specific management strategies will be developed to mitigate and minimise any adverse impact on threatened species. These may be in the form of:

- threat abatement strategies – for instance modification of disturbance areas, scheduling of clearance activities at specific times, species translocation, etc.; and/or
- management actions recommended in species specific recovery plans, where existing (<http://www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species/programs-legislation-and-framework/recovery-plans>).

#### *Acid Sulfate Soil Management*

If the disturbance area is located in an area likely to contain acid sulfate soils (as determined through interrogation of the acid sulfate soils mapping (Figure 2 of BLMP), an Acid Sulfate Soil Management Plan will be developed for the works. The Acid Sulfate Soil Management Plan will include the following:

- identification of the acid sulfate soils risk profile within the disturbance area
- overview of regulatory requirements and relevant guidelines applicable to acid sulfate soils,
- including:
  - Lake Macquarie Local Environmental Plan 2014 (LEP 2014)
  - Contaminated Land Management Act 1997
  - NSW Acid Sulfate Soils Manual (Stone et al., 1998)
  - NSW EPA Waste Classification Guideline: Part 4 – Acid Sulfate Soils (EPA, 2014).
- identification of triggers for testing, such as the following physical indicators of acid sulfate soils:
  - discolouration or staining of soil
  - abnormal colouration of surface water or groundwater
  - odours emanating from the water or soil
  - dead vegetation within or adjacent to areas of otherwise normal growth
- a description of the management strategies to be implemented, which should include:
  - segregation and storage of excavated soil
  - testing and classification procedures
  - treatment strategies where acid sulfate soils are identified
  - monitoring program to confirm the effectiveness of treatment strategies
  - performance criteria to guide post-treatment reuse or offsite disposal
  - contingency plan if adverse impacts on surrounding environment are observed
- an outline of reporting requirements, both internally and externally where relevant.

#### *Other considerations*

- disturbance to native vegetation will be limited to the minimum area required and the area clearly defined.
- key habitat features (i.e. hollow bearing tree and fallen timber) will be retained where possible. Where impacts on key habitat features are unavoidable, the management measures defined for vegetation clearing activities below will be implemented.

In the event that disturbance works are required on EPS land outside of approved disturbance areas, as a first priority works should be designed to avoid or minimise the extent of disturbance (i.e. use of

existing access tracks or use of methods requiring less disturbance etc.). Prior to any disturbance works, a detailed environmental assessment process will be triggered and consultation will be undertaken with the relevant government agencies (including the DPE and LMCC) as required.

A key constraint with the potential ecological due diligence inspections is the seasonality of potential threatened flora species, which can affect identification of species, in particular the black-eyed Susan (*Tetratheca juncea*). Any works outside of approved areas that may potentially disturb habitat for these species, being ground disturbance, significant ground compaction or vegetation clearing, would first need to justify that there would be no impact on these species by means of assessments of significance under both State and Commonwealth legislation respectively. This will be undertaken through the due diligence assessment process.

### 3.0 Pre-Clearance Vegetation Assessment

Once a disturbance area has been identified / defined that is thought to not contain threatened species / communities (as determined by the GIS database interrogation), the following assessments will be undertaken:

- a pre-clearance ecological survey will be completed by a qualified ecologist to identify any significant ecological features and habitat values of the disturbance area and direct surrounds
- the pre-clearance ecological survey will have a focus on the identification of potential presence of threatened flora and fauna species and any potential TECs
- if the pre-clearance assessment identifies the presence or potential presence of a threatened species / community, the Threatened Species Management Protocol will be implemented
- otherwise, specific and relevant management measures will be formulated as required to mitigate and minimise potential impacts on native biodiversity and fauna habitats
- appropriate disturbance setbacks to known or identified significant ecological features will be established where possible.

### 4.0 Habitat and Fauna Management Strategies

Where the pre-clearance survey has identified key habitat features and/or the presence (or potential presence) of native fauna within a proposed disturbance area, mitigation strategies will be implemented to minimise the impacts from land disturbance. Strategies will be defined by the ecologist to be specifically relevant to the conditions at the disturbance area, and may include all or a combination of the following:

- salvage / collection of native seeds or brush material for re-use in rehabilitation activities
- salvage of habitat features for re-use in habitat reconstruction, including hollow limbs of trees, fallen timber or boulders
- harvest of the growing media for re-use in rehabilitation activities (refer to Section 6.2)
- fauna management strategies, which may include:
  - capture and relocation of fauna by a qualified ecologist
  - recommendations for alternative tree felling methods (e.g. soft-fell technique)
  - physical disturbance to encourage resident fauna to self-relocate
  - installation of nesting boxes and/or roosting boxes in adjoining vegetation.

### 5.0 Vegetation Clearance Procedures

The following measures will be implemented for any vegetation clearing activities to ensure the potential impacts on resident fauna are minimised:

- prior to the commencement of clearing, exclusion zones will be appropriately defined and established (e.g. flagging tape) to prevent accidental damage to surrounding retained vegetation

- habitat trees<sup>1</sup> and habitat features will be identified and marked (e.g. flagging tape or spray paint) within the disturbance areas prior to the commencement of clearing activities
- a risk assessment will be undertaken and documented using the appropriate form
- vegetation clearing will be undertaken in stages, with understorey vegetation and trees that are not marked as habitat trees cleared in the first stage
- clearing of vegetation would be undertaken carefully so as not to damage vegetation outside the approved clearing zone. E.g. during tree felling, trees would not fall towards vegetation outside the approved clearing zone
- following the first stage of clearing, habitat trees would be left undisturbed for two nights to allow hollow-dependant fauna to self-relocate
- the removal of habitat trees will be undertaken in the presence of qualified ecologist or suitably qualified site personnel who will inspect the trees throughout and following felling for presence of fauna.

Additional procedures associated with topsoil stripping and management are detailed in the following subsection.

#### *Topsoil Stripping and Handling*

Where relevant, topsoil from the disturbance area will be harvested so it can be later re-used in rehabilitation activities. Where topsoil stripping is required, a plan will be developed prior to the disturbance taking place detailing the management of the stripping, storage and replacement of topsoil. Measures will be implemented to ensure topsoil recovery and preservation are maximised. Topsoil management will include the following:

- weed management will be undertaken pre-stripping to minimise the weed seed content in the soil
- topsoil stripping will occur under slightly moist conditions to maintain soil structure as well as minimise dust
- where possible, stripped topsoil will be placed directly onto rehabilitation areas to avoid the need for storage / stockpiling
- where topsoil cannot be re-used immediately and needs to be stored, the following practices will be implemented.
  - topsoil will be stockpiled in low mounds (<2 metres in height) and shaped to maximise surface exposure to the atmosphere
  - stockpiles will be located away from drainage lines and wind-exposed areas
  - any topsoil stockpiled for more than 3 months will be cultivated and seeded to minimise the risk of erosion and maintain topsoil viability. Medium-term stockpiles (3-12 months) will be sown with a temporary cover crop only (Millet or Oats), while perennial grass species will be added to seeding mix for longer term stockpiles (>12 months)
  - stockpiles will be regularly inspected for weed establishment and weed control undertaken as required.

#### *Erosion and Sediment Controls*

Erosion and sediment controls will be installed around stockpiles and disturbance areas and may include a combination of the following:

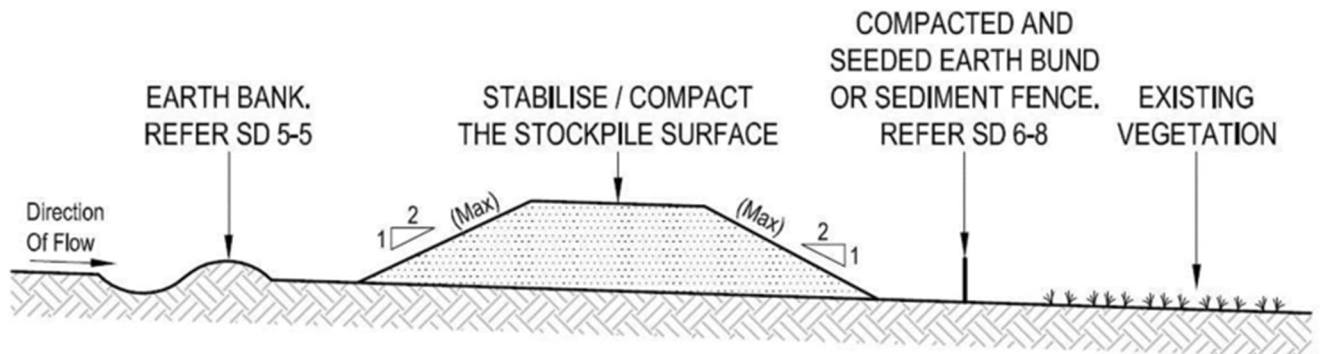
- earth diversion banks to be constructed on the upslope side of stockpiles / disturbance areas to divert water around these areas (refer to examples in diagram below). Diversion banks can be

---

<sup>1</sup> A habitat tree is defined as a tree containing a hollow, major trunk or branch crack, spout or fissure (the presence of any of which defining the tree as hollow-bearing) or a tree containing obvious signs of fauna activity, such as a possum drey or an active bird nest

constructed with shallow excavated channels located upslope of the diversion banks. Aggregate or rock bunds can be used at the channel outlet

- sediment fencing to be constructed immediately downstream of stockpiles / disturbance areas. Fencing is to be trenched at least 150mm into the soil. Support posts to be placed a maximum of 2.5m apart. Suitable geotextile to be fixed to the upslope side of the posts
- check dams to be constructed across a swale, drain or waterway. These can be built with various materials including rocks, aggregate bags and crushed concrete. Edges of the check dams should extend up both sides of the drain, with the centre 150mm lower than edges
- blanket protection to be provided for concentrated flows, with suitable geotextile lining covering the full width of the channel. Fabric should be overlapping at the joins and stapled with soil compacted over the fabric
- sediment traps which may include the use of geotextile material secured with aggregate bags or rock bunds.



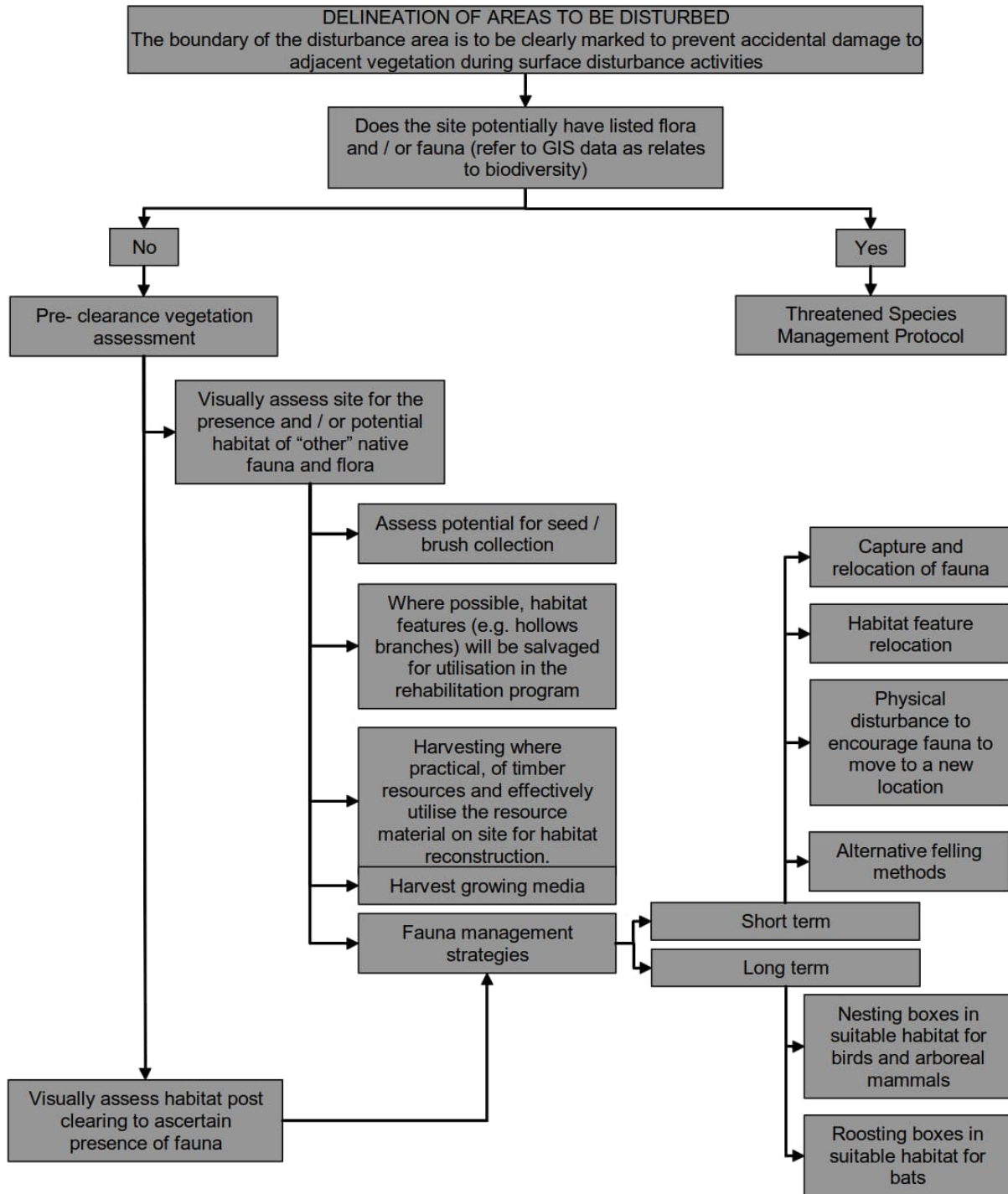


Figure A1 Surface Disturbance Protocol

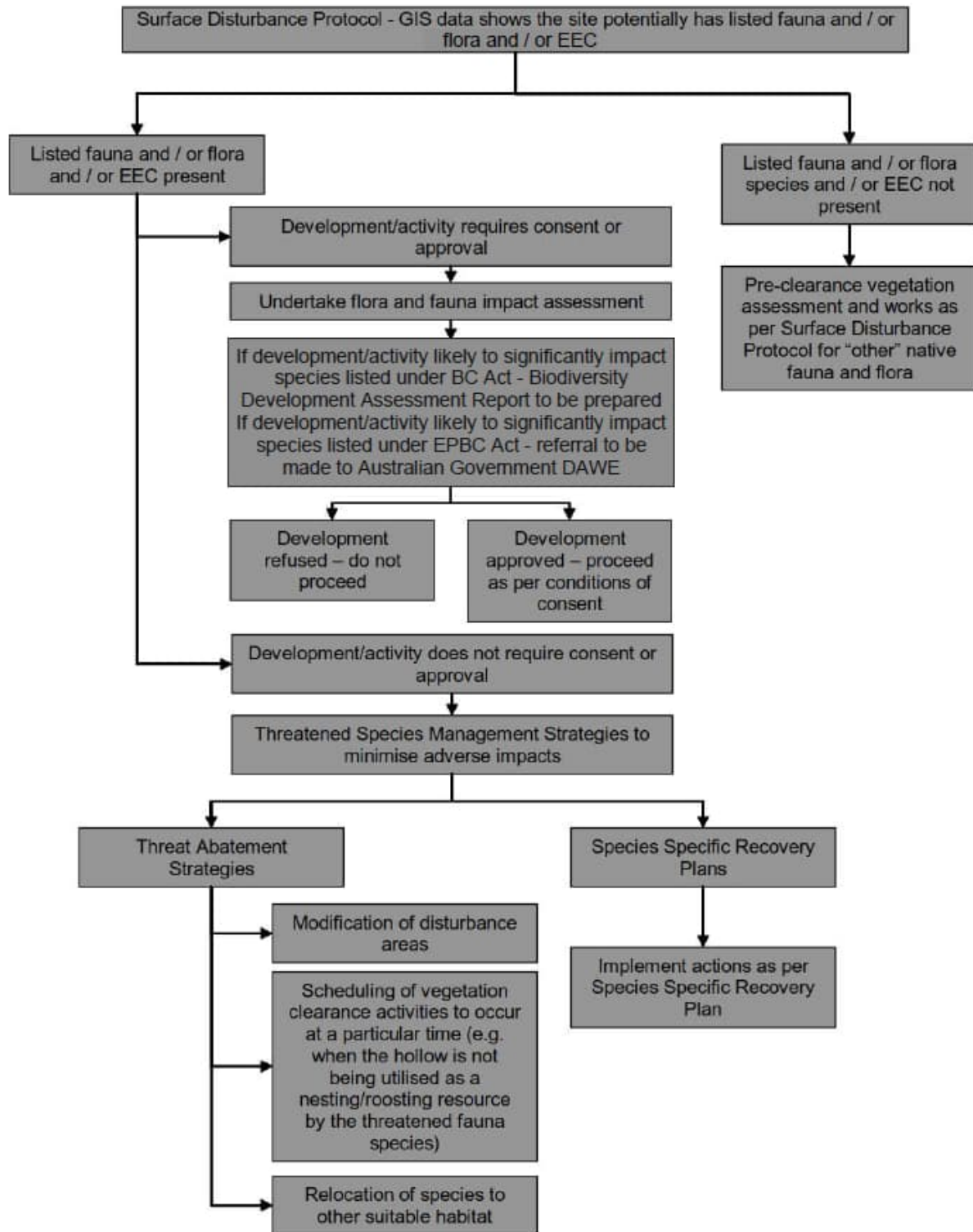


Figure A2 Threatened Species Management Protocol

# Appendix B

## Aboriginal Cultural Heritage Management Plan

# Ash Dam Augmentation Project

## Aboriginal Cultural Heritage Management Plan

06-Apr-2022  
Ash Dam Augmentation  
Doc No. 60653655  
**Commercial-in-Confidence**

## Ash Dam Augmentation Project

### Aboriginal Cultural Heritage Management Plan

Client: Origin Energy Eraring Pty Ltd

ABN: 31 357 688 069

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## Quality Information

Document Ash Dam Augmentation Project


Ref 60653655

Date 6 April 2022

Prepared by Luke Wolfe

Reviewed by Dr Darran Jordan

### Revision History

Rev	Revision Date	Details	Authorised	
			Name/Position	Signature
A	07 March 2022	Draft for client review	Cye Buckland Project Manager	
0	31 March 2022	Final	Cye Buckland Project Manager	
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## 1.0 Introduction

### 1.1 Scope & Objectives of ACHMP

This Aboriginal Cultural Heritage Management Plan (ACHMP) sets out the procedures for the management of Aboriginal cultural heritage values and any potential Aboriginal objects identified within the Ash Dam Augmentation Project Area (the Project Area). This ACHMP has been prepared to satisfy the management recommendations outlined within the Environmental Assessment (EA) statement of commitments completed for the Ash Dam Augmentation Project (the Project) as well as the Project Approval conditions issued by New South Wales Independent Planning Commission on 23 December 2019. As a requirement under Condition 4.2 of the modified Project, Origin Energy have committed to the development of an ACHMP<sup>1</sup> to manage risks to Aboriginal cultural heritage associated with the Project. Condition 4.2 (e) states:

*“As part of the Construction Environmental Management Plan for the project, required under condition 4.1 of this approval, the Proponent shall prepare and implement the following:*

*An Aboriginal Heritage Management Plan to detail outcomes of consultation with the Aboriginal stakeholders and the measures that will be implemented to identify, protect, monitor and/or manage Aboriginal heritage sites. The Plan must include, but not necessarily be limited to:*

- i. the outcome of consultation with the Aboriginal stakeholders, including a site visit(s) to identify any heritage items*
- ii. managing the discovery of any human remains*
- iii. maintaining and managing reasonable access for Aboriginal stakeholders to heritage items on site*
- iv. ongoing consultation with the Aboriginal stakeholders.”*

The EA Statement of Commitments and Project Approval conditions relevant to Aboriginal heritage are provided in **Table 1**.

**Table 1 Summary of Management Recommendations, Applicant’s Consideration and Conditions of Approval**

Reference	Recommendation/Commitment/Condition	ACHMP Section
<b>Applicants Consideration /EA Statement of Commitments</b>		
257	Prior to construction, consultation by written correspondence would be undertaken with the following previously identified Aboriginal Parties: <ol style="list-style-type: none"> <li>i. Koompahtoo LALC</li> <li>ii. Wonnarua Nation Aboriginal Corporation</li> <li>iii. Yarrawalk Enterprises Pty Limited (Yarrawalk) (now Tocumwall)</li> <li>iv. Awabaka/ Descendants Traditional Owners Aboriginal Corporation</li> <li>v. (ADTOAC)</li> <li>vi. Awabakal Traditional Owners Aboriginal Corporation</li> <li>vii. Guringai Tribal Link Aboriginal Corporation.</li> </ol>	<b>Section 3.0</b>
257	Prior to construction, an updated Native Title Search for the Project area would be undertaken and if a relevant registered Native Title Party and/or Applicant is identified, consultation by written correspondence would be undertaken.	<b>Section 1.11</b>

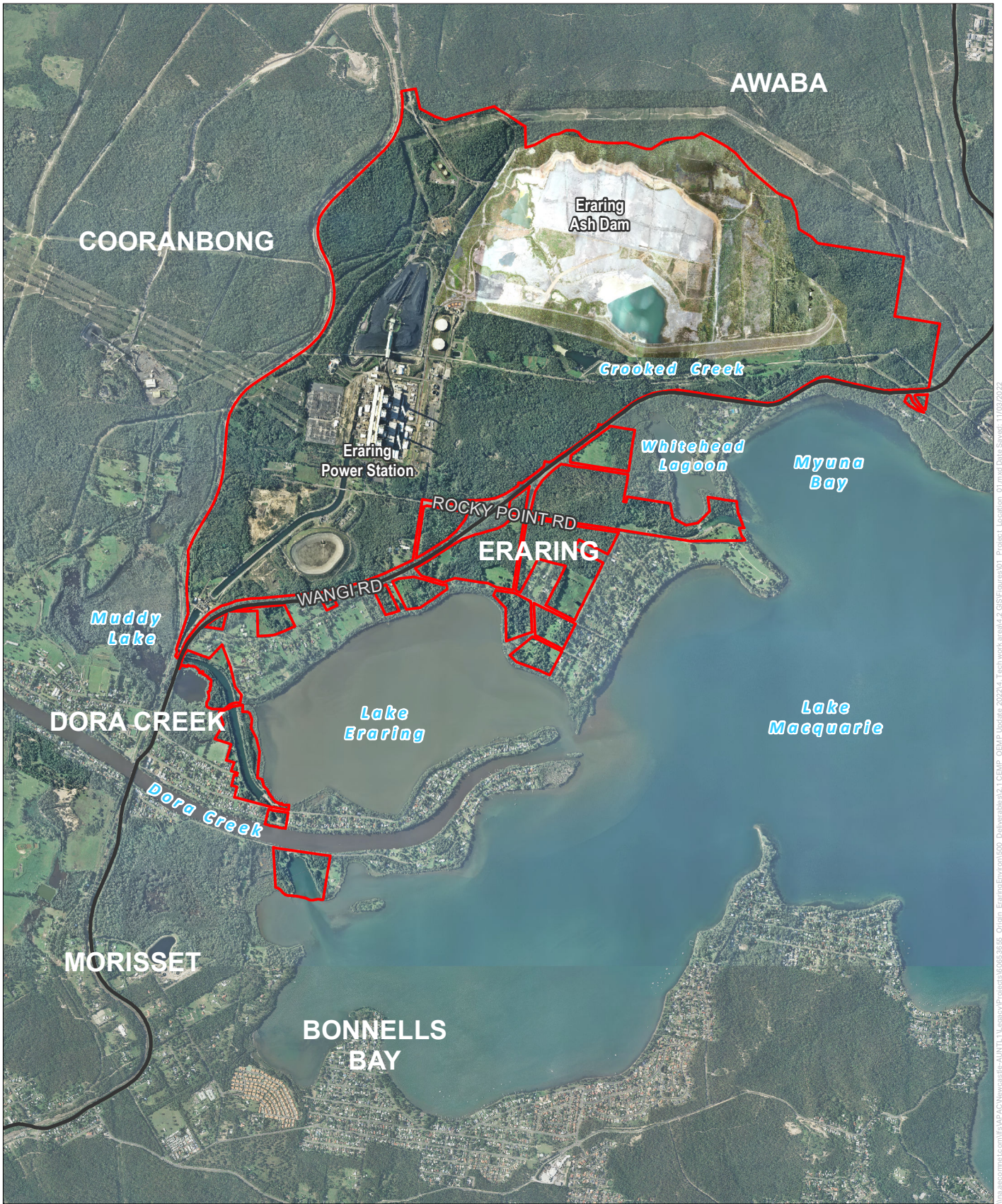
<sup>1</sup> As per the requirements of Condition 4.2 of the Project Approval, this ACHMP forms an appendix to the overarching Construction Environmental management Plan (CEMP).

Reference	Recommendation/Commitment/Condition	ACHMP Section
257	Prior to construction, a one-day site visit would be held with any of the previously identified Aboriginal Parties (and any additional parties) to document and confirm the existing disturbed landscape and provide the opportunity to identify extant Indigenous or non-Indigenous sites or areas of archaeological sensitivity.	<b>Section 3.7</b>
257	Prior to construction, [the Applicant] would prepare an update of the previously completed Heritage Assessment report with supplementary findings from the site inspection with Aboriginal Parties. The supplementary assessment would comprise a short letter report containing the following information: <ol style="list-style-type: none"> <li>i. Updated desktop review of relevant available Indigenous heritage assessment reports for the [Modification Application]</li> <li>ii. Updated search of heritage registers as well as Commonwealth registers for Indigenous heritage sites within the [Modification Application]</li> <li>iii. A summary of the outcomes and findings of the one-day site visit with those Aboriginal Parties</li> <li>iv. Management advice for any identified or potential Indigenous heritage constraints.</li> </ol>	This ACHMP
<b>Department's Consideration</b>		
258	The Department's AR notes that the Office of Environment and Heritage (OEH) (now Heritage NSW) were consulted and recommended a condition of consent for Aboriginal heritage.	This ACHMP
259	The Department's AR summarises "[p]rior to the commencement of construction, [the Applicant] has committed to: <ul style="list-style-type: none"> <li>• Consult in writing with the six Registered Aboriginal Parties (RAPs) informing them of the modification and inviting them to attend a one-day site visit to confirm the existing disturbed landscape and provide the opportunity to identify extant sites or areas or archaeological sensitivity</li> <li>• Prepare an updated Aboriginal Heritage Management Plan documenting the outcomes and findings of the site visit and summarising any management requirements in relation to heritage items.</li> </ul> The Department considers this to be an acceptable outcome and has recommended a condition accordingly.	This ACHMP

Reference	Recommendation/Commitment/Condition	ACHMP Section
<b>Commission's Consideration</b>		
260	The Commission notes that the Applicant has committed to undertaking consultation with RAPs and prepare a report on the findings and management activities as described in paragraph 257.	This ACHMP
<b>Project Approval 07_0084</b>		
4.2 (i)	The outcome of consultation with the Aboriginal stakeholders, including a site visit(s) to identify any heritage items;	This ACHMP – <b>Section 3.0</b>
4.2 (ii)	Managing the discovery of any human remains	This ACHMP – <b>Section 5.2</b>
4.2 (iii)	Maintaining and managing reasonable access for Aboriginal stakeholders to heritage items on site	This ACHMP – <b>Section 4.2.2</b>
4.2 (iv)	Ongoing consultation with the Aboriginal stakeholders	This ACHMP – <b>Section 4.2</b>

## 1.2 Land Covered by this ACHMP

This ACHMP addresses the management of all potential Aboriginal cultural heritage within the Ash Dam Augmentation Project Area only, as shown on **Figure 1**. Remaining lands within Origin Eraring Power Station's (EPS's) holdings are currently and will continue to be managed under an existing ACHMP.



**Figure 1 - Site Overview**

Origin EPS Landholdings



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Source: Origin 2018, DFSI 2018

### 1.3 Approved MOD1 project

The key aspects of the approved MOD1 project included:

- Amendment of the ash deposition strategy using a hydraulic ash placement technique to achieve the desired dam stability and landform design.
- establishment of the Western Emplacement Area to enable ash deposition to a relative level (RL) of 140m within existing operational areas, requiring:
  - construction of a western saddle embankment to contain hydraulically placed fly ash
  - reconfiguration of the RL140 access road (to connect to the crest of the western saddle embankment)
  - grouting of existing Awaba mine voids underlying the ash emplacement area.
- upgrades to stormwater diversion systems, including:
  - stormwater diversion works along the RL140 access road for a length of approximately 1km to the north-west of the ERAD to divert clean water runoff to Ulan Pond
  - construction of a gravity drain (using directional drilling methods) to divert water from Ulan Pond to an existing drainage line located 350 m west of Ulan Pond.
- reconfiguration of ash delivery pipelines
- decommissioning and relocation of bottom ash recycling infrastructure.

### 1.4 Revised Project

Following approval of MOD1, further engineering investigations identified that the ash storage volume from the approved MOD1 project would be significantly lower than originally anticipated. An alternative ash placement strategy was developed to incorporate dry stacking rather than hydraulic placement of ash. A consistency assessment (EMM, 2021b) concluded that the proposed changes are consistent with the approved MOD1 project and the revised Project can be undertaken generally in accordance with the EA and the conditions of Project Approval 07\_0084.

While some components of the approved MOD1 project are still included in the revised Project, other components are no longer required. The key elements of the revised Project are shown on **Figure 2** and include the following:

- amendment of the ash deposition strategy using a dry stacking technique (rather than hydraulic placement) to achieve the desired dam stability and landform design, within a reduced footprint compared to the approved MOD 1 project
- dry stacking of ash into the Northern Cell and Southern Cell (rather than one large emplacement area) to RL140m within existing operational areas, including:
  - construction of a smaller raised dividing bund between the Northern Cell and Southern Cell (instead of the western saddle embankment proposed in MOD1, which removes the need to grout the existing Awaba mine voids to ensure stability of the larger embankment)
  - minor reconfiguration of the RL140 access road (with a revised alignment compared to MOD1, as the western saddle embankment is no longer required)
  - remediation of mine voids is no longer required as part of the revised Project.
- upgrades to stormwater diversion systems, with a revised approach to managing clean water runoff, including:
  - Ulan Pond will remain part of the process water system (rather than the clean water system) to remove the risk of pollution entering receiving environments from Ulan Pond if it were converted to a clean water pond
  - a new clean water detention basin will be constructed

- stormwater diversion works along the RL140 access road will still be required, with minor changes to the downstream portion of the diversion works so that flow is diverted into the new clean water detention basin
  - diversion of water from the clean water basin will be via overground pumped pipeline (removing the need for construction of the underground gravity drain proposed in MOD1) to an existing drainage line 350m west of Ulan Pond
  - the discharge point for the revised clean water diversion system will be in a similar location to that proposed in MOD1, although consideration may be given to changing the diversion point to the inlet of the culvert that passes under the coal stockpile. The location would be confirmed during detailed design.
- reconfiguration of the ash delivery pipelines has already been completed and
  - the bottom ash recycling facilities no longer require relocation from their current location.

## 1.5 Construction Activities

The following construction activities would be undertaken during the course of the Project:

- site establishment, including vegetation clearing
- earthworks for the construction of the Northern Cell and Southern Cell, the raised dividing bund, the new clean water detention basin and reconfiguration of the RL140 access road and
- installation and modification of ancillary infrastructure, including stormwater diversion systems and ash delivery pipelines.

Material excavated during clearing and establishment works would be reclaimed and used, where suitable, as material for the construction of embankments and other structures as required, such as internal divider berms. The potential use of material would need to be confirmed by engineering investigation and evaluation. Therefore, suitable construction material may need to be transported to site for construction of the Project.

## 1.6 Construction Period

Construction of the Project would be staged to ensure the ongoing operation of the ERAD throughout the construction period. Construction works are anticipated to occur according to the following indicative schedule:

- Construction of the stormwater management works will be undertaken over a 10-month period prior to the construction of dry stack infrastructure, to ensure separation of dirty and clean water.
- Construction of the dry stack infrastructure will be undertaken as two separate activities: firstly, the Northern Cell works (including Cell 6) and secondly the Southern Cell works (including Cell 7). The dividing bund will be constructed as part of the Northern Cell works.
- Site establishment, preliminary vegetation clearing and early works for the Northern Cell will take approximately 13 weeks. Construction will take a further six weeks to complete works for phase 1 dry stacking with another eight weeks to complete works for future phases.
- For the Southern Cell, site establishment, preliminary vegetation clearing, and early works will take about 13 weeks and construction works will take about 12 weeks.

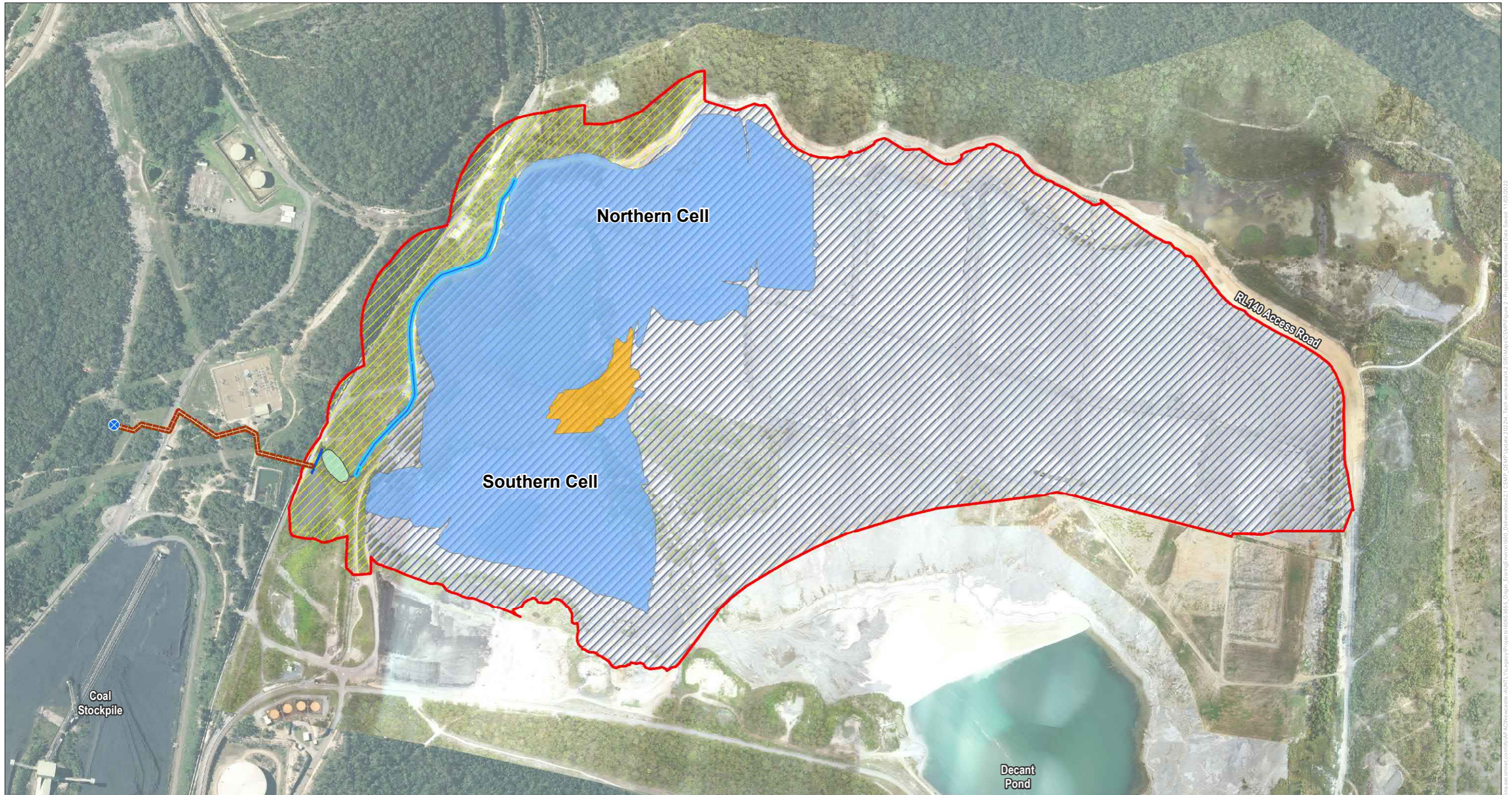
Construction works potentially audible at residential premises would only be undertaken during hours specified in Condition 2.3 to Project Approval 07\_0084 MOD1:

- 7am to 6pm Monday to Friday
- 8am to 1pm Saturdays and
- at no time on Sundays and Public Holidays.

## 1.7 Construction Equipment

An indicative list of plant and equipment that would be used at various stages of the construction of the Project is provided below:

- backhoe/mini excavator
- generators
- mobile crane up to 20t
- dozers up to D9/D10
- compactors
- excavator 12-20t, 32 tonne, long arm excavator
- hand held power tools such as metal and timber cut off saw, electric hand saw, hammer drill etc
- heavy vehicles to transport excavated material and material for establishment of embankments
- light vehicles and utility vehicles
- loader and
- water cart.



**Figure 2 - Project Elements**

- Project Boundary
- Eraring Ash Dam Extent
- Limit of Surface Disturbance
- Proposed Dividing Bund
- Proposed Ash Placement - Northern and Southern Cells
- Clean Water Basin
- Stormwater Discharge Point
- Stormwater Diversion Alignment
- Overground pumped pipeline
- Rising Main to the Ulan Road Culvert



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Source: Origin 2018

## 1.8 Existing Management Plans

As part of the development of this ACHMP, a review was undertaken of existing consent conditions and management plans for the EPS. An existing EPS Heritage Management document was developed and released in January 2019 to identify and list any heritage items identified at EPS. The objectives of the document were to ensure that:

- EPS establishes and maintains a high standard of heritage management including compliance with all statutory heritage obligations.
- Heritage issues are taken fully into account in the design, siting, construction, operation and decommissioning of all facilities.
- EPS personnel are made aware of corporate heritage requirements and related procedures and share responsibility for the continuing improvement of environmental performance in this area.
- Relevant community issues are taken into account and, particularly, ensuring that the appropriate communities and organisations are consulted regarding management and conservation issues.

It is noted that the EPS Heritage Management document is intended to provide a high-level management strategy for all cultural heritage within the EPS and fits within Origin Energy's standardised heritage management framework. The ACHMP presented herein applies to the MOD1 Project Area only and is guided by the conditions provided in the project approval.

## 1.9 ACHMP Roles and Responsibilities

Specific roles and responsibilities for the implementation of this ACHMP and associated actions are presented in **Table 2**.

**Table 2 Roles and Responsibilities**

Responsibility	Role
Group Manager Eraring Operations	<ul style="list-style-type: none"> <li>• Overall responsibility for ensuring site activities are carried out in compliance with Regulatory requirements.</li> </ul>
Ash Dam Augmentation Project Manager	<ul style="list-style-type: none"> <li>• Overall implementation of this ACHMP as it applies to project management</li> <li>• Ensuring cultural and environmental risks are assessed and controls are implemented, such as provision of protective fencing and signage.</li> </ul>
Senior Environment Business Partner	<ul style="list-style-type: none"> <li>• Monitoring of Aboriginal Sites</li> <li>• Providing environmental support and advice to Ash Dam Augmentation Project Manager</li> <li>• Facilitation of review processes and reporting of progress of the implementation of this ACHMP to Regulators and site management</li> <li>• Ongoing management of Unrecorded Aboriginal Objects</li> <li>• Aboriginal Heritage Awareness Training</li> <li>• Facilitating consultation processes under this ACHMP.</li> </ul>
Community Relations Business Partner	<ul style="list-style-type: none"> <li>• Respond to complaints relating to Aboriginal heritage.</li> </ul>

## 1.10 Previous Aboriginal Heritage Assessments

A review of Aboriginal archaeological investigations for the Lake Macquarie region indicates that a number of studies have been undertaken within the local landscape of the Project Area.

Of those studies that have been undertaken, collectively the results of previous surface and subsurface investigations have established an impression of past-Aboriginal land-use, attesting to an emphasis on heavy utilisation of the Lake Macquarie coastline for selective shellfish exploitation (e.g., Haglund, 1986; Dyall, 1977; Vinnicombe, 1980a, 1980b).

On the basis of limited technological diversity, Dallas and colleagues (1993) suggested these sites were likely used seasonally or only occasionally. Most of the sites distributed around Lake Macquarie were located on the eastern side where exploitation of the lake and ocean was facilitated. Subsequent studies focused on the middens along the foreshores of Lake Macquarie and the greater Lake Macquarie LGA to understand and develop management plans for the archaeological resource (Nelson, 1994 RPS, 2011 Umwelt (Australia) Pty Ltd, 2003, 2011). Of the sites that have been identified since, most are found in the near-coastal areas or creek lines and attest to shellfish exploitation. These studies and the currently recorded locations of AHIMS sites demonstrate that the western side of Lake Macquarie is also well represented with midden sites.

The 2016 ACHMP prepared for Centennial Coal considered the Aboriginal archaeological resource over an extensive area from Newstan/Awaba to Mandalong South. Site types showed spatial patterning associated with resource availability. In addition to the concentration of middens along the foreshores of Lake Macquarie, grinding grooves and rockshelters were concentrated to the south where sandstone formations were more prevalent, and surface stone artefacts more dispersed, yet generally associated with streams and watercourses (Centennial Coal, 2016).

Excavations undertaken at Reid's Mistake Headland by Dyall & Bentley (1972), approximately 12 kilometres (km) east of the Project Area, identified an occupation site with the skeletal remains of 21 individuals. The site contained evidence of multiple occupation units and was interpreted as a frequently occupied site. Radiocarbon data for these deposits identified basal dates to approximately 7,850 years Before Present (B.P.). The skeletal remains appeared to be part of a later period of occupation, estimated to 2,700 years B.P. This evidence indicates that the use of the coastal areas by Aboriginal people was continuous, at least throughout the Holocene.

In 2006, HLA-Envirosciences Pty Ltd (HLA, now AECOM) undertook an archaeological assessment for proposed alterations and additions to the existing EPS, specifically the expansion of its Ash Dam and the installation of a black start/peaking generator. The assessment considered the distribution of known sites within the region and identified a high correlation of midden sites with the shoreline of Lake Macquarie and its major tributaries. Subsequent archaeological surveys of the proposed Ash Dam location identified no evidence of surface Aboriginal sites and assessed the potential for subsurface sites to be low on the basis of both a lack of an in situ soil profile within the Project Area and a landscape unsuitable for Aboriginal settlement, consisting of a series of slopes some distance from a main or permanent water body. This was consistent with Donlon's earlier assessment of the EPS surrounds, where no Aboriginal sites were identified within the 12 hectares of surveyed landscape, and disturbance associated with vehicle tracks, electricity easements and clearing was evident (Donlon, 1991). Prior and subsequent assessments completed by HLA in the area (e.g., 2004, 2007) facilitated further development of the archaeological model, which suggested that Aboriginal occupation typically focused within two areas - along the Lake Macquarie foreshore (comprising artefact scatters and shell middens) and in the foot slopes and mountains of the Dividing Range to the west of Lake Macquarie (comprising open artefact sites, grinding grooves, ceremonial sites and rock shelters). Evidence of specific migratory routes between the two foci suggested seasonal or semi-regular migration and was especially associated with major watercourses in the area, including Wyee, Dora, Cockle, Kilabeen and Wallarah Creeks. Minor archaeological deposits (open artefact sites and middens), scarred trees, and areas of Potential Archaeological Deposit (PAD) associated with aggrading sediments around these waterways were predicted in these areas.

In 2018, AECOM undertook a due diligence assessment of the Project Area to support the EA. A visual inspection of the Project Area was undertaken by an AECOM senior heritage specialist on 7 May 2018. The primary aim of the inspection was to identify and record any existing surface evidence of past Aboriginal occupation within the Project Area. No Aboriginal objects or sites were identified during visual inspection and Aboriginal archaeological sensitivity within the Project Area was generally assessed as low in areas of significant ground disturbance (e.g., earthworks, road construction, buildings and infrastructure) and overall low sensitivity landforms present within the Project Area. Stone suitable for flaked and/or ground stone artefact manufacture was not observed in the immediate vicinity of the Project Area.

Likewise, middens containing shell materials were not identified, nor were any landforms or landscape features (i.e., creeks and the Lake Macquarie foreshore) contained within the Project Area. Native vegetation within the Project Area appeared to be extensively modified with the majority cleared historically. Vegetation present at the time of the visual inspection appeared to comprise regrowth with infrequent mature woody vegetation.

AECOM determined that there was low potential for the Project Area to contain trees with cultural modification and none were identified during the visual inspection.

Key observations drawn from a review of the existing environment and archaeological context of the Project Area are as follows:

- Landforms with the greatest sensitivity for archaeology in the region include flat to gently inclined areas adjacent to major freshwater sources, elevated terraces above the foreshores of Lake Macquarie and ridgelines and crests further inland. These are generally absent from the Project Area. The Project Area consisted of slopes prior to extensive disturbance associated with the construction of the existing Ash Dam and is located further than 3 km from the nearest major fresh water source (Dora Creek) and 1.5 km from Lake Macquarie.
- Aboriginal site types with low potential to occur within the Project Area will comprise low density open artefact sites (i.e., artefact scatters and isolated artefacts) and, to a lesser extent, middens (shell deposits with or without artefacts).
- Scarred trees, burials, hearths, bora (ceremonial) rings, stone arrangements, rock shelters and axe grinding grooves are unlikely to occur within the Project Area.
- Rocks suitable for the production of flaked objects (e.g., chert, quartz, silcrete) or ground-edge tools (e.g., quartzite, basalt) are unlikely to occur within the Project Area.
- For most areas, the presence or absence of surface artefacts will not be a reliable indicator of Aboriginal archaeological sensitivity and/or subsurface deposits.
- Archaeological site visibility will be highest on erosional surfaces (e.g., creek banks) and lowest on depositional ones (e.g., floodplain contexts, levees, vegetated terraces).
- On the basis of the above and in context of historical disturbances and land use, a preliminary prediction of archaeological potential within the Project Area is low.

### 1.11 Native title

A search of the National Native Title Register (NNTR) and Register of Native Title Claims (RNTC) administered by the National Native Title Tribunal was undertaken on the 28 January 2020 for the Lake Macquarie City Council Local Government Area (LGA), inclusive of land within and surrounding the Project Area. Three determinations are listed for the Lake Macquarie City Council LGA. The listings identify that Native title does not exist in all three determinations.

### 1.12 Known Aboriginal Archaeological Resource

The Aboriginal Heritage Information Management System (AHIMS) database contains records of all Aboriginal objects reported to the New South Wales Department of Premier and Cabinet in accordance with Section 89A of the *National Parks and Wildlife Act 1974*. It also contains information about Aboriginal places, which have been declared by the Minister to have special significance with respect to Aboriginal culture. Previously recorded Aboriginal objects and declared Aboriginal places are known as 'Aboriginal sites'.

An updated search of the AHIMS database was undertaken on 4 March 2022 with an approximate 5 km radius centred on the Project Area (the 'AHIMS search area'). The AHIMS search results (attached as **Appendix A**) identified 71 Aboriginal sites recorded in or near the AHIMS search area, including two restricted sites. A review of the validity of these sites indicates the following:

- A single site (Crooked Creek AHIMS ID# 45-7-0070) is purported to be located within the Ash Dam (though outside the Project Area). Noting the omission of a map on the site card and as the site name suggests, the likely position of the site is along Crooked Creek, closer to the foreshore of Lake Macquarie approximately 700 metres southwest of its current coordinates. The incorrect location is likely the result of mapping error (refer **Figure 3**).
- Six sites are listed as 'Deleted', 'Not a Site' or 'Destroyed'.
- None of the remaining AHIMS sites are located within 1 km of the Project Area.

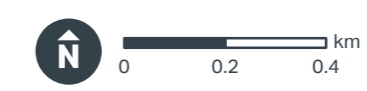
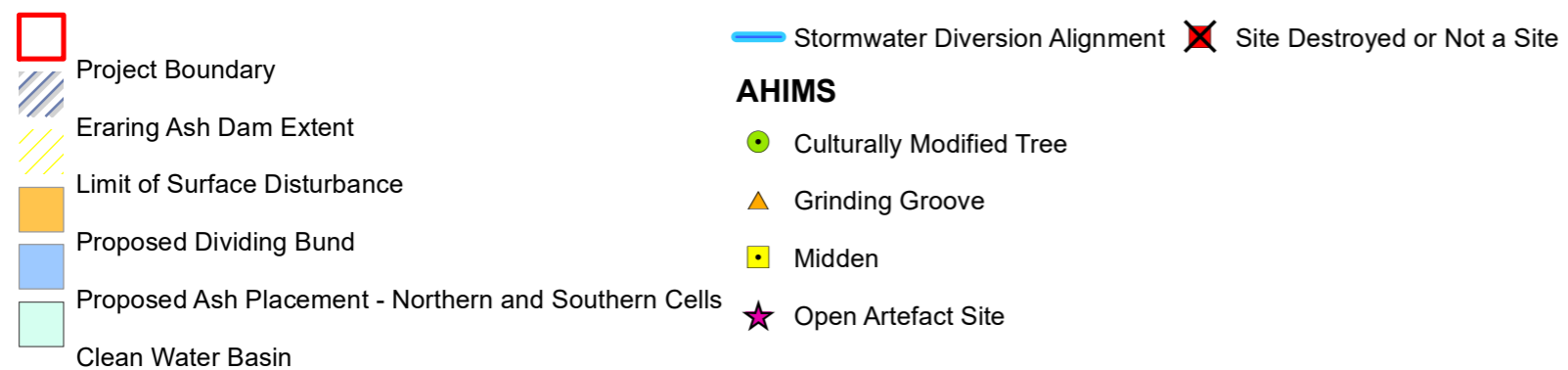
As indicated in **Table 3**, Open artefact sites are the most common site type represented within the AHIMS search area, accounting for 44% (n=30) of known sites. Middens comprising shell material and artefacts and culturally scarred trees were also well-represented, accounting for 24% (n=16) and 16% (n=11) of all reported site types, respectively. Two 'restricted' sites were also identified within the AHIMS search area. Communication with the AHIMS registrar confirmed that the two restricted sites were located outside the Project Area. A general overview of the Aboriginal sites within the search area indicated an emphasis on watercourses and the Lake Macquarie coastal environs, suggesting these areas were focal points for Aboriginal activity.

**Table 3 AHIMS data for valid Aboriginal sites within the AHIMS search area**

Site Type	Count (n)	Percentage of Total
Water Hole	1	1.5%
Habitation Structure	2	3%
Potential Archaeological Deposit	3	4.5%
Grinding Groove	5	7%
Culturally Modified Tree	11	16%
Midden	16	24%
Open Artefact Site	30	44%
<b>Total</b>	<b>68</b>	<b>100%</b>



**Figure 3 - Aboriginal Sites**



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Source: Origin 2018

## 2.0 Legislative & Planning Context

### 2.1 Environmental Planning & Assessment Act 1979

The EP&A Act requires that consideration be given to environmental impacts as part of the land use planning process. In NSW, environmental impacts are interpreted as including cultural heritage impact. In October 2011, the *Environmental Planning and Assessment Amendment (Part 3A Repeal) Act 2011* repealed the Part 3A provisions, putting in place transitional arrangements for all Part 3A projects started under the previous legislative regime until the cut-off date of 1 March 2018. As this modification request was submitted prior to the cut-off date, the provisions of the former Part 3A continue to apply to this modification request. Advice received from the former DP&E (dated 28 February 2018) confirmed that a modification to Project Approval (07\_0084) under Section 75W of the EP&A Act would be the appropriate approval pathway for the Project.

Part 3A of the EP&A Act provided an approvals regime that, prior to its repeal, applied to all Major Projects. Major Projects are defined under State Environmental Planning Policy (Major Projects) 2005 (SEPP 2005). Part 3A of the EP&A Act requires consultation with the community and relevant State Government agencies however, the requirement for certain other permits and licences (e.g., Aboriginal Heritage Impact Permits (AHIPs)) is removed under Part 3A (now Section 89J(1)(d)). Heritage assessments carried out under Part 3A should address the steps and requirements outlined in the *Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation* (NSW Department of Environment & Conservation, 2005) to ensure statutory compliance.

Aboriginal cultural heritage values within the Project Area are to be managed in accordance with the Conditions stipulated as part of the Ash Dam Augmentation Project Part 3A Project Approval Modification #07\_0084 (i.e., MOD1). Schedule 5.6.7 requires the preparation and implementation of an ACHMP to manage all Aboriginal cultural heritage within the Project Area. As such, recommendations made within this ACHMP are statutorily binding.

### 2.2 National Parks & Wildlife Act 1974

The *National Parks and Wildlife Act 1974* (NPW Act), administered by Heritage NSW, is the primary legislation for the protection of Aboriginal cultural heritage in NSW. The NPW Act gives the Director General of DPIE responsibility for the proper care, preservation and protection of 'Aboriginal objects' and 'Aboriginal places', defined under the Act as follows:

- An *Aboriginal object* is any deposit, object or material evidence (that is not a handicraft made for sale) relating to Aboriginal habitation of NSW, before or during the occupation of that area by persons of non-Aboriginal extraction (and includes Aboriginal remains).
- An *Aboriginal place* is a place declared so by the Minister administering the NPW Act because the place is or was of special significance to Aboriginal culture. It may or may not contain Aboriginal objects.

Part 6 of the NPW Act provides specific protection for Aboriginal objects and places by making it an offence to harm them. An AHIP must be obtained if impacts to Aboriginal objects and or places are anticipated. AHIPs are issued under Section 90 of the NPW Act. Consultation with Aboriginal communities is required under DPIE policy when an application for an AHIP is considered and is an integral part of the process. AHIPs may be issued in relation to a specified Aboriginal object, Aboriginal place, land, activity or person or specified types or classes of Aboriginal objects, Aboriginal places, land, activities or persons.

Pursuant to Section 75U of the EP&A Act, any project approved under Part 3A of the EP&A Act is exempt from the requirement to obtain an AHIP under Section 90 of the NPW Act.

Section 89A of the NPW Act requires notification of the location of identified Aboriginal objects within a reasonable time, with penalties for non-notification, including daily penalties. Section 89A is binding in all instances, including Part 3A projects.

## 3.0 Registered Aboriginal Party Consultation

### 3.1 Previous Aboriginal Community Consultation

Consultation with RAPs was undertaken by HLA Envirosciences Pty Ltd (HLA ENSR) for the Ash Dam Project (inclusive of the current Project Area) between November 2005 and September 2007, during the preparation of the 2007 EA and Aboriginal Heritage Assessment (HLA-Envirosciences Pty Limited (HLA ENSR), 2007b). This included a process whereby Aboriginal groups and people identified by government agencies and newspaper advertising were contacted and provided the opportunity to register to be consulted for the Project.

During initial enquiries in late 2005 and early 2006, three Aboriginal parties were identified as Indigenous stakeholders, comprising:

- Koopahtoo LALC (dissolved in 2010).
- Wonnarua National Aboriginal Corporation (WNAC).
- Yarrawalk Enterprises Pty Ltd (now Tocumwall Pty Ltd).

As part of the process of consultation, information regarding the Project scope and methodology was distributed to RAPs prior to the archaeological survey. An all-of-area pedestrian survey was undertaken on 10 January 2006 with representatives from Yarrawalk (Mr Scott Franks) and WNAC (Mr Rob Lester). Mr Raymond Smith from Koopahtoo LALC could not attend on the morning of the survey.

Engagement with RAPs continued into September 2007 following Clause 4.2(f) of the Concept Approval (05\_0138), which required an updated review of potential impacts to Aboriginal heritage and further consultation regarding the Project. Following this, a further three RAPs were identified, comprising:

- Awabakal Descendants Traditional Owners Aboriginal Corporation (ADTOAC).
- Awakabal Traditional Owners Aboriginal Corporation (ATOAC).
- Guringai Tribal Link Aboriginal Corporation (GTLAC).

An additional site survey was subsequently conducted on 4 September 2007 with representatives from ADTOAC (Mr Shane Frost) and ATOAC (Ms Kerrie Brauer). During both programs of fieldwork, no Aboriginal archaeological sites were identified within the surveyed portions of the Project Area. The archaeological potential of the survey area was likewise concluded to be low.

On completion of the survey program, a close-out meeting was held to discuss the findings. Once completed, a copy of the draft EA chapter was issued to all RAPs for comment (see HLA-Envirosciences Pty Limited (HLA ENSR), 2007). Letters received from groups indicated:

- acceptance of the conclusions of the assessment
- confirmation of the low likelihood of Aboriginal archaeological sites to be present within the Project Area.

In addition to the above, Ms Brauer had felt a sensation in the field that a men's place was present within the EPS and had conversations regarding its association with Pulbah Island (letter dated 25 September 2007).

### 3.2 Ash Dam Augmentation Project Consultation

An updated consultation program has been conducted to satisfy consent requirements. Following the Australian Heritage Commission's guidelines *Ask First: A guide to respecting Indigenous heritage places and values* (Australian Heritage Commission, 2002), a revised program of Aboriginal community consultation has been undertaken for the current Project. Aboriginal community consultation acknowledges the right of Aboriginal people to be involved, through direct participation, on matters that directly affect their heritage. Involving Aboriginal people in all facets of the ACHMP production process ensures that they are given adequate opportunity to share information about cultural values, and to actively participate in the development of appropriate management and/or mitigations measures.

The successful identification, assessment and management of Aboriginal cultural heritage values are dependent on an inclusive and transparent consultation process. The results of the consultation process undertaken are detailed in the following sections.

### 3.3 Stage 1 - Notification and Registration

The aim of Stage 1 of the Consultation Requirements is to identify, notify and register Aboriginal people who hold cultural knowledge relevant to determining the cultural significance of Aboriginal objects and/or places in the Project Area.

#### 3.3.1 Consultation with Regulatory Agencies

Section 4.1.2 of the Consultation Requirements stipulates that proponents are responsible for ascertaining, from reasonable sources of information, the names of Aboriginal people who may hold cultural knowledge relevant to determining the cultural significance of Aboriginal objects and/or places. Proponents are required to compile a list of Aboriginal people who may have an interest for the proposed Project Area and hold knowledge relevant to determining the cultural significance of potential Aboriginal objects and/or places by writing to:

1. the relevant regional office of the New South Wales Department of Premier and Cabinet
2. the relevant Local Aboriginal Land Council(s)
3. the Registrar, Aboriginal Land Rights Act 1983 for a list of Aboriginal owners
4. the National Native Title Tribunal for a list of registered native title claimants, native title holders and registered Indigenous Land Use Agreements
5. Native Title Services Corporation Limited (NTSCORP Limited)
6. the relevant local council(s)
7. the relevant catchment management authorities for contact details of any established Aboriginal reference group.

In accordance with this requirement, the following agencies were contacted via email on 28 January 2020 requesting information on relevant Aboriginal persons and organisations:

- Department of Planning, Industry and Environment (Biodiversity and Conservation Division) - Hunter Central Coast Branch.
- Biraban Local Aboriginal Land Council (Biraban LALC).
- Office of the Registrar, *Aboriginal Land Rights Act 1983* (NSW).
- The National Native Title Tribunal (NNTT).
- NTSCORP Limited.
- Lake Macquarie City Council.
- Local Land Services - Central Coast.

Responses were received from four agencies, which are summarised below:

- Biraban LALC (Ashley Williams, Chief Executive Officer) responded on 7 February 2020 advising that they would like to register their interest in the Project.
- Lake Macquarie Council (contact: Patricia Kinney, Development Planner Heritage) responded on 14 February 2020, suggesting four (4) groups that could be consulted with
- Department of Planning, Industry and Environment (Biodiversity and Conservation Division) - Hunter Central Coast Branch (contact Laura Dafter, Archaeologist) responded on 3 February 2010 with a list of details of Aboriginal persons and organisations.
- Office of The Registrar responded on 29 January 2020 identifying that no Registered Aboriginal Owners are currently registered in the Project area and suggested contacting Biraban LALC.

### 3.3.2 Public Notification

Section 4.1.3 of the Consultation Requirements requires that, in addition to writing to the Aboriginal people identified by the agencies listed in **Section 3.3.1**, the proponent must also place a notice in the local newspaper circulating in the general location of the proposed project. The notification must outline the project and identify its location.

In accordance with this requirement, a public notice was placed in the Lakes Mail on Thursday 13 February 2020 (**Figure 4**). The closing date for registration via this notice was 26 February 2020, which provided the necessary minimum 14-day period for expressions of interest. No responses were received.

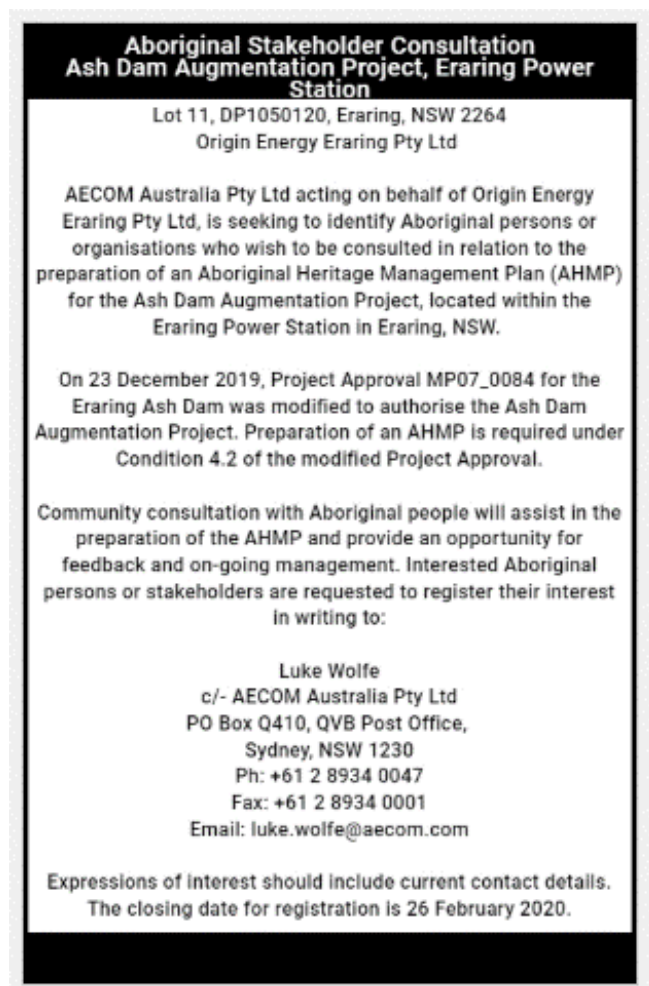


Figure 4 Lakes Mail newspaper advertisement

### 3.3.3 Invitations for Expressions of Interest

Section 4.1.3 of the Consultation Requirements requires that proponents must write to the Aboriginal people whose names were obtained through the regulatory agencies and the relevant Local Aboriginal Land Council(s) to notify them of the proposed project and invite them to register an interest in participating in a process of community consultation. In accordance with this requirement, on 20 February 2020, a letter inviting expressions of interest and containing summary information on the Project was sent to all Aboriginal persons and organisations identified by the regulatory agencies. A total of 25 Aboriginal stakeholders were contacted to register an interest in being consulted.

Subsequently, by the closing date for expressions of interest, fifteen (15) organisations registered their interest in being consulted on the Project. **Table 4** provides a list of the Aboriginal parties that have registered for the Ash Dam Augmentation Project.

**Table 4 Registered Aboriginal Parties**

Ref	Group Name	Primary Contact
1	A-1 Indigenous Servies	Carolyn Hickey
2	Amanda Hickey Cultural Services	Amanda Hickey
3	Awabakal & Guringai Pty Ltd	Trudy Smith
4	Awabakal Traditional Owners Aboriginal Corporation as	Kerrie Brauer
5	Biraban Local Aboriginal Land Council	Ashley Williams
6	Corroboree Aboriginal Corporation	Marilyn Carroll-Johnson
7	Divine Diggers Aboriginal	Deidre Perkins
8	Guringai Tribal Link Aboriginal Corporation	Tracey Howie
9	Lower Hunter Aboriginal Incorporated	Les Ahoy
10	Lower Hunter Wonnarua Cultural Services	Tom Miller
11	Murra Bidgee Mullangari	Ryan Johnson
12	Tocomwall Pty Ltd	Scott Franks
13	Widescope Indigenous Group	Steven Hickey
14	Worimi Aboriginal Cultural Services	Tamara Towers
15	Awabakal Descendants Traditional Owners	Peter Levan

### 3.4 Stage 2 - Presentation of Information about Project

The aim of Stage 2 of the Consultation Requirements is to provide RAPs with information about the scope of the Project. For the current project, presentation of information about the Project and the ACHMP was provided to RAPs as part of the registration of interest process.

### 3.5 Stage 3 – Gathering Information about Cultural Significance

The aim of Stage 3 of the Consultation Requirements is to facilitate a process whereby RAPs can:

- contribute to culturally appropriate information gathering and the assessment methodology
- provide information that will enable the cultural significance of Aboriginal objects and/or places on the proposed Project Area to be determine
- to have input into the development of any cultural heritage management measures.

For the current Project, consultation with RAPs included:

- a request for any initial comments regarding the Aboriginal cultural heritage values of the Project area
- the provision of a draft ACHMP to all RAPs for comment prior to finalisation.

Comments received from the following RAPs during this stage:

Tom Miller (Lower Hunter Wonnarua Cultural Services) – *“We have connection and know of all significant areas within this development area and also surrounding area. Lake Macquarie on its own is very significant without all of the other area around”.*

Les Ahoy (Lower Hunter Aboriginal Incorporated) – *“The area is culturally significant to the Aboriginal descendants of the Awabakal people and they wish to preserve and recover as much cultural heritage history as possible for future generations. The area is rich in Aboriginal culture with many sites and areas near the Lake were a great food source and many camps were around there as well”.*

### 3.6 Stage 4 - Review of Draft ACHMP

The aim of Stage 4 of the Consultation Requirements is to prepare and finalise the ACHMP with input from RAPs. The draft ACHMP was issued to RAPs via email on 7 May 2020. Two (2) responses to the draft ACHMP were received, which are summarised in **Table 5** below.

Table 5 RAP responses to draft ACHMP

Registered Aboriginal Party (RAP)	Date of response	Method of response	Summary of response to draft ACHAR	AECOM response to RAP comments
Lower Hunter Aboriginal Incorporated	28 May 2020	Email	LHAI agreed with the ACHMP and supported the recommendations but noted that the general Eraring area has a high potential for Aboriginal artefacts, noting the proximity to Pulbah Island and Myuna Bay.	AECOM acknowledge that the general Eraring area does contain known Aboriginal sites. An unexpected finds procedure has been integrated into this ACHMP to manage potential Aboriginal sites.
Biraban LALC	27 May 2020	Email	Biraban LALC confirmed that there were no Aboriginal cultural heritage sites identified on the surface but noted that there was potential for artefacts to be present in undisturbed subsurface contexts. Biraban LALC agreed that no further investigated required with areas identified as disturbed but recommended an Aboriginal cultural knowledge holder be present during works in undisturbed areas.	The unexpected finds procedure provided in this ACHMP has been developed to manage potential Aboriginal cultural heritage sites that may be uncovered during both the construction phase and operational activities.

### 3.7 Site Visit with Registered Aboriginal Parties

All RAPs were offered the opportunity to participate in a site visit component, as identified in **Section 1.1** of this report. Expression of Interest notifications for the proposed field assessment were provided in writing to all RAPs on 7 May 2020. Nine (9) RAPs who registered an interest in the project expressed interest in providing provided representation for the site visit. RAP field representatives are listed by organisation in **Table 6**.

**Table 6 RAP Representatives for Site Visit to draft ACHMP**

Registered Aboriginal Party (RAP)	Representative
Awabakal & Guringai Pty Ltd	Tracey Howie
Awabakal Traditional Owners Aboriginal Corporation	Kyle Howie
Biraban LALC	Norman Archibald
Corroboree Aboriginal Corporation	Mike Skinner
Guringai Tribal Link Aboriginal Corporation	Marc Smith
Lower Hunter Aboriginal Incorporated	John Wegener
Murra Bidgee Mullangari	Ryan Johnson
Widescope Indigenous Group	Steven Hickey

A site visit was held over two separate days (26 and 27 May 2020) for RAPs who indicated an interest in being consulted on the Project. The purpose of the site visit was to document and confirm the existing disturbed landscape, identify potential extant Aboriginal sites/objects or areas of archaeological sensitivity and provide the opportunity for RAPs to inspect the Project Area and surrounds and provide feedback on associated cultural values.

No Aboriginal sites, objects or areas of archaeological sensitivity were identified during the site visit. It was noted by RAP field representatives that portions of the Project Area may contain subsurface Aboriginal sites/objects as the Project Area represented a potential travel route to the coastal areas of lake Macquarie, but no specific locations were identified during the site visit. RAPs noted the presence of mature vegetation but inspections did not identify any trees with cultural scarring.

RAP representatives from the local area reiterated the importance of Awabakal peoples as the Traditional Owners of the lands of the Project Area and surrounds, and indicated they were the primary sources of cultural knowledge on their Country.

## 4.0 Aboriginal Cultural Heritage Management

### 4.1 Consultation Protocols

#### 4.1.1 Principles of RAP Engagement

Origin Energy recognises the importance of cultural protocols in the engagement of RAPs and the Aboriginal community more broadly. As such, Origin Energy has adopted the guiding principles outlined in the Australian Heritage Commission's guidelines *Ask First: A guide to respecting Indigenous heritage places and values* (Australian Heritage Commission, 2002). These principles require that all parties concerned with identifying, conserving, and managing Aboriginal heritage should acknowledge, accept and act on the principles that Aboriginal people:

- are the primary source of information on the value of their heritage and how this is best conserved
- must have an active role in any Aboriginal heritage planning process
- must have input into primary decision-making in relation to Aboriginal heritage so they can continue to fulfil their obligations towards this heritage
- have a right to retain control of their cultural knowledge, including intellectual property and other information relating specifically to their heritage.

#### 4.1.2 Welcome to Country & Acknowledging Traditional Owners

A Welcome to Country is a formal welcome to traditional Aboriginal lands given by a local community-recognised Aboriginal Elder or other recognised person from the Country the meeting/event is taking place on. It is commonly in the form of a short speech, but also may include a performance if deemed appropriate by the Elder.

An Acknowledgement of Country can be given by an Aboriginal or non-Aboriginal person and is a way of paying respect to the Traditional Custodian of the respective Country the meeting/event is taking place on. An example of an Acknowledgement of Country may include:

*"Before we begin proceedings, I would like to acknowledge the Traditional Owners of the land on which we meet today. I would like to pay my respects to the Elders past, present and future and pay my respects to all Aboriginal People here today, wherever you may come from."*

Welcome to Country and Acknowledgement of Country are important cultural practices because they continue the longstanding tradition of formally recognising Aboriginal (and Torres Strait Islander) Traditional Custodianship and Connection to Country (NTSCORP Limited, 2013). Origin Energy EPS may consider including an Acknowledgement of Country for internal meetings at EPS, while Welcome to Country opportunities should be considered for major events.

### 4.2 Ongoing RAP Consultation

#### 4.2.1 ACHMP Revision and Consultation

**Section 8.0** of this ACHMP describes the review process for this ACHMP. When/if revisions to this document are required, Origin Energy will provide RAPs with a copy of the revised ACHMP with a 14-day review period to provide feedback.

#### 4.2.2 Information/Meeting and Site Visit Requests

Origin Energy is committed to addressing the concerns of RAPs throughout the construction and operational phases of the Project. In addition to open project meetings, should RAPs wish to discuss any aspect of this ACHMP or the Project, Origin Energy will facilitate this through confidential meetings and/or phone discussions. Meetings and/or site visits with Origin Energy will be arranged upon RAP request.

## 5.0 Management of Previously Unrecorded Aboriginal Sites

### 5.1 Unrecorded Aboriginal Objects

Should a previously unidentified Aboriginal site or object be identified at any point throughout the life of the Project, the following standard procedure should be adopted:

1. All works must cease immediately in the area to prevent any further impacts to the site/object.
2. Notify the Origin Energy EPS Senior Environmental Business Partner.
3. Engage a suitably qualified heritage consultant and RAP representative(s) to determine the nature, extent and significance of the site and provide appropriate management advice. Management action(s) will vary according to the type of evidence identified, its significance (both scientific and cultural) and the nature of potential impacts.
4. Prepare and submit an AHIMS site card for the site.

### 5.2 Human Skeletal Remains

This section outlines the procedure that should be followed in the case that potential human remains are discovered during the life of the Project. The procedure takes into account the following documents:

- *Manual for the Identification of Aboriginal Remains* (NSW Department of Environment & Conservation 2006)
- *Skeletal Remains - Guidelines for the management of human skeletal remains under the Heritage Act 1977* (NSW Heritage Office 1998)
- *The Aboriginal Cultural Heritage Standards and Guidelines Kit* (NSW NPWS 1997).

In the event that potential human skeletal remains are identified within the Project Area at any point, the following standard procedure should be followed:

1. all work in the vicinity of the remains should cease immediately
2. the location should be cordoned off - construction work can continue outside of this area as long as there is no risk of interference to the remains or the assessment of the remains
3. where uncertainty over the origin (i.e., human or non-human) of the remains exists, a physical or forensic anthropologist should be commissioned to inspect the exposed remains *in situ* and make a determination of origin, ancestry (Aboriginal or non-Aboriginal) and antiquity (pre-contact, historic or modern):
  - if the remains are identified as modern and human, the area will become a crime scene under the jurisdiction of the NSW Police
  - if the remains are identified as pre-contact or historic Aboriginal, the site should be secured and Heritage NSW notified
  - if the remains are identified as historic (non-Aboriginal), the site should be secured and Heritage NSW notified.

## 6.0 Aboriginal Cultural Heritage Awareness Training

### 6.1 EPS Induction

Origin Energy requires all employees and contractors working on-site to undertake a Site Induction prior to commencing work. This induction will include basic information on Aboriginal cultural heritage including:

- employee and contractor legal responsibilities with respect to Aboriginal cultural heritage
- a summary of potential Aboriginal site types located within the vicinity of the Project Area
- procedures for the management of recorded and previously unrecorded Aboriginal cultural heritage.

## 7.0 Non-Compliance & Complaints Management

### 7.1 Incident Reporting

Origin Energy must immediately notify the Department of Planning, Industry & Environment and Heritage NSW immediately after it becomes aware of any incident involving unauthorised impacts to Aboriginal cultural heritage within the Project Area. The notification must be in writing and identify the Project name and development application number '07\_0084' and set out the location and nature of the incident including, but not limited to, the following:

- the nature of the non-compliance concern
- the date and time of the incident
- the likely cause of the incident
- actions that have been undertaken
- proposed measures to address the incident.

### 7.2 Compliance

Origin Energy must develop and implement a Compliance Tracking Program to track compliance with the requirements of the project approval identified in **Section 1.1, Table 1** of this ACHMP. The Compliance Tracking Program should include, but not necessarily be limited to:

- a. provisions for periodic review of the compliance status of the project and each of its components
- b. provisions for periodic reporting of compliance status to the relevant approval authority
- c. a program for independent auditing of the proposal
- d. mechanisms for rectifying any non-compliance identified during auditing or review of compliance.

Additionally, Origin Energy must provide regular compliance reporting to the Department of Planning, Industry & Environment in accordance with the relevant Compliance Reporting requirements

### 7.3 Complaints Management Process

Origin Energy has an Environmental Management Plan for EPS which details how to receive, respond to, record and address community complaints including Aboriginal cultural heritage issues. Origin Energy will keep a record of all community complaints and subsequent actions in the Incident Management System. The following details should be recorded:

- the nature of the complaint
- how the complaint was made
- investigation outcomes
- proposed and completed actions
- consultation undertaken.

Complaints and enquiries regarding Aboriginal heritage issues and any other environmental matters should be directed to the Community Relations Business Partner.

## 8.0 Periodic Review of ACHMP

A review of this ACHMP is to be conducted by Origin Energy (or a suitably qualified delegate) in the following instances:

- every five years
- post open-project meetings (where required)
- if recommended by an independent review
- within three months of changes to Project Approval, license conditions or relevant legislation relating to Aboriginal heritage
- within three months of any reportable Aboriginal heritage related incidents within the Project Area
- any modification to the conditions of the project approval.

Any changes are not to be implemented until RAPs have been notified and provided with the opportunity to comment on the amendments. A draft of the amended ACHMP is to be distributed to RAPs with a minimum of fourteen (14) working days for comment. All RAP comments are to be included in the revised ACHMP. Where any review leads to revision of the ACHMP, the revised document must be submitted to the Planning Secretary within 4 weeks for approval.

## 9.0 References

- Australian Heritage Commission. (2002). *Ask First: a guide to respecting Indigenous heritage places and values*. Australian Government Publishing Service.  
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- Centennial Coal. (2016). *Aboriginal Cultural Heritage Management Plan Northern Region* (Issue September).
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- Donlon, D. (1991). *Archaeological Survey of Proposed Coal Receiving Facility at Eraring Power Station*.
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- HLA-Envirosciences Pty Ltd. (2004). *Report on Section 170 Heritage List , Eraring Energy*. Unpublished report to Eraring Energy.
- HLA-Envirosciences Pty Ltd. (2006). *Flora and Fauna Impact Assessment Upgrade to Existing Ash Dam Eraring Power Station*. Prepared for Eraring Energy.
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- NSW Department of Environment & Conservation. (2005). *Guidelines For Aboriginal Cultural Heritage Impact Assessment and Community Consultation* (Issue July). NSW Department of Environment & Conservation.
- NSW Department of Environment & Conservation. (2006). *Manual for the Identification of Aboriginal Remains*. NSW Department of Environment and Conservation.
- NSW Heritage Office. (1998). *Skeletal Remains: Guidelines for the Management of Human Skeletal Remains under the Heritage Act 1977*. NSW Heritage Office.
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- Umwelt (Australia) Pty Ltd. (2011). *Sustainable Management of Aboriginal Cultural Heritage in the Lake Macquarie Local Government Area: Lake Macquarie Aboriginal Heritage Management Strategy*. Unpublished report for Lake Macquarie City Council.
- Vinnicombe, P. (1980a). *Predilection and Prediction: A Study of Aboriginal Sites in the Godford-Wyong Region*. Unpublished report for NSW NPWS.
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- Vinnicombe, P. (1980c). *Predilection and Prediction: A study of Aboriginal sites in the Gosford-Wyong region*. Report to NPWS.

# Appendix A

## AHIMS Search Results

## Appendix A AHIMS Search Results



Your RefPO Number : Eraring

Client Service ID : 664572

AECOM Australia Pty Ltd - Sydney

Date: 04 March 2022

Level 21 420 George Street  
SYDNEY New South Wales 2000

Attention: Luke Wolfe

Email: luke.wolfe@aecom.com

Dear Sir or Madam:

**AHIMS Web Service search for the following area at Search using shape-file search with a buffer of 0 meters. Additional Info : Management Plan (eg. Vegetation Management Plan), conducted by Luke Wolfe on 04 March 2022.**

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



A search of Heritage NSW AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

71	Aboriginal sites are recorded in or near the above location.
0	Aboriginal places have been declared in or near the above location. *

# Appendix B

## Expression of Interest Letter

## Appendix B Expression of Interest Letter



AECOM Australia Pty Ltd  
Level 21, 420 George Street  
Sydney NSW 2000  
PO Box Q410  
QVB Post Office, NSW 1230

T: +61 2 8934 0000  
F: +61 2 8934 0001  
aecom.com

ABN 20 093 846 925

February 20, 2020

**Our Reference**  
60521040

**RE: Expression of Interest - Aboriginal Heritage Management Plan (AHMP) for the Eraring Power Station Ash Dam Augmentation Project, Lot 11, DP1050120**

Hello,

I am writing to inform you that AECOM Australia Pty Ltd (AECOM) has been commissioned by Origin Energy Eraring Pty Ltd (Origin Energy) to develop an Aboriginal Heritage Management Plan (AHMP) for the proposed Eraring Power Station Ash Dam Augmentation Project (the Project). The Project is located on Lot 11, DP1050120 in Eraring, New South Wales, within the Lake Macquarie City Council Local Government Area (refer attached location plan). Further information on the Project, including prior assessment and approval details can be obtained by visiting the Department of Planning, Industry and Environment Major Projects website at:

<https://www.planningportal.nsw.gov.au/major-projects/project/26956>.

On 23 December 2019, Project Approval MP 07\_0084 for the Eraring Ash Dam was modified to authorise the Ash Dam Augmentation Project, comprising an expansion of the existing ash dam. As a requirement under Condition 4.2 of the modified Project, Origin Energy have committed to the development of an AHMP to manage risks to Aboriginal cultural heritage associated with the Project.

You have been identified as someone who may hold cultural knowledge relevant to determining the significance of Aboriginal objects and/or places in the surrounds of the Project area. Following the prescribed guidance of the Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (DECCW 2010), AECOM invites you to register your interest in being consulted during the Project. Should you wish to register your interest, it would be greatly appreciated if you could please provide written and/or verbal confirmation by Friday 20<sup>th</sup> March. We would also like to take this opportunity to request from you any initial comments regarding the cultural values of the Project area.

Please note, the Project has been approved under the Environmental Planning and Assessment Act 1979. While no further fieldwork-based assessment is required, preparation of the updated AHMP may be informed by a brief site visit and a subsequent meeting at Origin Energy's Eraring Power Station.

Kind regards,

# Appendix C

## Summary of Management Measures

Table C-1 Summary of management measures

No.	Requirement	Responsibility	Timing	Status
<b>Flora and Fauna</b>				
F1	Vegetation clearing activities will be undertaken in accordance with existing procedures outlined in the BLMP. The procedures will incorporate: <ul style="list-style-type: none"> <li>• A documented risk assessment prior to clearing commencing</li> <li>• Establishment of exclusion zones</li> <li>• Identification of habitat trees and inspections pre and post felling</li> <li>• Staged clearing activities.</li> </ul>	Construction contractor	Prior to and during vegetation clearing	
F2	A risk assessment will be prepared in accordance with existing procedures outlined in the BLMP, prior to the clearing of vegetation, which considers, but is not limited to: <ul style="list-style-type: none"> <li>• Risk of noise impact</li> <li>• Risk of air quality impact via dust emissions</li> <li>• Risk of weed and pest species invasion</li> <li>• Risk of disturbance to surrounding vegetation and biodiversity offset areas.</li> </ul>	Construction contractor	Prior to vegetation clearing	
F4	Pre-clearance inspections will be undertaken to identify if there are any breeding or hibernating individuals or populations of the threatened species known to occur within or adjacent to the project area. In the event threatened species are detected within the clearing limits, work will cease, and further investigations will be carried out.	Construction contractor	Prior to vegetation clearing	
F5	Vegetation clearing will be undertaken in accordance with the Vegetation Clearance Protocol (attached at <b>Appendix A</b> ) which includes: <ul style="list-style-type: none"> <li>• The delineation of areas that require vegetation clearing</li> <li>• Pre-clearance vegetation inspections</li> <li>• Fauna management strategies</li> <li>• Vegetation clearance procedures and</li> <li>• A Threatened Species Management Protocol.</li> </ul>	Construction contractor	Prior to and during vegetation clearing	
F6	Vegetation clearing in spring would be avoided if possible, to ensure it does not affect critical periods in the lifecycles of significant species.	Construction contractor	During construction	
F7	Areas disturbed by construction activities which are not required for future operational use will be progressively stabilised and rehabilitated as soon as practical following disturbance. Rehabilitation activities would be undertaken in accordance with the BLMP.	Construction contractor	During construction	
F8	Cleared vegetation containing weeds will be contained and disposed of to an appropriately licensed vegetation waste disposal facility.	Construction contractor	During construction	

No.	Requirement	Responsibility	Timing	Status
F9	Before entering or leaving the site, vehicles, clearing equipment and general construction equipment (such as excavators, graders etc) will be cleaned so they are free of soil, seeds and plant material to prevent the spread of exotic plant species and pathogens.	Construction contractor	During construction	
F10	Construction personnel will keep to designated roads and existing access tracks.	Construction contractor	During construction	
F11	An existing monitoring program for flora and fauna is currently carried out, as detailed in the BLMP. The minimum requirements of the flora and fauna inspection and maintenance during the construction period are outlined as follows: <ul style="list-style-type: none"> <li>Biodiversity surveys prior to commencement of construction work</li> <li>Pre and post clearance surveillance for any fauna present</li> <li>Within one week of any localised flooding event.</li> </ul> Flora monitoring prior to commencement of clearing will be carried out in accordance with the Biodiversity Assessment Methodology (NSW OEH, 2017). Fauna monitoring prior to commencement of clearing will be carried out in accordance with NSW and/or Commonwealth guidelines for threatened species surveys.	Construction contractor and a qualified ecologist	During construction	
<b>Erosion and Sedimentation Management Plan</b>				
E1	Erosion and sediment control measures will be installed prior to construction work commencing and will be implemented in accordance with Landcom's <i>Managing Urban Stormwater: Soils and Construction</i> .	Construction contractor	Prior to construction	
E2	Erosion and sediment controls will be implemented in accordance with the following: <ul style="list-style-type: none"> <li>Clean water diversions will be constructed upslope of areas to be disturbed to convey clean water runoff away from disturbed areas and prevent water from entering active areas and the saline/dirty water systems. Clean water runoff will be diverted into nearby watercourses. Appropriate protection will be established where diverted waters enter creeks through the use of level spreaders or other protection measures</li> <li>Catch drains will be established to convey runoff from the disturbed areas to Ulan Pond or the Decant Pond.</li> <li>Sediment fences, sediment traps, rock checks and other temporary erosion and sediment control measures as per the Blue Book will be installed in advance of, or in conjunction with, earthworks to prevent sediment laden water leaving the site or entering clean water systems.</li> </ul>	Construction contractor	Prior to construction	
E3	Sediment controls will be installed down slope of the project area to catch sediment (eg silt fences or bunds).	Construction contractor	Prior to construction	

No.	Requirement	Responsibility	Timing	Status
E4	Runoff will be diverted from upslope land away from the project area by suitable catch drains.	Construction contractor	Prior to construction	
E5	Areas required to be disturbed will be clearly delineated and disturbance will be limited to those areas. Temporary fences will be installed to define any no go areas that are not to be disturbed.	Construction contractor	Prior to construction	
E6	Gypsum will be applied, where required, to reduce the dispersibility of the subsoils that will be disturbed and to minimise the potential for erosion and sedimentation of disturbed or reshaped areas.	Construction contractor	During construction	
E7	Where possible, the area to be disturbed will be staged to minimise the area of bare surfaces during construction. Ground disturbance will be minimised where possible and disturbed areas which are not required for future operational use will be stabilised by progressive rehabilitation as soon as practicable. Rehabilitation activities would be undertaken in accordance with the BLMP.	Construction contractor	During construction	
E8	Ground disturbance and soil handling activities will be undertaken in accordance with existing procedures outlined in the BLMP. The procedures will incorporate: <ul style="list-style-type: none"> <li>• Weed management activities</li> <li>• Soil handling protocols including stockpiling procedures.</li> </ul>	Construction contractor	During construction	
E9	Excess excavated material that cannot be returned to excavations or reused in construction activities will be stockpiled on site prior to being assessed in accordance with NSW Waste Classification Guidelines (EPA, 2014). Excess material will be reused in rehabilitation activities where suitable or appropriately disposed of in accordance with the <i>Waste Avoidance and Resource Recovery Act 2001</i> .	Construction contractor	During construction	
E10	Except as may be expressly provided by EPL 1429, the Project will comply with section 120 of the POEO Act which prohibits the pollution of waters.	Construction contractor	During construction	
E11	The Project will be designed and constructed in a manner that minimises the interception of underlying groundwater.	Project Manager / Construction contractor	Prior to and during construction	
E12	Construction workers would be made aware of the following general indicators of potential contamination: <ul style="list-style-type: none"> <li>• Illegal or uncontrolled dumping of wastes adjacent to the construction site</li> <li>• Discolouration or staining of soil</li> <li>• Abnormal colouration of surface water or groundwater</li> <li>• Chemicals floating on the water table</li> </ul>	Construction contractor	During construction	

No.	Requirement	Responsibility	Timing	Status
	<ul style="list-style-type: none"> <li>• Odours emanating from the water or soil</li> <li>• Dead vegetation within or adjacent to areas of otherwise normal growth</li> <li>• Liquid or solid chemicals or chemical wastes found on or in the soil (including abandoned drums or containers)</li> <li>• Inadvertent chemical spills during construction (hydraulic fluid, fuel etc) and</li> <li>• Materials suspected of containing asbestos.</li> </ul>			
E13	<p>An unexpected finds protocol will be implemented during the construction of the Project:</p> <ul style="list-style-type: none"> <li>• In the event of an unexpected find, all work in the immediate vicinity should cease and the Project Manager should be contacted immediately,</li> <li>• Temporary fencing should be erected to isolate the area from access to the public and workers,</li> <li>• The Project Manager will engage an appropriately qualified specialist to attend the site and assess the extent of the problem in order to assess the risk it may pose to the receptors,</li> <li>• In the event potential friable asbestos material is encountered, a qualified occupational hygienist and / or asbestos consultant must be contacted,</li> <li>• In the event that the area of environmental concern poses a risk to receptors, appropriate management procedures will be put in place to minimise / mitigate the risk. This could include a remediation action plan, environmental management plan, asbestos management plan or similar,</li> <li>• Additional sampling and analysis may be required to better characterise the area of environmental concern and</li> <li>• Works will only proceed when the area of environmental concern is considered to pose a low to no risk to receptors.</li> </ul>	Construction contractor	During construction	
E14	<p>The following procedures will be implemented to minimise the risk of chemical or fuel spills during construction:</p> <ul style="list-style-type: none"> <li>• All substances will be stored in accordance with the relevant Australian Standard</li> <li>• Refuelling of plant and equipment will be carried out in a bunded area in accordance with EPL 1429</li> <li>• All personnel will be trained in procedures for the management of spills and the location of spill kits and</li> <li>• An emergency spill kit will be accessible during construction and will be appropriately sized for the volume of substances used at the site.</li> </ul>	Construction contractor	During construction	

No.	Requirement	Responsibility	Timing	Status
E15	Accidental chemical spills (such as hydraulic fluid from equipment) will be quickly attended to, contained and reported immediately and contaminated material disposed of appropriately.	Construction contractor	During construction	
E16	Regular inspections will be undertaken to ensure erosion and sediment controls are maintained and remain appropriate for the duration of the construction works. The minimum requirements of the inspection and maintenance of the controls will be: <ul style="list-style-type: none"> <li>Weekly during construction works</li> <li>Monthly upon completion of construction works and for permanent erosion and sediment control structure (if required) and</li> <li>After significant rainfall events.</li> </ul> If inspections identify areas of erosion or failure of erosion and sediment control measures, the area will be stabilised and if required control measures will be rectified in accordance with the BLMP. Control measures will only be removed upon completion of construction works when all disturbed surfaces have been stabilised.	Construction contractor	During and post construction	
E17	Water quality in the Ulan Pond and Decant Pond will be monitored in accordance with existing monitoring requirements as described in the EPS Water Management Plan (AECOM, 2021).	Construction contractor	During construction	
<b>Aboriginal Heritage</b>				
B1	<p><u>Aboriginal Sites</u> Should a previously unidentified Aboriginal site or object be identified at any point during construction of the Project, the following standard procedure will be followed:</p> <ol style="list-style-type: none"> <li>All works must cease immediately in the area to prevent any further impacts to the site/object</li> <li>Notify the Origin Energy EPS Senior Environmental Business Partner</li> <li>Engage a suitably qualified heritage consultant and RAP representative(s) to determine the nature, extent and significance of the site and provide appropriate management advice. Management action(s) will vary according to the type of evidence identified, its significance (both scientific and cultural) and the nature of potential impacts and</li> <li>Prepare and submit an AHIMS site card for the site.</li> </ol> <p><u>Human Skeletal Remains</u> In the event that potential human skeletal remains are identified within the Project area during construction of the project, the following standard procedure will be followed.</p> <ol style="list-style-type: none"> <li>All work in the vicinity of the remains must cease immediately</li> <li>The location should be cordoned off – construction work can continue outside of this area as long as there is no risk of interference to the remains or the assessment of the remains</li> </ol>	Construction contractor	During construction	

No.	Requirement	Responsibility	Timing	Status
	<p>3. Where uncertainty over the origin (i.e., human or non-human) of the remains exists, a physical or forensic anthropologist should be commissioned to inspect the exposed remains <i>in situ</i> and make a determination of origin, ancestry (Aboriginal or non-Aboriginal) and antiquity (pre-contact, historic or modern)</p> <ul style="list-style-type: none"> <li>- If the remains are identified as modern and human, the area will become a crime scene under the jurisdiction of the NSW Police</li> <li>- If the remains are identified as pre-contact or historic Aboriginal, the site will be secured and Heritage NSW will be notified and</li> <li>- If the remains are identified as historic (non-Aboriginal), the site will be secured and Heritage NSW will be notified.</li> </ul>			
B2	Origin is committed to addressing the concerns of RAPs during construction of the Project. Should RAPs wish to discuss any aspect of this ACHMP or the Project, Origin Energy will facilitate this through confidential meetings and/or phone discussions. Meetings and/or site visits with Origin will be arranged upon RAP request. When/if revisions to the ACHMP are required, Origin will provide RAPs with a copy of the revised ACHMP with a 14-day review period to provide feedback.	Origin Project Manager	During construction	
B3	Origin Energy requires all employees and contractors working on-site to undertake a Site Induction prior to commencing work. This induction will include basic information on Aboriginal cultural heritage including: <ul style="list-style-type: none"> <li>• employee and contractor legal responsibilities with respect to Aboriginal cultural heritage</li> <li>• a summary of potential Aboriginal site types located within the vicinity of the Project Area and</li> <li>• procedures for the management of recorded and previously unrecorded Aboriginal cultural heritage.</li> </ul>	Origin Project Manager	Prior to and during construction	
<b>Traffic</b>				
T1	Access arrangements will be communicated with all truck drivers (e.g. using route maps) to ensure that they access the site from the proposed route (being via the Pacific Motorway (M1), Mandalong Road and through Morisset onto Wangi Road, Rocky Point Road and Construction Road).	Construction contractor	During construction	
T2	Heavy vehicle truck movements will be staged in order to minimise impacts on the surrounding traffic network.	Construction contractor	During construction	
T3	All additional car and truck parking will be managed wholly within the EPS site in accordance with Origin's Traffic Management Plan for the site.	Construction contractor	During construction	

No.	Requirement	Responsibility	Timing	Status
T4	Truck drivers will be advised of parking locations, acceptable delivery hours or other relevant practices (i.e. minimising the use of engine brakes, and no extended periods of engine idling). The use of reversing alarms will be minimised from regular/repeatable movements (e.g. trucks transporting spoil). Where feasible and reasonable, non-tonal reversing alarms will be used, taking into account the requirements of the <i>Work Health and Safety Act 2011</i> and associated regulation.	Construction contractor	During construction	
<b>Construction Noise</b>				
N1	Construction activities associated with the Project that will generate an audible noise at any residential premises will only be undertaken during the following hours: <ul style="list-style-type: none"> <li>7:00 am to 6:00 pm, Mondays to Fridays, inclusive</li> <li>8:00 am to 1:00 pm on Saturdays and</li> <li>at no time on Sundays or public holidays.</li> </ul> This does not apply in the event of a direction from police or other relevant authority for safety reasons.	Construction contractor	During construction	
N2	Residents will be notified if construction activities are planned that are considered likely to affect their noise and vibration amenity.	Construction contractor	During construction	
N3	Where practicable, standard noise mitigation measures would be implemented during construction, such as: <ul style="list-style-type: none"> <li>all plant and machinery will be regularly maintained to ensure it is in good working order</li> <li>use of reversing alarms will be minimised from regular repeatable movements</li> <li>where feasible, non-tonal reversing alarms will be used and</li> <li>use of engine brakes will be minimised, with no extended periods of engine idling.</li> </ul>	Construction contractor	During construction	
N4	Complaints will be managed in accordance with the Environmental Management Plan for Eraring Power Station and recorded in the Incident Management System (further described in Section 6.0 of this CEMP).	Construction contractor	During construction	
N5	In the event of any noise complaint an investigation will be undertaken. Where validated noise complaints are identified, mitigation measures will be implemented and follow up monitoring conducted. A written response will be provided on completion of an investigation. The results of the investigation will be recorded within Origin's Incident Management system and corrective actions will be reviewed to determine the effectiveness of these actions.	Construction contractor	During construction	

No.	Requirement	Responsibility	Timing	Status
<b>Air Quality</b>				
AQ1	In accordance with Condition 2.8 of the Project Approval (MP 07_0084 MOD1), construction will be undertaken in a manner that minimises dust emission from the site, including wind blown and traffic-generated dust. All activities will be undertaken with the objective of preventing visible emissions of dust from the site. Should visible emissions occur, all practicable dust mitigation measures, including cessation of relevant works, would be implemented to ensure that emissions of visible dust cease.	Construction contractor	During construction	
AQ2	Construction works will not cause or permit the emission of any offensive odours, as defined in section 129 of the POEO Act, beyond the boundary of the site.	Construction contractor	During construction	
AQ3	Construction activities will be managed in accordance with <i>the Eraring Power Station Coal Combustion Management Facility: Air Quality Management Plan</i> (Jacobs, 2022). This document outlines the controls to be implemented for the management and monitoring of air quality associated with the ERAD, including: <ul style="list-style-type: none"> <li>• Wetting surface during dry, high wind conditions</li> <li>• Progressive rehabilitation where possible</li> <li>• Observation of weather conditions during truck unloading and ceasing unloading if excessive wind-blown dust is visible</li> <li>• Watering of unsealed haulage routes if dust is observed with vehicle movements</li> <li>• Ambient air quality monitoring including real time PM<sub>10</sub> concentration monitoring and meteorological monitoring</li> <li>• Visual monitoring of dust emissions</li> <li>• Automated dispersion modelling of site dust (and air) emissions using forecast meteorological conditions.</li> </ul>	Construction contractor	During construction	
<b>Waste</b>				
W1	Where possible, materials will be reused or recycled to minimise the quantities of waste disposed in landfill. Vegetation waste (excluding weeds, which will be separated) will be mulched and used in landscaping around the EPS site where appropriate to do so.	Construction contractor	During construction	
W2	All waste generated during construction of the Project will be assessed and classified in accordance with the EPA's <i>Waste Classification Guidelines</i> (EPA, 2014) prior to disposal and transport to a licensed waste disposal facility.	Construction contractor	During construction	

No.	Requirement	Responsibility	Timing	Status
W3	Only those wastes permitted under EPL 4129 will be received at the premises for use in construction activities. Permitted wastes are described in the BLMP.	Construction contractor	During construction	
<b>Non-Aboriginal Heritage</b>				
NH1	Construction personnel will be made aware of the heritage significance of the EPS site during the Project-specific Environmental Induction.	Origin Project Manager	Prior to and during construction	
NH2	Should any items of potential non-Aboriginal cultural heritage significance be uncovered during earthworks, the immediate area of the potential find will be isolated and the Origin Energy EPS Senior Environmental Business Partner will be notified.	Construction contractor	During construction	