Ravensworth - Bayswater Ash line Replacement

Construction Environmental Management Plan AGLM-CPG-049-RPT-009

Monadelphous Engineering Pty Ltd

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The Power of Commitment

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1. Introduction

1.1 Purpose

Monadelphous Engineering engaged GHD Pty Ltd (GHD) to prepare this Construction Environmental Management Plan (CEMP) to outline the environmental management and mitigation measures to be implemented during the construction of the AGL Ravensworth – Bayswater Ash Line replacement project.

1.2 Ravensworth Ash Line

Bayswater Power Station (Bayswater) was commissioned in 1985 to utility standards of the time. Bayswater has a current generation capacity of 2640 megawatts (MW) and approval for efficiency upgrades that will increase capacity to 2740 MW. The approval of the efficiency upgrade recognised the critical importance of the continued operation of Bayswater until 2035.

Bayswater employs technology common to other NSW coal-fired power stations using the following general process:

– Coal is burned in the boiler furnace producing heat for the boiler
– Water is circulated through the boiler and heated by the boiler furnace to produce steam
– High pressure steam from the boiler enters the turbine trains within the generating units
– The turbines drive the generator rotor which produces electricity
– The electricity produced by the generator is transformed to system voltage and fed to the interconnected transmission system via the station switchyard

Ancillary activities arising out of coal fired power generation at Bayswater include:

– Receipt, storage and transfer of coal within the coal handling plant area
– Pumping of water from the Hunter River under existing water entitlements and storage and treatment of this water, including the management of salt and other impurities, to supply boilers and for cooling purposes
– The management of incombustible coal residue, in the form of bottom ash and fly ash, which is collected and transported to ash disposal areas

The Bayswater Ash line Replacement Project is focussed on improving the management of the ancillary activities at the Bayswater Power Station including construction of a new coal ash pipeline from the Bayswater Fly Ash Plant to Ravensworth Void No. 3 for ash emplacement, known as the Ravensworth Ash Line. This CEMP is focussed on the works associated with construction of the Ravensworth Ash Line.

The majority of the Ravensworth Ash Line will be installed above ground, some sections of trenching or underboring are proposed at New England Highway and roadways, Pikes Creek, Liddell Station Road and various other existing infrastructure corridors. Where the pipeline crosses Bayswater Creek and Chilcotts Creek, the pipeline will be raised above ground. The new pipeline will connect to the existing, recently extended, ash pipeline which runs from Ravensworth Void 3 to Void 5.

The pipeline will be installed adjacent to the existing ash pipeline in previously disturbed areas where possible. Where construction activities are required within Chilcotts, Pikes and Bayswater Creeks, appropriate erosion and sediment controls will be installed to minimise impacts to these waterways as far as practicable.

1.3 Construction activities

The installation of the transfer pipelines will consist of the following activities:

- Survey of the pipeline corridor and definition of AGL boundaries, no-go areas, AHIMS and Aboriginal site boundaries
- Services scan to ensure all underground services have been identified along the pipeline corridor.
- Vegetation clearance along the pipeline alignments. It has been assumed that all vegetation will be cleared, however opportunities to minimise clearance will be considered where feasible
- Laying above ground pipelines onto concrete plinths
- Trenching or directional drilling below ground sections of the pipelines. Depending on the trench depths, shoring or benching the trench may be required. Wastewater from drilling activities will be contained on site and disposed of to an appropriately licensed facility
- Non-destructive testing of the pipeline by a NATA approved subcontractor to identify any defects
- Backfilling and reinstatement of the pipeline alignment including installation of temporary and permanent erosion and sediment control devices, reinstatement of fencings and erection of marker posts and signs
- Hydrotesting of the pipeline will be conducted using AGL approved plans and procedures and supervised by a NATA accredited testing engineer. Wastewater from hydrotesting will be contained on site and disposed of at the void.
- Removal of any disused pipelines, waste packaging and wastewater as required

Construction materials include carbon steel pipe segments, concrete plinths, minor quantities of concrete and steel, and erosion and sediment control devices.

Access to the alignment is provided via Ravensworth, Pikes Gully Road, Hebden Road or via internal access roads from Bayswater power station. Existing internal roadways will be maintained for normal operations as required.

1.4 CEMP objectives

This CEMP applies to all construction activities associated with the Bayswater Ash pipeline. The CEMP was developed considering the following guidelines:

- Guideline for Preparation of Environmental Management Plans (DIPNR, 2004)
- Bayswater Water and Other Associated Operational Works Project Environmental Impact Statement (Jacobs, June 2020)
- Adherence with Part C Construction Specific Environmental Conditions of the Development Consent.

This CEMP has been developed to meet the following objectives:

- Describe the environmental setting and sensitivities of the site
- Identify the regulatory framework applicable to construction of the project
- Identify the potential environmental impacts of construction of the project
- Describe the mitigation measures required to be implemented to manage the potential construction environmental impacts
- Allocate responsibilities for the implementation and management of the CEMP
- Identify the monitoring, reporting and review requirements for the CEMP

1.5 Conditions of consent

The requirements of conditions C1 of SSD 9697 are shown in Table 1.1 with references to sections in this document where the requirements have been addressed.

Condition Requirement	CEMP Section
C1. The Applicant must prepare a Construction Environmental Management Plan for construction works to the satisfaction of the Planning Secretary. This plan must be prepared in consultation with the EPA, MSC and SC and include:	Evidence of consultation with NSW EPA, Muswellbrook Council and Singleton Council has been submitted to DPE.
(a) a description of activities to be undertaken during construction of the project (including staging and scheduling);	Provided in Section 1.3
(b) statutory and other obligations that the Applicant is required to fulfil during construction, building and demolition work, including approvals, signage, consultations and agreements required from authorities and other stakeholders under key legislation and policies;	Provided in Section 2
(c) identification of relevant guidelines, standards, codes of practice etc. to which the Applicant intends to comply;	Provided in Section 1.4
(d) a description of the roles and responsibilities for relevant employees involved in the construction of the project, including relevant training and induction provisions for ensuring that employees, including contractors and sub-contractors are aware of their environmental and compliance obligations under these conditions of consent;	Provided in Section 3
(e) an environmental risk analysis to identify the key environmental performance issues associated with the construction phase; and	Provided in Section 4.1
(f) details of how environmental performance would be managed and monitored to meet acceptable outcomes, including what actions will be taken to address identified potential adverse environmental impacts (including any impacts arising from the staging of the construction of the project). In particular, the following environmental performance issues shall be addressed in the plan:	Provided in Section 5
(i) soil, water quality, flood and spoil management;	Provided in Section 4.3
(ii) erosion and sediment control;	Provided in Section 4.3
(iii) dust management;	Provided in Section 4.5
(iv) management of non-Aboriginal heritage;	Provided in Section 4.11
(v) soil contamination, hazardous material and waste management;	Provided in 4.3 for soil contamination Provided in 4.12 for waste and hazardous material
(vi) management of ecological impacts	Provided in Section 4.2
(vii) traffic; and	Provided in Section 4.8
(viii) hazard and risk management.	Provided in Section 4.13

1.6 Scope and limitations

This report has been prepared by GHD for Monadelphous and may only be used and relied on by Monadelphous for the purpose agreed between GHD and Monadelphous as set out in section 1.1 of this report.

GHD otherwise disclaims responsibility to any person other than Monadelphous arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report (refer section(s) 1.1 of this report). GHD disclaims liability arising from any of the assumptions being incorrect.

GHD has prepared this report on the basis of information provided by Monadelphous and others who provided information to GHD (including Government authorities), which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

2. Legislative framework

Monadelphous HSE Legal Obligations are managed in line with *HSE Legal Compliance* (BMS-PRO-084). The legal requirements for construction outlined in Table 2.1 have been drawn from *Bayswater Water and Other Associated Operational Works Project Environmental Impact Statement*, Jacobs 2020.

Table 2.1 Legislative framework for the project

Legislation	Function	Applicability
Environmental Planning and Assessment Act 1979	The *Environmental Planning and Assessment Act 1979* (EP&A Act) and *Environmental Planning and Assessment Regulation* 2000 (EP&A Regulation) establish the planning and approvals process in NSW. It provides for the making of Environmental Planning Instruments (EPIs) including Local Environmental Plans (LEPs) and State Environmental Planning Policies (SEPPs), which set out requirements for particular localities and/or particular types of development. The applicable EPIs and the EP&A Regulations determine the relevant planning approval pathway and the associated environmental assessment requirements for proposed development activities.	The Project is a state significant development (SSD 9697) and requires assessment in accordance with Division 4.7 of the EP&A Act. The approval conditions will be implemented within this CEMP where relevant.
SEPP 55 (Remediation of Land)	Provides a State-wide approach to the remediation of contaminated land. Promotes the remediation of contaminated land for the purpose of reducing the risk of harm to human health or any other aspect of the environment.	The EIS determined that the contamination status of the site is suitable for the purpose of the pipeline construction and operation. Procedures for unexpected finds of contaminated materials are provided in Section 4.6.
SEPP (Koala Habitat Protection)	To encourage the conservation and management of areas of natural vegetation that provide habitat for Koalas to support a permanent free-living population over their present range and reverse the current trend of Koala population decline.	No evidence of Koala activity was identified during surveys conducted across the larger study area, due to the limited extent of habitat and the patchy occurrence of feed trees, it is unlikely that the study area represents Core Koala Habitat.
Heritage Act 1977	To protect natural, cultural and built heritage in NSW by allowing heritage items or places to be listed on the State Heritage Register, and for interim heritage orders to be made to protect heritage items or places.	There are no known relics located within the project area. Procedures for unexpected finds of heritage items are provided in Section 4.11.
National Parks and Wildlife Act 1974	To administer national parks and reserves in NSW, and to protect and conserve flora and fauna, Aboriginal places and Aboriginal objects.	Aboriginal sites and artefacts have been identified in the pipeline alignment during previous studies or through archaeological survey conducted as part of the project EIS. The project will establish no-go areas to protect all sites and areas of PAD that have been assessed as having potential indirect impact. The project may include detailed survey and management including salvage or changes to the detailed design of the pipeline.

Legislation	Function	Applicability
		An unexpected finds protocol will be implemented during construction. Refer to Section 4.7.
Rural Fires Act 1997	The *NSW Rural Fires Act 1997* (Rural Fires Act) facilitates the prevention, mitigation and suppression of bush and other fires in local government areas and parts of the State considered to be rural fire districts. The Project is located partially on Bush Fire Prone Land (BFPL).	Monadelphous are required to take precautions to minimise risk of bushfires starting or spreading within their land.
Water Act 1912 and *Water Management* Act 2000	The *Water Act 1912* (Water Act) identifies water management authorities and governs the issue of new water licences and the trade of water licences and allocations.	The construction and operation of the Project will not alter AGL's overall water requirements with all necessary water to be drawn from within existing entitlements. No groundwater will be abstracted during construction of the Project. While the Project involves works within waterfront land, a water use approval, a water management work approval or an activity approval are not required for SSD projects.
Mine Subsidence Compensation Act 1961 (Repealed)	The *Mine Subsidence Compensation Act 1961* (MSC Act) provides for the regulation of development on land potentially affected by mine subsidence.	Approval for erection or alteration of an improvement or subdivision of land within a mine subsidence district. It is the responsibility of AGL to obtain this approval.
Protection of the Environmental Operations Act 1997	The principal legislation regulating pollution and waste management in NSW is the Protection of the Environment Operations Act 1997 (POEO Act). All scheduled activities as listed in Schedule 1 of the POEO Act require an Environment Protection License (EPL).	Bayswater is operated under EPL 779 which is held by AGL and issued by the EPA under the POEO Act for Bayswater. Variation to the Bayswater EPL to accommodate additional scheduled activities. Refer to Sections 4.3-4.5 for controls for air and water pollution.
Waste Avoidance and Resource Recovery Act 2001	To encourage the most efficient use of resources and to reduce environmental harm in accordance with the principles of ecologically sustainable development. Outlines the requirement for the EPA to develop a waste strategy for the State.	The Project will generate waste, this waste needs to be classified and disposed of in accordance with the relevant legislation. Refer to Section 4.12.
Roads Act 1993	The *Roads Act 1993* (**Roads Act**) aims to establish the rights and procedures for using, opening and closing public roads. It also provides the classifications of roads and the declaration of TfNSW and other public authorities as roads authorities for classified and unclassified roads. A local council is the roads authority for public roads excluding classified roads and those declared by the Roads authority.	The Project requires works within road reserve areas associated with the Ravensworth ash pipeline. A Roads Act approval is required. It is the responsibility of AGL to obtain this approval.

Legislation	Function	Applicability
Pipelines Act 1967	The *Pipelines Act 1967* (Pipelines Act) describes the approvals system for the construction and operation of pipelines in NSW, with exemptions including for the supply of water or pipelines constructed by a public authority. Part 3 of the Pipelines Act outlines licensing requirements for pipelines and, excluding exempt items a licence is required to construct, alter and operate a pipeline.	The Ravensworth ash pipeline is exempt under the *Pipelines Act*.
Contaminated Land Management Act 1997	The *Contaminated Land Management Act 1997* (CLM Act) aims to establish a process for investigating and, where appropriate, remediating sites where contamination presents a significant risk of harm to human health or an aspect of the environment.	There is a duty to notify any contamination under Section 60 of the CLM Act and this will be undertaken in the event that any previously unidentified contamination is encountered that exceeds notification thresholds. Refer to Section 4.6.
Biodiversity Conservation Act 2016	The *Biodiversity Conservation Act 2016* (BC Act) commenced on 25 August 2017 and repeals the Threatened Species Conservation Act 1995, the Nature Conservation Trust Act 2001 and parts of the National Parks and Wildlife Act 1974. The BC Act introduces a Biodiversity Assessment Method (BAM) and Biodiversity Offsets Scheme.	AGL will require biodiversity credits in accordance with any condition of approval.
Native Title Act 1993	The main objective of the *Native Title Act 1993* is to recognise and protect native title. A successful native title claim results in the recognition of the particular rights, interests or uses claimed by the registered party. If a native title claim is recognised under the Act, any actions by Government on that land must be consistent with the claim.	Any native title claims registered with respect to the land where construction is occurring will be resolved prior to work commencing in that area. Notification requirements under section 24KA of the Native Title Act 1993 apply where construction work is required on Crown land. Notification in accordance with this section will occur concurrently with the public exhibition of the EIS.
Crown Land Management Act 2016	The *Crown Land Management Act 2016* provides for the ownership, use and management of Crown land in NSW. Ministerial approval is required to grant a 'lease, licence, permit, easement or right of way over a Crown Reserve'.	The project intersects with one area of Crown Land.
Environmental Protection and Biodiversity Conservation Act 1999 (Commonwealth)	The Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) is the primary Commonwealth legislation relating to the environment. Under Part 3 of the EPBC Act, approval from the Australian Minister for the Environment and Energy is required for an action that has a significant impact on the environment in commonwealth land or a matter of national environmental significant.	EPBC 2020/8623 Controlled activity . Relevant conditions will be implemented in the CEMP.

3. Environmental management

The following sections outline the overarching management arrangements for construction of the Ravensworth Ash Line including roles and responsibilities, reporting, records, training, incident management and complaints.

3.1 Roles and responsibilities

While all personnel working on the Ravensworth Ash Line are responsible for managing the environmental impact of their activities, the Project Manager has the overall responsibility for the construction of the Project. The responsibilities of key roles involved in the Project are outlined in Table 3.1. The key personnel, their roles and contact details are provided in Table 3.2.

Table 3.1 Roles and responsibilities

Role	Responsibilities
Project Manager	– Contract Management, ensuring all obligations are met for the Project – Overall construction methodology and execution of the works as defined in the contract – Clearly defining roles, responsibilities and expectations throughout the construction team – Ensure all site approvals are obtained before mobilisation – Define the programme structure and ensure the schedule is fully integrated and all key stakeholders are held accountable – Productivity review and performance communication with team – Sub-Contractor selection criteria, on boarding according to Monadelphous requirements – Risk assessment and management of the project site – Monitor Performance Trends and implement corrective actions via the Site Manager – Lessons learnt reviews and transfer of information to other project sites – Monthly reporting to AGL
Site Superintendent	– Ensure all Supervisors are aligned in the constructability and phasing of works – Ensure all work is performed by the crew as detailed in work packs – Lead the Supervision Team and indirectly, the work crew and clearly delegate work responsibilities, timeframes and safety and quality requirements – Support the Project Manager and Project Controls in the compilation of the Schedule and progress reporting methodology – Drive progress to ensure the scope of work is delivered within the approved contract timeframe – Verify testing inspection activities in conjunction with Quality and Engineering – Ensure all deliveries are well planned and the construction is optimised to avoid double handling – Ensure communication channels across all work fronts are clear and ensure all subcontractors, vendors and others are performing effectively – Daily site coordination and management meetings across disciplines (including vendors) – Critical Path management – Regularly participate and lead pre start meetings and Tool box meetings – Collaborate with the Construction Support functions to resolve issues and implement solutions – Ensure that accurate information reporting as requested by Project Manager is delivered: • Maintain a daily diary • Manage relationships with AGL representative as required • Manage relationships with sub contractors • Actively participate in the AGL HSE and Quality Programmes • Complete worksite investigations and complete accurate and timely reporting • Carry out all work in a safe and efficient manner and report all hazards, incidents and accidents promptly • In an honest and constructive manner, actively support and communicate with your fellow employees on HSE related programs, policies and procedures • Complete Workplace Inspections as required within Monadelphous and AGL written instructions

Role	Responsibilities
	• Manage workplace material waste within sphere of control such that damage to the environment is minimised • Follow Monadelphous and AGL directives while on site
Supervisors	– Ensure all work is performed by the crew as detailed in work packs – Lead the work crew and clearly delegate work responsibilities, timeframes and safety and quality requirements – Comply with Management plans – Verify testing inspection activities in conjunction with Quality and Engineering – The crew within direct control (in the field) are engaged and implementing all /HSE/Quality/HR/IR – Manage plant and equipment to ensure optimal utilisation – Ongoing development and performance management of all resources, ensuring adequately skilled staff – Manage change in contract scope (Scope/nature/delay/disruption) to Site Manager to ensure that all time, resources etc. resulting from the change are accurately noted – Execution of construction activities in accordance with safety, environment and quality requirements – Close out of priority work fronts including pre walk down inspections and internal punch list work prior to tri party walk downs – Weekly meetings to discuss discipline specific requirements, interfacing, risks and opportunities – Management of site supervision and all activities onsite
Senior Project Engineers	– Ensuring site priorities are being communicated to the design team and delivered timeously – Change Management – Ensuring all material requirements are met and critical items expedited – Co-ordination of Project Engineers – Senior Project Engineers will also take a lead role in managing an assigned subcontractor across all central sites, in conjunction with other site based teams. For example, a Civil SPE will be assigned the piling subcontractor, and will be responsible for ensuring that single subcontract is managed across all Central sites, in conjunction with the civil teams from other sites – Ensuring mobilisation requirements are met – Programme is updated weekly with input from key players – Construction verification including: QA, QC sign off, NCR's, TQ's, RFI's etc – Subcontractor documentation and progress – Reporting requirements are met – Materials management – Change Management – Plant and Equipment mobilisation, documentation and demobilisation – Addressing Technical Queries – Carrying out walk-downs
HSE Advisor	– Ensuring compliance with project HSE requirements and the site HSE management plan and CEMP – Maintaining all JSEA's including the register and work force compliance – Ensuring all personnel entering site have the required inductions – Monthly nomination and distribution of all area and activity inspections as well as generating and managing all observation requirements and reporting – Ensuring all plant and equipment has a daily prestart and logbooks are maintained – Generating Toolbox talks – Communicating relevant incidents in accordance with the agreed procedures – Communication of general safety and environmental awareness – Maintenance of the Site Risk Assessment
QA Coordinator	– Arranging walk downs – Implementing Quality Management Plan on site – Assisting engineers with quality documentation requirements – Carrying out inspections as required

Role	Responsibilities
Monadelphous staff	– Complete induction prior to commencing works on the project – Maintain competencies relevant to your activities – Understand risks associated with your activities – Stop work immediately if a particular activity is carried out in an unsatisfactory manner – Undertake your activities in accordance with the CEMP and specific instructions issued by your supervisor – Report environmental incidents to your supervisor
Subcontractors	– Complete induction prior to commencing works on the project – Understand risks associated with your activities – Stop work immediately if a particular activity is carried out in an unsatisfactory manner – Undertake your activities in accordance with the CEMP and specific instructions issued by the Senior Project Engineer – Report environmental incidents to the Senior Project Engineer

Table 3.2 Key project personnel

Role	Contact details
Project Manager	George Solesbury E: gsolesbury@monadel.com.au
Project Engineer	Glenn Peregrin E: GPeregrin@monadel.com.au
Site Superintendent	Alan Bevan E: ABevan@monadel.com.au
QA Coordinator	Brad Berlin E: BBerlin@monadel.com.au
HSE Advisor	Nicky Udy E: Nudy@monadel.com.au
Supervisor Pipeline	Mick Coles E: MColes@monadel.com.au

3.2 Reporting

Environmental reporting requirements for the Project are outlined in Table 3.3.

Table 3.3 Reporting requirements

Name	Frequency	Requirement	Responsibility	Records
Inspection report	Weekly	Site inspection to identify potential environmental issues and hazards	Site Superintendent	Site inspection check sheet
Incident report	Event based	Report of incident in accordance with HSE Incident Management documents	HSE Advisor	Incident report
Complaints	Event based	Report of complaint in accordance with Community Engagement Procedure (BMS-WOP-1017)	Site Superintendent	Incident report
Non-compliances	Event based	Report of non-compliance with Monadelphous procedures, CEMP or other approvals in accordance with Corrective and Preventive Action Management document	Site Superintendent	Incident report
HSE report to management	Monthly	Project status and highlighting project issues	Project Manager	Report
Monadelphous progress report to AGL	Monthly or as requested	Project status and highlighting key project issues	Project Manager	Report

3.3 Records

The following records will be maintained to demonstrate compliance with this CEMP:

– Site induction and training records
– Environmental monitoring records
– Register of environmentally sensitive sites
– Environmental incident reports
– Safety data sheets (SDS)
– Complaints
– Inspection and maintenance records
– Monadelphous reports to AGL (environmental or construction progress reports)
– Monadelphous HSE monthly reports
– Corrective action reports
– Toolbox talk agendas and attendance
– JSEAs.

Monadelphous will maintain a document and records management system for the Project in the form of a project portal for all project documents. Paper copies of documents and records will be maintained on site.

3.4 Environmental training

All site employees and subcontractors are required to complete the environmental awareness inductions prior to undertaking any work on the Project. All employees and subcontractors are to be advised of the requirements of the CEMP through the induction process and the CEMP is to be made available to all relevant employees/subcontractors. Work activities have been identified as having the potential to cause significant environmental impacts. The Project has identified relevant training and competency of personnel required prior to works commencing. All training and associated competencies will be captured on the site / project training matrix or appropriate HR system. The training requirements for all staff and contractors our outlined in Table 3.4.

Table 3.4 Environmental training requirements

Type of Training	Content Outline	Role Requiring Training	Frequency	Records
Employee induction	Site induction Environmental awareness inductions WHS requirements Emergency response Requirements of the CEMP related to their role	All staff	Prior to commencing work of the project	Register of completed induction maintained in project training matrix.
Sub contractor induction	Site induction Environmental awareness inductions WHS requirements Emergency response Requirements of the CEMP related to their role	All contractors	Prior to commencing work of the project	Register of completed induction maintained in project training matrix.
Visitor induction	Site induction Environmental awareness inductions WHS requirements Emergency response	All visitors	Prior to entering site	Register of completed induction maintained in project training matrix.

3.5 Incident response

All environmental incidents will be reported in accordance with the relevant *HSE Incident Management documents*. The Monadelphous HSE Management Plan (BI40000_PLN_001) outlines incident and injury management, AGL notifications and regulatory requirements.

Environmental Incidents include, but are not limited to:

– Spills of hydrocarbons, chemicals, liquid waste
– Non-compliance to licence or permit conditions
– Harm or damage to flora and fauna (including un-authorised clearing of land and damage to heritage sites)
– Incidental discharge (e.g. contaminated water in storm water system, gas leak)
– Uncontrolled release of contaminants (e.g. stockpiled contaminated materials)
– Near miss (e.g. loss of product containment)
– Fire
– Community complaints (i.e. noise, dust, odour, access issues)

Where incidents require regulatory notification, AGL will typically be responsible for making the notification. This will be captured in the Monadelphous incident management system and the Divisional HSEQ Manager informed of the notification.

3.6 Complaints

Activities that have the potential to affect neighbours, Subcontractor operations, and the general public must be identified.

Any environmental complaints will be documented and investigated after submission of an incident report. Corrective actions will be developed and closed out as appropriate, based on the level of risk and, if applicable reported to relevant bodies.

Community engagement will be managed in accordance with *Community Engagement (BMS-WOP-1017)*. Any community complaints of major consequence or above will be logged in the AGL incident management system.

3.7 Unexpected Finds

The unexpected Finds Protocol outlining the steps that workers should follow to manage an unexpected find or encounter during construction.

1. Work crew to immediately cease works, barricade and make the area safe
2. Work crew to notify the Project Manager or Site Superintendent
3. Project Manager to notify the AGL representative
4. AGL representative and the Project Manager to discuss the details of the find and to agree on the appropriate action

An unexpected find could be defined as:

- Buried or surface asbestos containing materials (bonded, friable or other)
- Discoloured and odorous soils
- Groundwater ingress/seepage
- Buried waste materials e.g. putrescible waste, contaminated waste, construction and demolition wastes etc.
- Septic or underground storage tanks
- Animal burial pits
- Any unanticipated archaeological discovery e.g. aboriginal relics or items of significance (refer to ACHMP)

4. Mitigation measures

The following sections outline the environmental risks identified and measures to mitigate impacts on the environment from construction of the Ravensworth Ash Line.

4.1 Risk assessment

During the project EIS process and development of this CEMP, environmental risks associated with the construction of the Ravensworth to Bayswater Ash Line replacement project were identified.

A risk assessment workshop was conducted between Monadelphous and AGL personnel to assess the level of risk for all identified environmental hazards and to ensure that a suitable suite of preventative and mitigating controls were in place (refer Bayswater Pipeline Project Environmental Risk Register: BI40000-RA-001). Table 4.0 below summarises the key environmental risks with a residual rating of 'moderate' or higher, and includes a reference to where mitigation measures are included within the CEMP to manage these risks.

Item	Key environmental risk	Residual risk rating	CEMP Section
1.03	Chemical storage and usage, spills impacting environment	Moderate	4.3 Surface water and hydrology 4.4 Groundwater 4.6 Soils and contamination
2.01	Flora and fauna interaction, unapproved disturbance/damage	Moderate	4.2 Biodiversity
2.03	Inaccessible service points	Moderate	1.3 Construction activities
2.04	Wastewater spills and disposal	Moderate	1.3 Construction activities
3.02	Disturbance to Heritage sites	Moderate	4.7 Aboriginal Heritage 4.11 Non-Aboriginal Heritage
3.07	Erosion/sedimentation outside footprint area	Moderate	4.3 Surface water and hydrology
3.08	Proximity to existing assets, asset damage, spills	Moderate	1.3 Construction activities
3.10	Fire from stockpiled mulch	Moderate	4.13 Fire
3.13	Uncovering/spreading contaminated soils	Moderate	4.6 Soils and contamination
4.13	Contamination of groundwater, erosion	Moderate	4.4 Groundwater
4.14	Proximity to watercourses	Moderate	4.3 Surface water and hydrology
4.21	Groundwater contamination from drilling fluids	Moderate	4.4 Groundwater
4.35	Ignition sources cause bushfire	Moderate	4.13 Fire
4.39	Use of unapproved water source, spill	Moderate	4.3 Surface water and hydrology

4.2 Biodiversity

The study area occurs within the northern portion of the Sydney Basin Interim Biogeographic Regionalisation for Australia (IBRA) Region and the northern portion of the Hunter IBRA sub-region (Department of the Environment and Energy, 2012).

A total of 367 hollow-bearing trees and dead stags containing large hollows were identified during the surveys within the study area. The removal of hollow-bearing trees will result in the loss of nesting, roosting and/or sheltering habitat for locally occurring hollow-dependent fauna species. The removal of these trees and stags is considered unlikely to impact any threatened fauna species.

Other impacts associated with construction of the Project include fauna injury due to increased vehicle and machinery activity, spread of weeds and pathogens, and amenity impacts.

A controlled activity approval under the EPBC Act (EPBC 2020/8623) has been granted.

Table 4.1 outlines the key mitigation measures to minimise the impacts of the Project on biodiversity in the area.

Table 4.1 Biodiversity

Actions	Records required	Responsibility
Limit the extent of vegetation clearance (including hollow-bearing trees and stags).	Photos of flagging limiting extent of disturbance	Site Superintendent
AGL Biodiversity Management Plan will be prepared and include the following requirements: – Clearly delineate the boundaries of the Project area to prevent any unnecessary clearing beyond its extent – Ensure vehicle and equipment parking areas and stockpile areas are identified and sited to avoid areas containing ecological value – Install appropriate signage such as 'No Go Zone' or 'Environmental Protection Area' – Identify and communicate the location of any 'No Go Zones' in site inductions – Speed limits within the Project area will be limited to 40 km/hr to minimise the risk of vehicle collision with fauna The Biodiversity Management Plan will consider measures to mitigate impacts on flora and fauna from noise, vibration, waste, and air pollution.	As required by finalised plan	Site Superintendent
Implement pre-clearing protocol prior to the removal of hollow-bearing trees / habitat trees including the following requirements: – Determine if any inhabiting fauna are present, – Ensure a suitably qualified and trained fauna handler is present during hollow-bearing tree clearing to rescue and relocate displaced fauna – If Grey Crowned Babbler nests are identified (breeding period July-Feb), these trees are not to be cleared.	Pre clearing report	Site Superintendent Consultant – Fauna Ecologist
Erect exclusion fencing around trees and woodland to be retained within the Project area, considering allowance for Tree Protection Zones in accordance with the Standards Australia (2009).	Site inspection Photos of flagging limiting extent of disturbance	Supervisors
Avoid clearing from November to February, where practicable, as this is the breeding and egg hatching periods for the Striped Legless Lizard. If clearing is to occur during this period: – Conduct pre-clearing surveys – Relocate any individuals captured into similar habitat outside the Development Site	Construction schedule	Project Manager
Clean plant and equipment prior to arrival at site	Plant and equipment mobilisation records	Senior Project Engineers
Do not import soil and seed material onto site unless material can be determined to be from a non-weed infested area and not contain pathogens.	Invoice Report to certify that material is clean	Senior Project Engineers
Identify and map weed infestations within the construction footprint prior to construction.	AGC records of known infestations	Site Superintendent

4.3 Surface water and hydrology

Within the Project area is the Bayswater Creek . Bayswater Creek catchment has been substantially disturbed by mining activities. A dam wall was constructed across Bayswater Creek in the 1960s to create Lake Liddell, a large cooling water pond for Liddell. Below Lake Liddell, the waterway has been heavily modified to accommodate discharges from the lake.

The average annual rainfall at Bayswater is 699 mm. Rainfall is generally greater in the late spring/summer months from November to February. Within the winter months, rainfall is relatively high, peaking in June. Evapotranspiration rates indicate that there is a rainfall surplus in February and from April to September. The remaining months have a rainfall deficit.

The Project is not located on land that is mapped under the Singleton Local Environment Plan 2013 as being susceptible to flooding. No mapping for flood prone land is available under the Muswellbrook Local Environment Plan 2009.

Waterways within the wider Hunter River catchment area are affected by high salinity.

Lake Liddell and Bayswater Creek have been mapped as key fauna habitats (Department of Primary Industries, 2019).

Construction impacts on surface water and hydrology include; removal of vegetation, earthworks, stockpiling, heavy vehicle movements, spills and leaks of chemicals, fuels and oils, concrete works, instream works and directional drilling.

Table 4.2 outlines the key mitigation measures to minimise the impacts of the Project on surface water and hydrology in the area.

Table 4.2 Surface water and hydrology

Actions	Records required	Responsibility
Implement erosion and sediment control plans for all stages of construction.	Site inspections Erosion and sediment control plan Photos	Site Superintendent Supervisors
AGL Soil and Water Management Plan will be prepared. The plan will outline the erosion and sediment control devices at all work sites prior to commencing works in accordance with the principles and requirements in *Managing Urban Stormwater – Soils and Construction, Volume 1* (Landcom 2004) and Volume 2D (Department of Environment, Climate Change and Water, 2008), commonly referred to as the “Blue Book”.	As required by finalised plan	Site Superintendent
Manage water that has accumulated on site and from sediment basins, including relevant discharge criteria.	Water quality records Volume records Waste transport certificate	Site Superintendent
Clean up spills utilising spill kits.	Incident report Photos	All staff
Use recycled water where possible, identify alternative potable water source. Minimise use of potable water use for construction of the Project.	Water use records	Senior Project Engineers
Maintain stockpiles to minimise mobilisation and transport of dust, sediment and leachate in runoff. Include: – Minimise the number of stockpiles, area used for stockpiles, and time that they are left exposed – Segregate waste types	Site inspections Erosion and sediment control plan Photos	Site Superintendent Supervisors

Actions	Records required	Responsibility
– Locate stockpiles away from drainage lines, waterways and areas where they may be susceptible to wind erosion – Stabilise stockpiles, establish appropriate sediment controls and suppress dust as required		
Prior to construction of the Ravensworth Ash Line commencing, water quality monitoring will be undertaken upstream and downstream of the project area using a calibrated, handheld water quality meter, to analyse for the following parameters; pH, EC, and turbidity, and a visual assessment of oil and grease.	Water quality records	HSE Advisor
Conduct water quality monitoring upstream and downstream of the construction works before, during and after the following: – Creek crossings (using underboring) – Where works are within 40m of a waterway Conduct water quality monitoring upstream and downstream of the construction works pre and post rainfall events where greater than 20mm of rain is predicted. Monitoring will be conducted for pH and turbidity using a handheld, calibrated water quality meter. Where: – turbidity at the downstream location is greater than the upstream location or – sediment or oil and grease are visible at the downstream location then additional erosion and sediment control measures need to be identified and implemented.	Water quality records	HSE Advisor Project Manager
Implement practices to minimise disturbance of banks and undertake bank stabilisation.	Site inspections Erosion and sediment control plan Photos	Site Superintendent HSE Advisor
Construct temporary crossings on water courses to minimise disturbance of banks. Once construction is complete, remove and rehabilitate.	Site inspections Erosion and sediment control plan Detailed design Photos	Project Manager Site Superintendent

4.4 Groundwater

The 1:100,000 Hunter Coalfield Regional Geology map (Department of Mineral Resources, 1993) indicates that surface geology in the vicinity of the Project comprises sedimentary rock, with some limited areas mapped as Quaternary Alluvium.

Bore data provided by Water NSW (WaterNSW, 2019) identified 35 registered groundwater bores within the surrounding lands. Boreholes within the vicinity of the proposed Ravensworth ash line (BR_MW01 and BY_MW20) were drilled up to 10 mBGL and did not encounter groundwater.

Construction impacts on groundwater include spills or leaks of hazardous materials, and intersection with groundwater during directional drilling and contamination of groundwater with drilling fluids.

A Fluid Loss Management Plan will be created by 3rd party drilling contractor and approved by the Principal Contractor prior to commencement of drilling activities.

The objective of the FLMP will be to monitor the usage and recovery of drilling fluids and provide a method for identifying fluid loss events that could indicate an interaction with groundwater. The FLMP will also include an action plan to respond to and investigate such an incident should it occur.

Table 4.3 Groundwater

Actions	Records required	Responsibility
Use fresh water where drilling fluids are required. Where fresh water is not available, use environmentally friendly biodegradable drilling fluid.	Materials requisition	Senior Project Engineers
Conduct regular checks for leaks on the Ravensworth Ash Line.	Inspection report	Supervisors
Maintain spill kits on site.	Site inspections	Supervisors HSE Advisor
Use drip trays to capture drips and spills during the transfer of potential pollutants, and carrying out maintenance of hydrocarbon filled plant and equipment	Maintenance records	Supervisors
Contain and clean up spills of potential pollutants immediately	Incident report Photos	All staff
Where spills occur on bare ground, assess contamination that has occurred and need for remediation and /or removal of the contaminated material.	Incident report Waste transport certificate	Supervisors HSE Advisor

4.5 Air quality

The surrounding landscape is heavily influenced by industrial activity.

11 representative receiver locations were established, which denote the nearest sensitive receiver locations in different directions from the Project. The monitoring data from the various stations around the Project indicate that the EPA's daily impact assessment criterion were occasionally being exceeded around the nearby representative receiver locations. Annual PM10 and PM2.5 concentrations and deposited dust levels were also exceeded in some years at some stations.

Construction impacts on air quality are expected to result from generation of dust and particulates including earthworks, stockpiling of materials and vehicle movements.

Table 4.4 Air Quality

Actions	Records required	Responsibilities
Limit the extent of exposed areas and quantity of stockpiled dispersible materials at any one time.	Site inspections	Site Superintendent
Turn off plant and vehicles when not in use.	Nil	All staff
Enforce site speed limits of 40 km/hr on site to minimise dust emissions.	Monthly activity inspections Induction	HSE Advisor Supervisors
Water unsealed trafficked haulage routes to minimise visible dust emissions.	Nil	Supervisors
Apply water when loading and unloading, compaction and handling soil materials.	Nil	Supervisors
Cover all truck loads.	Nil	All staff
Modify or cease dust generating works during unfavourable weather conditions.	Stop work order	Site Superintendent

4.6 Soils and contamination

A review of NSW eSPADE (NSW Government Environment and Heritage, 2019) soil profile data indicated soils in the vicinity of the Project generally compromise silty clay loams, clay loams and silty loams underlain by silty clays, medium clays, heavy clays. The Project is predominately situated across Liddell soils which presents the following limitations relevant to the Project; minor to severe sheet erosion is common, with some minor rill erosion. Moderate gully erosion (to 1.5 metres) in drainage line where salting may be a feature

A contaminant of concern for the Ravensworth Ash Line is asbestos.

Construction impacts to soil include exposure of contaminated materials, erosion, spills of fuels and chemicals and management of waste materials. Refer to Table 4.5.

Table 4.5 Soils and contamination

Actions	Records required	Responsibilities
Refer to Section 4.3 for erosion and sediment control measures to be implemented during construction.	Erosion and sediment control plan Photos Site inspections	Site Superintendent
Sign post and restrict access to identified asbestos impacted areas along the pipelines.	Photos Site inspections	Site Superintendent
Where actual or potential contaminated material is encountered during the works, all works in the vicinity of the find will cease and the Project Manager will be contacted. Sampling and analysis of the material will be undertaken by, or under the direction of, an appropriately qualified environmental specialist. Contaminated material will be classified and disposed of to an appropriately licensed facility. Works will not recommence in the area until the subcontractor has confirmed that it is safe to do so. Where previously unidentified contamination is encountered that exceeds notification thresholds, notification will be required under the CLM Act.	Report	Site Superintendent Environmental Specialist
Manage asbestos in accordance with AGLM Asbestos Management Procedure.	Asbestos records	Site Superintendent

4.7 Aboriginal Heritage

14 previously recorded sites are present within the larger SSD project search area, one of which is recorded as being destroyed. The field survey identified an additional 23 sites (including isolated artefacts, artefact scatters, areas of PAD, and artefact scatters with associated areas of PAD). Five of these sites are assessed as being in the Ravensworth Ash Line project area. One of the items is recorded as having been previously destroyed.

Table 4.6 Aboriginal heritage

Actions	Records required	Responsibilities
Induct all staff into the cultural heritage sensitivity of the project location and the procedures for responding to unexpected finds of heritage items/places.	Induction records	Site Superintendent HSE Advisor
Erect fencing to delineate 'no-go' areas to protect all sites and areas of PAD (or portions thereof) that have been assessed as subject to potential indirect (inadvertent) impact.	Site plans Photos	Site Superintendent
AGL Cultural Heritage Management Plan to be prepared, including potential monitoring and salvage works procedures	As required by finalised plan	Site Superintendent
In the event that a previously unidentified Aboriginal heritage object is found, all activity in the immediate area must cease and an appropriately qualified heritage professional is consulted. Heritage NSW and local Aboriginal stakeholder groups must be immediately contacted and informed of the Aboriginal heritage object found. The qualified heritage professional will keep records of the location and the attributes of the site and determine its Aboriginal cultural significance.	Incident report	All staff Project Manager Heritage Consultant
If Aboriginal remains (human skeletal material or suspected human skeletal material) are discovered during construction all activities in the immediate area must cease. The NSW Police and NSW Heritage must be contacted and any sand or soil removed from the near vicinity identified and set aside for investigation purposes.	Incident report	All staff Project Manager

4.8 Traffic and transport

Bayswater is connected to the surrounding road network via an access road and grade-separated interchange to and from the New England Highway (Bayswater access road). Bayswater access road is single carriageway with one lane in each direction. The maximum operating speed is 60km/h. Bayswater is accessed from the New England Highway via an interchange that is shared by Liddell power station. The New England Highway is a national highway that links Newcastle to Brisbane. Near to Bayswater, the New England Highway is dual carriageway with two lanes in each direction and a central median. The speed limit in the vicinity of Bayswater is 100km/h.

Additional traffic generated by the Project and nearby developments will consist of:

– 40 light vehicles to and from Bayswater during the morning and evening peak, respectively
– 10 heavy vehicles to and from Bayswater
– 3 heavy vehicles to and from Liddell

The internal road network within Bayswater has sufficient capacity to accommodate the increased internal vehicle movements and no additional upgrades to the internal road network are required.

The pipeline crosses a number of roads including the New England Highway, Liddell Station Road and other roadways. Road crossings will be either trenching for short road crossing or underboring. A section 138 permit is required for works in a road reserve.

Table 4.7 Traffic and transport

Actions	Records required	Responsibilities
Haulage contractor will prepare and implement a traffic management plan for oversize vehicle movements, to include: – Identification of the routes – Measures to provide an escort for the loads – Mechanisms to monitor daily movements – Times of transport to minimise impacts on the road network – Communication of strategy and liaising with emergency services and police.	Management Plan	Engineer
Induct all personnel in traffic management considerations including risk of collisions, particularly with animals during rain or periods of low light.	Induction presentation Induction records	Supervisors HSE Advisor

4.9 Noise and vibration

The potential for construction noise impacts from the Project was evaluated by using TfNSW Service's Construction Noise Estimator to predict noise levels resulting from the activities at the nearest receiver locations. When considered with the adopted background noise levels, it was concluded that noise from construction activities at the Project site would not result in off-site impacts at surrounding residential receivers. Levels were also predicted to remain below the ICNG NMLs at the nearest industrial receivers.

Some vibration-intensive equipment is planned to be used during the Project including excavator mounted rock breakers, under boring equipment and compactors (e.g. vibratory rollers). Based on the setback distances to the nearest receiver locations, it was concluded that vibration resulting from the Project would not be an issue.

Construction impacts are identified as earthworks associated with Ravensworth Ash Line, vegetation clearing and associated traffic movements.

Approved hours for Construction are Mon – Fri 7am to 6pm and Sat 7am to 1pm.

Table 4.8 Noise and Vibration

Actions	Records required	Responsibilities
Conduct construction activities during approved hours of construction, and noisy operational works during day time hours	Worksite inspections	Site Superintendent
Schedule deliveries during approved hours of construction.	Nil	Site Superintendent
Adhere to on-site (40 km/hr) and public road speed limits.	Nil	Supervisors HSE Advisor
A project traffic management plan will be developed and include traffic flow, parking and loading/unloading areas to minimise reversing movements within the site, such as by including drive-through for parking and deliveries	As required by finalised plan	Site Superintendent
Operate and maintain plant and equipment in accordance with manufacturers specifications.	Maintenance records	Supervisor
Turn off plant and equipment when not in-use. This includes generators, vehicles and other fixed and mobile equipment.	Nil	All staff
Avoid dropping materials from a height.	Nil	All staff
Avoid dragging equipment and materials.	Nil	All staff
Dampen or line metal trays as necessary.	Nil	Supervisor
Ensure that road plates are installed as per specifications.	Nil	Supervisor Site Superintendent
Fit delivery vehicles with straps for unloading, wherever possible.	Nil	Contractor

4.10 Socioeconomic

Construction socioeconomic impacts are associated with direct and indirect employment opportunities, benefits for businesses that support construction activities, increased construction traffic, demand for workforce accommodation and potential impacts on community values. Due to the remoteness of the Project to sensitive uses, construction activities are not expected to result in noise, dust or lighting impacts.

Table 4.9 Socio-economic

Action	Records required	Responsibilities
Plan major haulage tasks to avoid disruption to key tourist activities and events.	Construction schedule	Project Manager
Communicate with key stakeholders and communities about potential changes in construction traffic and major haulage tasks.	Construction schedule Communication material	Project Manager
Report and manage complaints as per the procedure in Section 3.6.	Incident report	All staff Supervisors HSE Advisor

4.11 Non-Aboriginal Heritage

A heritage item identified in proximity of the Ravensworth Ash Line is Chain of Ponds Inn, Liddell. This item will not be impacted during construction.

Table 4.10 Non-Aboriginal Heritage

Action	Records required	Responsibilities
If historical archaeological remains are discovered during construction, all works will cease, the area cordoned off and a heritage professional engaged to examine and advise on the significance of the archaeological finds. If deemed to be of significance, under section 146 of the *Heritage Act 1977* (NSW), a s146 form will be submitted to notify the Heritage Council of the discovery of relics. Further investigation may be required, and appropriate management agreed through consultation with Heritage NSW.	Incident report	All staff Heritage Consultant Project Manager
If human remains are uncovered, all work must cease immediately in the vicinity of the remains and the area cordoned off. The local NSW Police must be notified, who will make an initial assessment as to whether the remains are part of a crime scene, or Aboriginal remains. If the remains are thought to be Aboriginal, Heritage NSW will be contacted.	Incident report	All staff Project Manager

4.12 Waste

It is anticipated that there will be a small amount of general waste generated during the construction process, which will include some material breakage, as well as offcuts and disposable items, excess spoil from trenching and small quantities of general waste from the workforce. General waste will be disposed of offsite by a licensed waste management contractor.

As part of the construction of the Ravensworth Ash Line, hazardous wastes, or wastes otherwise requiring transport by a licenced carrier may also be produced. These included liquid waste (eg from drilling) and solid wastes (eg disused pipeline). Any such material will be classified, clearly labelled and appropriately segregated and stored, in a way and location agreed upon with AGL, before being disposed of to an appropriately licensed facility, using a licensed contractor. Records of the disposal (Waste Transport Certificate) will be kept and provided to AGL as required.

The additional waste management measures in alignment with the Environmental Management Strategy, would be:

- Hierarchical waste management approach to be used, from most preferable (reduce, reuse, recycle) to the least preferable (disposal)
- Cleared vegetation to be mulched onsite for reuse or used to create habitat piles.

There is potential for asbestos contaminated material and other hazardous material to be uncovered during the Project, which may subsequently require storage and disposal as hazardous waste. Any such materials will be managed as per hazardous wastes above. Where this material is required to be disposed of offsite, an appropriately licenced waste management contractor will be utilised.

4.13 Fire

Bush fire prone land is land that has been identified by local council which can support a bush fire or is subject to bush fire attack. The Ravensworth Ash Line is not within a mapped area of bush fire prone land.

Construction will introduce additional fire ignition risks associated with clearing and hot works, storage of minor quantities of fuels and oils, new activities not previously considered in AGL's bush fire emergency response system and new infrastructure requiring protection from bush fire threat.

Table 4.11 Fire

Actions	Records required	Responsibilities
Maintain temporary construction compounds in a tidy and orderly manner to minimise potential fuel loads in the event that any construction compounds are affected by fire.	Site inspections	Supervisors
Manage construction activities that involve flammable materials and ignition sources (for example, welding) to minimise risk of fire.	SWMS	Supervisors
Conduct a risk assessment for high risk construction activities, such as welding and metal work on total fire ban days and restrict or cease work as appropriate.	SWMS	Supervisors
Provide waste bins for cigarette butts at construction compounds.	Photos Site inspections	Site Superintendent
Store dangerous goods and hazardous materials in accordance with the requirements of applicable Australian Standards including bunding, ventilation, maintaining Safety Data Sheets (SDSs), spill kits and use by appropriately trained personnel.	Photos SDS	Supervisors Site Superintendent

5. Monitoring and Review

The following section outlines the environmental monitoring requirements during construction of the Ravensworth Ash Line and the review requirements for this CEMP.

5.1 Monitoring

Environmental monitoring required during construction of the Ravensworth Ash Line to assess impacts on the environmental is detailed in Table 5.1.

Table 5.1 Construction environmental monitoring requirements

Monitoring program	Frequency	Responsibility	Records
Daily pre-start meeting	Daily	Site Superintendent	Daily pre-start record
Toolbox talks	As required to distribute significant project information or procedural changes	Site Superintendent HSE Advisor	Toolbox talk record
Environmental inspection	Weekly	HSE Advisor	Site inspection report
Pre-clearance inspections	Prior to clearing of hollow bearing trees	Ecologist	Pre-clearance report
During clearance	During clearing of hollow bearing trees	Suitably qualified Fauna handler	Clearance report
Erosion and sediment control devices	Weekly and prior to and following rainfall of more than 20 mm.	HSE Advisor	Site inspection report
Construction water quality monitoring program	Refer to Section 4.3	HSE Advisor	Water quality records
Leak detection monitoring	Daily (where applicable)	HSE Advisor	Inspection report
Environmental audits	Monthly	HSE Advisor	Audit report

5.2 CEMP Review

The CEMP will be reviewed and if necessary revised where the following occurs during construction of the project:

– Major change in the construction methodology
– Additional scope of work is added to the Project
– Findings from environmental incidents, environmental audits or complaints
– Following completion of an annual report under SSD 9697

CEMP updates will be coordinated by the Project Manager. The revised CEMP will be reviewed and endorsed by AGL.

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