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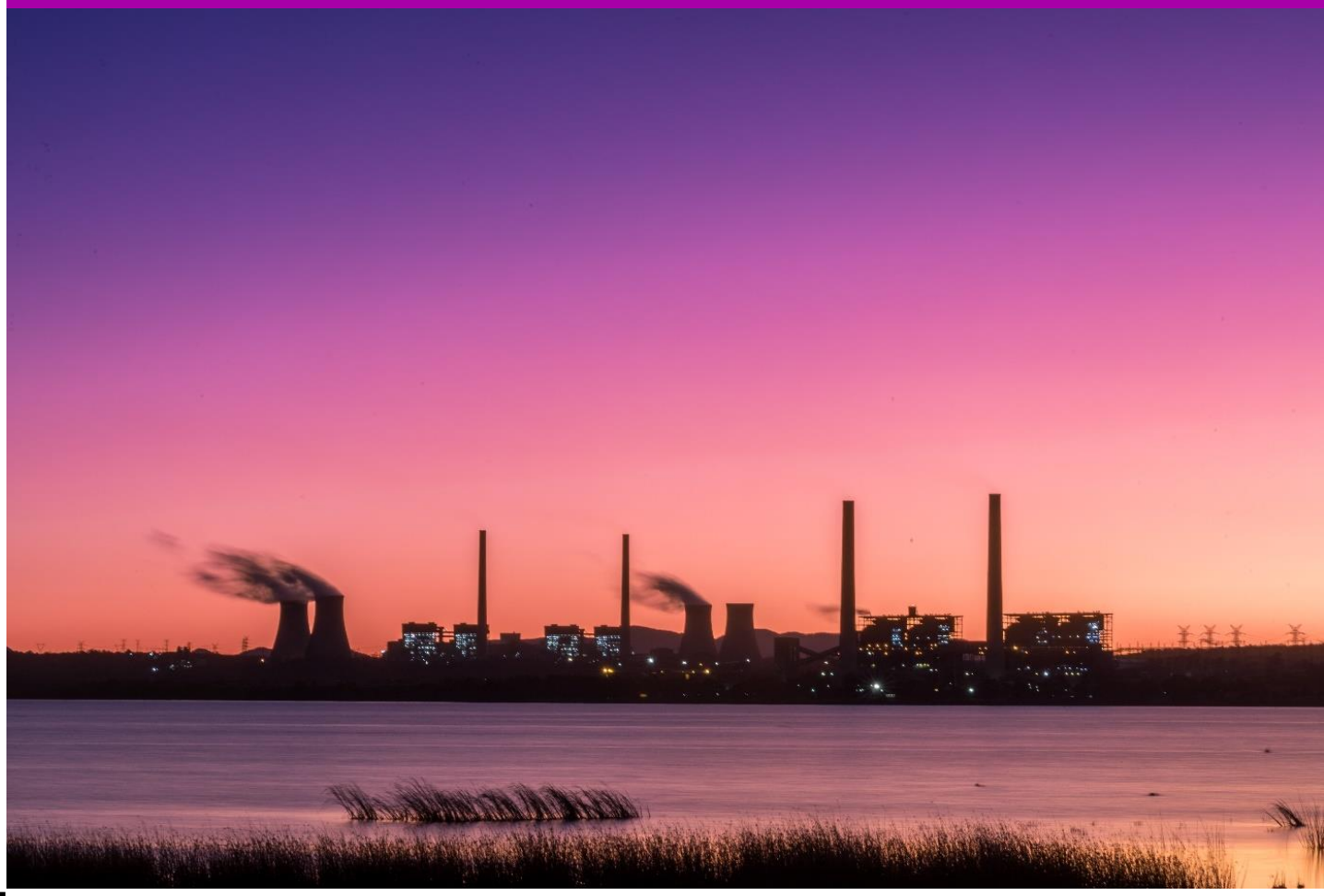
Stage 3 Bayswater Ancillary Works - Contamination Management Plan

AGL Macquarie Limited

SSD Post Approval Documentation
8 December 2023



Stage 3 Bayswater Ancillary Works - Contamination Management Plan

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Acronyms and abbreviations

Term	Definition
ACM	Asbestos Containing Material
AEC	Areas of Environmental Concern
AGLM	AGL Macquarie Pty Limited
Bayswater	Bayswater Power Station
BAW	Bayswater Ancillary Works
CEMP	Construction Environment Management Plan
CLM Act	*Contaminated Lands Management Act 1979*
CMP	Contamination Management Plan
DPE	Department of Planning and Environment
EIS	Environmental Impact Statement
EMS	Environmental Management Strategy
EP&A Act	Environmental Planning and Assessment Act 1979
EPA	Environment Protection Authority
EPL	Environment Protection Licence
IA	Improvement Action
LAA	Licenced Asbestos Assessor
LBBAWP	Liddell Battery and Bayswater Ancillary Works Project
MW	Megawatt
NATA	National Association of Testing Authorities
NEM	National Electricity Market
PFAS	Per- and Polyfluoroalkyl Substances
PIRMP	Pollution Incident Response Management Plan
POEO Act	Protection of the Environment Operations Act 1997
Project	Stage 3 Bayswater Ancillary Works
OH&S	Occupational Health & Safety
SEARs	Secretary's Environmental Assessment Requirements
SEPP SRD	State Environmental Planning Policy (State and Regional Development) 2011
SSD	State Significant Development
TRH	Total Recoverable Hydrocarbons
WHS Act	*Work Health and Safety Act 2011*

1. Introduction

Jacobs Australia Pty Limited (Jacobs) were commissioned by AGL Macquarie Pty Limited (AGLM) to prepare an Environmental Management Strategy (EMS) and associated Contamination Management Plan (CMP) for the Stage 3 Bayswater Ancillary Works (hereafter referred to as "BAW" or "the Project") to be undertaken at Bayswater Power Station (Bayswater) as part of the Liddell Battery and Bayswater Ancillary Works Project (LBBAWP). These works will allow Bayswater to maintain supply to the National Energy Market (NEM) until its planned closure in 2035, and ultimately improve the environmental performance of the plant with no change to coal consumption - with electricity, emissions, and ash generation remaining consistent.

The LBBAWP is classified as a State Significant Development (SSD) under the *State Environmental Planning Policy (State and Regional Development) 2011* (SEPP SRD) and it is subject to Part 4, Division 4.7 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) which requires an Environmental Impact Statement (EIS) to be prepared in accordance with the NSW Department of Planning and Environment (DPE) Secretary's Environmental Assessment Requirements (SEARs).

AGL submitted the LBBAWP EIS in March 2021. The Development Consent (SSD 8889679) was issued by the DPE on the 8th of March 2022. The LBBAWP is being undertaken in the staged approach shown in

Table 1, approved by DPE on the 18th of October 2022.

Table 1. LBBAWP Stages

Stage
Stage 1 - Liddell decoupling works
Stage 2 - Liddell battery energy storage system and associated works
Stage 3 - Bayswater Ancillary Works

This CMP has been developed to address the SDD 8889679 development consent condition C1(e)(i) issued for the LBBAWP by the Planning Secretary for the NSW DPE. This condition requires a subplan to manage the environmental impacts of potential contamination during construction.

Relevant conditions are outlined in Table 2.

Table 2. Contamination Management - Consent requirements for SDD 8889679

Consent requirement	Section/reference
C1. Prior to commencing construction, the Applicant must prepare an Environmental Management Strategy for the development to the satisfaction of the Secretary. This strategy must: (e) include: (i) the following subplans: • soil, stormwater, water quality, flood and spoil management; • construction and decommissioning noise, including an out-of-hours works protocol; • air quality management; • **contamination, including an unexpected finds protocol;** • waste management; and • traffic.	This CMP

Consent requirement	Section/reference
B4. The Applicant must store and handle all chemicals, fuels and oils used on-site in accordance with: (a) the requirements of all relevant Australian Standards; and (b) the NSW EPA's Storing and Handling of Liquids: Environmental Protection – Participants Handbook if the chemicals are liquids. In the event of an inconsistency between the requirements (a) and (b) above, the most stringent requirement shall prevail to the extent of the inconsistency.	Section 6
B28. The Applicant must rehabilitate the development to the satisfaction of the Planning Secretary. The rehabilitation must comply with the objectives in Table 2. *[Text extract from Table 2 of development consent]* • Safe, stable and non-polluting.	Section 6

1.1. Purpose and scope

The purpose of this CMP is to:

- Summarise the potential contamination issues associated with the Project site as assessed in the LBBAWP EIS (Jacobs, 2021).
- Identify the controls to be implemented to avoid or minimise potential contamination impacts.
- Maintain compliance with the conditions of SSD 8889679, Environmental Protection Licence (EPL) 779, and legislation relating to contamination.

The LBBAWP is staged and this CMP specifically addresses the Stage 3 BAW as identified in Section 1.2.1 and described in the EMS (hereafter referred to as "the Project"). The CMP and accompanying EMS for Stage 1 and Stage 2 works are available on the AGLM Website for public reference following DPE approval.

Works undertaken by the Principal Contractor and any appointed sub-contractors must comply with the environmental management measures outlined in Section 6 of this CMP.

1.2. Project overview

AGL Macquarie Pty Limited (AGLM) own and operate the Bayswater power station (Bayswater) which is approved to generate up to 2,740 megawatts (MW), the now retired (April 2023) 2,000 MW Liddell power station (Liddell), the 50 MW Hunter Valley Gas Turbines and associated ancillary infrastructure systems.

AGL has publicly announced its intention to transition towards a low-carbon future and respond to the requirements from the NEM and customers. Bayswater is expected to operate through to 2035 and then is intended to be retired. AGL has committed to closing all coal fired generation assets in its portfolio by 2050.

AGLM is undertaking works that will facilitate the efficient, safe, and reliable continuation of electricity generating works from the Bayswater and Liddell sites through the LBBAWP, of which this Project is a sub-stage. The overarching LBBAWP involves the following:

- **Decoupling Works:** Alternative network connection arrangements for the Liddell 33 Kilovolt (kV) Switching Station that provides electricity to infrastructure required for the ongoing operation of Bayswater and associated ancillary infrastructure and third-party industrial energy users.
- **Liddell Battery (the Battery):** The installation of a grid connected Battery Energy Storage System with capacity of up to 500 MW and 2 GWh.

- **Bayswater Ancillary Works:** Works associated with the ongoing operation of Bayswater which includes (but is not limited to) upgrades to ancillary infrastructure such as pumps, pipelines, conveyor systems, roads and assets to enable maintenance, repairs, replacement, expansion or demolition.
- **Consolidated consents:** A modern consolidated consent for the continued operation of Bayswater through the voluntary surrender and consolidation into this application of various existing development approvals required for the ongoing operation of AGLM assets.

The Project includes Stage 3 BAW works as listed in Section 1.2.1.

1.2.1. Project elements

The purpose of the Stage 3 BAW Project is to respond to the ongoing operational and maintenance requirements of Bayswater, as well align with modern office and site requirements. The activities being undertaken within this Project are:

1. **Shortening of the MA1B Conveyor** as the conveyor is no longer required to transport coal from the Mt Arthur Coal Mine. Works are anticipated to be completed over a 3-month period and involve approximately 25 construction personnel.

   Proposed works would include:

   (a) Construction of a new concrete foundation adjacent to the existing Antiene Check Weigh Bin

   (b) Modification to ancillary power, water and communications infrastructure

   (c) Establishment of spillage control and capture and water management infrastructure

   (d) Removal of redundant conveyor belts and associated conveyor stringer, purlins, idler rollers footing piers, electrical cabling, pull wires and roof sheeting

   (e) Rehabilitation of areas no longer required for operational purposes.

2. **Refurbishment of River Road** including complete surface removal, repairs will be made to the underlying layers (subgrade) and levelling and reconstruction of approximately 3 kilometres (km) of the dual lane River Road from its junction with the Bayswater Access Road to the Bayswater tank farm. Anticipated to be completed over a 2-month period and involve approximately 50 contract personnel. No change expected to scope or footprint of the current roadway. Staging is expected to occur within the construction footprint, with traffic diverted to a single lane when works are to occur (no additional disturbance area).

   Proposed works include:

   (a) Current road surface removal

   (b) Repairs to the underlying layers and levelling

   (c) Construction of the new road surface.

3. **Formalisation of Waste Storage Area** for hydrocarbons, oils, and greases generated onsite, with a total storage capacity of approximately 20 Kilolitres (kL). This includes environmental controls such as bunding, runoff management and roofing. A fully containerised / self-bunded solution is proposed to be established in a pre-bunded concrete hard stand area (already existing).

4. **Construction of a small diameter brine concentrator return water pipeline** (approximately 3 km long) to return brine from the brine concentrator decant basin to the brine concentrator. Minimal earth works are expected to be required. Installation of additional HDPE pipe approximately 50 mm diameter. To be laid on earth surface adjacent to existing pipeline (within 1 m of existing pipeline). No additional works outside of pipeline installation are expected. Anticipated to be completed over a 1-month period and to involve approximately 20 contract personnel.

5. **Replacement of the existing emergency power system** with a new system. The new system would include three 415 V diesel generators with two located outside the existing diesel generator building that would connect to the existing 6.6 kV network via 415 V / 6.6 kV step up transformers. The third diesel generator would remain connected to the 1/2 end 415 V diesel generator switchboard via a change-over switch such that power can be supplied from the third diesel generator or via the 6.6 kV network. The existing diesel generator building would have all redundant equipment removed allowing the building to be repurposed. Anticipated to be completed over a 2-month period and to involve approximately 5 contractor personnel.

6. **Formalisation of the contractor area** involving upgrades to the current informal contractor area established between Bayswater turbine hall and coal handling yards including electrical works, earthworks, road grading, sealing, drainage improvements and establishment of carparks and offices for use during maintenance shutdowns.

7. **Installation of auxiliary infrastructure** such as maintenance storage areas, laydown, car parks, security gatehouse upgrades, washdown facilities, car wash, equipment wash, and a drive through hard stand area. These are to be equipped with appropriate civil design, drainage, coal settlement bund, oil water separator and water transfer to contaminated water bund to the east of proposed area. Works associated with security gatehouse, laydown and storage are currently seen as maintenance and upkeep of existing infrastructure.

8. **Establishment of a cultural heritage storage area** for heritage items salvaged during earthworks. This will be a temporary containerised solution available for use as required. It is expected that the containers would be trucked in to site and placed on to a disturbed area on the inner footprint at Bayswater. The storage containers would be removed from site once the cultural heritage items are relocated. This would occur after construction is completed and be carried out in agreement with the RAPs.

9. **Refurbishment of the Administration Building** including redesign and upgrade of workspaces, kitchens and amenities.

   The proposed works include:

   (d) removal of internal walls to create more open plan office space and lunchrooms, effectively repurposing some areas within the existing building

   (e) conversion of an existing toilet into a disabled compliant toilet

   (f) installation of a cabin lift in the existing to improve accessibility, noting that the only means of accessing the first floor currently is via stairs

   (g) replacement of two existing doors with an automatic opening door

   (h) installation of small internal roof electronic beacons to enable assisted office navigation for seeing or hearing-impaired persons

   (i) modification of kitchen spaces to increase accessibility, by lowering fittings and improving cabinetry and

   (j) widening of concrete paths and installation of handrails to enable wheelchair access.

The Social club will be pursued under a stand-alone Development Application at a later stage on a separate parcel of land.

1.3. Site location

The Project is located within the 10,000 hectares (ha) AGLM landholding, which encompasses Bayswater, Liddell, the Ravensworth rehabilitation area, Lake Liddell and surrounding buffer lands. The AGLM landholding is located approximately 15 kilometres (km) south-east of Muswellbrook, 25 km north-west of

Singleton, and approximately 165 km west northwest of Sydney in NSW. The location of the AGLM landholding is shown in Figure 1.

The Project footprint is located within and surrounding Bayswater, as shown in Figure 2. Bayswater is accessible from the New England Highway via an interchange with an unnamed east-west access road. The access road is a single carriageway road with one lane in each direction.

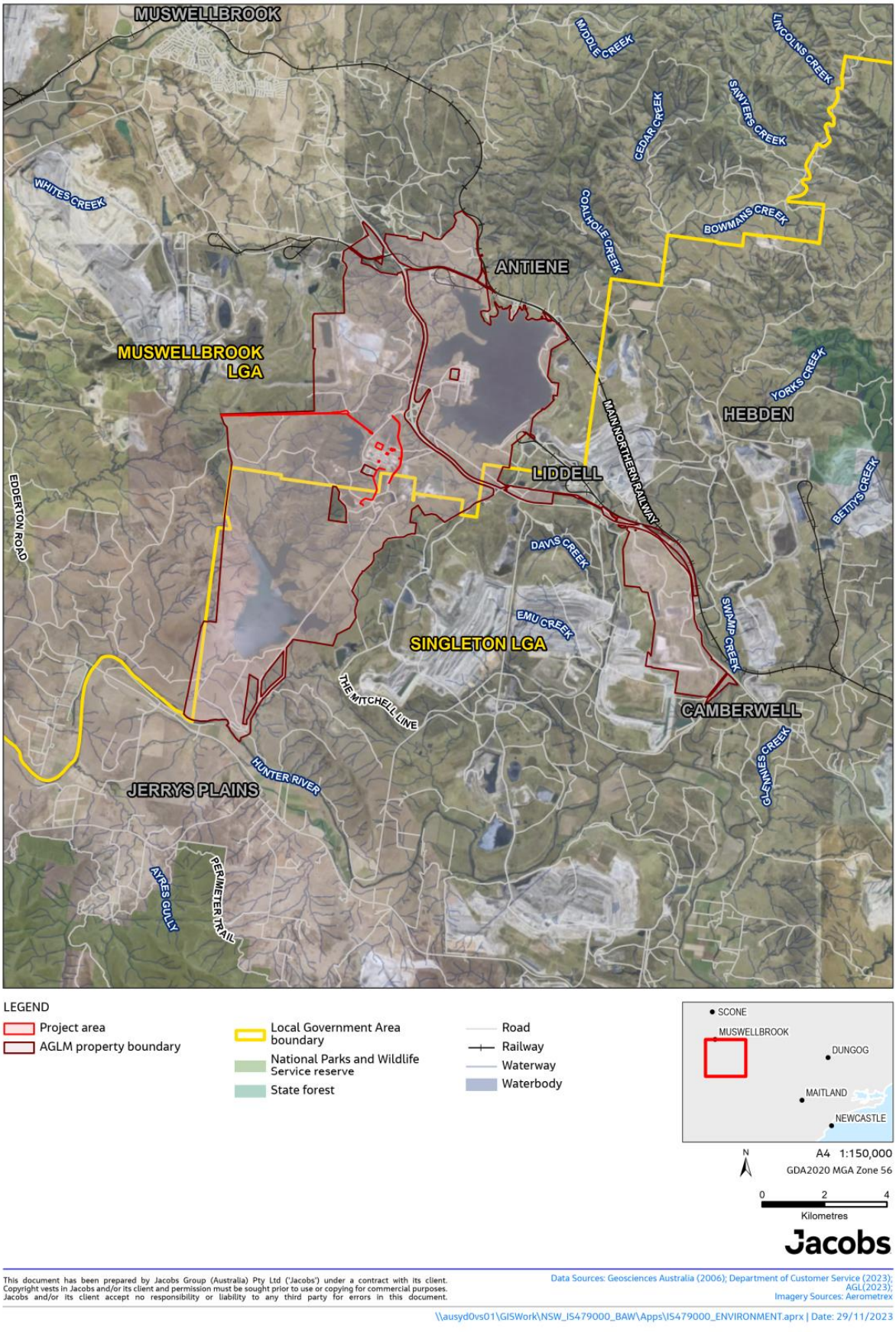

Figure 1. Project location

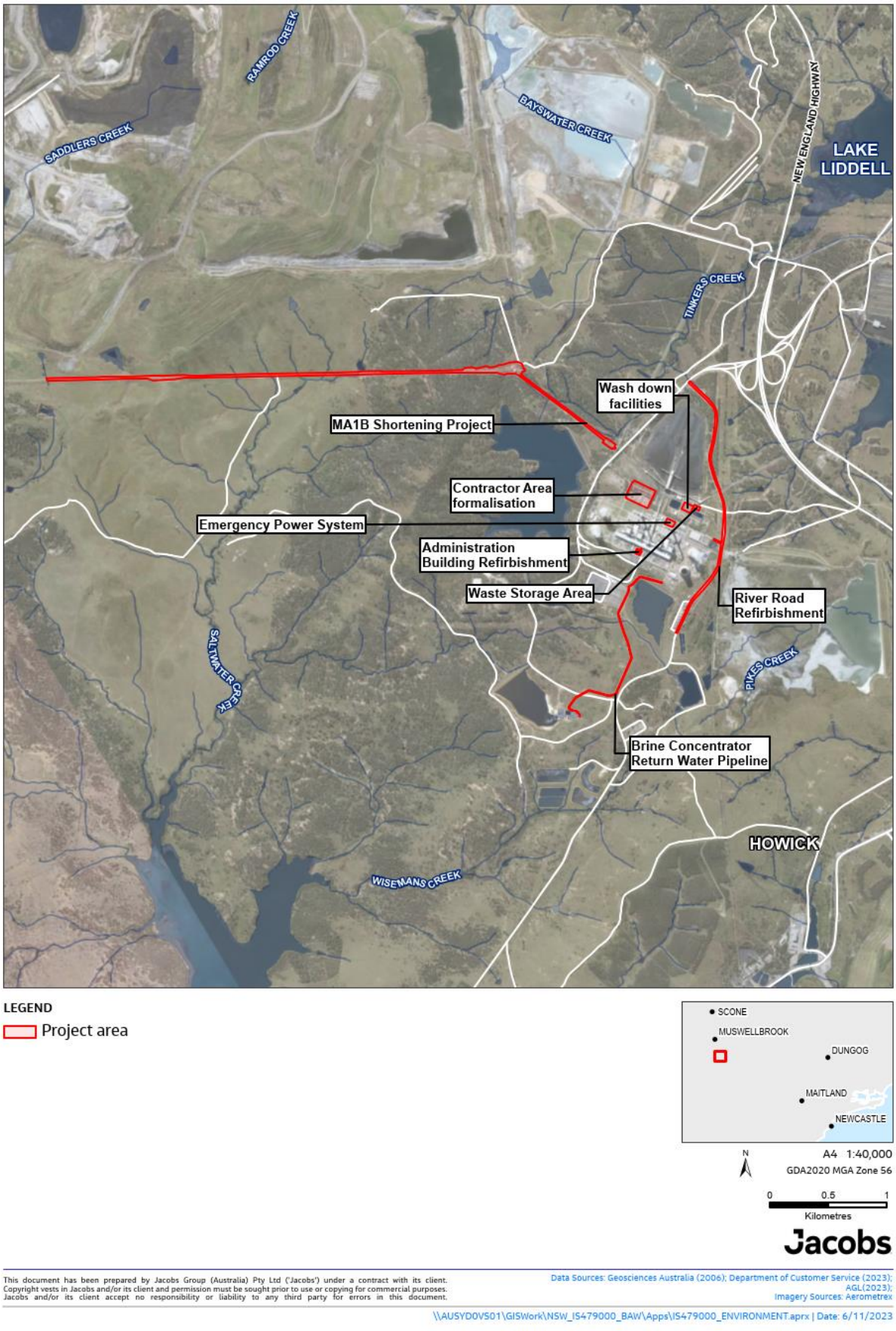

Figure 2. Project area

1.4. Related reports and plans

There are environmental assessments, management plans and monitoring programs for existing and proposed operations within the AGLM landholdings. The following documents are considered related and shall be read in conjunction with this CMP:

- Land Management Plan (AGLM-HSE-PLN-009.01) (AGLM, 2021)
- Health Safety Environment Incident, Near Miss and Hazard Management Procedure (AGL-HSEPRO-012.1) (AGL, 2017)
- Pollution Incident Response Management Plan (PIRMP) (AGLM, 2023)
- Liddell Battery and Bayswater Ancillary Works Project EIS: Appendix D - Contamination Assessment (Kleinfelder, 2021)
- Bayswater WOAOW Environmental Management Strategy (Jacobs, 2022).

2. Regulatory requirements

2.1. Relevant legislation and conditions

Legislation relevant to managing contamination impacts includes:

- *Protection of the Environment Operations Act, 1997* (NSW) (POEO Act)
  - The POEO Act is the primary piece of legislation for the regulation of potential pollution impacts associated with Scheduled Operations or Activities in NSW. Scheduled activities are those defined in Schedule 1 of the POEO Act and Bayswater is operated under EPL 779.
- *Contaminated Lands Management Act, 1979* (NSW) (CLM Act)
  - The CLM Act provides a framework for investigating and remediating land that is considered by the Environment Protection Authority (EPA) to be significantly contaminated. The framework provides for accountability, roles, audits and applications of ecologically sustainable development. This is administered through the *Contaminated Land Management Regulation, 2022.*
- *Work Health and Safety Act, 2011* (NSW) (WHS Act)
  - The WHS Act provides a national framework to secure the health and safety of workers. Matters which fall under the WHS Act are prescribed in the *Work Health and Safety Regulation, 2017.*
- *National Environment Protection (Assessment of Site Contamination) Measure 1999* (Cth)
  - The *National Environment Protection (Assessment of Site Contamination) Measure 1999* provides a consistent framework for investigating contamination and sets out national health-based standards for determining the risk of contamination to human and environmental health.
- Protection of the Environment Operations (Waste) Regulation 2014
  - The *Protection of the Environment Operations (Waste) Regulation* stipulates amended thresholds for EPLs and reforms to the waste levy system to strengthen the EPA's ability to protect human health and the environment.

The Minister's Conditions of Approval for the LBBAWP, relevant to the CMP, are listed in Table 1.

2.1.1. Additional requirements

Additional environmental requirements established in the EIS are detailed in Table 3. These requirements have been set for the overarching LBBAWP and are applicable to Stage 3 BAW works where relevant risks are present. Management requirements L03 (addressing the Asbestos Management Procedure) and L04 (addressing Geotechnical Stability Risks) are not considered relevant to the Project due to the low likelihood of asbestos disturbance, and the nature of the works being undertaken.

Table 3. LBBAWP EIS - Contamination management requirements

Reference	Management measure	Timing
L01	The internal bunding and environmental controls for hazardous substances management suitable for the Battery and transformers will be in accordance with applicable guidelines.	Detailed design
L02	Potential contamination-related impacts associated with the Project will be managed by the implementation of a CEMP that includes (but not limited to): ▪ An unexpected finds protocol for the appropriate assessment and management of encountered contamination to mitigate impacts to the development	Construction

Reference	Management measure	Timing
	▪ Procedures to ensure that all material excavated during the construction of the development is appropriately assessed and classified before being disposed of in accordance with environment law ▪ Specific control measures to mitigate impacts to soil, water, air, noise, traffic, structures and clear protocols for measurement of affected media and validation of results during construction of the development.	
L03	The Asbestos Management Procedure would be updated as required to provide appropriate control measures during the construction phase (as well as the operational phase if maintenance activities are required) to mitigate any risks of worker exposure to airborne asbestos fibres during work activities.	Construction/ operation
L04	Detailed design of each Project component would consider and address geotechnical stability risks in accordance with applicable design standards.	Detailed design

2.2. Standards and guidelines

The key standards and guidelines relevant to this CMP are:

- *Australian and New Zealand Guidelines for Fresh and Marine Water Quality, 2018* (Australian Government Initiative)
  - The Water Quality Guidelines provide authoritative guidance that water managers can use for water quality planning, approvals, licensing and compliance, monitoring and assessment.
- *Waste Classification Guidelines, 2014* (EPA)
  - The Waste Classification Guidelines were developed by the EPA to provide a step-by-step process for classifying and immobilising waste. This includes guidance on wastes containing radioactive material and acid sulfate soils.
- *Model Code of Practice: How to safely remove asbestos, 2022* (Safe Work Australia)
  - This model *Code of Practice* sets out the legal duties for licensed and unlicensed asbestos removal. It applies to those who have hired someone to remove asbestos or are affected by asbestos removal work at their workplace.
- *Environmental health risk assessment: Guidelines for assessing human health risks from environmental hazards, 2012* (Department of Health and Ageing and EnHealth Council, Commonwealth of Australia)
  - This guideline provides a national approach to environmental health risk assessment and presents a general methodology applicable to a range of environmental health hazards. This guideline focuses on chemical hazards, but can be applied to physical and microbial hazards.
- *Guidelines for Controlled Activity Approvals, 2022* (DPE)
  - These guidelines provide essential information on how to safeguard the state's water resources and stay compliant when carrying out activities that require a controlled activity approval. Guidelines are included for in-stream works, laying pipes and cables in watercourses, outlet structures, riparian corridors, vegetation management plans, and watercourse crossings.
- *AS1940:2017 The storage and handling of flammable and combustible liquids*
  - This standard provides requirements for the planning, design, construction, and safe operation of all installations in which flammable or combustible liquids are stored or handled.
- *Contaminated land sampling design guidelines, 2022* (EPA)

  - These guidelines are intended to assist with the design, review or regulation of sampling programs for contaminated sites. They help identify and mitigate risks to human health and the environment through the design of appropriate sampling and analysis plans.

    Part 1 - 'Application' describes the application of sampling design and Part 2 - 'Interpretation' provides guidance on interpreting the results.

- *Consultants reporting on contaminated land: Contaminated land guidelines*, 2020 (EPA)
  - These guidelines provide a reporting framework and information to ensure that reports prepared by consultants on the management of contaminated land contain the right information in a suitable format to inform and explain management decisions, document outcomes, and provide for efficient review by regulators, the site auditor and other interested parties.
- *Guidelines for the assessment and management of groundwater contamination, 2007* (EPA)
  - These guidelines outline a best-practice framework for assessing and managing contaminated groundwater in NSW. They have been developed to help consultants and industry devise strategies that are consistent with the Department of Environment and Conservation's expectations.
- *Guidelines on the duty to report contamination under the Contaminated Land Management Act, 1997* (EPA)
  - These guidelines provide information on the duty to report contamination under the CLM Act and outlines actions to be taken by the person(s) responsible for contamination, owners of land that has been contaminated, and the EPA.

3. Performance criteria

High-level targets for the contamination management are set for the Project, described in Table 4. These are based on legislative requirements (SSD 8889679 and EPL 779) and AGLM's commitment to the continuous improvement of their environmental performance.

Table 4. Contamination criteria

Aspect	Target	Indicator	Timeframe
General	All control measures listed in this CMP are to be implemented, as required.	Number of non-conformances with this CMP.	Ongoing
OH&S	No occupational health and safety (OH&S) incidents as a result of exposure to contaminated material.	Number of incidents.	Ongoing
Contamination	No contamination incidents to occur during the Project (e.g. unmanaged chemical leaks/spills/overflows).	Number of incidents.	Ongoing
Training & Awareness	All personnel working on behalf of AGLM to complete the Site Induction, which will include environmental awareness components.	Percentage of workforce personnel that have completed the Site Induction prior to beginning work on the Project.	Ongoing
	All relevant personnel working on the Project on behalf of AGLM to attend a CEMP briefing held by the Principal Contractor, and be trained and competent in CEMP requirements.	Percentage of relevant workforce personnel that are trained and competent to enact the CEMP.	Ongoing

4. Existing environment

4.1. Areas of environmental concern

Assessment undertaken for the EIS identified seven Areas of Environmental Concern (AEC) within the BAW Project Area. Summarised in Table 5, these locations have exceeded the Commercial/Industrial screening criteria for Total Recoverable Hydrocarbons (TRH), Copper, and/or Zinc. Sampling undertaken across the AECs did not detect widespread gross contamination.

No per- and polyfluoroalkyl substances (PFAS) contamination was identified. However, the application of potentially PFAS contaminated fire-fighting water during training, testing and emergency events may be a source of contamination in the Project area (particularly within and adjacent the fire training area AEC). Additional investigation undertaken by Aecom in 2019 (PFAS Investigation Report) found that PFAS concentrations are generally less than the laboratory limit of reporting and / or investigation levels.

Table 5. Summary of exceedances in the Project Area

AEC	Location	CoPC	Criteria	Concentration	Nearby works
Fire training area	B_11_ESSD01	TRH, >C10-C16 less Napthalene (F2)	170 mg/kg	11,000 mg/kg	▪ Washdown Facilities ▪ Waste Storage Area
		TRH, C16-C34	27,000 mg/kg	160,000 mg/kg	
		TRH, C34-C40	3,300 mg/kg	12,000 mg/kg	
		Copper	320 mg/kg	1,600 mg/kg	
		Zinc	1,100 mg/kg	1,300 mg/kg	
	B_11_ESSD02	TRH, >C10-C16 less Napthalene (F2)	170 mg/kg	3,300 mg/kg	
		TRH, C16-C34	27,000 mg/kg	96,000 mg/kg	
		TRH, C34-C40	3,300 mg/kg	12,000 mg/kg	
Coal conveyor	B_40_ESTP01	TRH, >C10-C16 less Napthalene (F2)	170 mg/kg	200 mg/kg	▪ River Road Refurbishment ▪ Waste Storage Area
H1 and H2 Howick Coal Conveyor	B_46_ESTP04	TRH, >C10-C16 less Napthalene (F2)	170 mg/kg	420 mg/kg	▪ River Road Refurbishment
Sludge lagoon	B_38_ESSD05	Copper	320 mg/kg	1,000 mg/kg	▪ Brine Concentrator Return Water Pipeline
	B_38_ESSD06	Copper	320 mg/kg	680 mg/kg	
Demineraliser plant	BI_MW02	Zinc	1,100 mg/kg	3,680 mg/kg	▪ Emergency Power System

AEC	Location	CoPC	Criteria	Concentration	Nearby works
Lime softening plant	BN_MW01	TRH, >C10-C16 less Napthalene (F2)	170 mg/kg	540 mg/kg	▪ Brine Concentrator Return Water Pipeline
	BN_MW02	TRH, >C10-C16 less Napthalene (F2)	170 mg/kg	420 mg/kg	
Mobile Plant workshop and refuelling	BP_MW05	TRH, >C10-C16 less Napthalene (F2)	170 mg/kg	260 mg/kg	▪ Washdown Facilities
		TRH, C16-C34	1,700 mg/kg	2,410 mg/kg	

Exposure level exceeded:

= HIL D / HSL (direct contact)

= ESL - Coarse

= EIL - Indirect Exposure

4.2. Surrounding land uses

The Bayswater site is surrounded by areas used mainly for mining purposes with some grazing, bushland, viticulture and thoroughbred horse stud farms in the region.

Key industrial uses in the area include:

- Liddell Power Station located approximately 4 km to the north-east of Bayswater
- Existing and former coal mines surrounding and within Bayswater footprint at the Ravensworth Rehabilitation Site.

Social infrastructure and sensitive receivers are limited in the locality of the Project, with the nearest sensitive receivers being located in Jerrys Plain approximately 7 km to the southwest of the MA1B Conveyor, and approximately 8 km to the southwest of the Brine Concentrator Return Water Pipeline. The Lake Liddell Recreation area is located approximately 5km northwest of the Project area. Lake Liddell is within approximately 2km of the Project area.

4.3. Sensitive receptors

Assessment undertaken for the EIS considered three types of human receptors for potential contamination impacts, based on the purpose of the Project being a continuation of the current commercial/industrial land use:

1. Onsite future construction workers i.e., earthworks for the preparation of the Project site for construction, including the excavation of foundations.
2. Onsite future intrusive maintenance workers who may complete maintenance to above ground and underground infrastructure (e.g., services). It is considered that shallow intrusive works will be conducted to a maximum depth of 2 metres below ground level.
3. On-Site future commercial/industrial workers (e.g., Bayswater operators).

The following human exposure pathways may occur:

- Dermal contact and incidental ingestion of soils

- Inhalation of soil-derived dust in indoor and / or outdoor air
- Inhalation of soil-derived vapour in indoor and outdoor air
- Inhalation of soil-derived vapour in a trench
- Dermal contact and incidental ingestion of groundwater / surface water
- Inhalation of groundwater-derived vapour in indoor and outdoor air
- Inhalation of groundwater-derived vapour in a trench.

Given the industrial nature of the Project site, significant impacts to flora and fauna from onsite contamination are considered unlikely. The contamination assessment undertaken for the EIS did not identify any risks to neighbouring properties or residences.

Assessment undertaken for the EIS found that the Project's activities are not expected to interfere with groundwater. Further according to the EIS, there are no extraction bores for domestic potable or non-potable water uses in the surrounding area. Therefore, potential groundwater issues are not considered to represent a significant risk to human health or the environment.

Where the Project may interact with surface water bodies, specific construction environmental controls for surface water runoff and sediment will be implemented in accordance with the Soil and Water Management Plan (Appendix E of the Bayswater Ancillary Works Environmental Management Strategy).

5. Contamination impacts

There is the potential for construction activities associated with the project to interact with existing contaminated land, either known or unknown. There is also a risk of the project activities causing contamination through inadvertent leaks and spills during construction.

AGLM will continue to manage known contamination in accordance with the EPL 799 and all other legal requirements. With the implementation of appropriate controls it is considered that the Project is unlikely to give rise to new contamination related risks to human health or the receiving environment.

5.1. Hydrocarbon and metal contamination

Localised concentrations of hydrocarbons, copper, and zinc have been detected above the screening criteria in the Project area; however, widespread gross contamination is not expected. The disturbance of known or unknown areas of contamination can result in human health impacts, or the unintentional spreading of contamination (e.g. generation of contamination dust, or contamination of surface run-off).

If elevated levels of contaminants are present in areas where the Project is being carried out, it is likely that the activity would be limited in extent and unlikely to require significant remediation. Sensitive receptors are unlikely to be repeatedly exposed to soil contaminants over a prolonged period with the implementation of AGLMs occupational hygiene controls to mitigate exposure.

5.2. Leaks and spills

Construction of the Project will involve the storage, treatment or handling of fuels, chemicals, building materials, wastes and other potential contaminants. Any leak or spill during construction has the potential to impact human health and contaminate soil/fill, nearby surface water bodies, and groundwater.

Incidents will be managed and cleaned up to prevent impacts on human health and the environment following the Pollution Incident Response Management Plan (PIRMP) maintained for Bayswater (if the incident has the potential to cause material harm to the environment) , in conjunction with the AGLM Emergency Response Plan (AGLM-HSE-PLN-010.02). Management procedures for contamination events are dependent on the nature of their magnitude and nature, classified in accordance with Section 4.3 of the PIRMP. Small-scale leaks and spills are to be excavated, assessed, and classified for lawful disposal with the support of a suitably qualified environmental consultant. Large contamination events will be assessed, managed, and remediated in accordance with the *National Environment Protection (Assessment of Site Contamination) Measure 1999* following the immediate Incident/Safety Response. A Remediation Action Plan and validation will be required should a large-scale contamination event occur.

The risk of leaks and spills would be managed through the application of Australian Standards for the storage and handling of fuels and chemicals, and appropriate engineering design. In the unlikely event of significant leaks or spills of contaminants, remediation would be implemented immediately during construction.

All potentially contaminating liquids will be managed in accordance with requirements outlined in the relevant Safety Data Sheet (SDS) and *AS1940:2017 The storage and handling of flammable and combustible liquids* (where applicable), reducing the risk of spills entering the environment.

6. Contamination control measures

Control measures for potential contamination impacts associated with the Project are described in Table 6.

These measures are to be undertaken to ensure the protection of environmental aspects and workers and are based on industry standard controls. Additional controls for managing contamination impacts are detailed in the Soil and Water Management Plan (Appendix E of the Bayswater Ancillary Works Environmental Management Strategy).

Table 6. Environmental management measures - contamination

Reference	Management measure	Responsibility	Timing
CMP1	All construction personnel shall be instructed through the site-specific induction or toolbox with regards to AEC, required controls, good hygiene practices and the Unexpected Finds protocol.	Principle Contractor	Prior to and during construction
CMP2	Contamination risks and relevant controls are to be discussed and documented in the daily pre-start meetings.	Prior to and during construction	Principal Contractor
CMP3	Erect sediment fencing around the perimeter of the established work area (as required in the Soil and Water Management Plan) to prevent contaminated runoff entering stormwater drains.	During construction	Principal Contractor
CMP4	Place excavated materials so that they do not impact the flow path of, or further contaminate, surficial runoff.	During construction	Principal Contractor
CMP5	Appropriately stocked emergency spill kits will be readily accessible. All staff will be made aware of the location of the spill kit and trained in its use.	Prior to and during construction	Principal Contractor
CMP6	Where there is potential for asbestos related exposure the work area will be wetted-down.	During construction	Principal Contractor
CMP7	Critical occupational hygiene controls are mandatory to mitigate potential worker exposure (i.e. handwashing facilities, a separate clean area for rest breaks and food consumption).	Prior to and during construction	Principal Contractor
CMP8	Visual and odour monitoring is to be undertaken in accordance with the Unexpected Finds Protocol during all ground disturbing works to identify suspected contamination.	Prior to and during construction	Principal Contractor
CMP9	If required, site crews involved in activities where contamination is identified will be briefed on the required specific environmental controls prior to commencing.	Prior to and during construction	Principal Contractor
CMP10	Where contamination is identified, vehicles/machinery, equipment and footwear must be washed down and/or decontaminated on-site.	During construction	Principal Contractor

Reference	Management measure	Responsibility	Timing
CMP11	Where required, vehicle washdown stations will be established on accessible flat areas located away from surface water and waterways.	During construction	Principal Contractor
CMP12	All excavation and ground-disturbing activities will be done in the open air to allow for the dissipation of any released vapours.	During construction	Principal Contractor
CMP13	Storage and management of dangerous goods and hazardous materials (if required) will occur in a safe, secure location consistent with the requirements of applicable Australian Standards; and the NSW EPA's Storing and Handling of Liquids: Environmental Protection – Participants Handbook (AS1940:2017).	Prior to and during construction	Principal Contractor

6.1. Unexpected Finds

The Unexpected Finds Protocol is detailed in this Section and is to be enacted immediately where suspected contamination is discovered. All workers will be required to be inducted into the Principal Contractors' CEMP, which will contain further details on the Unexpected Finds Protocol.

6.1.1. Identification of potential contamination

Key identifiers of potential contamination or contaminated materials include:

- Sudden unexplained change in texture or colour
- Change in odour and
- Inclusion of construction/building materials in fill.

6.1.2. Immediate response

If unknown or unexpected contaminated sites or materials are found during the Project, the Site Superintendent, Construction Project Manager, AGLM Project Manager, and Site Environmental Representative must be notified immediately. Work must cease within the immediate area of the find, and the material must be covered / contained and isolated through the use of barricades and proper signage (e.g. DANGER CONTAMINATED AREA signs or similar) and hazard specific treatments where safe and able to do so, to limit potential contamination.

Every attempt should be made to prevent unauthorised entry to the impacted area by restricting access and implementing signage.

6.1.3. Assessment and sampling

The AGLM Project Manager is to arrange an assessment of the unexpected find by an appropriately qualified and competent person.

Should Asbestos Containing Material (ACM) be suspected, a Licenced Asbestos Assessor (LAA) will be brought onsite to confirm the presence of ACM. A sample of the contaminated material may be required to undergo laboratory analysis at a National Association of Testing Authorities (NATA) accredited testing laboratory to confirm the potential contamination status.

Excavated material from the immediate vicinity will be separated from other materials and stockpiled for assessment, with sampling undertaken in accordance with NSW EPA the *Contamination Land Guidelines: Sampling Design (2022)* .

Works in the immediate vicinity are not to recommence until appropriate advice and approval has been obtained from a suitably qualified and experienced person. Any ground-disturbing works will not recommence until the extent of any contamination has been assessed and, if necessary, a remedial action plan has been prepared. Should the presence of ACM be confirmed, the LAA will outline the appropriate steps to manage the ACM and advise if supervision is required during excavation works at the site beyond the known asbestos impacted zone to manage the asbestos risk appropriately.

6.1.4. Reporting requirements

The HSE Incident, Near Miss and Hazard Management Procedure (AGL-HSE-PRO-012.1) is to be implemented to provide an effective response and to minimise impacts on the works, human health and the environment. In addition, this protocol is to be implemented immediately if an adverse unintended result occurs to known contaminated sites.

If asbestos or suspected asbestos material is discovered refer to the Waste Management Plan (Appendix I of the Bayswater Ancillary Works Environmental Management Strategy) for further detail.

In response to identifying suspected contamination or positively identification through lab testing, AGLM staff are to update the myHSE Investigation and enter all Improvement Actions (IAs). Any unexpected finds must be documented, including details such as the:

- Exact location of the find
- Volume of material removed
- Classification of the material
- Licenced facility the material was disposed to and
- Receipt documentation.

6.2. Disposal of contaminated material

Where potential contamination finds are not applicable for potential reuse as backfill, they will be classified and disposed of at a lawful place in accordance with the *NSW EPA Waste Classification Guidelines 2014* and the Waste Management Plan (Appendix I of the Bayswater Ancillary Works Environmental Management Strategy).

Disposal dockets must be retained on the AGLM filing system prior to close-out.

6.3. Training

Construction workers who attend the Project site may be required to undergo training and awareness programs regarding AEC, required controls, good hygiene practices and the Unexpected Finds Protocol. Compulsory training will be determined by AGLM and will be developed and delivered by the Principal Contractor. Training delivered by the Principal Contractor will be subject to approval and auditing by AGLM to ensure it aligns with AGL induction requirements and fulfils the conditions of SSD 8889679.

Delivery of training may include:

- Toolbox Talks
- Work Inductions
- Meetings lead by the Environment Team

- Posters and educational items.

Training should detail:

- The contents of this CMP
- Legislation and legislative requirements pertaining to contamination impacts and management
- Nearby sensitive locations
- Complaint and enquiry reporting
- Management measures listed in the EIS and this CMP
- Specific responsibilities regarding the mitigation measures.

Training will be undertaken in accordance with Section 7.4 of the Stage 3 Bayswater Ancillary Works EMS.

7. Contamination monitoring

A recommended monitoring and inspection plan is provided in Table 7. Monitoring requirements for the Project are listed in Section 10 of the Stage 3 Bayswater Ancillary Works EMS.

Table 7. Waste management monitoring plan

Monitoring	Frequency	Responsibility	Records
Ground disturbance inspection: Visual monitoring will be undertaken during all ground-disturbing works to identify suspected contamination.	During ground-disturbing works	Principal Contractor	▪ Daily Site Diary
Suspected contamination inspection: Where suspected contamination is discovered inspections are to be undertaken to ensure the Unexpected Finds procedure is applied.. This would include: ▪ Hazard signage ▪ Barriers ▪ Cover over the suspected contamination.	Twice daily when required	Principal Contractor	▪ Daily Site Diary ▪ AGLM staff to add details to a myHSE Investigation record

8. Compliance management

8.1. Roles and responsibilities

Roles and responsibilities are outlined in Section 7.3 of the Stage 3 Bayswater Ancillary Works EMS.

8.2. Inspections

Inspections of the Project site will occur as outlined in Section 7.6 of the Stage 3 Bayswater Ancillary Works EMS.

8.3. Incidents and complaints

Incident management will be managed in accordance with the process outlined in Section 7.5 of the Stage 3 Bayswater Ancillary Works EMS.

Complaints and enquiries will be managed in accordance with the process outlined in Section 6.3 of the Stage 3 Bayswater Ancillary Works EMS.

8.4. Document review and update

All strategies, management plans, and programs that are a produced to meet the SSD 8889679 development consent requirements will be regularly reviewed as part of a continual improvement process to ensure they remain current and relevant to the Project.

It is a requirement of the EMS that the associated plans, studies and strategies are reviewed and updated within three months of the following events, including:

- The submission of an environmental incident report
- The submission of an audit report
- The approval of any modification to the conditions of the development consent
- A direction of the DPE Planning Secretary.

Document and records management for the Project is described in Section 7 of the Stage 3 Bayswater Ancillary Works EMS.