Prepared for
AGL Macquarie Pty Ltd
ABN: 18 167 859 494

Liddell Power Station Battery Energy Storage System Contamination Management Sub Plan

Environmental Management Strategy

16-May-2024

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Client: AGL Macquarie Pty Ltd

ABN: 18 167 859 494

Prepared by

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5	10-May-2024	Spoil stockpiling update	Neil Standen Project Manager	

Table of Contents

Glossary and terms

Term	Description
ACM	Asbestos-containing material
AEC	Areas of environmental concern
AECOM	AECOM Australia Pty Ltd
AGLM	AGL Macquarie Pty Ltd
BAW	Bayswater Ancillary Works
BESS	Battery Energy Storage System
BESS Project (the)	Stage 2 of the Liddell Battery and Bayswater Ancillary Works Project, consisting of the construction of a BESS with the storage capacity to facilitate a maximum discharge of up to 500 MW for a four-hour period, or up to 2 GWh
BTEX	Benzene, toluene, ethylbenzene and xylene
CCTV	Closed-circuit television
CLM Act	*Contaminated Lands Management Act 1979* (NSW)
CMP	Contamination Management Plan
COPC	Contaminants of Potential Concern
DPE	Department of Planning and Environment (now DPHI)
DPHI	Department of Planning, Housing and Infrastructure (formerly DPE)
EIS	Environmental Impact Statement
EMS	Environmental Management Strategy
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW)
EPA	Environment Protection Authority
EPL	Environment Protection Licence
GWh	Gigawatt hours
ha	hectares
km	kilometre
kV	Kilovolt
LAA	Licenced Asbestos Assessor
LBBAWP	Liddell Battery and Bayswater Ancillary Works Project, consisting of a battery energy storage system at Liddell, decoupling works, and works associated with the ongoing operation of Bayswater
MW	Megawatt
NEM	National Energy Market
OCP / OPP	Organochlorine pesticides / organophosphorus pesticides
PAH	Polycyclic Aromatic hydrocarbons
PCB	Polychlorinated biphenyls
POEO Act	*Protection of the Environment Operations Act 1997* (NSW)
RTS	Response to Submissions

Term	Description
SEARs	Secretary's Environmental Assessment Requirements
SSD	State Significant Development
TRH	Total recoverable hydrocarbons
V	Volt
WHS Act	*Work Health and Safety Act 2011* (NSW)
WHS Regulation	Work Health and Safety Regulation 2017 (NSW)
WOAOW	Bayswater Water and Other Associated Operational Works project, which involves improvements to the management of ancillary processes at Bayswater power station and to facilitate an improved rehabilitation outcome for the ash disposal area. These works may occur at the same time as the LBBAWP.

1.0 Introduction

AECOM Australia Pty Ltd (AECOM) was commissioned by AGL Macquarie Pty Limited (AGLM) to prepare a Contamination Management Plan (CMP) for a Battery Energy Storage System (BESS) to be constructed as part of the Liddell Battery and Bayswater Ancillary Works Project (LBBAWP), NSW.

The LBBAWP is a State Significant Development (SSD) under the *State Environmental Planning Policy (State and Regional Development) 2011*[1]*,* and is subject to Part 4, Division 4.7 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

An Environmental Impact Statement (EIS) was prepared in March 2021 in accordance with the Secretary's Environmental Assessment Requirements (SEARs). Development consent (SSD-8889679) was issued by the Department of Planning and Environment (DPE) (now Department of Planning, Housing and Infrastructure (DPHI)) on 8 March 2022.

1.1 Background

AGLM is progressing with plans to facilitate the efficient, safe and reliable continuation of electricity-generating works from the Bayswater and Liddell sites. The LBBAWP will be carried out in the following stages:

- Stage 1 - Decoupling Works: Alternative network connection arrangements for the Liddell 33 Kilovolt (kV) switching station that provides electricity to the infrastructure required for the ongoing operation of Bayswater power station, to associated ancillary infrastructure and to potential third-party industrial energy users
- Stage 2 - BESS: Replacement of a portion of Liddell's dispatchable electricity supply is required for the National Energy Market (NEM), including the construction of a grid-connected utility-scale BESS with a capacity of up to 500 megawatts (MW) and 2 gigawatt hours (GWh)
- Stage 3 - Bayswater Ancillary Works (BAW): Works associated with Bayswater power station, which may include upgrades to ancillary infrastructure, such as pumps, pipelines, conveyor systems, roads and assets, to enable maintenance, repairs, replacement or expansion
- Consolidated consents: Surrender and consolidation of various existing development approvals required for the ongoing operation of AGLM assets.

This management plan has been developed for Stage 2 only (i.e. the BESS), which is hereinafter referred to as 'the BESS Project'.

1.2 Site details

The AGLM landholding is located approximately 15 kilometres (km) southeast of Muswellbrook, 25 km northwest of Singleton, and approximately 165 km west northwest of Sydney in NSW. The total area of the AGLM landholding is approximately 10,000 ha, including the Bayswater and Liddell power station operational areas, the Ravensworth rehabilitation area, Lake Liddell and surrounding buffer lands.

Surrounding the AGLM landholding is predominantly land uses heavily influenced by industrial activity. The local area is dominated by large-scale infrastructure associated with Bayswater and Liddell power stations and open-cut mining activities. Agricultural clearing for the purposes of grazing is also present within and surrounding the AGLM landholding.

Elevations within approximately 10 kilometres of the AGLM landholding range from around 100 to 500 metres above sea level.

The majority of the AGLM landholding has been previously disturbed during the construction and operation of Liddell and Bayswater power stations and historic agricultural activity. The BESS will be located within the location of the existing solar array area (the site), shown as 'Area 2' in Figure 1. This location was selected as it is in close proximity to Liddell Power Station and is on previously disturbed

[1] Now State Environmental Planning Policy (Planning Systems) 2021

operational lands no longer required for Liddell operations. Stockpiling for the BESS Project will occur within the former coal yards area, shown as ‘Area 1’ in Figure 1.

The solar array area consists of approximately 5 ha of solar thermal equipment. This consists predominantly of steel pipes used for heat absorption and water and steam transfer, mirror reflectors and steel mounting structures, as shown in Figure 2. The former coal yard covers an area of about 20 ha and consists of approximately 5 km of conveyor and associated stacker / reclaimer equipment.

1.3 Project description

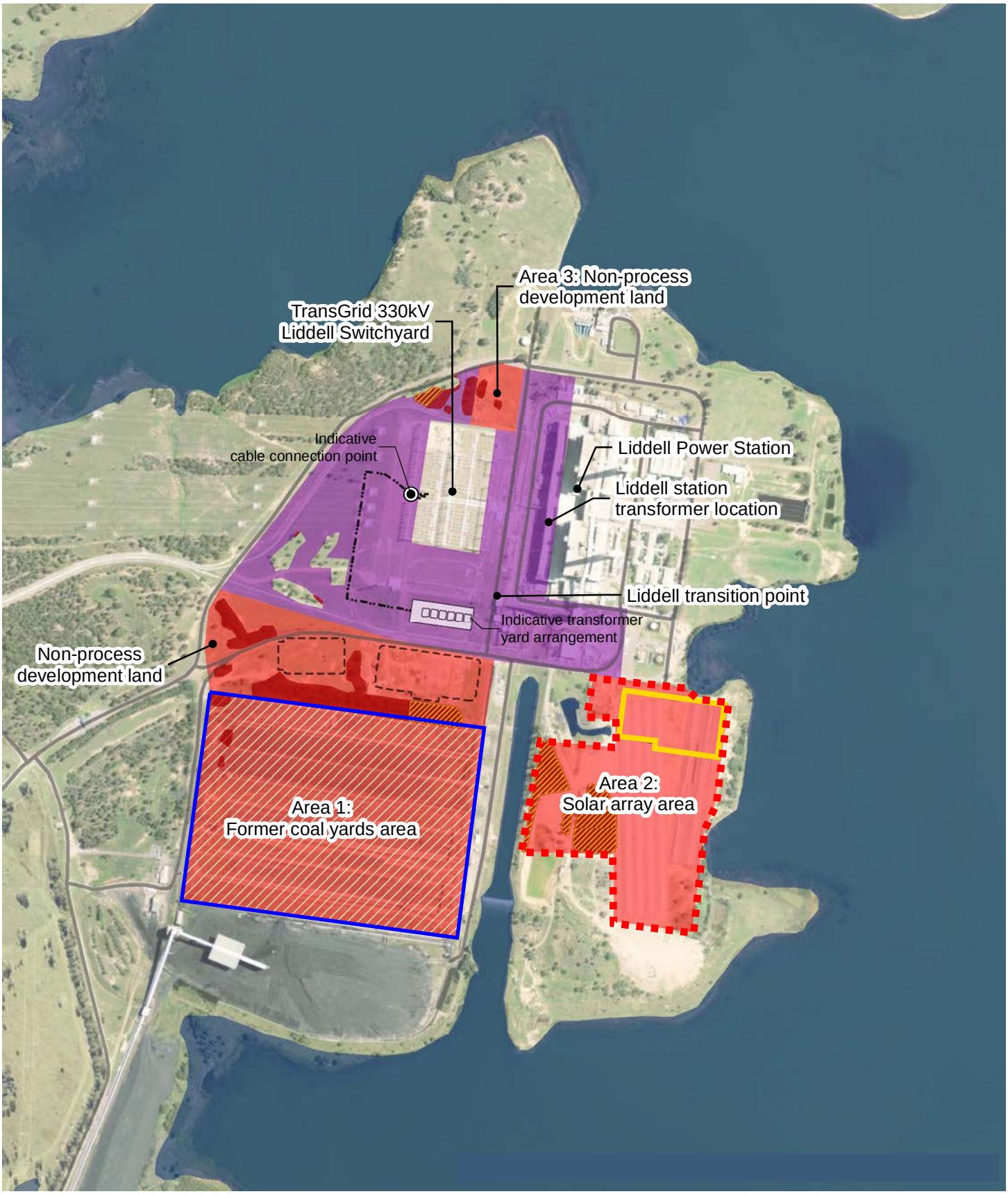
The BESS Project involves the construction, operation and decommissioning of a BESS with the storage capacity to facilitate a maximum discharge of up to 500 MW for up to a four-hour period or up to 2 GWh. The BESS will be located within ‘Area 2’, the existing solar array area, and will be connected to the existing TransGrid 330kV substation via a new 330kV high-voltage power line (refer to Figure 1).

The BESS Project will involve the demolition of the existing solar array area for construction of the BESS and the former coal yard infrastructure for stockpiling purposes. Other redundant equipment may also require demolition and deconstruction to support construction of the BESS Project. The disturbance area for the BESS is expected to be around 20 hectares (ha). The BESS will be mounted on slab footings and will be containerised or otherwise enclosed in a formalised layout.

The approximate component requirements to achieve the maximum storage capacity for the BESS (based on indicative information provided by potential technology providers) are as follows:

- Approximately 900 pre-assembled battery enclosures containing lithium-ion type batteries, internal cooling and fire suppression systems
- Approximately 148 medium voltage skid (inverter and transformers)
- Approximately 148 of 630 Volt (V) to 33 kV step-up transformers
- One control room, two electrical rooms, one social facility room and four storage rooms
- 33kV reticulation system and collector switchrooms
- Overhead, underground, or a combination of both, subject to detailed design, 330 kV line to connect to TransGrid 330 kV substation
- Two 33 kV / 33kV / 330 kV three-winding transformers and 330 kV connection equipment
- Ancillary infrastructure, including water tanks for bushfire protection purposes, lightning protection, security fencing and closed-circuit television (CCTV).

An indicative layout of the BESS is shown in Figure 3.



Legend

Project area assessed in the EIS
- Battery energy storage system
- Decoupling area
- Former coal yards area

- Indicative cable connection point (for discussion with TransGrid)
- Indicative 330kV cable route
- Transformer yard relocation
- Indicative battery block footprint
- Solar array area

- Species impact
- PCT impact - offset required
- Road
- Waterway
- Waterbody

0 100 200m

1:10,000 at A4

N

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

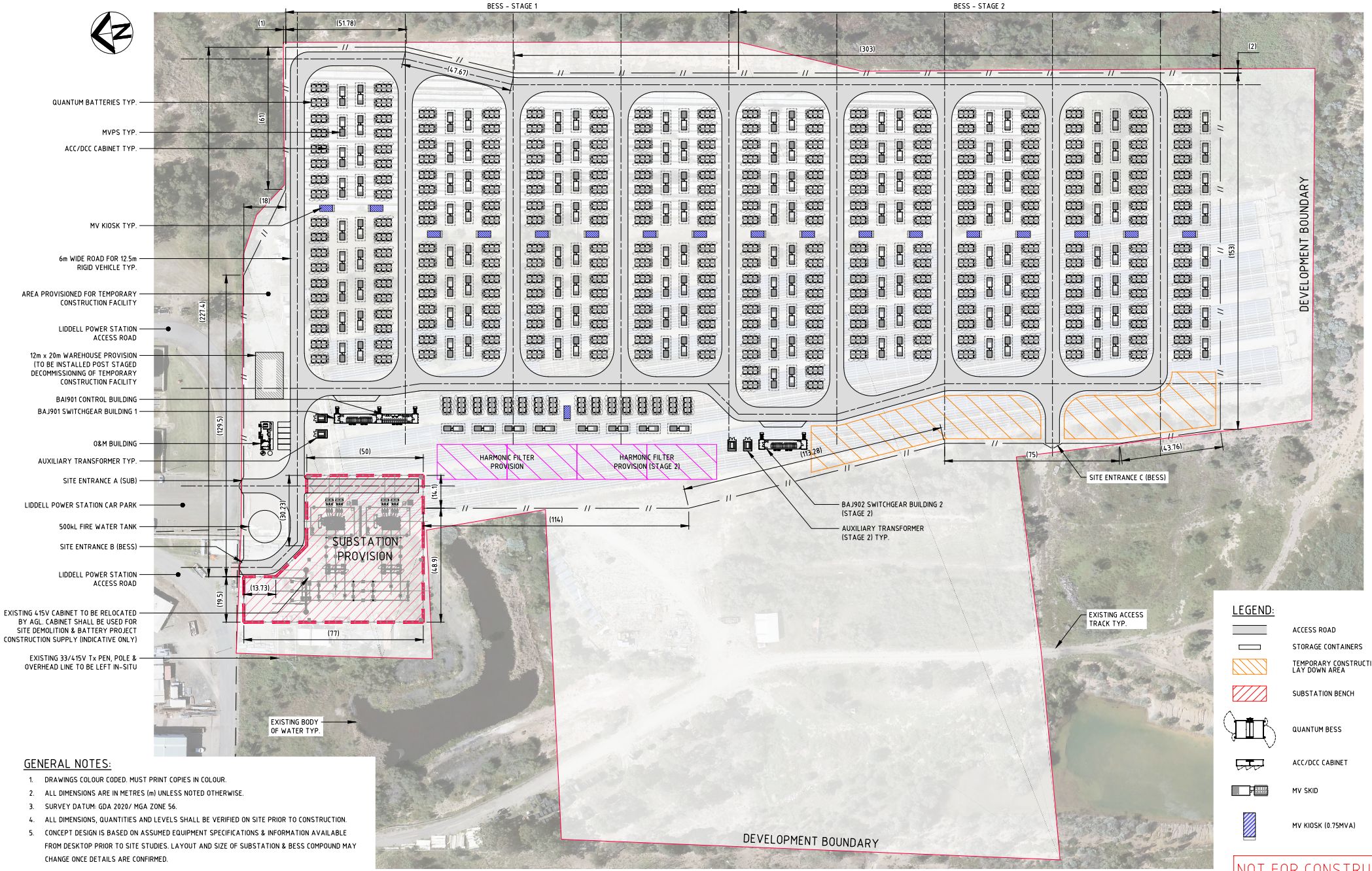
Imagery:
© Department of Customer Service 2020

GDA94 MGA56

Figure 1 Overview of Stage 1 and 2 of the LBBAWP (source: Jacobs 2021)

Date: 29/03/2021 Path: \\jacobs.com\ANZ\IE\Projects\04_Eastern\IS334000\22_Spatial\GIS\Directory\Templates\Figures\EIS\IS334000_EIS_F004_BatteryDecoupling_r3v2.mxd
Created by : NT | QA by : SW

Figure 2 Existing solar array area



LEGEND:

- ACCESS ROAD
- STORAGE CONTAINERS
- TEMPORARY CONSTRUCTION LAY DOWN AREA
- SUBSTATION BENCH
- QUANTUM BESS
- ACC/DCC CABINET
- MV SKID
- MV KIOSK (0.75MVA)

NOT FOR CONSTRUCTION
17.02.2023 11:40 AM

GENERAL NOTES:

1. DRAWINGS COLOUR CODED. MUST PRINT COPIES IN COLOUR.
2. ALL DIMENSIONS ARE IN METRES (m) UNLESS NOTED OTHERWISE.
3. SURVEY DATUM: GDA 2020/ MGA ZONE 56.
4. ALL DIMENSIONS, QUANTITIES AND LEVELS SHALL BE VERIFIED ON SITE PRIOR TO CONSTRUCTION.
5. CONCEPT DESIGN IS BASED ON ASSUMED EQUIPMENT SPECIFICATIONS & INFORMATION AVAILABLE FROM DESKTOP PRIOR TO SITE STUDIES. LAYOUT AND SIZE OF SUBSTATION & BESS COMPOUND MAY CHANGE ONCE DETAILS ARE CONFIRMED.

ITEM	STAGE 1 (250MW/500MWh)	STAGE 2 (250MW/500MWh)	TOTAL (500MW/1000MWh)
AUX TRANSFORMER	2	2	4
MV KIOSK	8	8	16
MV SKID (INVERTER + TRANS.)	74	74	148
GRIDSOLV QUANTUM	444	444	888
ACCDCC CABINET	148	148	296

Figure 3 Preliminary site layout (indicative only)

SITE PLAN
SCALE 1:750

REV	DATE	REVISION DESCRIPTION	DES	RVD	APP	AUTH
0.2	17.02.2023	EQUIPMENT & LAYOUT REVISED	L.M.	K.M.	J.L.	A.M.
0.1	10.02.2023	ISSUED FOR INFORMATION	L.M.	K.M.	J.L.	A.M.

CLIENT: agl

ENERVEN PROJECT No: 699

ENERVEN™

	NAME	DATE
DESIGNED	L. MUNIZ	10.02.2023
REVIEWED	K. MACKEY	10.02.2023
APPROVED	J. LOMBARD	10.02.2023
AUTHORISED	A. MALCOLM	10.02.2023

LIDDELL BESS
CONCEPT SITE LAYOUT
SITE PLAN - SATELLITE OVERVIEW

SIZE	DRAWING NUMBER	REVISION
A1	699.EEI.GN.DWG.0003	0.2

1.4 Construction activities

Construction works associated with the BESS Project would be likely to involve:

- Installation and maintenance of environmental controls, including temporary and permanent water management infrastructure
- Establishment of access from the Liddell access road
- Demolition or deconstruction of existing infrastructure as required, including the existing solar array area and former coal yard infrastructure
- Establishment of a hardstand pad and construction laydown areas, including dedicated stockpiling areas
- Cut and fill to battery compound, transformer compounds, footings and construction laydown area
- Trenching of 33kV reticulation system
- Trenching and/or overhead line installation to TransGrid 330 kV substation
- Structural works to support enclosures, inverters, transformers, buildings and transformer compounds
- Delivery, installation and electrical fit-out
- Testing and commissioning activities
- Removal of construction equipment and reinstatement of construction areas.

1.5 Relevant approvals and conditions

1.5.1 Project approvals

Liddell power station was commissioned in 1971 and formed part of AGLM's integrated power generation complex. This complex also incorporates Bayswater power station (commissioned in 1985) and a range of supporting water management, coal supply, power supply and control system infrastructure.

Bayswater and Liddell power stations are regulated under several planning approvals. Most development at the site pre-dates current planning requirements enforced through the EP&A Act. However, alterations and additions after 1 September 1980 were subject to the provisions of the Act.

Development consent (SSD-8889679) was granted for the LBBAWP on 8 March 2022, which includes the voluntary surrender and consolidation of various existing development approvals into SSD-8889679.

In accordance with Section 55 of the *Protection of the Environment Operations Act 1997* (POEO Act), Liddell operated under Environment Protection Licence (EPL) 2122, which is still active for the site even though power generation operations have ceased for the power station. Bayswater is operated under EPL 779.

1.5.2 Development consent conditions

In accordance with SSD-8889679 development consent condition C1, an Environmental Management Strategy (EMS) has been prepared for the BESS Project to provide a strategic framework for the environmental management of the development. A range of subplans has been developed to support the EMS and address development consent condition C1(e)(i).

This CMP has been developed to manage the potential environmental impacts arising from contamination as a result of the BESS Project. The relevant conditions are outlined below in Table 1.

Table 1 Development consent conditions – contamination management

Condition	Requirement	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 management plan
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 (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 5.0 Management Measure L1
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 5.0 Management Measure L4

1.6 Scope, purpose and objectives

This CMP has been developed in accordance with SSD-8889679 development consent condition C1 and to address relevant requirements associated with:

- SSD-8889679 development consent conditions
- EIS management measures were amended in the Response to Submissions (RTS) (Jacobs 2021)
- Bayswater Water and Other Associated Operational Works Project (WOAOW) management measures
- AGL plans and procedures.

The purpose of this CMP is to:

- Summarise potential impacts from contamination associated with the BESS Project as assessed in the EIS (Jacobs 2021)
- Identify environmental management measures to be implemented to manage contamination impacts.

The objective of this CMP is to manage potential contamination impacts as a result of the BESS Project and to maintain compliance with SDD-8889679.

All works undertaken by the Project Contractor must comply with the environmental management measures outlined in Section 5.0 of this plan.

1.7 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 may need to be read in conjunction with this CMP:

- Water Management Plan (AGLM-HSE-PLN-009.02) (AGLM, 2022)
- Land Management Plan (AGLM-HSE-PLN-009.01) (AGLM, 2021)
- Health Safety Environment Incident, Near Miss and Hazard Management Procedure (AGL-HSE-PRO-012.1) (AGL, 2022)
- Pollution Incident Response Management Plan (PIRMP) (AGLM, 2022)
- Liddell Decoupling Works Contamination Management Plan (Jacobs, 2022).

2.0 Legislation and guidelines

2.1 Legislation

This CMP has been prepared in accordance with the relevant legislation and regulatory requirements within the EMS. Key legislation relating to this CMP:

- POEO Act (NSW)
- *Contaminated Lands Management Act 1979* (NSW)
- *Work Health and Safety Act 2011* (NSW)
- Work Health and Safety Regulations 2017 (NSW)
- *National Environment Protection (Assessment of Site Contamination) Measure 1999* (Commonwealth).

2.1.1 POEO Act

The aim of the POEO Act is to achieve the protection, restoration and enhancement of the quality of the NSW environment and reduce potential risks to human health and the environment. 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 Act.

Liddell operated under EPL 2122, which specified the environmental performance requirements for operations, including emission limits of certain pollutants. EPL 2122 remains active for the site, however the BESS Project does not constitute a scheduled activity and is therefore not subject to the requirements of the EPL.

2.1.2 Contaminated Lands Management Act 1979

The *Contaminated Lands Management Act 1979* (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.

Liddell Power Station has previously been notified to the EPA in accordance with the CLM Act and it was determined not to require regulation under this Act. Rather, environmental issues at Liddell continue to be regulated via EPL 2122.

2.1.3 Work Health and Safety Act 2011

The *Work Health and Safety Act 2011* (WHS Act) provides a national framework to secure the health and safety of workers.

2.1.4 Work Health and Safety Regulation 2017

The Work Health and Safety Regulation 2017 (WHS Regulation) prescribes matters which fall under the WHS Act.

2.1.5 National Environment Protection (Assessment of Site Contamination) Measure 1999

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.

2.2 Standards and guidelines

The main standards and guidelines relevant to this CMP include:

- Australian and New Zealand Guidelines for Fresh and Marine Water Quality (Australian Government Institute 2018)
- Waste Classification Guidelines (Environment Protection Authority 2014)
- Code of Practice: How to safely remove asbestos (Safe Work Australia 2022)
- Contaminated Land Guidelines (Environment Protection Authority 2022).

2.2.1 Australian and New Zealand Guidelines for Fresh and Marine Water Quality

The Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG 2018) provide a framework for managing water quality in rivers, lakes, estuaries and marine waters in Australia and New Zealand.

2.2.2 Waste Classification Guidelines

The Waste Classification Guidelines provide a framework for the classification of waste streams that pose similar risks to the environment or human health. The classes of waste are defined in Schedule 1 of the POEO Act and inform the classification process within the Waste Classification Guidelines.

2.2.3 Code of Practice: How to safely remove asbestos

The Code of Practice: How to safely remove asbestos provides practical guidance on how to manage the risks of asbestos removal and achieve the standards of work health and safety required under the WHS Act and WHS Regulation.

2.2.4 Contaminated Land Guidelines

The Contaminated Land Guidelines provide for identifying and mitigating risks to human health and the environment through the design of appropriate sampling and analysis plans at contaminated sites. The guidelines are in two parts; part 1 describes the application of sampling design, and part 2 provides guidance on interpreting the results.

2.3 Environmental impact assessment

A Contamination Assessment was prepared by Kleinfelder (2021) in accordance with the SEARs issued for the LBBAWP and to support the EIS. The key purpose of the Contamination Assessment was to identify potential contamination issues associated with the LBBAWP and assess any human health and environmental risks associated with the potential contamination impacts identified.

The Contamination Assessment also recommended suitable mitigation and management measures which have been included in this CMP in Section 5.0, where relevant to the BESS.

The EIS was placed on public exhibition for a period of 28 days, between 15 April 2021 to 12 May 2021. Following this, an RTS report (Jacobs 2021) was prepared to consider and respond to any submissions received during the exhibition period, which resulted in changes to some of the management measures

from the EIS. Therefore, the management measures in the RTS report supersede those in the EIS, where changes have been made.

3.0 Roles and responsibilities

Section 4.3 of the EMS outlines key roles and responsibilities for both AGLM and the Project Contractors working on the BESS Project.

4.0 Environmental setting and potential impacts

4.1 Previous contamination assessments

Detailed contamination assessments have been conducted in 2013, 2014, 2018 and 2019 across all areas of environmental concern (AEC) at the Bayswater and Liddell power stations, which have been identified as having the potential to be affected by contamination arising from the existing uses since Bayswater and Liddell were initially constructed.

The Contamination Assessment (Kleinfelder 2021) carried out for the LBBAWP considered the results presented in the previous contamination investigation reports in relation to the LBBAWP site.

4.2 Previous land use

Construction of Liddell commenced in the late 1960s, with the power station being commissioned in 1971. In 2009, the layout of the power station remained unchanged, with the exception of the installation of a series of solar panels to the south of the electricity generating units (the solar array area). In 2020, the layout of the power station still remained unchanged, with parts of the coal yard appearing to no longer be used with the growth of vegetation in some of these areas.

The solar array area is located south of the main power-generating infrastructure. The former coal yard is also located south of the main power-generating infrastructure, to the west of the solar array area. Infrastructure on site is described in Section 1.2.

To the south of the solar array area, there is an historic asbestos landfill and another small landfill area. There is also potential for other areas of historical fill material in this area from ground disturbance activities (shown in aerial photographs).

4.3 Potential sources of contamination

The following Contaminants of Potential Concern (COPCs) have previously been assessed within the solar array area and former coal yard:

- Total recoverable hydrocarbons (TRH)
- Benzene, toluene, ethylbenzene and xylene (BTEX)
- Polycyclic Aromatic hydrocarbons (PAH)
- Organochlorine pesticides / organophosphorus pesticides (OCP / OPP)
- Polychlorinated biphenyls (PCB)
- Heavy metals
- Asbestos.

Concentrations of COPCs have not been identified above the commercial/industrial health investigation levels, which provide conservative screening criteria (commercial/industrial screening criteria).

Fill has not been identified to be present. However, this does not remove the potential for unknown filling in this area.

4.4 Release and transport mechanisms

Potential release and transport mechanisms identified for the BESS Project include:

- Potential leaks and spills from plant and machinery operating in this area to on-Site soils
- Volatilisation of contaminants from soil/fill
- Leaching/runoff/airborne transport.

4.5 Human health receptors and exposure pathways

The assessment considered the following human receptors for the BESS Project:

- On-Site future construction workers, i.e. earthworks for the preparation of the BESS Project site for construction, including the excavation of cable trenches
- On-Site 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 two metres below ground level
- On-Site future commercial/industrial workers (e.g. operators for the BESS).

The following potential human exposure pathways were also considered for the BESS Project:

- Dermal contact with 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
- Inhalation of groundwater-derived vapour in indoor and outdoor air
- Inhalation of groundwater-derived vapour in a trench.

Groundwater, surface water and offsite receptors and fauna and flora ecology were not considered for the following reasons:

- Groundwater was considered unlikely to be encountered during construction activities, however may be intercepted (refer to *Liddell Power Station Battery Energy Storage System Soil and Water Management Sub Plan* (Appendix B of the EMS)). Should groundwater be encountered, it is considered this would be managed as part of the CEMP and a Dewatering Management Plan to be prepared by the Project Contractor.
- There are currently no abstraction bores for domestic potable or non-potable uses in the surrounding area. Therefore, potential groundwater issues are not considered to represent a significant risk to human health or the environment.
- Based on the current EPLs that are in place, it is considered that:
  - surface water is being adequately controlled and monitored. Surface water issues that may arise from construction should be dealt with as part of the CEMP
  - offsite receptors would be managed as part of the ongoing operation of the site.
- There would be minimal impact on on-site ecology as the area is already significantly developed. Where there may be interaction with surface water bodies, specific environmental controls will be implemented as part of the CEMP.

4.6 Potential impacts

It was identified that some potential exposure pathways for human health receptors are potentially complete. However, based on the analytical dataset and knowledge of the historical development of the solar array area (reviewed as part of the Contamination Assessment (Kleinfelder 2021)), widespread

contamination is considered unlikely to be present, notwithstanding the potential for unknown filling in this area.

Overall, the assessment concluded that the LBBAWP would not give rise to any new contamination-related risks to human health or the receiving environment, provided that appropriate controls are implemented.

The BESS Project will involve the storage, treatment or handling of fuels, chemicals, building materials, wastes and other potential contaminants which have the potential to result in leaks and/or spills during construction, operation and decommissioning.

Once operational, the final layout of the BESS is likely to comprise large areas of hardstand that will minimise the potential for any direct contact with subsurface soil for on-site workers.

5.0 Environmental management measures

The management measures provided in Table 2 and Table 3 will be implemented to minimise potential contamination impacts from the BESS Project.

Table 2 Environmental management measures – contamination (EIS / RTS / development consent)

Reference	Measure	Responsibility	Timing
L1	The internal bunding and environmental controls for the storage and management of all chemicals, fuels and oils used on-site (including any dangerous goods and hazardous materials) will be in accordance with applicable guidelines, including Australian Standards and the NSW EPA's *Storing and Handling of Liquids: Environmental Protection – Participants Handbook.*	Project Contractor	Construction Decommissioning
L2	Potential contamination-related impacts associated with the BESS Project will be managed by the implementation of a Construction Environment Management Plan (CEMP) that includes (but not limited to): • An unexpected finds protocol for the appropriate assessment and management of encountered contamination to address impacts, if required • Procedures to ensure that all material excavated during the construction of the development is appropriately assessed and classified before being disposed of in accordance with environmental laws, if required • 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.	Project Contractor	Construction
L3	The Asbestos Management Procedure (AGLM-HSE-PRO-007.10.01) should be referred to, 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	AGLM	Construction Operation

Reference	Measure	Responsibility	Timing
	during work activities. The Project Contractor may adopt their own unexpected finds procedure provided that this is in alignment with AGLs procedure.		
L4	Detailed design of each project component would consider and address geotechnical stability risks in accordance with applicable design standards	Project Contractor	Detailed design
L5	Ongoing monitoring will be required following decommissioning of the BESS to ensure the footprint has been suitably reinstated and are safe, stable and non-polluting	Project Contractor	Decommissioning

Table 3 Environmental management measures – contamination (other)

Reference	Measure	Responsibility	Timing
L6	Project induction and targeted toolbox talks will include discussion of areas of environmental concern, relevant controls and the procedure to follow if contamination is suspected.	Project Contractor	Construction
L7	Silt socks will be placed around the perimeter of established work areas to prevent potentially contaminated runoff from entering stormwater drains, waterways or other sensitive areas.	Project Contractor	Construction Decommissioning
L8	Excavated materials will be placed so that they do not impact the flow path of or further contaminate surface runoff	Project Contractor	Construction Decommissioning
L9	Appropriately stocked emergency spill kits will be available at all work areas at all times. All staff will be made aware of the location of the spill kit and trained in its use.	Project Contractor	Construction Decommissioning
L10	Occupational hygiene controls will be implemented as a precaution to mitigate potential worker exposure (e.g. handwashing facilities and a separate clean area).	Project Contractor	Construction Decommissioning
L11	If contamination is encountered, all vehicles, machinery and footwear will be cleaned. Washdown stations will be established on accessible flat areas located away from surface water and waterways.	Project Contractor	Construction Decommissioning
L12	All waste produced as part of the BESS Project will be managed and disposed of in accordance with the EPA Waste Classification Guidelines and the Waste Management Plan prepared under the EMS, if required.	Project Contractor	Construction Decommissioning

5.1 Unexpected finds protocol

This Unexpected Finds Protocol is to be enacted immediately when suspected contamination is discovered. All staff will be required to be inducted into the Project Contractors' CEMP, which will contain further details on the Unexpected Finds Protocol.

5.1.1 Immediate response actions

If unknown or unexpected contaminated sites or materials are found during the construction or decommissioning of the BESS Project, the following steps must be taken:

1. Cease construction immediately in the vicinity of the material
2. Notify the site Superintendent immediately, who will notify the Construction Project Manager, AGLM Environment Manager, and AGLM Project Manager.
3. Demarcate the area with appropriate fencing and warning signage (i.e. DANGER CONTAMINATED AREA).

5.1.2 Identification of potential contamination

Key identifiers of potential contamination or the presence of contaminated materials include:

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

5.1.3 Sampling and assessment

Following the immediate response action, the Project Manager is to arrange an assessment of the potentially contaminated material by an appropriately qualified person. A sample of the contaminated material must undergo laboratory analysis at a NATA-accredited testing laboratory to confirm the contamination status.

Excavated material from the immediate vicinity will be separated from other materials and stockpiled for assessment, with sampling undertaken in accordance with *EPA Contaminated Land Guidelines: Sampling design part 1 – application*.

Works in the immediate vicinity are not to recommence until appropriate advice and approval has been obtained from an appropriately qualified person (depending on the contamination type).

For suspected asbestos-containing material (ACM), a Licenced Asbestos Assessor (LAA) will be required to confirm the presence of ACM. Should the presence of ACM be confirmed, the LAA must advise appropriate steps to be taken to manage the unexpected find and must supervise any excavation works beyond the known ACM impact area to ensure there is no further ACM risk.

5.1.4 Reporting requirements

The *Health Safety Environment Incident, Near Miss and Hazard Management Procedure* (AGL-HSE-PRO-012.1) is to be implemented to provide an effective response to incidents and to minimise the impacts on the construction of the BESS Project, workers and the environment. This protocol must be implemented immediately following an unintended adverse impact from unexpected contaminated areas.

If ACM or suspected ACM material is discovered, refer to Section 6.4 in the *Liddell Power Station Battery Energy Storage System Waste Management Sub Plan* (Appendix F of the EMS) for further guidance.

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

- The exact location of the find
- The volume of material removed
- The classification of the material
- The licenced facility the material was disposed at, if required
- Receipt documentation.

6.0 Compliance and reporting

6.1 Monitoring and reporting

During construction and decommissioning, visual monitoring will be undertaken during all ground-disturbing works to identify suspected contamination. Where potentially contaminated material is discovered, the unexpected finds procedure in Section 5.1 will be applied.

There will be no monitoring associated with the operation of the BESS Project.

6.2 Incidents and complaints

Incident management will be managed in accordance with the process outlined in Section 4.5 of the EMS.

Complaints and enquiries will be managed in accordance with the process outlined in Section 5.3 of the EMS.

6.3 Documentation review and update

As part of the EMS requirements, all associated plans, studies and strategies are to be reviewed and updated within three months of the following events:

- The submission of an Environmental Immediate Notification Report
- The submission of an audit report
- The approval of any modification to the conditions of the development consent
- A direction of the Secretary.