Mt Piper BESS

Mt Piper BESS: Site Investigations Statement of Environmental Effects

EnergyAustralia

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Revision: 1

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Document control record

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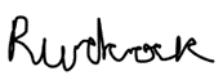
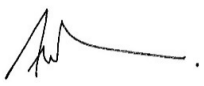
Author signature		Approver signature	
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1 Introduction

1.1 Overview

EnergyAustralia is investigating the development a grid scale battery energy storage system (BESS) with a capacity of up to 500 Megawatt (MW) and a duration of up to 4 hours, along with associated infrastructure (the Project). It is proposed that the Project be located within EnergyAustralia's existing landholding adjacent to the Mt Piper Power Station in New South Wales (NSW).

The proposed site investigation activities will help inform the design and constructability of the proposed BESS, as well as operational considerations of the proposed Project. It will also help inform the relevant environmental and hazard assessments currently being prepared to support the Environmental Impact Statement (EIS) for the BESS Project (SSD-50903958), as required by the Secretary Environmental Assessment Requirements (SEARs) issued on 23 December 2022.

More specifically, the site investigation program should provide an understanding of the local geotechnical conditions to help inform the BESS foundation design. It should also help identify potential engineering constraints, including mine voids, that could be considered and/or addressed during the detailed design and construction phases. Furthermore, the site investigation program has been scoped to provide sufficient information on the natural soils, contaminants of potential concern, and groundwater levels for the Project area to help inform the relevant technical assessments to support the EIS.

The subsurface site investigation program would comprise combined geotechnical, contamination, and soil science field investigations. The investigation would involve drilling and subsurface sampling at approximately 71 locations across the proposed BESS and associated infrastructure area. A geophysical investigation shall also be undertaken to investigate subsurface conditions across the eastern extent of the site to determine the presence (or absence) of mine voids.

The site investigation program (referred to as the proposed work hereon) subject of this Development Application is proposed within an investigation (site) area of circa 30 ha, and consists of the following:

- Clearing and establishment of approximately 1.7 km of vehicle track to enable access to all proposed drilling/sampling locations
- Drilling of approximately 62 boreholes to varying depths, of which approximately five would be converted to groundwater monitoring wells
- Excavation of approximately 9 test pits
- Excavation of approximately 6 shallow test pits, adjacent to the above 9 test pits
- Geophysical investigation and data collection along approximately 5 intersecting lines
- Remediation of the site, limited to the drill sites.

An overview of the proposed work is shown in Figure 1-1.

1.2 Assessment Process

EnergyAustralia is the applicant for the proposed works. The proposed works require assessment and approval under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

Aurecon Australasia Pty Ltd (Aurecon) has prepared this Statement of Environmental Effects (SEE) on behalf of EnergyAustralia to accompany a development application (DA) to Lithgow City Council (Council).

A number of technical reports have also been prepared to support the DA which have been summarised in section 5 of this SEE. A Bushfire Emergency Management Plan has also been prepared and forms part of Appendix B. It is recommended that these assessments are read in conjunction with this SEE. The technical reports are outlined in Table 1-1 below:

Table 1-1 Summary of supporting technical reports

Technical report	Reference to section/location in SEE
Flora and Fauna Assessment	5.1
Noise and Vibration Assessment	5.4
Drainage, Sediment and Erosion Assessment	5.5
Bushfire Emergency Management Plan	Appendix B

1.3 Proponent Details

The Proponents details are provided in Table 1-2.

Table 1-2 Proponent Details

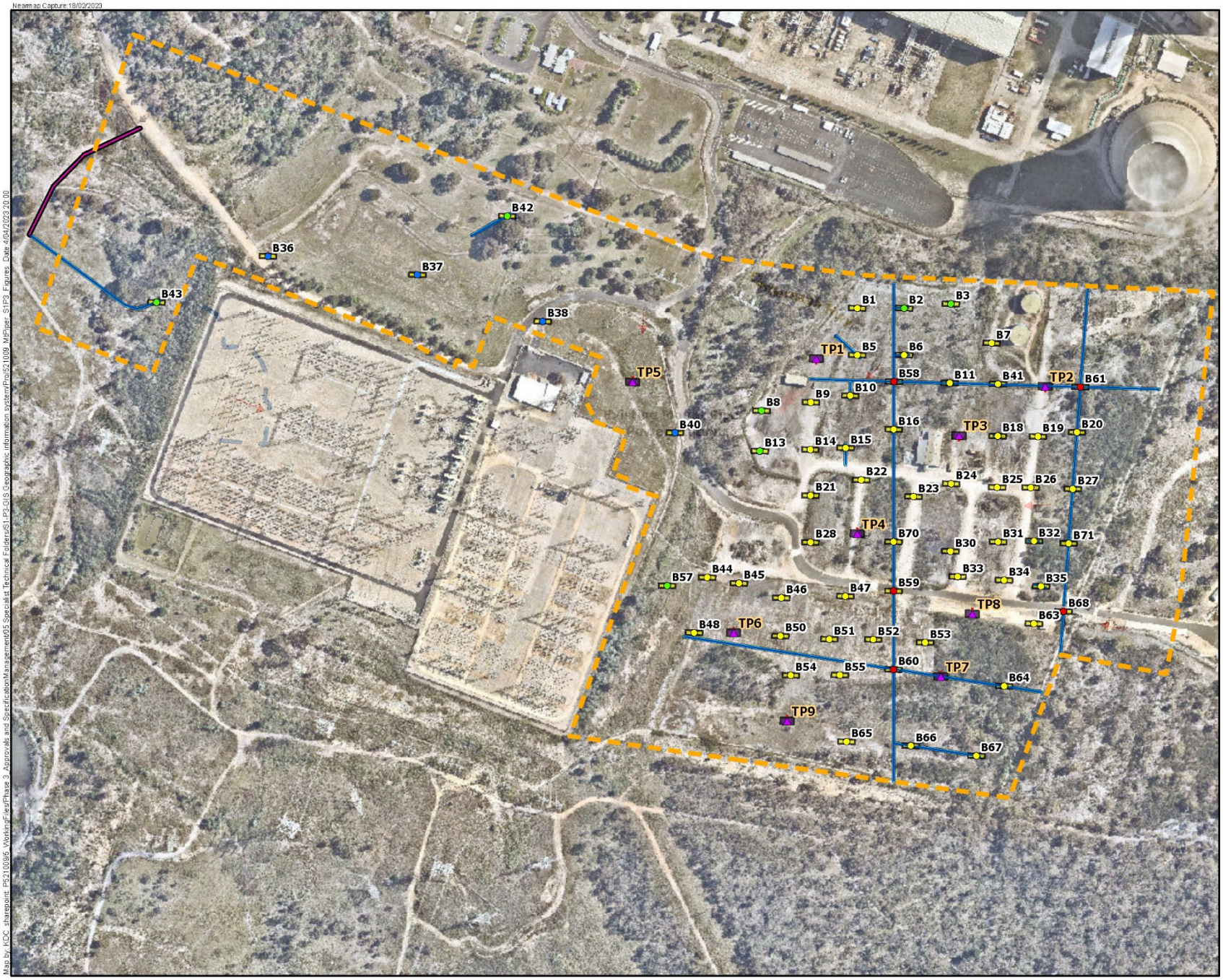
Proponent details	
Name	EnergyAustralia NSW Pty Ltd
Postal Address	Level 19, Two Melbourne Quarter 697 Collins Street Docklands VIC 3008
ABN	75 163 935 635
Nominated contact	Justin Courmadias
Contact details	Justin.Courmadias@energyaustralia.com.au
Statement of Environmental Effects	Prepared by Aurecon Australasia Pty Ltd

1.4 Property Details

The proposed work is located across the following lots/deposited plans (DPs), within the EnergyAustralia landholding at 85 Boulder Road, Blackmans Flat, NSW 2790, legally described as follows:

- Lot 101 DP 1164619
- Lot 103 DP 1164619
- Lot 1 DP 829065
- Lot 191 DP 629212
- Lot 2 DP 702619

The land is wholly owned by EnergyAustralia NSW Pty Ltd. The property details are shown in Figure 1-2.



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Legend

Proposed Boreholes For Geotech Scope

- 10m boreholes
- 30m Boreholes
- 6m Boreholes
- Underground alignment 2m boreholes
- Test Pit
- Shallow Test Pit (1X1.5m)
- Geophysics Investigation Line
- New Access Tracks
- Preferred Access Route

Drilling Pad

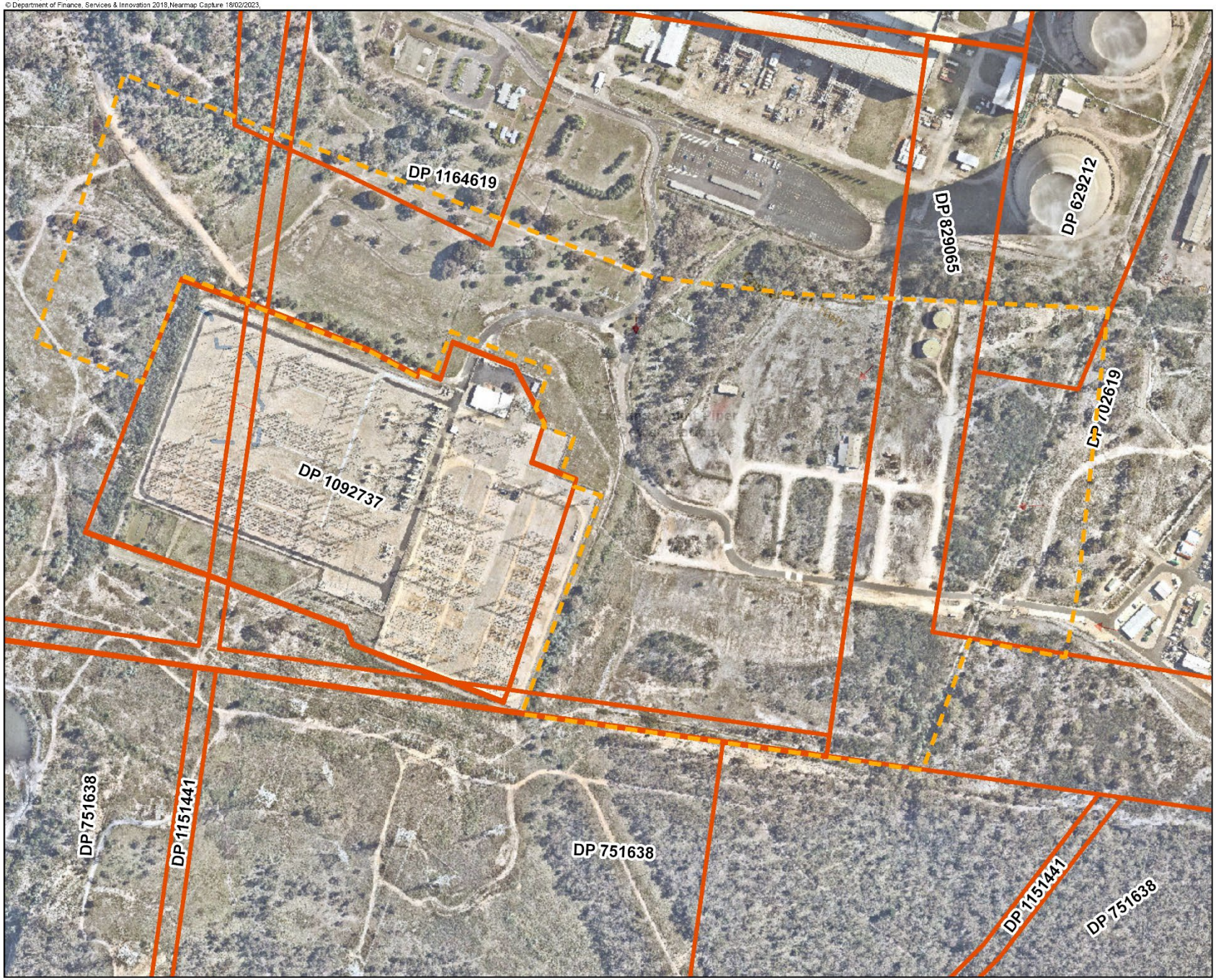
- 12X6m
- 15X4m
- Site Investigation Area

A3 scale: 1:4,100
0 40 80 120 Meters

Job No: 521009
Coordinate system: GDA 1994 MGA Zone 56

Mt Piper BESS

Figure 1-1 Proposed site investigation area



Map by: KDC https://aurecongroup.sharepoint.com/:f:/r/sites/521009/5_WorkingFiles/Phase%203_Approvals%20and%20Specification/Specialist%20Technical%20Folders/S1-P3-GIS%20Geographic%20Information%20system/Working?csf=1&web=1&e=Cwr7XW Date: 5/04/2023 14:07

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Legend

- Project Footprint
- Cadastre

Date: 30/03/2023 Version:0

A3 scale: 1:4,500
0 40 80 120 Meters

Job No: 521009

Coordinate system: GDA 1994 MGA Zone 56

Mt Piper BESS

Figure 1-2: Property Details

2 Site Description

2.1 Site Overview

The site for the proposed work is the same as the site for the proposed Project (pursued under a separate SSD application). The site is located in the suburb of Blackmans Flat approximately 25 km northwest of Lithgow, around 4 km east of the closest town of Portland and about 6 km northeast of Wallerawang. It is near the Great Western Highway (A32), the Main Western railway line and the Castlereagh Highway (B55). Boulder Road is located to the north of the EnergyAustralia landholding.

Mt Piper Power Station is located at 85 Boulder Road, Blackmans Flat, NSW. The proposed site investigation works are located about 500 m south of the existing Mt Piper power station infrastructure and is separate to the operational area of the power station, in an area previously used as the construction compound and laydown area during the power station construction. The subject site is located approximately 2 km from sensitive land uses (i.e. residential zones).

The existing appearance and condition of much of the site is generally flat. The majority of the site is a constructed fill platform/cleared land. It features largely modified native and exotic vegetation, with some surrounding trees bordering the site perimeter (Figure 2-1 and Figure 2-2). Ground conditions generally either comprise hardstand, grassed areas or cleared surface with loose gravel.

Figure 2-1 General appearance of the northern area of the site

Figure 2-2 General appearance of the southern area of the site

2.2 Land Zoning

The proposed work is located on land within the Lithgow LGA zoned SP2 - Infrastructure (Electricity Generating Works) under the Lithgow *Local Environmental Plan 2014* (Lithgow LEP 2014) and straddles five lots. These lots and their corresponding land use zones are listed in Table 2-1. The proposed work is solely located in land zoned special use (SP2), which is defined in Division 4 Clause 2.36 of the *State Environmental Planning Policy (Transport and Infrastructure) 2021* (Transport and Infrastructure SEPP) as permissible with development consent.

Table 2-1 Land Use Zoning of the subject site

Lot/DP	Land Zone
Lot 101 DP 1164619	SP2 – Infrastructure (Electricity generating works)
Lot 103 DP 1164619	SP2 - Infrastructure (Electricity generating works)
Lot 1 DP 829065	SP2 - Infrastructure (Electricity generating works)
Lot 191 DP 629212	SP2 - Infrastructure (Electricity generating works)
Lot 2 DP 702619	SP2 - Infrastructure (Electricity generating works)

2.3 Current and Previous Uses

The land pertaining to the proposed works was previously used as the construction compound and laydown area during power station construction. The site is currently within a non-operational area of the EnergyAustralia landholding and is characterised by historical and ongoing industrial activities.

A Consolidated Coal Lease (CCL) 712 overlaps with part of the proposed work area. The mineral holder title has been consulted about the proposed site investigation work and has no objection to it proceeding.

Part of the central area of the site includes infrastructure associated with the former Nu-Rock testing facility. Works at this facility have ceased due to the termination of the lease in December 2022, and removal of equipment is in progress. The site also contains imported fill and various other material stockpiles.

Other than the proposed work there are no DAs for any land use or developments that coincide with the site area.

2.4 Site Characteristics

2.4.1 Topography and Soils

The proposed work area ground levels are generally at an elevation up to 7 m higher than the existing Mt Piper power station, with an average overall elevation across the site of 950 m Australian Height Datum (AHD).

The work area footprint is relatively flat, with the surrounding area gently sloping towards the southeast when south of the existing sealed internal access road, and to the northeast when north of the access road. A review of the geology and soils mapping for the region indicates that the proposed work is located within the Sydney Basin underlain by Late Permian Illawarra Coal Measures (Geoscience Australia, 2016).

The Atlas of Australian Soils (ASRIS, 2011) categorises underlying soils within the work area footprint as Sodosols, which are generally described as soils with strong texture contrast between the A horizon and Sodic B horizon, that are not strongly acidic (Isbell & NCST, 2021). Kandosols and Rudosols are also identified in the areas surrounding the proposed work. The Atlas of Australian Soils online mapping portal (ASRIS, 2011) indicates the work area footprint has an extremely low to low risk of acid sulfate soils.

A review of the online eSPADE mapping portal indicates that the site investigation area has a very low salinity hazard. The soil electrical conductivity (EC) (measure of salts in soil) is modelled as 0.05 to 0.10 deciSiemens per metre (dS/m) (Department of Planning and Environment (DPE), 2018a). The preferred EC levels, as stated by the NSW Department of Primary Industries (DPI) is <0.15 dS/m.

2.4.2 Site Drainage

The site is within the Upper Coxs River catchment and drains to Sydney Drinking Water Catchment.. Surface water within the catchment is governed by the Water Sharing Plan for the Greater Metropolitan Region Unregulated River Water Sources. The plan itself is divided into six water source areas, with the proposed work being located within the Upper Nepean and Upstream Warragamba water source.

There are existing watercourses at the eastern and western extents of the proposed work area; both unnamed. The western watercourse is a third order stream, and the eastern watercourse is a first order watercourse that has been realigned into a concrete drain. Surface water within the work footprint is currently managed by a number of drainage lines that drain westwards towards Wangcol Creek and the Mt Piper power station Final Holding Basin, which in turn flows to the Cox River. Prior to discharge from site, the surface water in the Final Holding Basin is treated via an oil water separator before discharge via a weir.

2.4.3 Existing infrastructure

There are no existing permanent buildings within the site, however there are some temporary structures (storage sheds) which would be demolished later to accommodate the proposed BESS Project, as well as remnants from the former Nu-Rock testing facility. The site contains some existing underground services, mostly related to the power station construction phase when it was used as the compound and laydown area, and overhead transmission lines traverse the western extent of the site as well as to the North-East of the Nu-Rock facility. There is no existing lighting or other services within the site.

A surfaced and sealed road exists within the proposed work area. The road provides access to the water treatment facility operated by Veolia Water, adjacent and immediately east of the proposed work area.

2.5 Site Suitability

The site subject to geotechnical investigations is deemed suitable as:

- The proposed work constitutes ancillary development for the purpose of Infrastructure - Electricity Generating Works, and is permitted with consent
- The proposal comprises a temporary package of works which would not create lasting amenity impacts or other land use conflicts within the locality
- The proposed work can be undertaken with minimal environmental impacts (Section 5), with the implementation of mitigation measures (Section 6).

3 Description of Proposed Investigation

3.1 Disturbance Area

The disturbance area is the total extent (footprint) of the anticipated area that would be directly impacted via ground disturbance within the site investigation area. The disturbance footprint comprises areas associated with the following site investigation activities:

- Drilling of approximately 62 boreholes to varying depths, of which about five would be converted to groundwater monitoring wells
- Excavation of approximately 9 test pits
- Excavation of approximately 6 shallow test pits, adjacent to the above 9 test pits
- Geophysical investigation and data collection along approximately 5 intersecting lines
- Clearing and establishment of approximately 1.7km of vehicle track to enable access to all proposed drilling/ sampling locations enable access to geotechnical investigation locations.

The approximate locations of the above activities (boreholes, test pits, and geophysics lines) have been identified and mapped in disturbed areas as far as possible to minimise the need to create access tracks through vegetation and have an unnecessarily larger disturbance area. A summary of the site investigation scope of works and associated disturbance area is presented in Table 3-1. A comprehensive list showing the detail of the anticipated disturbance area per location is included in Appendix A.

The Principal Contractor may need to drill additional boreholes in addition to those listed above and in Table 3-1 depending on the ground conditions. Should this be required, the works will be undertaken consistent with the principles outlined in this SEE and any conditions of consent imposed by Council (minimising additional disturbance as far as possible) with adherence to the control measures listed in Section 6. The anticipated width of the test pits will be determined by the size of the excavator bucket (~0.9 – 1.0 m wide), and the diameter of borehole determined by the auger size (currently anticipated up to approximately 150 mm diameter). It is anticipated that the depths of test pits and boreholes would terminate at their target depth or prior refusal but could extend beyond these depths if determined on site by the Contractor.

Table 3-1 Site investigation scope of works and anticipated disturbance

Type of works	Target depth below ground level	Anticipated surface disturbance per location	Purpose of works	Reinstatement
~9 x Test Pits (Archaeological survey require prior to excavation)	As deep as practicable (up to 5-6 metres or prior refusal)	Test pit: ~0.9 m wide x ~6 m long = 5.4 m^2 (worst-case 16.2 m^2) Working area: 12 m long x ~6 m wide = 72 m^2	Soil logging	Immediately reinstated
~6 x Shallow Test Pits (Archaeological survey require prior to excavation)	~1.5 m	Test pit: ~1.0 m wide x ~1.5 m long = 1.5 m^2 Working area: above area to be used	Thermal Resistivity and Soil Electrical Resistivity in-situ testing	Immediately reinstated
~4 x Auger boreholes	~2 m depth or prior refusal	Borehole: drill diameter of up to 150mm (0.017 m^2) Drill site: 15 m long x ~4 m wide = 60 m^2	Thermal Resistivity and Soil Electrical Resistivity in-situ testing	Immediately reinstated by backfilling with excavated soil and rock
~7 x Auger SPT and core boreholes	Up to 10 m	Borehole: drill diameter of up to 150mm (0.017 m^2) Drill site: 15 m long x ~4 m wide = 60 m^2	To understand deeper soil/rock composition to inform foundation requirements and design of proposed BESS	Immediately reinstated by backfilling with excavated soil and rock
~5 x Auger SPT and core boreholes	Up to 30 m depth or on encountering a mine level void prior	Borehole: drill diameter of up to 150mm (0.017 m^2) Drill site: 15 m long x ~4 m wide = 60 m^2	Mine void observation	Will not be backfilled, and, where mine voids are encountered, will be held open with PVC casing, installed to facilitate mine void observations with the sonar and camera
~46 x Auger and SPT boreholes	To 6 m or prior refusal	Borehole: drill diameter of up to 150mm (0.017 m^2) Drill site: 15 m long x ~4 m wide = 60 m^2	Soils samples to understand soil composition and for contamination testing	Immediately reinstated by backfilling with excavated soil and rock, except for those nominated for a groundwater well

3.2 Site Investigation Area

The site investigation area is the area that will be accessed and traversed to undertake the proposed work and coincides with the proposed BESS Project area. This broader investigation area has been included in the SEE and assessed to allow modification and/or refinement of specific drilling locations and/or access to further avoid or minimise environmental or engineering constraints that may be identified on site. This approach allows for sensitive environmental areas and known constraints to be avoided where possible, further reducing the environmental impact of the work.

The location of the disturbance areas within the investigation area may vary, and differ from the indicative mapping, based on ground conditions experienced by the Contractor at the time of the works commencing and to avoid sensitive environmental aspects if required (i.e. micro-siting of locations would occur at the time of the works).

3.3 Proposed Work

The purpose of the proposed work is to better understand ground conditions at the site, including:

- Assessing surface and subsurface geological conditions
- Assessing *in situ* geological, geotechnical and hydrogeological characteristics of the area
- Assessing the potential for contaminants of potential concern
- Identification of mine voids (if present).

The proposed site investigation activities will inform the design and constructability of the proposed BESS (under separate application), as well as operational considerations of the proposed Project, if approved. The activities to be carried out as part of the proposed work are further detailed in the following sections.

3.3.1 Access Establishment

Access to the site investigation area would be via an existing access road from Boulder Road (a public road). Once at the site investigation area, existing site access tracks, existing disturbed areas or grassed areas would be utilised as much as practicable to access each of the proposed drilling/sampling locations and associated working areas. This will ensure safe access as well as minimise disturbance and potential impacts.

Some areas within the site investigation area have above waist-high vegetation. Clearing of trees in these woody areas would be required to access some of the borehole locations. Furthermore, cleared straight-line paths are required to undertake the geophysical investigation (refer to Section 3.3.4 for further detail).

Desktop review and site investigations have informed the identification of proposed new access tracks. Indicative approximate 3 m wide access tracks have been mapped (see Figure 1-1), such that they avoid as much intact native vegetation as possible. Where vegetation clearance is unavoidable, access tracks have been mapped to follow the most direct route, create a path to multiple locations and have assumed the use of the same path between borehole/test pit sites and then exit using the same route to minimise disturbance. This is standard practice on site investigation projects where clearance is to be limited. It is noted that this indicative mapping will be followed by the Contractor where feasible and ground conditions allow. The final location of these new access tracks would be determined by the Contractor based on confirmed scope of works and ground conditions closer to the time of the works occurring, whilst remaining within the worst-case native vegetation clearance limit (less than 0.5 ha).

Approximately 1.7 km of new access track is anticipated to be required across the site for the proposed scope. Where required a worst-case 3 m wide cleared track has been assumed based on the list of machinery and plant required on site. No civil works or cut and fill is required.

3.3.2 Borehole Drilling

Borehole drilling is required to sample lithologies and develop a more detailed geological model of the site. Approximately 62 vertical boreholes (roughly on a 50 x 50 m grid) are proposed across the proposed work area for the geotechnical investigation to various target depths, to an anticipated maximum of 30 m. The exact number of boreholes drilled on site may vary depending on the ground conditions experienced on site. The locations of the majority boreholes coincide with the area proposed for the Project's battery energy storage units. Other borehole locations are at areas proposed for construction laydown areas, are scattered along the proposed grid connection options and are at locations where larger heavy infrastructure (eg transformers) may be placed.

Whilst the boreholes themselves would be small, each about 150 mm in diameter, they would require a work area, or drill pad, to be established to accommodate the drill rig and associated sampling and testing services. These drill pads would need to be a near-level surface and would measure about 15 m x 4 m (60 m^2). Each indicative borehole location mapped in Figure 1-1 is mapped with the corresponding indicative drill pad area.

All boreholes will be immediately reinstated by backfilling with excavated soil and rock except where they have been nominated for a groundwater well or identified as the 30 m deep mine void boreholes, and where mine voids are encountered. In this instance, these boreholes will be held open with PVC casing, installed to facilitate mine void observations with sonar/camera. Where no mine voids are encountered, if nominated for a standpipe then this will be installed, otherwise it will be backfilled with cement grout.

Groundwater sampling would be attempted during drilling activities. Approximately five boreholes will be converted to monitoring wells. Where holes are planned to be monitoring wells, if coring is required, then the driller will use only clean water for drilling, i.e., no added drilling polymers are to be used. At least three of the monitoring wells are to target any shallow/perched water table in say the 10 m deep boreholes. One monitoring well is to be installed in a 30 m borehole that has not encountered mine voids.

The well installations will be undertaken at representative locations across the site. The installation will comprise environmental grade class 18 PVC (depending on depth) with threaded couplings.

During the coring process some drilling fluid would be used. Drilling fluid will be water-based and may include some simple, non-toxic additives, producing a benign fluid which has been used for similar applications elsewhere, e.g. for water storage supply structures. Any drilling fluids used will either be recovered and taken offsite for disposal at a licenced facility, or subject to agreement with EA, may be disposed of in holding basin ponds on the power station site.

3.3.3 Test Pit Excavation

Geotechnical test pits will be excavated at approximately 9 locations to obtain information about the physical properties of the fill, soil, and rock present at the site. The test pits will assist in determining the strength, stability, and bearing capacity of the site. A Dynamic Cone Penetrometer (DCP) test will be conducted adjacent to each test pit.

Nominated test pit locations across the site will be targeted to obtain representative conditions across the proposed construction site. Once the test pit located is selected, the area will locally be cleared of vegetation or debris to undertake the excavation and temporarily stockpile the excavated material.

The test pits would be about a bucket width wide (900 mm) and require a trench about 6 m long. The soil that is dug out would be stockpiled on the ground and then backfilled. Assuming no collapse of the ground disturbance for each test pit would be approximately 5.4 m^2. If the ground is unstable and the pit collapses, the pit may need to be benched, thereby tripling the footprint to approximately 16.2 m^2. The working area required at each test pit location would be approximately 6 m x 12 m (72 m^2).

The test pits will be excavated with a suitable extendable backhoe or excavator with about a 5 m reach. The excavation will proceed in a systematic manner to expose the soil layers. The material will be described in terms of its colour, texture, and structure and logged in accordance with AS1726-2017 for geotechnical site investigations. In parallel with the geotechnical logging by the Contractor, a professional soil scientist will log and sample the pits for the purposes required by the EIS.

The absence or presence of groundwater observed during the excavation will be noted. The groundwater level will be measured as depth below ground level.

Once the excavation has been completed and samples obtained, the test pit will be immediately backfilled with the excavated material. The fill will be placed into the excavation in layers and tamped down with the excavator bucket. Surplus fill will be mounded over the pit and will settle over time. Straw and grass seed will be scattered on the surface to reduce erosion of any exposed soil.

Shallow test pits of 1.5 m deep will be excavated at six selected locations adjacent the deeper test pits, offset by approximately 1 m. The shallow test pits will be for Thermal Resistivity and Soil Electrical Resistivity in-situ testing on site. These pits would be able to be excavated using the same 6 m x 12 m working area and would measure approximately 1.0 m x 1.5 m (1.5 m^2).

3.3.4 Geophysical Investigation

A geophysical investigation shall be undertaken to investigate subsurface conditions within the eastern section of the site. The geophysical investigation would be undertaken along approximately five transects

using the Multi-channel Analysis of Surface Waves (MASW) method to obtain the seismic shear (S-) wave velocity distribution of the subsurface material to a minimum depth of 30 m below ground level.

A string of geophones would be towed behind a vehicle along a cleared path to measure ground vibrations to give information on the lateral variations in shear velocity down to 30 m depth. MASW data will be acquired using a seismograph recording system and a sledgehammer seismic source. This data will assist in determining the presence of mine voids to help inform the constructability of the proposed Project.

The geophysics survey lines would be positioned to generally align with the proposed borehole locations to help inform and refine the interpretation of the geological model. The lengths of individual lines and spacing between geophones may be restricted by site constraints and configuration may be modified accordingly.

3.3.5 Services, Plant and Equipment

Services, plant and equipment required to undertake the proposed work and associated activities are likely to include:

- One tracked ~20-tonne excavator
- One wheeled ~8-tonne backhoe
- Two drilling rigs
- One water truck
- One vacuum tanker
- One Manitou (if required)
- One tilt tray (if required)
- Approximately seven light 4WD vehicles
- One ~20 ft container
- Mobilisation of site-based equipment likely to consist of generator, air compressor, site services, containment vessels (to capture drilling fluids/drill chips) and portable ablution facilities (if required)
- One service vehicle to remove waste from the drilling process
- Wireline logging/testing vehicles with logging, testing and sampling equipment, tool kits and supplies.

To undertake the vegetation clearing it is anticipated that the following equipment may be used:

- Mulcher
- Tracked bobcat (Posi-Track loader) with slasher on the front
- Hand and power tools for vegetation management.

A small site office is also required and would be established at the least-impactful/most disturbed location (likely an already cleared area) within the site investigation area. The site office would likely be trailer mounted or containerised.

3.3.6 Site Rehabilitation

At the completion of the proposed work, all disturbed areas (drill sites) will be picked clean of any drilling related rubbish. Disturbed soil will be covered in straw and grass to prevent erosion.

3.4 Workforce

The number of people on-site for the proposed work is expected to vary significantly over the duration of the work, and separate work crews may be mobilised depending on the program timetable developed by the Contractor. Overall, a typical daily workforce of five personnel is expected.

No on-site accommodation is required. The workforce would travel to and from site daily from nearby accommodation within the Lithgow area.

3.5 Water Requirements and Management

All water needed for site works, including drilling and site facilities would be sourced from the Mt Piper Power Station, as agreed with the Proponent. Temporary sediment controls will be installed at the drill sites during the works to manage potential water quality impacts.

3.6 Waste Management

Several intermediate bulk containers (IBCs) will be used on site to store liquid drill waste from the coring. Any drilling fluids used will be recovered and taken offsite for disposal at a licenced facility at regular intervals, or disposed of in an established settlement pond, or subject to agreement with EA, may be disposed of in the holding basin ponds on the power station site.

All waste from the works, including general waste, green waste, and other waste generated will be removed from site and disposed of at a suitably licenced facility.

Drilling fluid would be disposed of by beneficial reuse. Any slurry (drill mud) or rock material, comprising mostly bored fines and water, would be used to backfill holes, with the preference to beneficially reuse any excess within the work area to assist with the rehabilitation of the site. Beneficial reuse of drill mud and rock material on site would only be undertaken on sites located greater than 40 m from a waterway, and in a manner that ensures no off-site migration of the material. Appropriate energy dissipation devices would be used when beneficially reusing the material on site to ensure no erosion/sedimentation occurs.

In the event of the material containing physical indicators of potential contamination (appearance and or odours), any excess would be removed from site and disposed of at a suitably licensed waste management facility.

3.7 Duration and Timing

The geotechnical drilling program is estimated to take three months, which may be dependent on weather and equipment availability. It is anticipated that, normally, no more than two boreholes would be drilled at the same time. However, this is expected to be at the discretion of the drilling Contractor, as it would be principally determined by availability of suitable rigs and personnel.

It is anticipated that the geotechnical Contractor will operate either 7 days per week between normal working hours (7 am to 6 pm), or on a 10 day on 4 days off roster, i.e. working every second weekend. The proposed timing aims to maximise operational efficiencies required to complete drilling activities. Due to the distance to the nearest residential dwelling (>2 km) and the temporary nature of the works, impacts from out of hours works are expected to be minimal. As such, work hours are proposed from:

- 7 am to 6 pm Monday to Sunday, including public holidays.

Appropriate noise monitoring and management will be implemented as specified in Section 6. No drilling or earthworks will occur during night-time hours. Contractors may however access the work area outside of these hours for security purposes, to respond to emergencies and to undertake maintenance and repairs on equipment as required.

4 Statutory context

EnergyAustralia is investigating the development a grid scale BESS with a capacity of up to 500 Megawatt (MW) and a duration of up to 4 hours. The BESS is proposed in response to both energy market requirements and the strategic direction of EA. To support the design and environmental assessment of the proposal, EnergyAustralia plans to undertake subsurface investigations I within their landholding at Mount Piper including geotechnical, contamination and geophysics investigations.

4.1 NSW Planning Framework

The *Environmental Planning and Assessment Act 1979* (EP&A Act) and the *Environmental Planning and Assessment Regulation 2000* (the EP&A Regulation) provide the framework for land use planning and development control in NSW. The EP&A Act and EP&A Regulation are supported by a number of Environmental Planning Instruments (EPIs), which include SEPPs and Local Environment Plans (LEPs), described in the following sections.

4.1.1 Environmental Planning and Assessment Act 1979

Section 1.5(1) of the EP&A Act provides that "development" in NSW includes any of the following:

(a) the use of land,

(b) the subdivision of land,

(c) the erection of a building,

(d) the carrying out of a work,

(e) the demolition of a building or work,

(f) any other act, matter or thing that may be controlled by an environmental planning instrument

The proposed investigative works on the subject site are considered to generally fall within Section 1.5(1)(d) of the EP&A Act which defines 'work' as:

> *includes any physical activity in relation to land that is specified by a regulation to be a work for the purposes of this Act, but does not include a reference to any activity that is specified by a regulation not to be a work for the purposes of this Act.*

And the carrying out of a work includes —

> *(a) the renewal of, the making of alterations to, or the enlargement or extension of, a work, or*
>
> *(b) enclosing a public place in connection with the carrying out of a work.*

Development that needs consent:

Section 4.2(1) of the EP&A Act states that:

> *(1) General If an environmental planning instrument provides that specified development may not be carried out except with development consent, a person must not carry the development out on land to which the provision applies unless—*
>
> *(a) such a consent has been obtained and is in force, and*
>
> *(b) the development is carried out in accordance with the consent and the instrument.*
>
> *Maximum penalty—Tier 1 monetary penalty.*
>
> *(2) For the purposes of subsection (1), development consent may be obtained—*
>
> *(a) by the making of a determination by a consent authority to grant development consent, or*
>
> *(b) in the case of complying development, by the issue of a complying development certificate.*

As per Section 4.2(1).(2).(a), this SEE is prepared to accompany a DA to Council.

As per Section 4.15 of the Act, it is noted that the Council will notify the DA and consider any submissions as required.

4.1.2 Environmental Planning and Assessment Regulation 2021

Schedule 3 of the EP&A Regulation lists those development types which meet the criteria for assessment as designated development (where an environmental impact statement (EIS) is required to be prepared).

As mentioned in Section 1.1 of this report, the DA is submitted to undertake the site investigation works to support and inform the feasibility of the BESS and other related steps. As the works applied for as part of this submission does not meet the criteria for classification as designated development under Schedule 3, this DA is not required to be accompanied by an EIS.

4.1.3 State Environmental Planning Policy (Transport and Infrastructure) 2021

The Transport and Infrastructure SEPP sets out a range of provisions relating to transport and infrastructure, including electricity generation and supply. The proposed application works involves investigations for the purpose of electricity storage and on land zoned for electricity generation (SP2). However, the applicant is not a government agency, hence, the 'development without consent' pathway available under the SEPP does not apply and subsequently, the works are being pursued as a DA.

There are no other provisions pursuant to the Transport and Infrastructure SEPP that directly pertain to the proposed site investigation works.

4.1.4 State Environmental Planning Policy (Biodiversity and Conservation) 2021

The proposed work involves site investigations as described in Section 3.2. The works will require clearing of some native vegetation, however, majority of the site is cleared land associated with existing infrastructure or largely modified native and exotic vegetation, with some surrounding trees bordering the site perimeter. A preliminary Flora and Fauna assessment (FFA) report prepared by EcoPlanning is submitted as part of this application.

The proposed work is located within the Declared Outer Catchment area of the Greater Sydney Catchment and Water Supply system. The works area is in proximity to the Coxs River. Chapter 6 of the Biodiversity and Conservation SEPP relates to Sydney drinking water catchment. This SEPP specifically requires all proposed developments within the Sydney drinking water catchment to demonstrate a neutral or beneficial effect (NorBE) on water quality. Guidelines for the assessment of a NorBE on water quality have been published by WaterNSW (2021) and provide clear direction on what a NorBE means, how to achieve it and how to assess and application. As defined by the guidelines, a NorBE on water quality is demonstrated when a project:

- Has no identifiable potential impact on water quality, or
- Will contain any water quality impact on the development site and prevent it from reaching any watercourse, waterbody or drainage depression on the site, or
- Will transfer any water quality impact outside the site to a location where it is treated and disposed of to a standard approved by the consent authority.

Councils in the catchment carry out NorBE assessments for DAs that have a lower risk to water quality and refer more complex DAs to WaterNSW for concurrence.

The site investigative works proposed within this application would not impact the water quality within the catchment as any soil disturbance on the site is proposed to be rehabilitated/remediated within a certain timeframe and relevant control plans will be implemented on the drill sites as required. Refer to Section 6 for details on proposed mitigation measures.

The site is zoned SP2 Infrastructure, thus Chapter 2, Part 2.2 of the SEPP which relates to clearing vegetation in non-rural areas applies.

The proposal will require some clearing of vegetation to accommodate the site investigation works. The FFA report submitted with this application concludes that the site investigation works would require clearing of less than 0.5ha of native vegetation in various condition classes and would not have a significant impact on the potential (eight) threatened species recorded within the Study Area. Hence, an entry to the NSW Biodiversity Offset Scheme (BOS) or a referral to the Commonwealth DCCEEW is not required. The appropriate consent is being sought under this DA.

4.1.5 State Environmental Planning Policy (Resilience and Hazards) 2021

Subclause 4.6(1) of the Resilience and Hazards SEPP provides that a consent authority may not consent to a DA unless:

- It has considered whether the land is contaminated, and
- If the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out, and
- If the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.

This DA will allow investigative works (including geotechnical, contamination and geophysics investigation) to be undertaken in the subject area which would assist EnergyAustralia to further determine whether the land is contaminated. If any remediation works are required as part of the investigation works, these will be carried out under Chapter 4 of this SEPP and in accordance with the *Contaminated Land Management Act 1997,* as part of the SSD application for the BESS project.

Following the approval of this application and site investigation works, an Environmental Impact Statement (EIS) to support the separate State Significant Development DA (SSDA) will be submitted for the BESS Project proposed on the site as described in Section 1.1.

4.1.6 Lithgow Local Environment Plan 2014

The relevant clauses of the Lithgow LEP have been summarised in Table 4-1.

Table 4-1 Lithgow LEP summary

Lithgow LEP 2014	Response
Land Use Zone	The investigation envelope as shown in Figure 1-1 is zoned SP2 Infrastructure (Electricity Generating Works) under the Lithgow LEP.
Objectives of the Zone (SP2): ▪ To provide for infrastructure and related uses. ▪ To prevent development that is not compatible with or that may detract from the provision of infrastructure. ▪ To maintain or improve the water quality of receiving water catchments. **2. Permitted without consent** Nil **3. Permitted with consent** Aquaculture; Recreation areas; Roads; The purpose shown on the Land Zoning Map, including any development that is ordinarily incidental or ancillary to development for that purpose **4. Prohibited** Any development not specified in item 2 or 3	The site investigation is considered ordinarily incidental or ancillary to development for the purpose of electricity generating works, which are consistent with the zone objectives and is permissible with consent in the SP2 zone. This SEE has been prepared to accompany the DA for Council's determination under Section 4.2(2)(a) of the EP&A Act to facilitate development consent of the proposed development.

Lithgow LEP 2014	Response
Principal development standards	There are no principal development standards which apply to the proposed site investigation works.
7.1 Earthworks	The key objective is to ensure earthworks for which consent is required will not have a detrimental impact on environmental functions and processes, neighbouring uses, cultural or heritage items or features of the surrounding land. The proposal comprises site investigation works which will not significantly disrupt drainage patterns or soil stability on the site or within the locality and will not adversely impact future development of the land.
7.4 Terrestrial Biodiversity	Part of the cadastre block is mapped as containing terrestrial biodiversity; however the Study Area does not contain land mapped as 'Biodiversity'. Hence, clause 7.4 does not apply to the application. Kindly refer to the Flora and Fauna Assessment for further details in relation to terrestrial biodiversity

4.1.7 Lithgow Development Control Plan

The Lithgow Development Control Plan 2021 (DCP) provides guidance to developers, including site requirements for development and natural environment and hazards. The relevant sections of the DCP are summarised and addressed in Table 4-2.

Table 4-2 Lithgow DCP summary

Control	Summary of DCP Provision	Response	Compliance
Chapter 2: Site Requirements (all developments)			
2.2 Site Analysis, Local Characters & Context	The development is required to demonstrate that the chosen site is suitable for the proposed development and that the layout and design will avoid or minimise/mitigate any significant impacts on the environment and on other land uses in the vicinity of the site. Site analysis should be undertaken early in the design process and the development/design justified in terms of its response to that analysis. To demonstrate a suitable response to the site analysis, Council may require an applicant to lodge a number of supporting studies/plans in accordance with Council's DA Guide.	The DA is for site investigative works to support and inform the feasibility of a BESS and design elements related to the works. The future use of the site for a BESS is permissible within the SP2 zone and the site is suitable for the investigative works to facilitate this use. The works are also suitable for the site as it is located within the existing road network, infrastructure and services and will not impact upon the prevailing local character, any known heritage items or environmentally or visually sensitive areas, thus is deemed contextually appropriate. Refer to 2.5 for further details.	Yes
2.3 Slope response, earthworks and retaining walls	The development needs to demonstrate that the selected site is sited, designed and uses construction techniques responding to the environmental, topographical and surrounding amenities of the site.	The investigative works are planned to ensure minimal impacts on the site. Mitigation measures will be in place to minimise any potential impacts to the watercourses, stormwater systems or biodiversity values within the area. There will be no disturbance to natural drainage patterns, nor will the proposed works alter the topography of the site.	Yes

Control	Summary of DCP Provision	Response	Compliance
2.4 Stormwater management	Unless there is 'no identifiable potential impact', all development within the Sydney Drinking Water Catchment demonstrates a neutral or beneficial effect upon water quality in accordance with the requirements of SEPP (Sydney Water Drinking Catchment) 2011.	The works are proposed within the outer catchment area of the Greater Sydney water catchment area. A temporary erosion and sedimentation control plan will be prepared for the works to manage any stormwater impacts.	Yes
2.5 Vehicle access and parking	All developments must demonstrate safe and functional vehicle access/egress that minimises impacts on public roads, pedestrian safety, and connections. The development to provide adequate off-street parking, provide adequate circulation and manoeuvring areas for the largest design vehicle to access the site and minimise impacts on neighbouring sites (e.g noise, dust, vehicle lights, vibrations etc).	The subject site is privately owned and has sufficient area for on-site parking during the investigation works, including turning areas for large vehicles. Heavy vehicles are currently permitted on the site. Limited distribution in terms of vehicle access and parking is anticipated.	Yes
2.9 Solid waste management	The development must ensure waste minimisation during all construction phases – demolition, construction, and use of the site. The development to ensure appropriate waste management methods.	Any on-site waste generate due to the proposed works will be managed and disposed in accordance with the law. Refer to Section 3.5 for further details.	Yes
2.10 Amenity / Buffers for Sensitive Uses	Minimised detrimental developmental impacts on sensitive land uses (or zones that may support those uses) by means of noise and vibration assessments, air emissions, odour and dust checks, buffers to land uses, and other design methods.	The subject, surrounding and adjacent sites are not zoned as sensitive land uses. The proposed investigation works will not generate adverse noise, vibration, odour, dust or air emission impacts to any sensitive land uses where the site is located a significant distance (2 km) from any residential development.	Yes
2.11 Water and energy efficiency	The development to demonstrate sustainable measures through careful site planning, building design and construction techniques.	All water needed for site works, including drilling and site facilities would be sourced from the Mt Piper power station, as agreed with the Proponent.	Yes
Chapter 3 - Natural Environment and Hazards			
3.2 Bush fire prone land	The development should demonstrate compliance with the Rural Fire Act 1997(and associated Rural Fires Regulation 2013) and RFS Planning for Bush Fire Protection 2019.	The site is partially identified as Bushfire Prone Land. Notwithstanding, the proposal is for investigation works only and will not result in an increase to bushfire risk or hazard.	Yes
3.3 Vegetation and management	The development must assess clearing of vegetation and ensure it is assessed via the relevant biodiversity approval pathway primarily with clearing associated with development that requires consent under Part 4 of the EP &A Act so other approvals requirements may not be covered	A Flora and Fauna Assessment Report has been prepared for the works. Minor disturbance to the existing vegetation may occur to undertake the investigation works. The Biodiversity Offset Scheme (BOS) has not been triggered as the vegetation clearing is less than 0.5ha to undertake the proposed works. Refer to Section 5.1 for further details.	Yes

Control	Summary of DCP Provision	Response	Compliance
3.4 Land and soils	The development must address the risk of in relation to contaminated land, sensitive land areas, erosion and sedimentation and other geological or soil-related issues.	The proposal is for site investigation works only. A temporary erosion and sedimentation control plan will be prepared for the works to manage impacts during site investigation works	Yes
3.6 Ground and surface water protection	Developments which are in proximity to a significant watercourse or sensitive groundwater system must demonstrate impacts to groundwater, riparian land and watercourses from onsite storage of significant volumes of hazardous liquids or waste	Refer to Section 5.5 for further details.	Yes
3.7 Mine Subsidence Risk	This section applies to land identified as being within a Mine Subsidence District. It seeks to avoid, or if not avoid, minimise or mitigate the potential impacts of mine subsidence on development to protect the safety of people and value and structural stability of assets.	The site does not fall within a Mine Subsidence District. Notwithstanding, the proposed investigation works will serve to confirm the exact location of mine voids which may exist beneath the site, to inform the design and constructability of the future BESS (pursued under a separate SSD Application).	Yes
Chapter 7 – Commercial, Community & Industrial Uses			
7.3 Industrial Uses	Provides controls for industrial precincts within the Lithgow LGA by means of site and building design controls.	As the proposed works are not physical in nature, there are no relevant provisions which apply. Notwithstanding, the proposed works meet the overarching objectives of this Chapter of the DCP.	N/A

4.1.8 Public Interest

The proposal seeks approval for site investigation works to determine the suitability of the site for a future BESS development (subject of a separate SSD Application) and does not contravene the public interest.

4.2 Other relevant Legislation

Environmental planning related legislation and regulations that may be applicable to the site investigation works are identified in Table 4-3.

Table 4-3 Potentially Relevant Legislation and Regulation

Legislation	Relevance	Response
Biodiversity Conservation Act 2016	The *Biodiversity Conservation Act 2016* (BC Act) seeks to conserve biological diversity, promote ecologically sustainable development (ESD), prevent extinction and promote the recovery of threatened species, populations.	It is considered that a Biodiversity Development Assessment Report (BDAR) is not required to accompany the DA as the proposed works are not likely to 'significantly affect threatened species. Furthermore, the Biodiversity Offset Scheme (BOS) has not been triggered as the vegetation clearing is less than 0.5ha to undertake the proposed works. Refer to the Flora and Fauna Report prepared by EcoPlanning submitted as part of the DA

Legislation	Relevance	Response
Water Management Act 2000	The *Water Management Act 2000* (WM Act) aims to provide for the sustainable and integrated management of the water sources of the State for the benefit of both present and future generations. The WM Act is based on the principles of ESD, aiming to ensure the fundamental health of rivers, groundwater systems and associated wetlands, floodplains, estuaries are protected. Section 91 of the WM Act provides that there are two types of activity approvals which may apply to works within NSW, being Controlled Activity Approvals and aquifer interference approvals. Controlled Activity Approvals are required where works are proposed to be undertaken on waterfront land. Waterfront land is defined under the Dictionary to the WM Act as being: ■ the bed of any river and a line drawn parallel to 40m inland from the highest river bank, or ■ the bed of any lake and a line drawn parallel to 40m inland from the highest lake shore, or ■ the bed of any estuary and a line drawn parallel to 40m inland from the estuary mean high water mark, or ■ the bed of coastal waters and a line drawn parallel to 40m inland of the mean coastal high water mark.	No activities associated with the site investigation will be on land defined as waterfront land. In terms of aquifer interference, the proposed work meets the criteria for a defined minimal impact aquifer interference activity under Section 3.3 of the Aquifer Interference Policy (Department of Primary Industries: Office of Water, 2012), as they would fall within the following description: ■ Core holes, stratigraphic (chip) holes, geo-environmental and geotechnical bores, works or activities (the latter as listed in AS 1726) intersecting the water table if they are decommissioned in such a way as to restore aquifer isolation to that which existed prior to the construction of the bore, work or activity and that the decommissioning is conducted within a period of 28 days following completion of the bore, work or activity.
Contaminated Land Management Act 1997	This Act outlines the circumstances in which notification of the NSW Environment Protection Authority (EPA) is required in relation to the contamination of land.	The site investigation works will assist with soil testing to inform whether the works area soil has traces of contamination. Notification of the NSW Environment Protection Authority (EPA) would not be required in this instance
Heritage Act 1977	The Heritage Act 1977 (Heritage Act) is concerned with all aspects of conservation ranging from the most basic protection against indiscriminate damage and demolition of buildings and sites, through to restoration and enhancement. Matters protected under the Act include items listed on the State Heritage Register, the heritage schedules of local council LEPs, and/or the conservation registers (or Section 170 Registers) of NSW State government agencies, as well as items subject to an Interim Heritage Order.	As the site is not listed on the Heritage register, it is not expected that the site investigation works would have any significant negative impact on heritage elements. As such, it is not anticipated to impact on any heritage items defined within the Heritage Act and hence, no approval is required under the Act.

Legislation	Relevance	Response
Protection of the Environment Operations Act 1997	The *Protection of the Environment Operations Act 1997* aims to protect, restore and enhance the environment in NSW and to promote public access to information and involvement in environment protection.	Schedule 1 of the POEO Act provides a list of activities for which an EPL would be required. Nothing related to site investigation works are outlined in the list. As such, the works do not trigger an EPL application through NSW Environment Protection Authority. It should be noted that the site falls within the land subject to an existing EPL (EPL 13007). This license is held by EnergyAustralia for the operation of the Mt Piper power station. **Environment & Heritage | POEO Licences, Application and Notice Detail (nsw.gov.au)**
Rural Fires Act 1997	The *Rural Fires Act 1997* (Rural Fires Act) regulates the suppression and management of bushfires. The Act details duties and requirements regarding the NSW Rural Fire Service (NSW RFS), Neighbourhood Safer Places, Fire Trails, and Bush Fire Prevention.	EnergyAustralia will take steps to prevent the occurrence or spread of fire to adjacent land. An emergency bushfire management plan has been prepared to support the DA and is in Appendix B.
Waste Avoidance and Resource Recovery Act 2001 (WARR Act)	The *Waste Avoidance and Resource Recovery Act 2001* was established to promote waste avoidance and resource recovery. The Act encourages the most efficient use of resources in order to reduce environmental harm.	Waste would be managed by the Principal Contractor. Waste management has been outlined in section 3.6.
Coal Mine Subsidence Compensation Act 2017	The *Coal Mine Subsidence Compensation Act 2017* provides a scheme for the provision of compensation for damage caused by subsidence resulting from coal mine operations, and the assessment and management of risks associated with subsidence resulting from coal mine operations.	Parts of Lithgow are located within a mine subsidence district; however, Mt Piper does not form part of this area.

4.3 Commonwealth Legislation

The EPBC Act 1999 is the Commonwealth Government's primary environmental protection and biodiversity conservation legislation and establishes the Commonwealth's role in environmental assessment. The EPBC Act requires referral to the Commonwealth Minister for the Environment and Energy for any actions that are likely to have a significant impact on the following:

- Matters of National Environmental Significance (MNES)
- An action by the Commonwealth or a Commonwealth agency which has, will have or is likely to have a significant impact on the environment
- An action which has, will have or is likely to have a significant impact on the environment on Commonwealth land, no matter where it is to be carried out

Section 5 provides an assessment of the potential impacts on Biodiversity and other matters due to the proposed work and concludes that negative impacts on the biodiversity due to the site investigative will be unlikely. Moreover, the Biodiversity Offset Scheme (BOS) has not been triggered as the vegetation clearing is less than 0.5ha to undertake the proposed works. As such, the application is not required to be referred to the Commonwealth under the EPBC Act.

5 Environmental Assessment

5.1 Flora and Fauna

This section provides a summary of Flora and Fauna values within the Study Area and impacts to the potential values due to the proposed works. A Flora and Fauna Assessment was prepared by Ecoplanning (2023) and supports this DA. The key findings of the Flora and Fauna Assessment Report are summarised in the following sub-chapters.

5.1.1 Existing Environment

The Study Area is located within the Capertee Uplands sub-region of the Southern Eastern Highlands IBRA region. The Study Area covered by exotic vegetation or modified native vegetation. Field surveys undertaken by Ecoplanning identified two Plant Community Type (PCTs) - PCT 3367 Central Tableland Granites Grassy Box Woodland and PCT 3747 Southern Tableland Western Hills Scribbly Gum Forest – within the Study Area; along with eight (8) threatened species.

5.1.2 Potential Impacts

Clearing of Native Vegetation

Clearing of some vegetation on the site may be considered as a significant impact. However, most of the site is covered by exotic vegetation that provides minimal to nil ecological value and minor clearing of native vegetation will be limited to shrubs and understory species (approximately an area of 0.38 ha). It is considered that the impacts to the vegetation will be temporary in nature as the ground will be reinstated and the native vegetation would naturally regenerate. The proposed work will not trigger the BOS as approximately 0.38 ha of vegetation is anticipated to be impacted, which is below the entry threshold of 0.5 ha (based on the minimum lot size associated with the Project).. Refer to Section 4.1 of the FFA submitted in support of this application.

Loss of Habitat

Due to the current use of the site for industrial purposes, infrastructure and the existing ecological values present, the fauna habitat within the Study Area is limited. The proposed work may involve the trimming or trees and trimming/removal of shrubs that may provide marginal potential fauna habitat in the form of foraging resources and may be used by highly mobile avian and mammal species. This includes potential foraging habitat for several threatened microbats that have been recorded within the Study Area.

Given the absence of hollow-bearing trees, these habitat features are not likely to be a significant resource for local fauna given the size of the area to be impacted and a lack of habitat features (such as tree hollows) that are important in some species life cycle. No breeding habitat would be removed by the proposed Site Investigations.

Refer to Section 6 of the SEE for the mitigation measures proposed to ensure no detrimental impacts on the Flora and Fauna present in the vicinity or within the site.

5.2 Aboriginal Heritage

5.2.1 Existing Environment

The proposed site investigation area has low Aboriginal archaeological potential due to past land use practices and levels of ground disturbance associated with the construction of the Mt Piper Power Station. In

particular, the northern section of the investigation area has nil to very low potential, however, the southern portion appears largely intact with remnant native vegetation present.

A predictive model was developed as part of the due diligence assessment, which found:

- There is low potential for intact Aboriginal sites to be present within the project area. If Aboriginal sites do occur, they will most likely include artefact scatters and isolated artefacts in surface and sub-surface context. These will predominantly be characterised by quartz, quartzite and chert, with occurrences of mudstone, silcrete and volcanic raw materials.
- If present, these sites are likely to be visible in areas of increased ground exposure, particularly along access tracks, areas of natural erosion or areas where vegetation has been cleared in the southern portion of the project area.
- There is a low likelihood for potential archaeological deposits (PADs) to be present within the project area. Within the geographic region, PADs are typically identified on alluvial terraces overlooking watercourses or at areas of elevation. The topography of the project area is not elevated.
- Scarred trees may occur where remnant native vegetation occurs in the southern extent of the project area where there has not been disturbance associated with the power station construction.
- There is very low potential for art and rock shelter sites as there are no known landforms containing escarpments and outcropping rock within the project area.
- Grinding grooves, burials and earth features are unlikely to occur due to the unsuitability of the landscape.

An Aboriginal Heritage Information Management System (AHIMS) search on 5 September 2022 also indicated that the investigation area does not have known Aboriginal sites. Within a 5 km radius from the investigation area, 90 sites are identified to be of heritage importance and two of those sites are closely located to the southern boundary of the proposed site investigation area. AHIMS #45-1-2548 (IV-IF-2) is located approximately 250 m southwest of the site investigation area and AHIMS #45-1-2602 (WCU1) is situated approximately 300 m east of the site investigation area.

Information for recorded Aboriginal sites within 5 km of the site investigation area is provided in Table 5-1.

Table 5-1 Aboriginal sites within 5 km of the site investigation area

Aboriginal Site type	Number	Approximate Percentage of Total (%)
Open camp site	37	41
Shelter with deposit	8	9
Isolated find	27	30
Potential archaeological deposit (PAD)	10	11
Modified tree (carved or scarred)	2	2
Art (pigment or engraved)	3	3
Grinding groove	1	1
Habitation structure	1	1
Stone arrangement	1	1
Total number of Aboriginal sites	**90**	**100**

The Heritage Due Diligence assessment found that whilst ground disturbance has occurred across the vast majority of the site investigation area, the southern extent appears largely intact with remnant native vegetation present. Based on the findings associated with the AHIMS search, there is therefore potential for Aboriginal cultural heritage material to be present within the southern extent of the investigation area.

As a result of this finding, an Aboriginal Cultural Heritage Assessment Report (ACHAR) is being prepared for the BESS Project as per the *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW (2010)*.

5.2.2 Potential Impacts

An archaeological survey will be conducted on the 27 April 2023 for the Project (subject of SSD-50903958). As part of the archaeological methodology for this survey, the geotechnical testing locations will be visually inspected and assessed with representatives from Registered Aboriginal Parties. Geotechnical works will be permitted following the survey if ground disturbance is noted at the locations.

If the geotechnical works locations are determined to be undisturbed and located in association with archaeologically sensitive landforms, further assessment will be conducted at the locations in accordance with the *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW (2010)*, prior to geotechnical works commencing. Alternatively, a recommendation will be made for the geotechnical works to be relocated to already disturbed areas of the site investigation area if this is feasible.

Environmental management measures for Aboriginal heritage have been detailed in Section 6.

5.3 Historic Heritage

5.3.1 Existing Environment

The Heritage Due Diligence assessment did not identify any historic heritage sites or areas of historic archaeological potential within the site investigation area. A search of the relevant historic heritage registers did not identify any registered historic heritage sites within the site investigation area, or in close proximity to it. The closest historic heritage site is approximately 3 km to the east and will not be impacted by the proposed works.

A review of historic aerial imagery and relevant archaeological reports did not identify any historic heritage present within the site investigation area and there is very low potential for historic heritage elements to be impacted by the proposed works. In accordance with the *Heritage Act 1977*, there are no historic heritage approval triggers for the proposed works and there is no legislative requirement to undertake further historic heritage assessments prior to works commencing.

5.3.2 Potential Impact

In a scenario of an Unexpected Find during the proposed works, the Unexpected Heritage Finds guideline and procedure will be followed.

Environmental management measures for heritage have been detailed in Section 6.

5.4 Noise and Vibration

This section provides a summary of noise and vibration within the Study Area and the potential impacts the proposed works may have on sensitive receivers within the area. A Noise and Vibration Assessment was prepared by Aurecon (2023) to support this SEE.

5.4.1 Existing Environment

The proposed work area is surrounded by a number of existing operational industrial developments such as Mt Piper power station, Transgrid substation, Veolia water treatment plant and Centennial-owned coal mines that contribute to the noise environment and baseline noise considerations. Additional noise sources in the area include road traffic noise from the Castlereagh Highway (B55).

The Noise and Vibration Assessment identified the nearest residential, industrial and commercial receivers to the proposed work as detailed in Table 5-2 below. The nearest residential receivers are primarily associated with Portland, located to the west of the investigation area.

Table 5-2 Identified nearest noise sensitive receivers

Receiver ID	Address	Receiver category	Distance to nearest edge of site investigation area km	Easting	Northing
R1	170 Boulder Road Portland NSW 2847 Australia	residential	1.7	222832.77	6306560.41
R2	28 Jarrah Way, Portland NSW 2847	residential	1.6	221625.18	6305660.69
R3	1411 Castlereagh Highway (Off Karawatha Drive), Wallerawang NSW 2845	residential	2.7	226480.76	6302906.60
R4	919 Pipers Flat Rd, Portland NSW 2847, Australia	residential	2.0	221696.56	6302931.04
R5	644 Pipers Flat Rd, Portland NSW 2847, Australia	residential	2.6	223994.52	6301483.80
C1	Mount Piper Power Station office	commercial	0.1	223949.32	6304685.25
I1	Veolia Water operations – Water Treatment Facility	Industrial	0.075	224029.87	6304310.55

It should be noted that the site investigation area is located within earth mounds in all directions, which has the potential to naturally reduce the noise levels experienced by all the surrounding receivers

5.4.2 Potential Impacts

The preliminary Noise and Vibration Assessment revealed there is low likelihood of reaction to noise and vibration impacts resulting from the proposed work.

The assessment indicated that the predicted noise impacts would be compliant with the *Interim Construction Noise Guideline's* (ICNG) recommended noise management level forecasted for the proposed work expected to be undertaken during standard hours and OOHW day period (Saturday 7am to 8am and 1pm to 6pm; Sunday and public holidays 8am to 6pm).

The *Construction Noise and Vibration Guideline* (CNVG) was used to obtain a rough estimate of the vibrational impact criteria in terms of safe buffer distances. The vibration assessment revealed that the residential receivers, the EnergyAustralia assets and the water treatment facility, would have a low likelihood of impact for either human comfort or structural vibration impacts to these properties given the large distances between them and the proposed work area.

Environmental management measures for noise and vibration have been detailed in Section 6.

5.5 Drainage, Sediment, and Erosion

This section provides a summary of drainage, sediment and erosion management within the site investigation area and the potential impacts the proposed works may have. A drainage and sediment management plan was prepared by Aurecon (2023) to support this SEE.

5.5.1 Existing Environment

The site is within the Upper Coxs River catchment and drains to Sydney Drinking Water Catchment. Surface water within the catchment is governed by the Water Sharing Plan for the Greater Metropolitan Region Unregulated River Water Sources.

The site falls to the North at 2.6%. Several existing vegetated, excavated open channels (approx. 5m top width) provide drainage around the perimeter of the proposed work area as shown in Figure 5-1. The eastern channel prevents stormwater running onto the site from the east.

The northern channel receives runoff from site and conveys this runoff around existing infrastructure to the north. Drainage channels converge to the north of the site before discharging to an online basin downstream of the Mt Piper power station facility

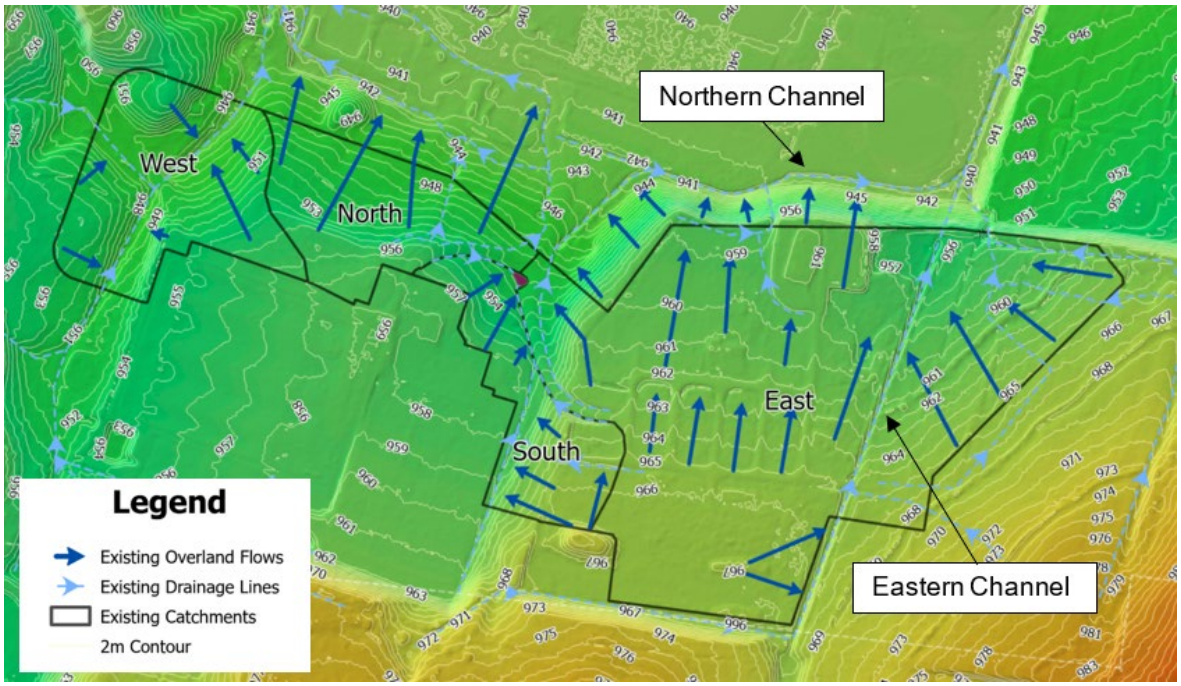


Figure 5-1 Existing drainage channels and flow paths

The investigation area is located adjacent to existing drains but away from concentrated zones of high flows. The site is not likely to be affected by large flows from adjacent catchments. Site drainage is achieved by overland flow crossing the site to those adjacent drains.

The investigation area described above will not result in changed flood conditions or increased volumes of stormwater runoff to downstream areas.

The soil landscape at the site is defined as Disturbed Terrain as per investigation of eSpade (NSW Government, 2022). Due to the previous use of the site as the construction compound and laydown area during Mt Piper power station construction, the original soil has either been removed, buried or greatly disturbed. These areas may be artificially topsoiled, filled or covered by concrete and bitumen. There is evidence on site of varying fill materials and areas where material is being temporarily stored on site and fill material varies, much like the ground cover. Fill thickness may impact surface runoff and infiltration rates.

5.5.2 Potential Impacts

The drainage and sediment management plan prepared by Aurecon (2023) outlined that impacts from the proposed works on drainage, sediment and erosion would be negligible and are summarised below:

- The investigation area would not result in changed flood conditions or increased volumes of stormwater runoff to downstream areas.
- The proposed investigation would not result in changed land use, altered topography, or increased imperviousness. As such, there would be no change in hydrologic response from the site associated with the proposed works.
- Stormwater will not differ in quality and quantity from stormwater leaving the site under existing conditions. There is therefore no risk of surface water quality impacts associated with the proposed investigation.
- Low potential for exposed sediment to be eroded during a rainfall event.

Environmental management measures for drainage, sediment and erosion have been detailed in section 6.

5.6 Traffic

5.6.1 Existing Environment

The site investigation area will be accessed from the existing entrance to Mt Piper Power Station from Boulder Road, between Frankfort Road and Castlereagh Highway.

Boulder Road is a two-way road with a speed limit of 60 km/h with varying carriageway widths. Travelling east from the power station, Boulder Road has a dual carriageway eastbound and a single carriageway westbound. However, west of the power station, this is inversed with a double carriageway westbound and a single carriageway eastbound. Direct access to the power station from Boulder Road is via an unnamed internal two-way road.

Boulder Road connects to the Castlereagh Highway (B55) to the East, which is classified as a State Road with two lanes in either direction. To the west is Frankfort Road (a two-lane local road) which provides access to Portland.

Public and active transport are limited on the roads near the proposed work, with no noted active transport access to the site. Bus route 600 Lithgow to Portland via Wallerawang is a loop service operated by private bus operators passing along Boulder Road, north of the power station. This service does not stop in close proximity to the power station, with the closest stops being 6.3 km east along Castlereagh Highway and 5 km west on Rowsell Street in Portland.

Heavy vehicles up to 19 m long are permitted on Boulder Road in accordance with Transport for NSW (TfNSW) heavy vehicle mapping.

5.6.2 Potential Impacts

The following potential impacts associated with traffic have been identified:

- Temporary increase in the number of vehicles accessing site
- Temporary increase in the number of vehicles on surrounding road network to accommodate workers
- Minor disruptions to the operation of the Transgrid substation and the adjacent Veolia Water plant.

Environmental management measures for traffic and transport have been detailed in Section 6.

6 Environmental Management Measures

The following proposed controls outlined in Table 6-1, along with any additional determination conditions, will form the basis for developing the site-specific Environmental Management Plan (EMP).

The EMP will be a working document, subject to ongoing change and updates as necessary, should circumstances change during the work.

Table 6-1 Environmental management measures

Reference	Mitigation measure	Timing
General		
GEN1	No works are to occur outside of the site investigation area.	Prior to construction / Construction
GEN2	Prior to works commencing, the EMP will be completed and contain the following information: ▪ Details of key personnel ▪ Site training information ▪ Audit and monitoring protocols ▪ Emergency and incident response procedures	Prior to construction
Flora and Fauna		
FF1	Native vegetation removal and soil disturbance will be minimised to the fullest extent practical to facilitate access and allow the Site Investigations to be completed.	Construction
FF2	Equipment storage, washdown, effluent irrigation and other ancillary activities will be completed in areas of exotic vegetation or cleared land	Construction
FF3	Trimmed or cleared native vegetation will be piled during Site Investigation activities and scattered along cleared tracks and test location sites at the completion of works.	Construction
FF4	Fauna encountered during the works will be permitted to move on or moved by a trained and/or qualified animal handler.	Construction
FF5	Weed spread will be managed by ensuring equipment leaving and arriving is clean and free from weed propagules. Trimmed or cleared exotic woody vegetation will be removed from site.	Construction
FF6	A site-specific CEMP will be developed prior to the commencement of works and implemented for the duration of the site investigation program. The CEMP should include plans showing vegetation to be removed as well as the location of erosion and sediment control measures.	Prior to construction
Heritage		
HER1	In the event of unexpected Aboriginal objects, sites or places (or potential Aboriginal objects, site or places) are discovered during construction, all works in the vicinity will cease and EnergyAustralia will determine the subsequent course of action in consultation with a heritage professional and/or the relevant State government agency as appropriate.	Construction
HER2	In the event that human remains are identified during works, all works in the vicinity will stop immediately and the NSW Police must be contacted. The police will attend site and determine whether the remains are human, and if human, whether they are Aboriginal in origin. No works will proceed at the location where the remains have been found until the nature of the remains is determined, and appropriate measures have been put in place depending on this determination.	Construction
HER3	In the event that unexpected historical relics (or potential historical relics) are discovered during construction, all works in the vicinity will cease and the proponent will determine the subsequent course of action in consultation with a heritage professional and/or the relevant State government agency as appropriate.	Construction
Noise and Vibration		

Reference	Mitigation measure	Timing
NV1	A site-specific CEMP will be developed prior to the commencement of works and implemented for the duration of the site investigation program. The CEMP should include a process and procedure to manage noise nuisance complaints	Prior to construction
NV2	Best practice work practices should be implemented to limit noise and vibration exposure for all receivers surrounding the site, and to manage and reduce annoyance from standard site operations/ procedures.	Construction
NV3	The Principal Contractor must ensure all equipment and machinery are regularly serviced and maintained at optimum operating conditions, to ensure excessive noise emissions are not generated from faulty, overused or unmaintained machinery.	Construction
NV4	Works are to only be carried out during the following hours: ■ 7 am to 6 pm Monday to Sunday	Construction
NV5	At least 24 hours notification will be given to nearby receivers who may be affected by noise or vibration generating activities.	Construction
NV6	Consider noise impact exposure by introducing regular respite periods (e.g., +1 hour start at 7am and 1-hour respite period during lunch time).	Construction
NV7	A review should be conducted with regard to selection of alternate equipment or process. Where it may be possible to select an alternative approach or appliance that emits lower noise levels, this should be considered (e.g., use of wheeled machinery in place of tracked machinery, electric tools etc.)	Construction
NV8	For certain construction equipment/machinery, the use of silencing devices may be possible. These may take the form of engine shrouding, or special industrial silencers fitted to exhausts.	Construction
Water		
W1	There is to be no release of dirty water into drainage lines and/or waterways.	Construction
W2	Water quality control measures are to be used to prevent any materials (e.g. bentonite, grout, sediment etc) entering drain inlets or waterways.	Construction
W3	Temporary sediment fence will be installed at the drill sites during the works. Prior to drilling of each borehole, a temporary silt fence will be erected downstream of the borehole. The silt fence will remain erected until that borehole has been backfilled.	Construction
Bushfire		
BUS1	Remove any long grass and/or deep leaf litter, within the site investigation area, from areas where plant and heavy equipment will be working	Prior to construction / Construction
BUS2	All plant and heavy equipment must carry at least a 9-litre water stored-pressure fire extinguisher with a minimum rating of 3A, or firefighting, or firefighting equipment as a minimum when on-site during the summer Fire Danger Period	Construction
BUS3	Implement adequate storage and handling requirements for potentially flammable substance in accordance with the relevant guidelines	Construction
BUS4	Restrictions and guidance from emergency authorities provided during the Fire Danger Period, days of high fire danger and Total Fire Ban days must be adhered to.	Construction
BUS5	All plant and equipment are to be fitted with appropriate spark arrestors, where practicable	Construction
BUS6	Designated smoking areas to be defined and designated rubbish bins to be implemented	Construction
Traffic and transport		
TT1	If the proposed works at any stage is likely to cause substantial disruption to the use of Castlereagh Highway and the adjacent local road network by emergency vehicles, the NSW SES and emergency services will be notified.	Construction

7 Conclusion

EnergyAustralia is seeking to undertake geotechnical site investigations to inform the feasibility of a grid scale battery energy storage system (BESS). This SEE has been prepared to support a development application for the geotechnical site investigative works.

The proposed work is considered to be consistent with all relevant legislations, including the EP&A Act and the Lithgow LEP. The SEE concludes that the proposed work is:

- Permissible with consent under the Lithgow LEP 2014
- Meets all the objectives and requirements of the Lithgow LEP 2014 and the Lithgow DCP
- Suitable for the proposed site
- Not in contravention of the public interest

The environmental impacts of the proposed site investigation works would primarily be related to noise and vibration, surface water, traffic and minor clearing of vegetation. These impacts, however, would be short term and temporary in nature and are not considered significant, provided that the safeguards and mitigation measures described in Chapter 5 and Chapter 6 are implemented.

It is suggested that the Council approve the DA based on above outcomes and minimal environmental impacts of the proposal.

8 References

Aurecon. 2023. Mt Piper BESS – Subsurface site investigation Noise and Vibration assessment. Report prepared for EnergyAustralia. Sydney: Aurecon Australia Pty Ltd.

Aurecon. 2023. Mt Piper BESS – Subsurface site investigation Drainage and Sediment management plan. Report prepared for EnergyAustralia. Sydney: Aurecon Australia Pty Ltd.

‘Ecoplanning (2023). Flora and Fauna Assessment– Mt Piper Power Station, 85 Boulder Road, Blackmans Flat, NSW 2790. Prepared for EnergyAustralia

Geoscience Australia. (2016). GA Surface Geology of Australia MapServer [Dataset]. https://portal.ga.gov.au/metadata/geology/geology-of-the-surface-of-australia/9cbf229a-007f-491b-97d4-e1804cd16251

Appendix A
Disturbance locations and footprint

Borehole/Test pit ID	Borehole depth (m)/type	Easting	Northing	Anticipated disturbance area (m^2)
B2	10	223730.9099	6304595.2034	60
B3	10	223772.6084	6304600.2493	60
B8	10	223606.0722	6304500.5553	60
B13	10	223605.6765	6304464.5855	60
B42	10	223374.1492	6304667.0029	60
B43	10	223063.0661	6304581.4202	60
B57	10	223526.3324	6304342.5598	60
B58	30	223723.7174	6304529.7197	60
B59	30	223728.6839	6304343.6354	60
B60	30	223730.5373	6304273.8037	60
B61	30	223890.3322	6304529.7608	60
B68	30	223880.9599	6304329.8197	60
B1	6	223689.1015	6304594.0107	60
B5	6	223690.2886	6304552.3981	60
B6	6	223732.0969	6304553.5907	60
B7	6	223810.0039	6304566.4622	60
B9	6	223649.9647	6304509.2806	60
B10	6	223685.012	6304516.1657	60
B11	6	223773.6107	6304529.858	60
B14	6	223650.7264	6304467.2055	60
B15	6	223682.2461	6304469.5372	60
B16	6	223724.6821	6304487.2338	60
B18	6	223817.7647	6304484.0358	60
B19	6	223853.6881	6304484.6534	60
B20	6	223888.3449	6304489.4182	60
B21	6	223652.0424	6304426.3683	60
B22	6	223696.9358	6304441.5024	60
B23	6	223744.0557	6304428.058	60
B24	6	223777.3555	6304440.4014	60
B25	6	223818.5362	6304438.3458	60
B26	6	223848.5275	6304438.9865	60
B27	6	223886.0869	6304438.8928	60
B28	6	223653.2297	6304384.7563	60
B30	6	223778.4579	6304380.3941	60
B31	6	223820.758	6304389.9756	60
B32	6	223852.8394	6304391.6022	60
B33	6	223785.4994	6304358.0405	60

Borehole/Test pit ID	Borehole depth (m)/type	Easting	Northing	Anticipated disturbance area (m^2)
B34	6	223827.0636	6304356.0544	60
B35	6	223860.3127	6304351.5539	60
B41	6	223816.7298	6304530.2958	60
B44	6	223561.8498	6304350.9386	60
B45	6	223590.3767	6304346.5801	60
B46	6	223628.567	6304334.656	60
B47	6	223685.6547	6304337.7769	60
B48	6	223551.5514	6304301.4377	60
B50	6	223628.7287	6304300.8211	60
B51	6	223672.4765	6304299.1632	60
B52	6	223711.7582	6304300.015	60
B53	6	223758.1058	6304298.7167	60
B54	6	223638.9707	6304266.0695	60
B55	6	223682.8399	6304267.5394	60
B63	6	223854.8002	6304318.1655	60
B64	6	223829.8522	6304261.9133	60
B65	6	223690.5276	6304208.5448	60
B66	6	223747.9983	6304206.624	60
B67	6	223806.8146	6304199.2783	60
B70	6	223727.3465	6304387.3747	60
B71	6	223883.8168	6304390.3583	60
TP1	Test Pit	223653.7523	6304548.2434	72
TP2	Test Pit	223858.9787	6304529.4404	72
TP3	Test Pit	223783.1068	223783.1068	72
TP4	Test Pit + Adjacent shallow test pit	223694.757	6304393.7905	73.5
TP5	Test Pit + Adjacent shallow test pit	223490.2861	6304522.8399	73.5
TP6	Test Pit + Adjacent shallow test pit	223586.8695	6304302.5888	73.5
TP7	Test Pit + Adjacent shallow test pit	223773.0598	6304268.918	73.5
TP8	Test Pit + Adjacent shallow test pit	223799.5831	6304325.3594	73.5
TP9	Test Pit + Adjacent shallow test pit	223636.8668	6304225.4971	73.5
B36	Underground alignment 2m boreholes	223161.369	6304625.2215	60
B37	Underground alignment 2m boreholes	223295.2473	6304612.5184	60
B38	Underground alignment 2m boreholes	223408.3757	6304574.318	60

Borehole/Test pit ID	Borehole depth (m)/type	Easting	Northing	Anticipated disturbance area (m^2)
B40	Underground alignment 2m boreholes	223529.3869	6304478.6683	60
Access track	N/A	N/A	N/A	5,348
Total:				**9,725**

Appendix B
Bushfire Emergency Plan

Mount Piper Battery Energy Storage System –Site Investigations Development Application: Bush Fire Emergency Management Plan

The Mount Piper Battery Energy Storage System (BESS) Site Investigations Development Application (DA) falls within Bush Fire Prone Land (BFPL). The site is located in the suburb of Blackmans Flat approximately 25 km northwest of Lithgow. The area was impacted during the summer of 2019-2020 bush fire season and is in the process of recovery. Mt Piper Power Station is located at 85 Boulder Road, Blackmans Flat, NSW at 33°21'33.1"S 150°01'54.0"E.

The site investigation area is shown in Figure 1. A small section towards the south of the site investigation area is categorised as Category 1 high risk BFPL. The corresponding section within the investigation area is therefore categorised as a bush fire buffer zone. For the remainder (the majority) of the area there is no predicted bush fire risk. The existing appearance and condition of much of the site is generally flat. The majority of the site is a constructed fill platform/cleared land. It features largely modified native and exotic vegetation, with some surrounding trees bordering the site perimeter.

Project Description:
A subsurface site investigation program is proposed to be undertaken for the proposed development of a grid scale BESS with a capacity of up to 500 Megawatt (MW) and a duration of up to 4 hours, and associated infrastructure. A Statement of Environmental Effects (SEE) is being prepared for the proposed site investigation activities. These activities will inform the design and constructability of the proposed BESS, as well as operational considerations of the proposed Project. It will also inform the relevant environmental and hazard assessments currently being prepared to support the Environmental Impact Statement (EIS) for the BESS Project (SSD-50903958), as required by the Secretary Environmental Assessment Requirements (SEARs) issued on 23 December 2022.

The site investigation activities would be undertaken within EnergyAustralia's existing landholding adjacent to the Mt Piper Power Station in New South Wales (NSW). This Bush Fire Emergency Management Plan is to inform the SEE for subsurface site investigation program only, not the BESS itself.

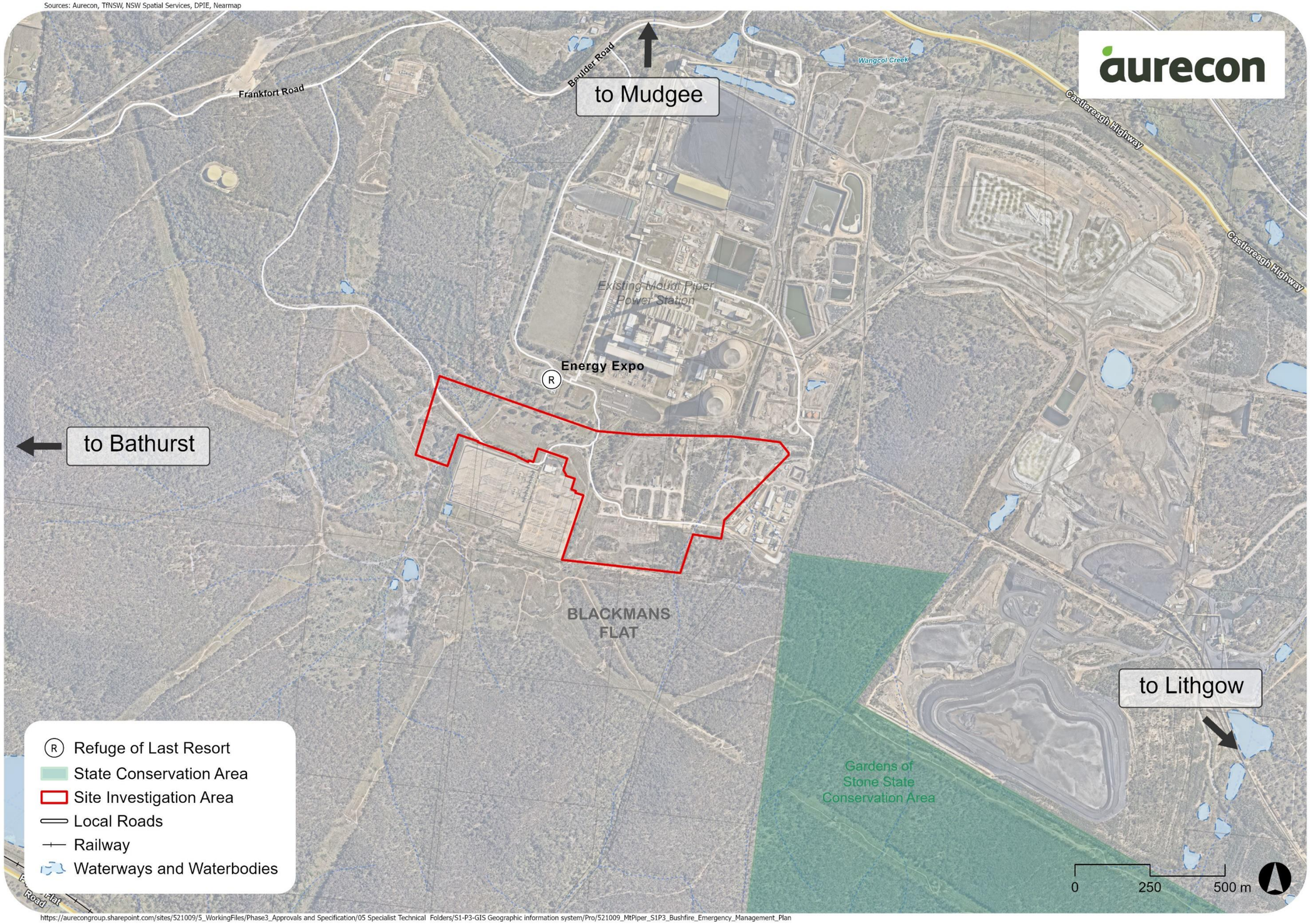


Figure 1 - Overview of project features

PREPARE

It is essential that you understand what to do if a bush fire occurs on site, and what precautionary actions may be required during the fire danger period. Preparation is the key to survival, and you need to be physically and mentally ready with a plan.

The **fire danger period** ('bush fire season') usually runs from 1 October to 31 March, but it may be brought forward or extended by fire authorities. Daily fire danger ratings are issued during this period for each day and following three days, with Mt Piper being within the **Central Ranges Fire Area** (NSW Rural Fire Service).

When the fire danger is above **HIGH** it is very difficult for fire fighters to extinguish a bush fire, therefore it is crucial to be aware of fire danger forecasts for the day and following three days. Weather reports (www.bom.gov.au, www.rfs.nsw.gov.au/fire-information/fdr-and-tobans) and roadside signs will alert you to the current fire danger.

On days of elevated fire danger prepare yourself and contractor staff.

Leaving early

Leaving early is always the safest option. Leaving early may mean staff stay at home and only critical personnel attend the site investigation area on **Extreme** or greater Fire Danger days (i.e. no contractors or visitors). On-site contractor staff should seek the instructions of the Chief Warden (or delegate) about options to leave early when:

- **Extreme** or **Catastrophic** fire danger is forecast for the **Central Ranges Fire Area**.
- Staff are not physically or mentally prepared, and are not capable of fighting fires.
- The proposed site investigation area adjacent to Mt Piper Power Station is not defendable from bush fire under the conditions forecast.
- You are instructed by emergency services authorities or the Chief Warden to do so.

Where can you go? – Follow the instructions of the Chief Warden (or their delegate) or the emergency services officer for a coordinated managed evacuation – do not self-evacuate.

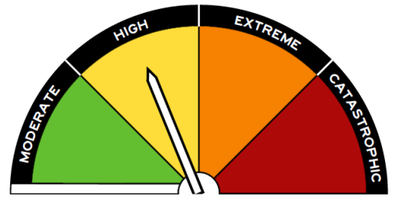
Stay and Defend

The decision to **Stay and Defend** at a site must not be taken without careful planning and preparation of a specific incident action plan (and a backup plan) that carefully considers all the local risk factors associated with a bush fire in the vicinity of the site investigation area at Mt Piper.

Regardless of a decision to **Leave Early** or **Stay and Defend**, the site investigation area adjacent to Mt Piper Power Station should be prepared for direct flames, radiant heat, and ember attack from bush fires.

This site is better prepared (even if you choose to leave) and potentially defendable if, by the start of the fire season (annually before September) and during the fire season, you have undertaken the Mitigation Actions in the **Act Section** on page 3.

The Australian Fire Danger Ratings (AFDRS) levels are:



MODERATE	Plan and prepare
HIGH	Be ready to act
EXTREME	**Take action now** to protect life and property
CATASTROPHIC	For your survival, **leave bushfire risk areas**

FIRE DANGER RATING	WHAT YOU SHOULD DO	WORKING RESTRICTIONS AND EMERGENCY ACTIONS
NO RATING		No action
MODERATE	**Plan and prepare.** • Stay up to date and be ready to act if there is a bush fire.	No specific restrictions in place for personnel. Site works must be in accordance with standard procedures including compliance with contract conditions (including Hot Works Permit conditions).
HIGH	**Be ready to act.** • There's a heightened risk. Be alert for fires in your area • Decide what you will do if a fire starts. If a fire starts, your life and property may be at risk. The safest option is to avoid bush fire risk areas.	**As for above plus**: All personnel working in or adjacent to continuous fuels are briefed/advised on appropriate ignition prevention measures and what to do in a fire. Issue Hot works Permit for activities likely to cause sparks or ignitions. All site users within areas of bush fire hazard should have an emergency contact system in place (mobile phone or radio). Construction Manager/Project Manager or delegate to maintain a 'listening-watch' of ABC Local Radio (ABC Portland/Wallerang 94.1 AM) for changes in fire danger and official bush fire warnings. Consider the suspension of activities which may cause sparks in areas of vegetation hazard (elevated fuels). 'Hot Work' activities must be in accordance with Hot Works Permit conditions.
EXTREME	**Act now to protect your life and property.** • These are dangerous fire conditions • Check your bush fire plan and ensure that your property is fire ready • If a fire starts, take immediate action • If you and your property are not prepared to the highest level, go to a safer location well before the fire impacts • Reconsider travel through bush fire risk areas.	**As for above plus**: TOTAL FIRE BAN No work is to be conducted.
CATASTROHPIC	**For your survival, leave bush fire risk areas.** • These are the most dangerous conditions for a fire • Your life may depend on the decisions you make, even before there is a fire • Stay safe by going to a safer location early in the morning or the night before • Homes cannot withstand fires in these conditions • You may not be able to leave, and help may not be available.	**As for above**

ACT

Report all fires

Report suspected bush fire smoke sightings or a fire to 000, then report the sighting to Construction Manager/Project Manager. If possible, communicate information about the location, size, and direction of travel of the fire.

Know what to do when a fire occurs

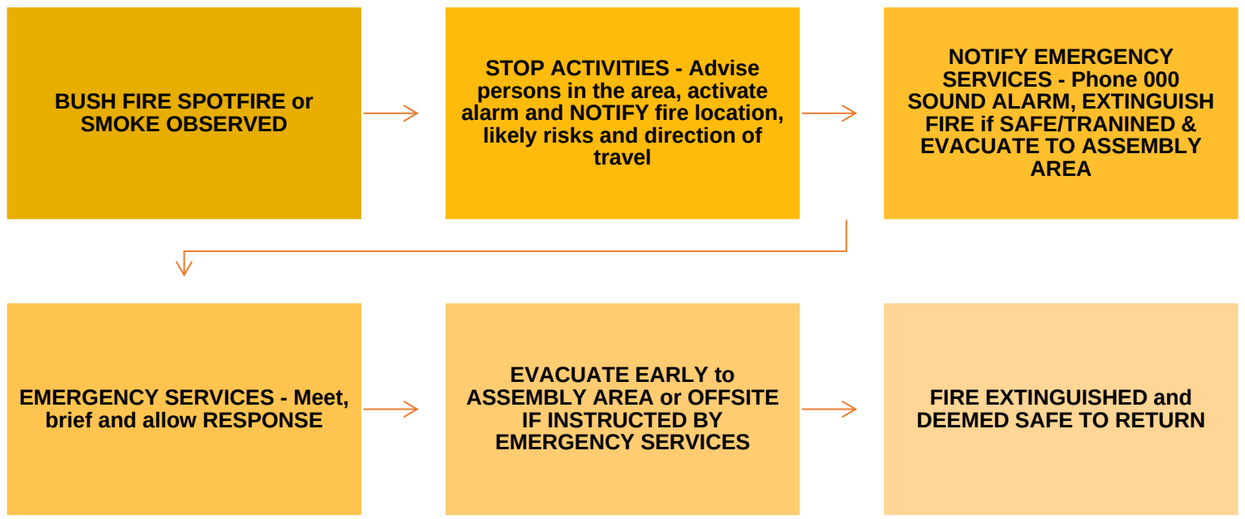
You may (or may not) be alerted to the presence of a bush fire in your local area by the NSW Rural Fire Service through the media, or you may receive a text message. Further information may be available at (www.rfs.nsw.gov.au).

There are three levels of Bush Fire Alert that may be issued; **Advice, Watch and Act** and **Emergency Warning**.

Site action in response to a formal emergency alert being issued by emergency services

ALERT LEVEL	Description	Site Action
ADVICE	*There is a fire in your local area. There is no immediate danger. Monitor fire conditions.*	Business as usual. Construction Manager/Project Manager (or delegate) is to monitor local bush fire situation on the RFS website and ABC local radio (ABC Portland/Wallerang 94.1 AM). All work units and contractors are to follow the directions of Construction Manager/Project Manager (or delegate).
WATCH & ACT	*A fire is approaching. There is a heightened level of threat to life and property. You need to be aware of your situation and be prepared to take action to protect yourself and others.*	In addition to above, close windows and ensure immediate surrounds of all buildings are clear of combustible materials. Determine those individuals deemed to be non-essential and initiate 'leaving early' actions. All personnel should return to the Refuge of Last Resort adjacent to the Mt Piper Power Station – Energy Expo and remain there awaiting further instructions from the Construction Manager/Project Manager (or delegate), or as directed by emergency services authorities.
EMERGENCY WARNING	*An 'Emergency Warning' is the highest level of alert and advises you of immediate danger. It may start with a siren sound.* ***You are in danger and you need to take immediate action recommended by the fire service.***	All personnel listen on ABC local radio to Emergency Warning evacuation location advised by emergency services. Proceed early to evacuation location if SAFE and route is CLEAR. If off-site evacuation is not possible, within vehicles in a cleared area of vegetation. Personnel must not 'self-evacuate' in the event of receiving an Emergency Warning. **Note: Flee-in-panic responses and last-minute evacuation into uncertain fire situations can be deadly. Any off-site evacuation must be controlled and authorised by the Emergency Incident Controller.**

Site action in response to smoke detected or a fire nearby



Site Induction Process

- Induction of the Principal Contractor and site users to include:
  - Fire weather awareness and preparedness (in response to forecast Fire Danger Rating (see **Prepare Section** on page 2)
  - Fire reporting actions
  - Emergency response actions responses in relation to an emergency warning being issued
  - Location of closest Refuge of Last Resort and Neighbourhood Safer Places (refer Figure 2)
  - Site evacuation procedures.

Staff briefings and pre-season bush fire drills

- Include site specific fire and emergency procedures as part of a tool-box talk given to all contractor staff :
  - At the start of each fire season
  - Daily toolbox talks during the fire season
  - As a new starter induction.

Bush fire mitigation measures applicable to the Mt Piper BESS Site Investigations DA include:

- Removal of any long grass and/or deep leaf litter, within the site investigation area, from areas where plant and heavy equipment will be working
- Monitoring of weather and local bush fire ratings
- Maintain equipment in good working order to reduce risk of ignition
- Maintain access roads by clearing any gutters, of all leaf litter and debris.
- To meet the aims and objectives of *Planning for Bush Fire Protection (*NSW RFS 2019) any temporary or permanent site office would require construction in accordance with AS3959:2018. However, the building must be to BAL 29 construction standard or less. Locating the office in BAL 40 or within flame zones would not be permitted even if the building met the construction standard.
- Any temporary site office buildings will need to be maintained to ensure no buildup of any leaf litter or debris.
- All plant and heavy equipment must carry at least a 9-litre water stored-pressure fire extinguisher with a minimum rating of 3A, or firefighting, or firefighting equipment as a minimum when on-site during the summer Fire Danger Period
- All plant and equipment are to be fitted with appropriate spark arrestors, where practicable
- Implement adequate storage and handling requirements for potentially flammable substance in accordance with the relevant guidelines
- Designated smoking areas to be defined and designated rubbish bins to be implemented
- Restrictions and guidance from emergency authorities provided during the Fire Danger Period, days of high fire danger and Total Fire Ban days must be adhered to. Note Fire Danger Ratings may constrain site access.

Access

- Emergency access to the site investigation area is via existing access roads to the power station and surrounding properties.
- Consult with Rural Fire Service and Fire and Rescue NSW to allow for emergency access to be maintained during site investigation activities, and to coordinate bushfire emergency actions (refer details in contact information table in **Survive Section**).

During a bush fire the Construction Manager/Project Manager is initially the Incident Controller (IC) until replaced by responding external Fire Authority IC (on arrival, following handover briefing).

Offsite evacuations must only be undertaken at the direction of the Construction Manager/Project Manager, or IC as a coordinated action and must not be undertaken at the last minute (when it may be too late/dangerous to evacuate).

The nearest *Neighbourhood Safer Place* is Kremer Park, corner of Lime Street and Villiers Street, Portland (Figure 2). The next closest is Wallerawang Public School, Barton Avenue, Wallerawang.

Personnel may be directed by the Construction Manager/Project Manager or IC to a Refuge of Last Resort or Neighbourhood Safer Place, to await further instructions. The Refuge of Last Resort closest to the site investigation area is within the Mt Piper Power Station and is adjacent to the Energy Expo (Figure 2).

Nearest external firefighting resources:

NSW Rural Fire Service

- Portland Fire Station - 69 Williwa St, Portland NSW 2847
- Wallerawang Fire Station - 1 Cripps Ave, Wallerawang NSW 2845

Fire and Rescue NSW

- Lithgow Fire Station – 58 Cook Street, Lithgow NSW 2790
- Lithgow West Fire Station – 36 Rabaul Street, Lithgow (Lithgow West) NSW 2790

Important Emergency Contact Information	
Emergency Information	
ABC Local Radio	Portland/Wallerang 94.1 AM
Bush Fire Information Line (NSW RFS)	1800 679 737
Current Fire Information	www.rfs.nsw.gov.au
NSWRFS Social Media Updates	www.facebook.com/nswrfs or twitter.com/nswrfs
New South Wales Traffic Information	13 27 01
Mt Piper Security	(02) 6354 8255 or 0490 840 606 (supervisor)
Mt Piper after hours - plant control room	(02) 6354 8316
Energy Provider (Transgrid) Operations Centre	(02) 4967 8460
Energy Provider (Transgrid) Central NSW	(02) 6360 8711 or 1800 998 049
State Emergency Service	132 500
Water Treatment Facility (Veolia) Control Room	0436 482 794
Other Information (non-emergency)	
NSW Rural Fire Service	Report all fires to 000
Portland Fire Station	02 6339 8523
Wallerawang Fire Station	02 6339 8583
- Fire Control Centre - Lithgow/Chifley Office	1300 258 737
Fire and Rescue NSW	Report all fires to 000
- Lithgow Fire Station	02 6339 8563
- Lithgow West Fire Station	02 6339 8564
Police assistance (non-emergency)	131 444
Telstra (report phone line faults)	13 22 03
Bureau of Meteorology	www.bom.gov.au

IN AN EMERGENCY DIAL 000
Secondary Emergency Call from Mobiles – Dial 112

Do not call 000 for information or advice.
Calling 000 unnecessarily may put others who are in a genuine emergency situation at risk.

Basic bush fire survival

You should assume that fire services will not attend site.

If you find that you are in the path of a bush fire and cannot escape: **Do not attempt to drive through or near a fire.** Ideally you should find a building made from noncombustible (brick, concrete) material with limited openings that can be closed.

Stay informed: Mobile devices (www.rfs.nsw.gov.au or Fires Near Me App) and local radio (ABC Portland/Wallerang 94.1 AM) may provide information about how close the fire front is to you.

Stay in touch: If your phone is working, ensure that authorities know your location. However, do not assume any assistance will result.

Avoid heat exposure: Cover exposed skin, preferably in heavy cotton materials. Drink water as often as required.

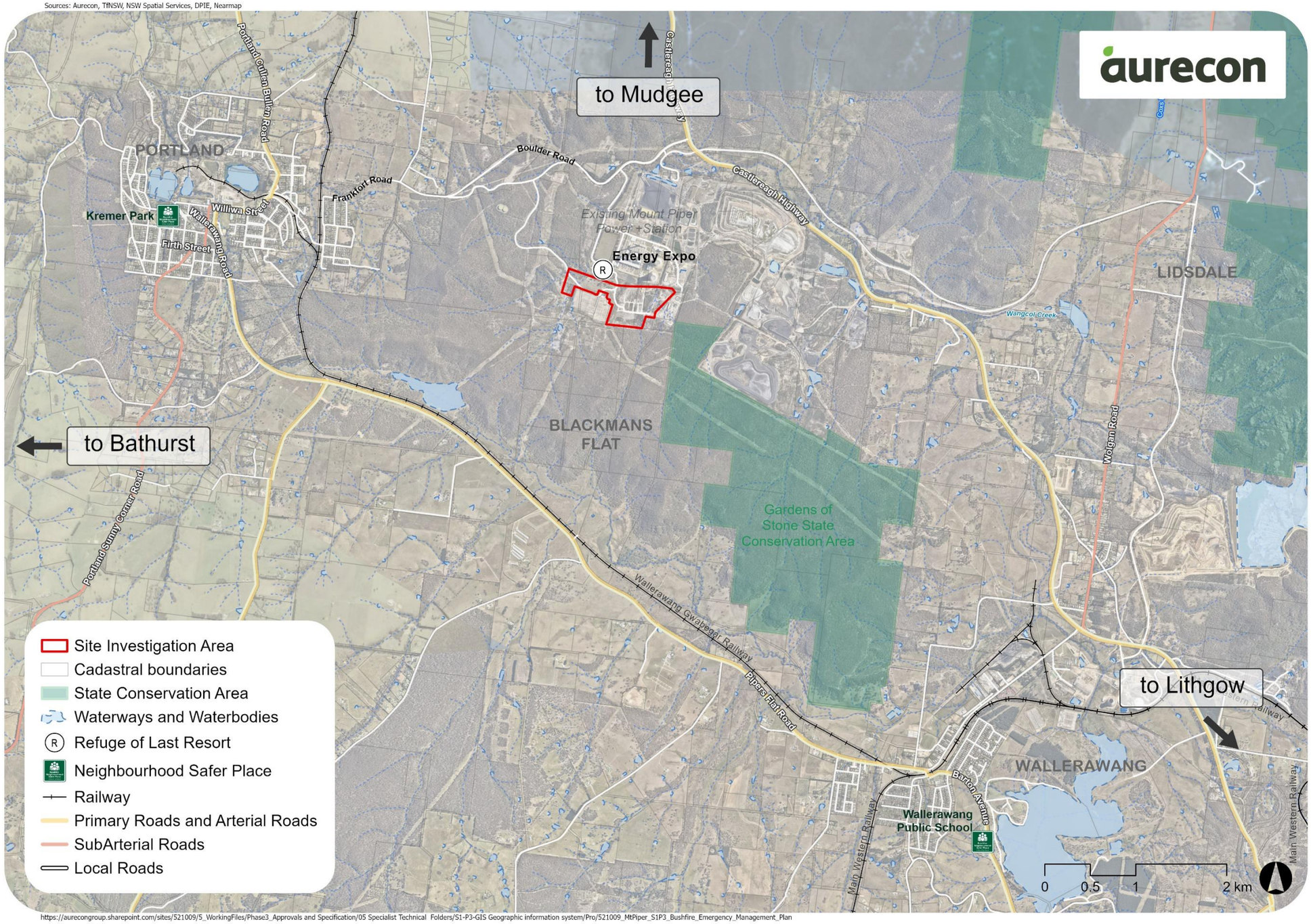
Protect your sheltering place: If possible as the fire approaches ensure immediate surrounds of all buildings (i.e. any site office containers) are clear of combustible materials such as leaf litter, twigs and rubbish. Close all doors and windows. Block gaps under doors with wet towels. Secure a water supply by filling sinksand buckets.

When the fire arrives stay inside the building. Most fire fronts will pass quickly. Inside is the safest place to be but do not shelter in bathrooms. Have fire extinguishers on standby should the structure catch alight.

Extinguish small fires: As the fire front approaches and after it passes there are likely to be small spot fires or residual fires that pose a significant risk. When safe to do so, put these out.

Remember; the best place to be is somewhere else - follow any instructions to evacuate.

Sources: Aurecon, TfNSW, NSW Spatial Services, DPIE, Nearmap



https://aurecongroup.sharepoint.com/sites/521009/5_WorkingFiles/Phase3_Approvals and Specification/05 Specialist Technical Folders/S1-P3-GIS Geographic information system/Pro/521009_MtPiper_S1P3_Bushfire_Emergency_Management_Plan

Figure 2 - Project location

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