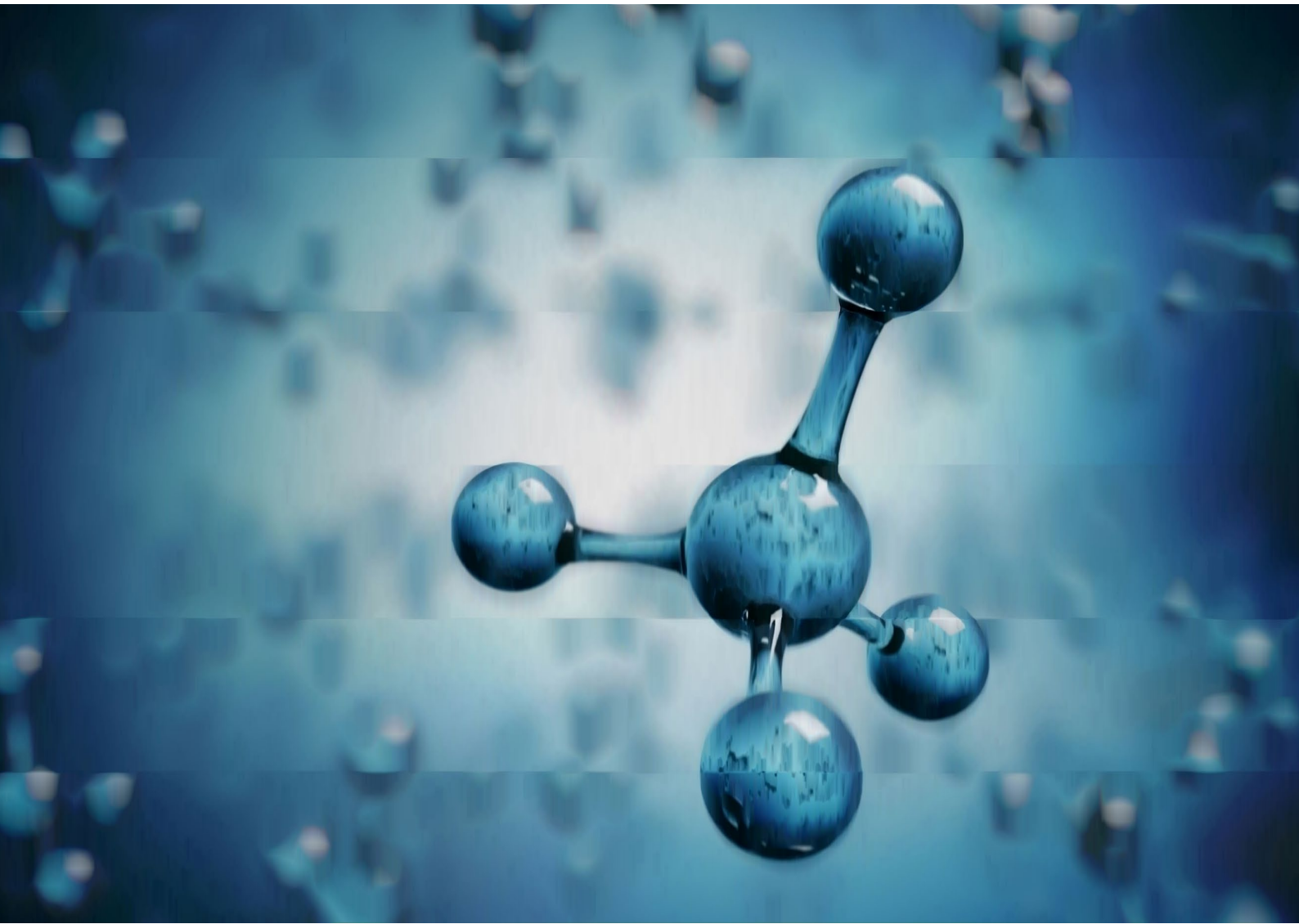
Lucas Heights Bioenergy Facility

Bushfire Assessment

LMS Energy Pty Ltd

October 2025

→ The Power of Commitment



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Executive summary

Background

LMS Energy Pty Ltd (LMS) proposes to upgrade the landfill biogas management infrastructure at the Lucas Heights Resource Recovery Park (LHRRP), by upgrading the existing power station to produce renewable energy from landfill biogas generated at the LHRRP. The project ensures appropriate capacity to manage forecast peak recoverable biogas and renewable energy generation would effectively continue through the remaining landfilling and post closure periods for the landfill.

Purpose of this report

This Bushfire Assessment report has been prepared on behalf of LMS to support the Environmental Impact Statement (EIS) for the project and responds to the Secretary's Environmental Assessment Requirements (SEARs) for bushfire.

This report is subject to, and must be read in conjunction with, the limitations set out in section 1.6 and the assumptions and qualifications contained throughout the report.

Existing environment

The project site is currently mapped as Bushfire Prone Land by the NSW Rural Fire Service (RFS)[1]. LHRRP is surrounded by Vegetation Category 1 on all sides and most of the new site works are within the vegetation buffer.

For bushfire assessment purposes, the primary vegetation formations present outside of LHRRP and adjoining land are classified as 'Forest'. Where cleared land is proposed and/or present throughout the project site, it is considered a Low Threat Vegetation exclusion under Australian Standard (AS)3959-2018 section 2.2.3.2.

Impacts from the project during construction

Some activities associated with construction of the project have the potential to be sources of ignition, which if not quickly controlled, could escalate into a bushfire. Potential sources of ignition from construction activities include:

- **Hot works** – sparks from metal grinding, cutting, welding or other works capable of producing sparks that can land in dry, fine vegetative fuels.
- **Vehicle use** – vehicles driven or parked off-road in long vegetation can be ignition sources if contact is made with hot engine parts such as exhaust system components.
- **Unapproved human activity** – cigarette butts discarded by smokers into combustible materials or unauthorised fire use.
- **Storage of combustible materials** – combustible materials stored for use during construction can be ignited if sparks or flames are accidentally introduced to the area.
- **Machinery use** – the use of specialised plant and machinery used for site levelling or excavation can cause sparks from friction with rocks.

Effective, reliable and proven risk controls can be applied to the range of construction activities to prevent accidental fire ignition and spread. With systematic risk controls addressing each of the fire ignition risks in place, the likelihood of fire ignition and spread during construction activities would be very low. Diligent implementation of risk controls can reasonably be expected to fully prevent fire ignition over the course of the project's construction phase.

[1] https://www.planningportal.nsw.gov.au/spatialviewer/#/find-a-property/address

Impacts during operation

Transformer fire or explosion was identified as a scenario with potential for offsite impact. Oil filled transformers can fail due to arc winding or bushings failure, leading to an explosion in the transformer and ensuing oil fire.

Should the transformer fail or leak oil, the oil will be captured in the internal oil-catch bund. The bund will contain 110% of the volume of the transformer oil. The additional 10% is an allowance for firefighting water and foam, in case of fire. As such fires are of localised effect, and the risk is typically reduced to the project site, given the controls, these fire events have not been subject to consequence modelling.

The project site and structures would be inspected by field staff on a regular basis as part of routine maintenance. Key maintenance activities would include:

– regular inspection and maintenance of structures and equipment
– hot works if required to rectify faults or perform maintenance activities, as identified during routine maintenance inspections
– vegetation maintenance within the project site to maintain appropriate clearances between equipment and site boundary.

It is expected that only light vehicles and small to medium plant would be needed to access the project site to undertake these activities.

Ongoing vegetation management would be conducted in accordance with LMS's operational and safety environmental management plans for the purposes of maintaining the safe and effective functioning of the facility and to minimise the risk of fire ignition from vegetation coming into close proximity to equipment.

The bioenergy facility control system is comprised of various programmable logic controllers managing different components of site operations, all monitored via a dedicated central site Supervisory Control And Data Acquisition (SCADA) system, allowing remote management and safe shutdown in the event of a fire.

The operational bushfire risk as a result of the project is therefore considered low.

Mitigation and management measures

In addition to these work permits and controls, the following additional measures applied:

– **Recommendation 1** – An Asset Protection Zone (APZ) is to be provided in accordance with Table 5.1 as shown on Figure 5.2.
– **Recommendation 2** – APZ landscaping is to comply with Planning for Bushfire Protection, NSW Rural Fire Service (2019) (PBP) for APZ standards as summarised in section 5.2.2.
– **Recommendation 3** – Building work will comply with construction requirements as applicable to Class 5 to 8 structures as detailed in section 5.2.2.
– **Recommendation 4** – Access to static water supplies to be provided as per recommendations detailed in section 4.6.
– **Recommendation 5** – Access to meet the recommendations detailed in section 4.5, section 6.2 and Appendix 3 of PBP
– **Recommendation 6** – Emergency management and evacuation plans are to be implemented prior to occupancy and operation of the project as summarised in section 6.2 and provided in Appendix A.

Adoption of the measures described in this report is expected to reduce, to an acceptable level, both the risk of bushfire ignition by construction and/or operation of the project and the risk that bushfires in the landscape pose to the project across the construction and operation phases of the project.

Key terms, acronyms and abbreviations

Terms and abbreviations	Definition
APZ	Asset protection zone
AS	Australian Standard
BAL	Bushfire Attack Level
BFDP	Bushfire danger period
BFMC	Bush Fire Risk Management Committees
BFPL	Bush Fire Prone Land
BFRMPs	Bush Fire Risk Management Plans
BPM	Bushfire protection measure
CEMP	Construction environmental management plan
CERP	Contingency and Emergency Response Plan
EPA	Environment Protection Authority
EP&A Act	*Environmental Planning and Assessment Act 1979 (*NSW)
FDI	Fire Danger Index
HV	High voltage
km	Kilometres
kV	Kilovolt
LFG	Landfill gas
LGA	Local government area
LHRRP	the Lucas Heights Resource Recovery Park
LV	Low voltage
NPI	National Pollutant Inventory
NSW	New South Wales
NSW RFS	New South Wales Rural Fire Service
MW	Megawatt
MWh	Megawatt hours
m	Metres
OERP	Operational Environmental Risk Plan
PBP	Planning for Bushfire Protection, NSW Rural Fire Service (2019)
SCADA	Supervisory Control And Data Acquisition

Contents

Table index

Figure index

1. Introduction

1.1 Project Overview

LMS proposes to upgrade the landfill biogas management infrastructure at the LHRRP, by upgrading the existing power station to produce renewable energy from landfill biogas generated at the LHRRP (the project).

The new bioenergy facility would be a like for like replacement of the existing power station, with improvements that comply with modern standards and regulations and forecasted biogas generation capacity requirements. The project ensures appropriate capacity to manage forecast peak recoverable biogas and renewable energy generation would effectively continue through the remaining landfilling and post closure periods for the landfill.

1.2 Location

The project is located within the Sutherland Shire local government area (LGA), about 30 kilometres southwest of the Sydney central business district within the suburb of Lucas Heights. Lucas Heights sits between the Gandangara State Conservation Area and Heathcote National Park, which is managed by the Department of Defence as a part of the Holsworthy Barracks.

The bioenergy facility would be located on Lot 102 DP 1009354 (existing power station site) which has an area of approximately 1.80 hectares.

The project site is accessed via Little Forest Road, off New Illawarra Road. An overview of the site context is shown on Figure 1.1.

1.3 Key features

The key features of the project are summarised in Table 1.1.

Table 1.1 Key features of the project

Project element	Summary
Output capacity	20 x 1.1 Megawatt (MW) modular lean burn generator sets to provide a total output of approximately 22 MW.
Proposed built infrastructure	**New proposed infrastructure** – Gas delivery and metering system – Transformers to step up the electrical output voltage from LV to HV to match the local grid voltage – Electricity metering, protection and communication equipment – Covered storage bund for chemical and coolant storage – HV Switchroom / Control room – Lightning poles – External lighting – Safety showers **Retained/ upgraded infrastructure** – Gas delivery, metering, filtration and condensate removal system – Lunchroom / Toilet – Offices / Workshop – Car parking for on site operators – External lighting – Gas conditioning and gas delivery infrastructure – Waste oil and clean oil tanks **Buildings to be decommissioned** – Workshop x 2 – Existing generators – Existing flare facility – Cooling towers.

Project element	Summary
Utilities connections	**Proposed new connections** – New underground HV electricity line to the Ausgrid 33 kilovolt (kV) distribution network as an extension of the connection from the existing on site electrical infrastructure to the Lucas Heights Zone Substation. **Existing utilities** – Fibre connection to the Lucas Heights Zone Substation – Potable water connection from LHRRP.
Hours of operation	– 6am to 6pm for operational staff – Remote operation 24 hours per day, 7 days per week outside of operational hours.
Workforce	– 6 full time equivalent (FTE) staff during operation – 15 FTE staff during construction.

1.3.1 Key supporting infrastructure

1.3.1.1 Ancillary infrastructure

Ancillary infrastructure for the bioenergy facility would include the following:

– biogas delivery, metering, filtration and condensate removal system
– biogas quality monitoring
– electrical transformers
– site office/lunchroom and amenities, maintenance workshop/dry storage shed
– high voltage (HV) switch room/control room
– bunded storage for oil, coolant and chemicals
– internal all weather roads
– lightning protection and earth grid
– security fence on boundary.

1.3.1.2 Biogas delivery infrastructure

The biogas management and extraction system for LHRRP connects to the existing power station. New connections to the generators would be established from the existing biogas network within the project site footprint. Condensate collected at the facility would be returned to the LHRRP leachate management system via existing infrastructure.

1.3.1.3 Biogas monitoring

Biogas composition and heating value monitoring will be conducted using two gas analysers, one on each of the two low pressure biogas supply lines. The biogas flow would be metered in the same location. The project would retain part of the existing biogas delivery infrastructure and add new biogas delivery skids to support biogas supply to the 20 new generators.

1.3.1.4 Electrical transformers

The bioenergy facility would include multiple step up transformers, each suitable for connection to two generators. The transformers shall be fitted with appropriate double HV bushings and LV terminations. All fittings on the transformers would be accessible with both the HV and LV compartments fitted.

1.3.1.5 Site office

The site has an existing workshop, site office and lunchroom which would be retained as part of the new facility.

1.3.1.6 High voltage switch room/ control room

The high voltage switch room would have fire and smoke detection. It will have a wall mounted Fire Indicator Panel and will be protected by a Inergen (IG-541) gas flooding system, comprising six bottles of inert gas agent which will displace oxygen to suppress electrical fires in the switch room.

1.3.1.7 Bulk oil storage

The current site operates with two 20,000 litre bunded oil tanks for clean oil and waste oil near the southern end of the site. The integrity and capacity of the existing bulk oil tanks for use in ongoing operations would be reviewed as part of detailed design and commissioning and if required replaced or supplemented with new bunded tanks at the same location with a combined capacity of up to 60,000 litres.

1.3.1.8 Chemical store

A modular chemical storage bund containing coolant is located adjacent the oil tanks. Minor chemicals would be stored appropriately in the existing workshop, in chemical storage cabinets where required.

1.3.1.9 Internal roadways and access

The bioenergy facility would be accessed via an existing entry/exit point at Little Forest Road. Rear access to the LHRRP is also provided on the eastern boundary. These access points are be linked by internal access roads. All existing internal access roads would be retained as part of the new facility. A new internal access road would be formed along the southern boundary.

The site has nine existing carparks which would be retained for further operations. Staff and visitors would use the main site entrance from Little Forest Road.

1.3.2 Utility connections

1.3.2.1 Grid export connection

The facility would export electricity generated from biogas into the AusGrid network through a new 37 metre 33 kilovolt (kV) underground connection to an existing AusGrid pole located on Lot 102 DP 1009354.

From the AusGrid pole, electricity would be transmitted via an existing 33 kV feeder to the Lucas Heights Zone Substation, approximately 750 metres to the southeast at the ANSTO site.

1.3.2.2 Communications

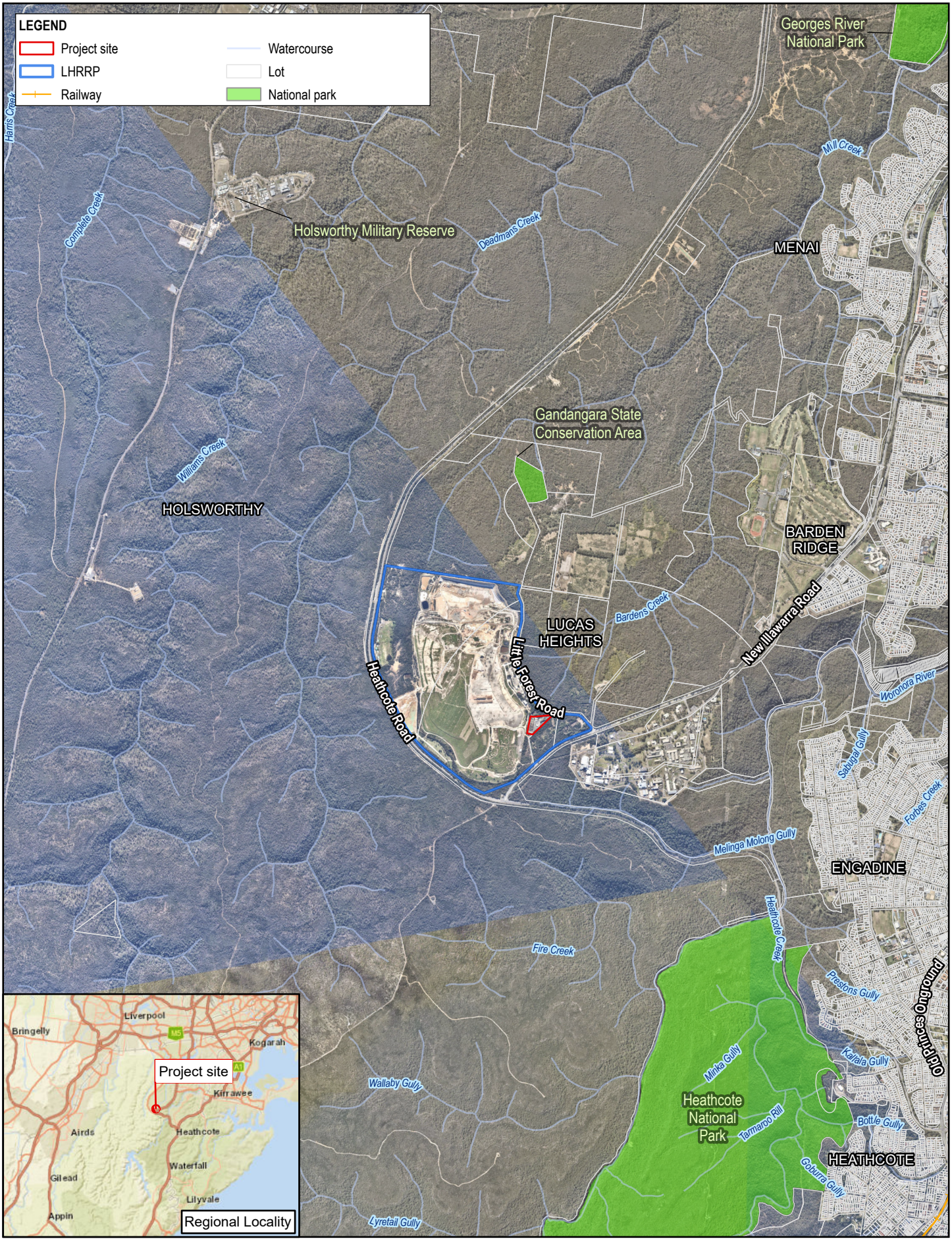
An existing communications conduit extends to the site from the Ausgrid Lucas Heights Zone Substation.

1.3.2.3 Water management

A potable water supply is available to service the amenities and safety systems on site. The development requires minimal water inputs.

Domestic wastewater (blackwater and greywater) would be collected and disposed of via the existing wastewater management infrastructure which is a pumped septic system which returns to the ANSTO site.

Condensate (condensed water) knock out vessels would be retained from the existing power station. The condensate would be returned to the LHRRP leachate management system via existing infrastructure.



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Metres

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Lucas Heights Bioenergy facility project

Project location

Project No. **12649882**
Revision No. **0**
Date **19/09/2025**

FIGURE 1.1

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Data source: GHD: Site Boundary (2025), Site Features (2025). NSWSS: SVTM (2025), NPWSR (2025), Cadastre (2025). World Street Map: Esri, HERE, Garmin, NGA, USGS
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1.4 Secretary's Environmental Assessment Requirements

The specific SEARs addressed in this report are summarised in Table 1.2.

Table 1.2 SEARs relevant to this assessment

Requirement	Where addressed in this report
A bushfire assessment report that addresses the aims and objectives of Planning for Bushfire Protection 2019 and includes: – details of proposed operational access details of proposed operational access for emergency services personnel – details of emergency and evacuation arrangements for occupants/visitors.	This report (Bushfire assessment) Section 6.2 (details for emergency and evacuation arrangements and access)
A draft bush fire emergency management and evacuation plan that provides an outline of how the development will be managed / mitigated to address potential bush fire impacts	Section 5.2.1 (proposed fire safety design features) Section 6 (mitigation measures) Appendix A

1.5 Purpose of this report

The purpose of this report is to assess bushfire risks. The report:

– addresses the relevant SEARs
– considers the relevant issues discussed in public authority responses to request for key issues
– assesses potential impacts during all stages of the project (construction and operation)
– recommends measures to mitigate and manage the potential impacts identified.

1.6 Scope and limitations

This report: has been prepared by GHD for LMS Energy Pty Ltd and may only be used and relied on by LMS Energy Pty Ltd for the purpose agreed between GHD and LMS Energy Pty Ltd as set out in section 1.5 of this report.

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

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

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

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

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

2. Methodology

2.1 Study area

For the purposes of the assessment the project footprint and study area have been defined as follows:

– **Project footprint** – the area that would be directly disturbed by construction and operation of the project as defined in Figure 2.1.

– **Study area** – the area that includes the project footprint and the surrounding area up to 140 metres from the proposed structures, as defined by the Planning for Bushfire Protection, (PBP) NSW Rural Fire Service (RFS) (2019). The broader landscape, as shown in Figure 1.1, is also considered in the assessment to capture the risk of landscape scale fires coming from and spreading to the project footprint.

  The study area is also shown in Figure 4.2.

2.2 Assessment

A desktop assessment was undertaken that included review of:

– Bushfire prone land (BFPL) mapping via the NSW Planning Portal Spatial Viewer.

– Vegetation types, classification, structure and fuel characteristics based on survey data presented in previous biodiversity assessment reports and bushfire assessments.

– Existing and proposed LHRRP infrastructure and assets and the project description, including design, construction, commissioning and operation activities along with relevant LMS procedures and guidelines. The infrastructure inclusive to the project footprint identified to require bushfire mitigation measures is includes a shed, storage bunds, generator units and an LV switch room as part of the bioenergy facility identified in Figure 2.1.

– Bushfire history.

– Regional weather and characteristics of the project footprint and study area topography.

– Potential bushfire behaviour and risk scenarios.

– Proposed changes/upgrades to access and egress.

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Bioenergy facility

Study area

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FIGURE 2.1

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3. Legislative and policy context

3.1 Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment Act 1979* (EP&A Act) requires that any development on bushfire prone land for any purpose complies with PBP. Councils maintain and update maps of BFPL in their region.

While the project is partially located on BFPL (Vegetation Buffer), state significant development is exempt from this requirement. Further information regarding PBP and its application to the assessment is provided in section 3.4. However, the SEARs can (and do) set requirements for consideration of bushfire risk, and these have a statutory effect.

3.2 Rural Fires Act 1997

In accordance with the provisions of the *Rural Fires Act 1997*, Bush Fire Risk Management Committees (BFMC) are constituted for LGAs or groups of LGAs to prepare Bush Fire Risk Management Plans (BFRMPs) for the areas under their jurisdiction. BFRMPs detail information on the bushfire risks within the BFMC area and outline how land managers along with fire authorities plan to effectively manage those risks through implementing various bushfire risk treatment strategies. Preparation of BFRMPs is an inter-agency process, led and facilitated by the NSW RFS, with completed plans approved by the NSW Bush Fire Coordinating Committee.

A BFRMP prepared by the Sutherland Shire Bush Fire Management Committee (SSBFMC, 2025) applies to the study area. This plan was approved in June 2025.

3.3 State Environmental Planning Policy (Resilience and Hazards)

State Environmental Planning Policy (SEPP) (Resilience and Hazards), 2021, aims to manage risks and build resilience related to hazards. Development controls related to hazardous development and offensive industry, remediation of land and the approach to planning within coastal management areas are included. Chapter 3 outlines the development assessment process in relation to hazardous and offensive industries.

The Department of Planning, NSW, 2011, *Applying SEPP 33: Hazardous and Offensive Development Application Guidelines* continues to provide the process for assessing if developments are potentially hazardous or offensive under SEPP (Resilience and Hazards), including threshold levels that trigger the potentially hazardous or offensive status.

A Preliminary Hazard Assessment was completed by GHD (2025) (Technical Report 3) that indicates SEPP 33 screening thresholds are not exceeded by the project, however the project is still considered a ‘potentially hazardous industry’ due to the proximity of current and future proposed public spaces to the site. Under the SEPP, Hazardous Industry Planning Advisory Paper No. 2 Fire Safety Study Guidelines (NSW Department of Planning 2011) would apply to the project. A fire study in accordance with the paper will be required to be completed post approval.

3.4 Planning for Bushfire Protection

PBP is principally directed to assessing bushfire risk to residential and other development. While state significant development is exempt from requiring a Bush Fire Safety Authority under Section 100B of the *Rural Fires Act 1997* and are not required to be assessed under EP&A Act s4.14. PBP provides guidance for the consideration of bushfire risk to the project and has been used in this assessment.

The aim of PBP is to provide for the protection of human life and minimise impacts on property from the threat of bushfire, while having due regard to development potential, site characteristics and protection of the environment. It is underpinned by several principles:

– *Bushfire protection measures (BPMs)*: a range of measures used to minimise the risk from a bush fire that need to be complied with. They may include any combination of the following: asset protection zones (APZs), construction provisions, suitable access, water and other utilities, landscaping, and emergency planning.
– *Risk*: the likelihood and consequence of a bushfire igniting, spreading and causing life loss or damage to assets of value to the community. Protection measures are proportional to the threat or risk bushfires pose to a development. Note that regardless of any setbacks or protection measures, the safety of a development exposed to a bushfire hazard cannot be entirely guaranteed.
– *Managing interfaces*: threats posed by bushfires are diminished by reducing the direct interface between developments and bushfire hazards.
– *Good practice in planning and management*: planning for bushfire resilience though design, building and operation of a development reduces risk and increases bushfire resilience of the development and its users.

Under section 8.3.1 of the PBP, the bioenergy facility structures and ancillary equipment would be classified as Class 5 to 8 structures under the National Construction Code (NCC) for non-residential buildings such as offices or industrial facilities. Generators are typically classified as Class 10A, lightning poles as Class 10B, lunchroom/amenities as Class 5, workshops as Class 7, and switchroom as Class 8.

There are no bushfire protection requirements for Class 5 to 8 and Class 10 structures, however commercial and industrial development with no residential component is held to the aims and objectives of PBP and requires that appropriate bushfire protection measures be put in place.

Under section 8.3.2 of the PBP, the shed proposed along the eastern boundary would be classified as a Class 10a structure. There are no bushfire protection requirements for Class 10a structures that are located more than 6 metres from a habitable structure or dwelling.

3.5 Australian Standard AS 3959:2018 Construction of buildings in bushfire-prone areas

Australian standard AS3959-2018 provides a simplified procedure for determining bushfire attack level (BAL). This provides a way to measure the severity of a structure's potential exposure to ember attack, radiant heat and direct flame contact and is used as the basis for establishing requirements for construction and fire protection measures. The BAL exposure is determined by combining the attributes of vegetation type and extent, slope and Fire Danger Index (FDI).

4. Bushfire risk factors

Key bushfire risk factors associated with the existing environment are outlined in the following sections.

4.1 Regional fire climate

The project is located within the Greater Sydney Region and has a corresponding FDI of 100 which is the highest risk classification for the potential chance for a fire to start. FDI is a relative scale reflecting fire severity potential, with increasing FDI reflecting increasing fire rate of spread, intensity and difficulty of its suppression.

The proclaimed bushfire danger period (BFDP) in NSW is from 1 October to 31 March each year. However, the start and end of the BFDP may be varied locally by the RFS Commissioner to account for the early onset of bushfire hazardous conditions and/or such conditions extending beyond the proclaimed BFDP end.

The Sutherland Shire LGA experiences a generally mild climate. Sutherland Shire has approximately 70% bushland area coverage, with the extent of adverse bushfire weather within a short period due to proximity to the coast. The greatest potential for bushfire events at the site occurs October-March coinciding with fresh to strong north-west winds, high daytime temperatures and low relative humidity.

In 2024, the NSW Government published a 'Climate Change Snapshot' for NSW that predicted severe fire weather days per year would increase due to climate change as shown in Table 4.1. Severe fire weather days are defined as days with FDI greater than 50 which is calculated based on temperature, relative humidity and wind speed.

Table 4.1 Projected increase in average number of severe fire weather days in NSW

2050		2090	
Low emissions	High emissions	Low emissions	High emissions
3.2 days (-0.3 to 6.7 days)	**5.3 days** (1.5 to 11.3 days)	**3.5 days** (0.3 to 8.6 days)	**9.4 days** (3.4 to 18.7 days)
Bold number is ensemble average for the period with ensemble range below			

4.1.1 Temperature and rainfall

The nearest operational Bureau of Meteorology (BoM) weather station to the project footprint is the Holsworthy Aerodrome Weather Station (AWS) (066161) located approximately seven kilometres from project footprint.

The study area experiences distinct seasonal variations in temperature. The mean minimum and maximum temperatures range between 5.5 degrees Celsius (°C) and 29.2 °C (Bureau of Meteorology, 2025). Historically (between 2012 and 2025), the mean number of days per year exceeding 30 °C and 40 °C is 48.4 days and 2.2 days respectively.

The mean annual rainfall recorded at the Holsworthy Aerodrome Weather Station between 2012 and 2025 is 877.9 millimetres (Bureau of Meteorology 2025). Mean monthly rainfall tends to be higher from January to March accompanied by a greater mean number of days of rain when compared to the winter/spring period.

4.1.2 Wind

Wind roses for morning and afternoon from Holsworthy AWS (066161) are shown in Figure 4.1. During the morning, wind direction is predominantly from the south west. During Spring and Summer, wind direction is from the east with stronger gusts in the evening and from the south west in the night. During summer, the predominant wind direction is from the south and east.

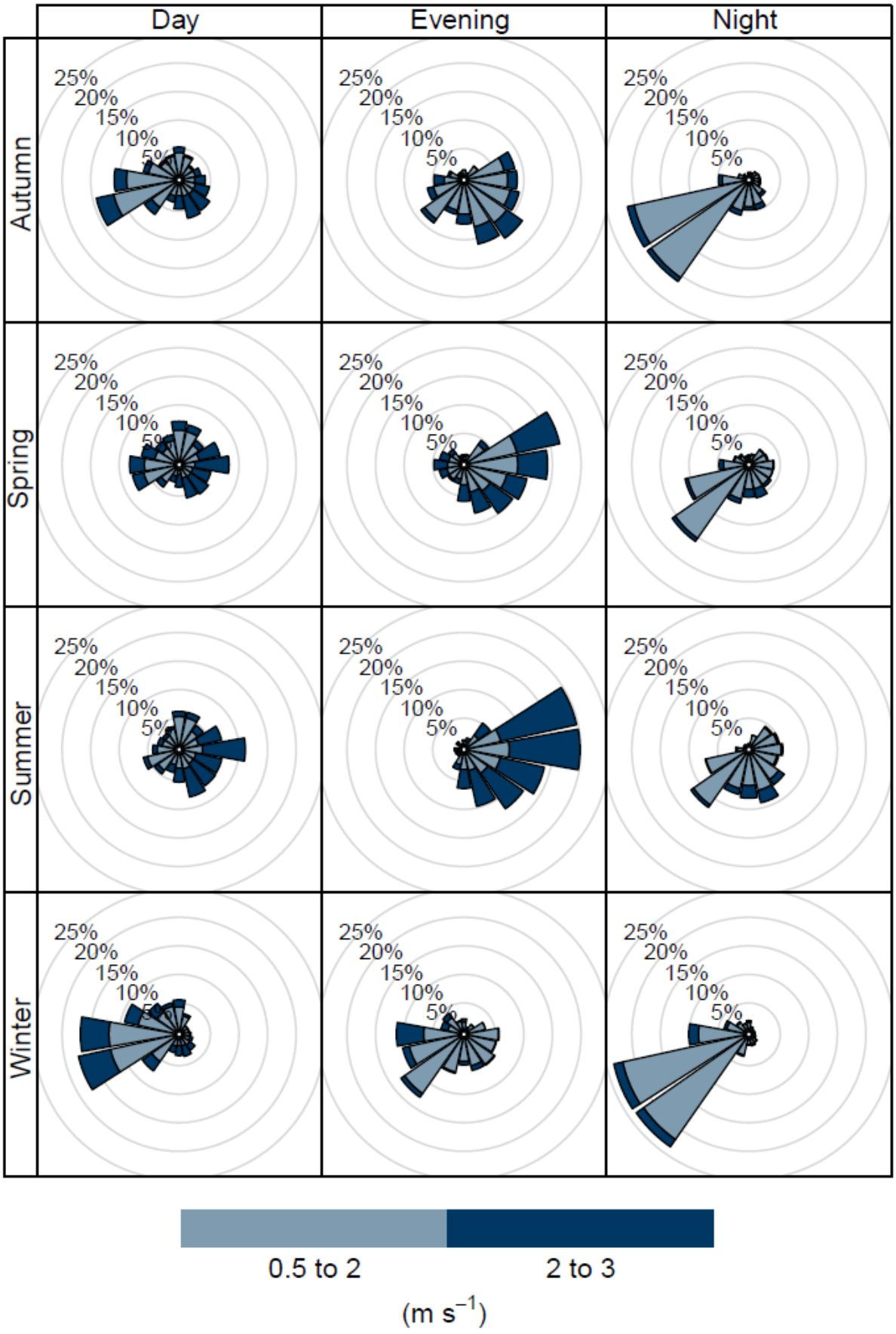


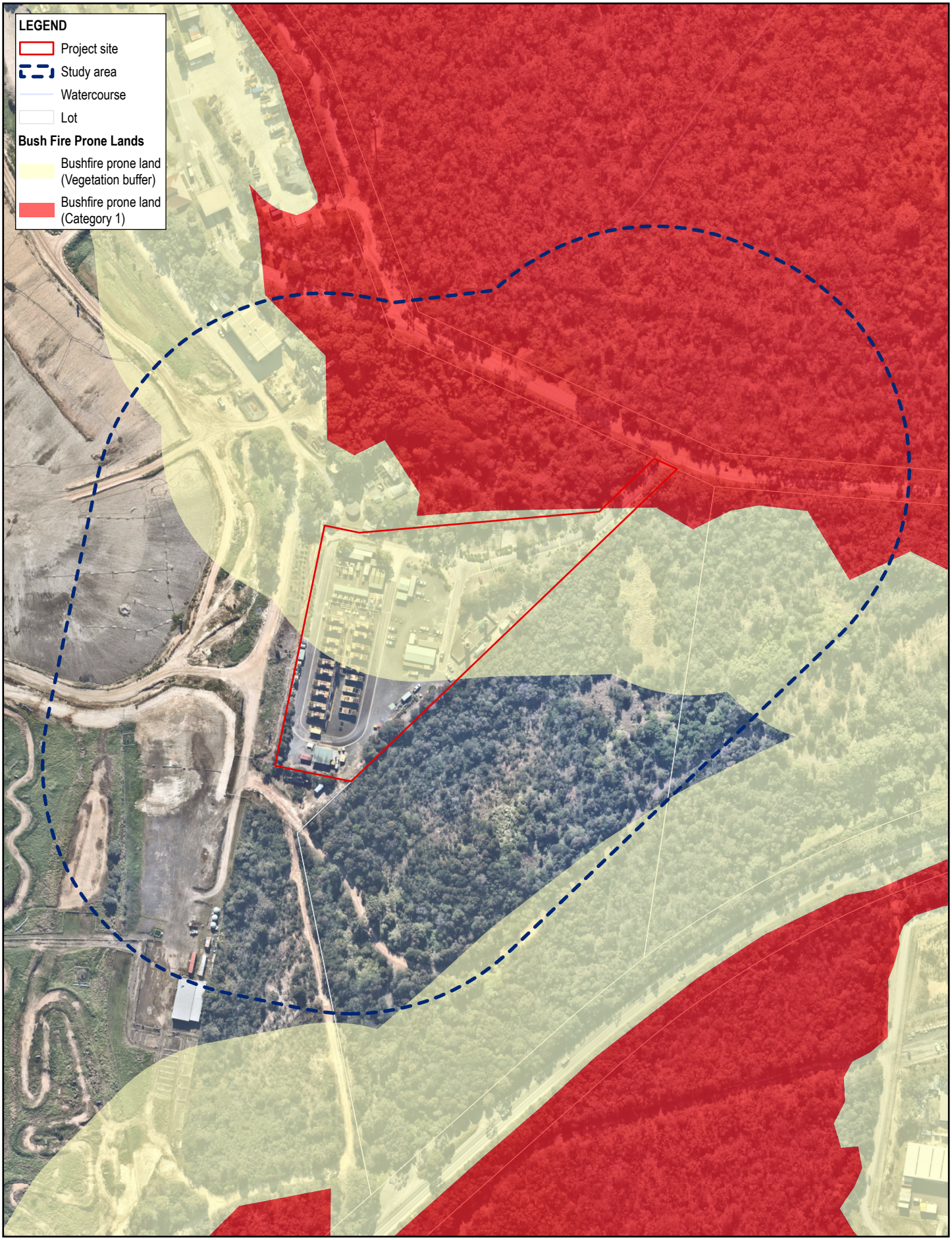
Figure 4.1 *Wind roses – frequency of counts by wind direction (%) – Holsworthy AWS*

4.2 Bushfire prone land

The northern portion of the project footprint is mapped as bushfire prone on the Sutherland Shire Council bushfire mapping. The bushfire mapping triggers the requirement to identify potential hazards and risks posed by the project as specified in Figure 1.5 of the PBP.

Bushfire mapping classifies land into categories based on vegetation type, fuel load, and potential fire behaviour, with higher categories representing greater bushfire risk. The project footprint's northern half is characterised as Vegetation Buffer, the extents of which are shown in Figure 4.2. The Vegetation Buffer category itself is considered lower risk, as it is intended to provide separation between the highest risk vegetation and development areas. Consequently, while the northern portion of the project footprint is mapped as bushfire prone, the classification reflects a moderate risk that is managed through separation from higher risk vegetation, rather than indicating an area of direct high hazard.

Immediately north of the project site, the land is characterised as Vegetation Category 1. This category forms part of a 100-metre buffer for adjacent Vegetation Category 1 land, which represents the highest bushfire risk. Vegetation Category 1 is highly combustible, with a high likelihood of fully developed fires and significant ember production.



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Mapped bushfire prone land

FIGURE 4.2

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Nearmap WMS Server: .
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4.3 Historic bushfire events

There was one recorded bushfire within the project footprint in December 1997 (SEED, 2025). Outside of the LHRRP, the following bushfires were recorded surrounding the site:

– 1989-90 wildfire
– 2001-02 wildfire
– Cambridge Avenue wildfire December 2002
– Moorebank Avenue Holsworthy wildfire in April 2018.

There was no cause recorded for these fires.

4.4 Vegetation and bushfire hazard

The project site is sparsely vegetated consisting of an unmaintained garden bed with planted *Lomandra*, *Eucalyptus* and *Corymbia* spp. with small sections of exotic grassland/weeds as described in the BDAR Waiver (GHD, 2025).

The vegetation communities surrounding the project site to the north and east were identified as Sydney Hinterland Dry Sclerophyll Forest (GHD, 2025). Vegetation communities to the south of the LHRRP consist of dry Sclerophyll or coastal floodplain forest that has been highly disturbed. The surrounding landscape beyond the LHRRP contains large areas of near-contiguous forest and heathland vegetation cover (environmental conservation areas).

The project footprint intersects several bushfire vegetation categories as mapped by Sutherland Shire Council. The vegetation categories include Keith vegetation formations, which are classified according to the standardised system developed by Dr. David A. Keith (2004). These include:

– Vegetation Category 1 – High-risk vegetation with the highest fuel loads and likelihood of fully developed fires. Keith vegetation formations within this category are highly combustible and produce significant embers.
– Vegetation Buffer – Areas immediately adjacent to high-risk vegetation, including moderate fuel-load Keith vegetation formations. These areas act as a separation zone and represent a lower bushfire risk compared with Category 1 vegetation.

Fuel loads for the vegetation formations of the study area are summarised in Table 4.2.

Table 4.2 Fuel loads for the Keith Vegetation Formation types in the study area (Tabl A1.12.8, PBP)

Keith vegetation formation	Fuel load (tonnes/ ha)	
	Surface and elevated	Overall (including bark and canopy)
Dry Sclerophyll Forests (Shrubby sub-formation)	22	36.1

4.5 Topography, slope and access

Slope is a significant influence on fire behaviour, with steeper slopes contributing to a greater rate of spread and intensity of a bushfire. The effective slope is also a key input into determining the BAL which an asset may be exposed to.

The site is generally flat, with a 4 metre variation of topography across the project site based survey information provided by MLEI Stormwater Management Plan prepared for the project (MLEI, 2025) (refer to Technical Report 6). Land generally slopes down towards the north with a gradient between 0 to 5%.

The project site is accessed directly via Little Forest Road which is accessible to heavy vehicles.

4.6 Water supply, availability and storage

A potable water supply is available to service the amenities and safety systems on site.

The project site has access to a large, fire water supply tank located approximately 60 metres north of the project site within LHRRP. A fire hydrant and pump is located next to the static water tank, along with an overhead fill point. Other alternative bulk water supply sources within LHRRP include the PCYC dam and stormwater sedimentation dam both located in the northern portion of the site closer to active landfilling areas.

The high voltage switch room will have an internal fire and smoke detection system. It will have a wall mounted Fire Indicator Panel and will be protected by a Inergen (IG-541) gas flooding system, comprising six bottles of inert gas agent which will displace oxygen to suppress electrical fires.

Reticulated potable water supply would be available on site with hose reels for plant and utility use.

5. Impact assessment

5.1 Construction

5.1.1 Bushfire risk resulting from the project

Some activities associated with construction of the project have the potential to be sources of ignition, which if not quickly controlled, could escalate into a bushfire. Potential sources of ignition from construction activities include:

- **Hot works** – sparks from metal grinding, cutting, welding or other works capable of producing sparks that can land in dry, fine vegetative fuels.
- **Vehicle use** – vehicles driven or parked off-road in long vegetation can be ignition sources if contact is made with hot engine parts such as exhaust system components.
- **Unapproved human activity** – cigarette butts discarded by smokers into combustible materials or unauthorised fire use.
- **Storage of combustible materials** – combustible materials stored for use during construction can be ignited if sparks or flames are accidentally introduced to the area.
- **Machinery use** – the use of plant and machinery used for site levelling or excavation can cause sparks from friction with rocks.

Effective, reliable and proven risk controls can be applied to the range of construction activities to prevent accidental fire ignition and spread. With systematic risk controls addressing each of the fire ignition risks in place, the likelihood of fire ignition and spread during construction would be very low. Diligent implementation of risk controls can reasonably be expected to fully prevent fire ignition over the course of the project's construction phase.

Potential bushfire consequences of bushfires ignited from within the project footprint are dictated by the landform, vegetation cover and weather factors (discussed in section 4), in combination with existing levels of community exposure and vulnerability to bushfire. Although vegetation clearance, existing APZs and access tracks would be maintained within the study area, the construction works are not at a scale which would materially alter the consequences of bushfires on public safety.

As project construction would not materially alter the potential consequences of bushfires, and because the risk of bushfire ignition during construction is very low on account of the risk controls proposed to be implemented (see section 6), construction of the project would have no material impact on public safety risk in the landscape where construction would occur.

5.1.2 Bushfire risk to the project

As part of the project footprint and LHRRP surrounds is located in bushfire prone vegetation, construction workers may potentially be exposed to bushfire risks while travelling to/from work. Bushfires may occur as a result of either natural causes (e.g. lightning strike) or as a result of human activity and the timing and location of bushfire ignitions is therefore not entirely foreseeable or predictable. During construction, it would be possible for significant bushfire safety risks to arise and systems for maintaining workforce safety need to be developed, specifically a Bushfire Emergency Management and Evacuation Plan.

While a substantial proportion of construction would occur outside of the BFDP when bushfire safety risks are reduced, it may be necessary for construction to continue during the BFDP. This would be subject to the application of risk controls, comprising:

- managing worker access and construction activities during catastrophic fire danger rating days and during Total Fire Bans and ensuring timely evacuation can be safely affected
- establishing safe work systems and protocols and reliable communications with all workers
- early and reliable warning systems, and awareness of bushfire danger and safety precautions
- location and work-specific safety analyses, training in emergency response and provision of and training in the use of fire suppression equipment.

With a comprehensive bushfire safety system in place addressing as a minimum the above requirements, the bushfire risk to workers would be as low as reasonably practicable.

5.2 Operation

5.2.1 Bushfire risk resulting from the project

The risk of fire or explosion at the project site is assessed in detail as part of the Preliminary Hazard Assessment (GHD, 2025). Transformer fire or explosion was identified as a scenario with potential for offsite impact. Oil filled transformers can fail catastrophically due to arc winding or bushings failure, leading to an explosion in the transformer and ensuing oil fire.

Design

The bioenergy facility control system is comprised of various programmable logic controllers managing different components of site operations, all monitored via a dedicated central site Supervisory Control And Data Acquisition (SCADA) system.

All instrumentation is monitored for instantaneous measurements, trended for historical analysis, and appropriate alarms are provided when threshold conditions are observed on each instrument. These alarms are displayed in several manners on the SCADA system, as well as sent to the on-call operator via a dedicated paging system when operators are not on site. Whilst operators are on site, the audible alarm siren would annunciate when new alarms are present on the SCADA system to ensure operators are made aware to abnormal site operating conditions.

Safeguards against transformer windings failure are oil monitoring and the Buchholz relay. The Buchholz relay serves as a critical protection device for oil-filled transformers, primarily acting as a sensor for internal faults and gas buildup within the transformer. It detects issues like insulation failures, gas formation and oil leaks, triggering an alarm or tripping the transformer if a fault is detected.

Should the transformer fail or leak oil, the oil will be captured in the internal oil-catch bund. The bund is capable of containing 110% of the volume of the transformer oil. The additional 10% is an allowance for firefighting water and foam, in case of fire. As such fires are of localised effect, and given the risk is typically reduced to the project site, given the controls, these fire events have not been subject to consequence modelling.

Maintenance

The project site and structures would be inspected by field staff on a regular basis as part of routine maintenance. Key maintenance activities would include:

– oil sampling
– regular inspection and maintenance of the structures and the Buchholz relay
– hot works if required to rectify faults or perform maintenance activities, as identified during routine maintenance inspections
– vegetation maintenance within the project site to maintain appropriate clearances between equipment and site boundary.

It is expected that only light vehicles and small to medium plant would be needed to access the project site to undertake these activities.

Hot work refers to any work that involves the use of open flames, heat or that generates sparks and fire risk work refers to any activities or tasks that have the potential to start a fire or expose a workplace to fire hazards. LMS frequently undertakes routine maintenance activities that may potentially cause fire ignition. However, these risks would be satisfactorily managed using well established controls.

Ongoing vegetation management would be conducted in accordance with LMS's operational management plans for the purposes of maintaining the safe and effective functioning of the facility and to minimise the risk of fire ignition from vegetation coming into close proximity to equipment.

The project site is a non-smoking premises and therefore there is low risk to structures and equipment that contain flammable materials. Designated smoking areas should be outside of the main gates to the site, alongside a suitable disposal point for cigarette butts.

The operational bushfire risk as a result of the project is therefore considered low.

5.2.2 Bushfire risk to the project

Information in section 4.3 documents historical fire activity in the study area and indicates there is one recorded fire within the project footprint in December 1997. In addition, other fire events identified in section 4.3 appear to have approached the LHRRP footprint under prevailing weather conditions from the north and northeast but were halted by existing APZs associated with the LHRRP.

Bioenergy facilities are designed to operate continuously in bushfire prone environments and are considered to have a low vulnerability to bushfire impact due to their robust, non-combustible and highly reliable design and fire safety features.

Workforce

In terms of safety of personnel undertaking maintenance activities, it is not practical to prohibit personnel being present on days of catastrophic fire danger rating. Using LMS's established safety systems and a combination of risk assessments, work permits and emergency response procedures during periods of catastrophic fire danger rating, the risk to personnel from an externally caused fire can be mitigated.

Structures

The bushfire attack level was determine for the project site and is shown on Figure 5.1. Based upon vegetation, slope class and distance to unmanaged vegetation, the likely worst case BAL for the proposed bioenergy facility would be BAL-FZ for fires approaching from the southeast of the southeasternmost generator units. The bioenergy facility structures may be exposed to increasing levels of ember attack and burning debris ignited by windborne embers together with increasing heat flux. Radiant heat is likely to threaten building elements (such as unscreened glass). Such levels of radiant heat flux exposure and ember attack can cause ignition of suitably dry combustibles. The BAL from the east is high with attack from radiant heat to the distance of the buildings from the unmanaged vegetation. The risk is reduced as distance from hazardous vegetation increases, although some attack by burning debris (embers) is possible.

The proposed shed along the eastern boundary is exposed to BAL-FZ. However, under section 8.3.2 of the PBP, there are no bushfire protection requirements for Class 10a structures that are located more than 6 metres from a habitable structure or dwelling. Therefore, no protection measures are required.

Table 5.1 indicates the APZs recommended for the structures. An APZ resulting in a radiant heat exposure of 29 kW/m^2 (BAL-29) would be applied to the structures where combustible goods are stored and site offices are located. The southeasternmost generator units do not have enough space to support a BAL-29 APZ due to proximity to the boundary and are exposed to BAL-FZ, however it is recommended that the APZ be established up to the boundary to minimise the risk of ember attacks and radiant heat to the most vulnerable units.

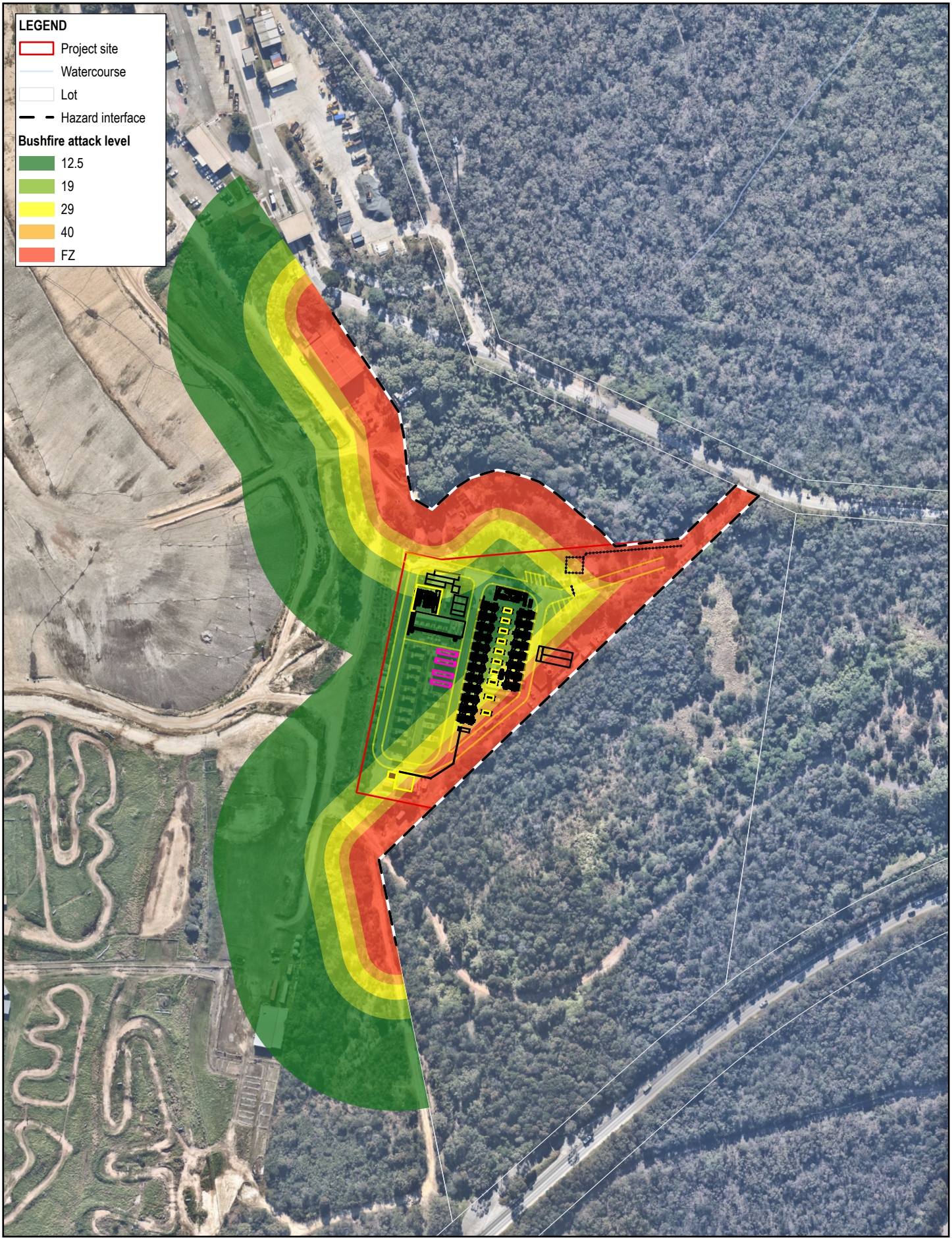
Table 5.1 APZ requirements for proposed structures

Aspect	Vegetation	Slope class (degrees)	Distance from nearest structures to vegetation	APZ requirement (m)
South-east	Dry Sclerophyll Forests (Shrubby sub-formation)	Upslope < 5 degrees	16 m	29, or to the boundary where 29m cannot be achieved.
South	Dry Sclerophyll Forests (Shrubby sub-formation)	Upslope < 5 degrees	>100 m	29
North	Dry Sclerophyll Forests (Shrubby sub-formation)	Downslope < 5 degrees	56 m	29

APZs are intended to be enduring over the life of the asset and need to be regularly maintained to be effective. The surrounding LHRRP landfill is proposed to eventually be closed and converted into parklands. As such post closure of the landfill needs to be considered for the bioenergy facility. The landscape masterplan for the future parkland shows that there would be buffer infill planting over natural ground to the south-west of the project site. The proposed planting is a narrow vegetated corridor that is considered to be a low threat vegetation exclusion in accord with Section 2.2.3.2 (d) of AS3959-2018 (strips of vegetation less than 20 metres in width regardless of length and not within 20 metres of the site or each other, or other areas of vegetation being classified vegetation). Following rehabilitation of the landfill, the parklands will be located to the west of the project site.

Refer to Figure 5.2 for the recommended APZ distances for the proposed new infrastructure.

A large-scale high intensity bushfire may possibly impact the site over the life of the project. The consequences of such a fire event may have life and safety impacts as well as having operational and financial impacts. Such risks highlight the need to develop effective strategies and procedures to mitigate bushfire risk in the construction and operation of the bioenergy facility. These mitigation strategies and procedures are described in section 6.



Paper Size ISO A4

0 15 30 45 60

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

N

GHD

LMS Energy
Bioenergy facility

Bushfire attack level

Project No. **12649882**
Revision No. **0**
Date **25/09/2025**

FIGURE 5.1

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Print date: 25 Sep 2025 - 13:19

Data source: GHD: Site Boundary (2025), Site Features (2025). NSWSS: SVTM (2025), NPWSR (2025), Cadastre (2025). World Street Map: Esri, HERE, Garmin, NGA, USGS
Nearmap WMS Server: .
Created by: dbbanatin

Paper Size ISO A4

0 15 30 45 60

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

N

GHD

LMS Energy
Lucas Heights Bioenergy facility project

Project No. **12649882**
Revision No. **0**
Date **23/09/2025**

Recommended asset protection zone

FIGURE 5.2

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Print date: 23 Sep 2025 - 13:49

Data source: GHD: Site Boundary (2025), Site Features (2025). NSWSS: SVTM (2025), NPWSR (2025), Cadastre (2025). Nearmap WMS Server: .
Created by: dbbanatin

5.3 Cumulative impacts

Section 7.1 of the EIS outlines the assessment methodology for cumulative impacts including the methods for identifying what projects have been considered as part of the cumulative assessments for the project.

Three projects were identified for consideration as part of the cumulative assessment. The following projects have been considered:

– LHRRP Flare Facility
– Lucas Heights Western Extension.

Table 5.2 outlines the potential cumulative impacts relevant to each assessment.

Table 5.2 Potential cumulative bushfire impacts for the project

Project and status	Brief description	Potential cumulative impact
LHRRP Flare Facility Mod 3 – SSD-6835 Approved	Construction and operation of an enclosed flaring facility that would comprise four 3,000 m^3/hour and one 1,000 m^3/hour landfill gas combustion capacity flares. The project is immediately north of the project footprint.	Due to the proximity of the project and this site, cumulative bushfire impacts are considered likely.
Lucas Heights Western Extension SEARs issued – EIS in progress SSD-78269209	Expansion of the LHRRP landfill to the west of the approved current landfill footprint into a part of the LHRRP formerly used as a gun club. The proposed extension project is located within the LHRRP to the north west of the project footprint.	Construction of the bioenergy facility is anticipated to be completed prior to commencing construction of the Western Expansion, and cumulative bushfire impacts are not considered likely.

5.3.1 LHRRP

Other potential sources of fire generated within the LHRRP may include:

– landfill surface or subsurface fire within the waste mass
– FOGO facility fire
– plant or equipment fire.

Appropriate fire prevention, detection and suppression (firefighting) measures would be provided as described in section 6. Site operational procedures would also include preventative measures and actions for plant and equipment in the event of a landfill fire. These measures would reduce the likelihood and extent of any onsite fires and potential for damage to property and personnel should a fire occur.

6. Mitigation measures

6.1 Approach

LMS will following existing procedures and protocols for hot works and fire risk works. In addition to these existing procedures and controls, the bushfire risk for the project would be managed through the implementation of a Bushfire Emergency Management and Evacuation Plan as part of the Contingency and Emergency Response Plan (CERP) and Operational Environmental Risk Plan (OERP).

The Plan will contain BPMs for the construction and operational phases of the project based on guidance from PBP, LMS standard operating procedures and Cleanaway's standard bushfire risk management procedures for LHRRP which were developed in consultation with NSW RFS. Adoption of the measures described in this report is expected to reduce to an acceptable level, both the risk of bushfire ignition by construction and operation of the project and the risk that bushfires in the landscape pose to the project. LMS will liaise and cooperate with NSW RFS on BPMs to minimise the risk of bushfire ignition from the project site. Measures will include maintenance of safe clearances between vegetation and structures and fire safety features.

6.2 Emergency management

Emergency management planning is necessary to mitigate bushfire risk.

The NSW RFS and Fire and Rescue NSW are the primary emergency response agencies for any fire-related incident affecting the project footprint. In the case of a fire igniting in/around the project footprint:

– personnel who are present should attempt to extinguish the fire, if safe to do so
– others present on site should be alerted to the presence of the fire
– contact emergency services on 000
– evacuate personnel to a safe location.

Operational access would be via the site access point of Little Forest Road. Emergency services may access the site via the main entrance or alternative access points from LHRRP or using the Mill Creek Mountain Bike Trail entrance off New Illawarra Road and internal haul roads to the southern access gate.

A Bushfire Emergency Management and Evacuation Plan has been prepared and will be implemented for construction of the project in accordance with the *Guide to Developing a Bush Fire Emergency Management and Evacuation Plan* (RFS, 2014). Evacuation procedures would be consistent with the LHRRP Emergency Response Plan (Cleanaway 2025). The LHRRP evacuation assembly area for both occupants and visitors closest to the project site is located outside the landfill office at the site entrance.

A draft Bushfire Emergency Management and Evacuation Plan is provided in Appendix A.

6.3 Measures

Proposed mitigation measures are summarised in Table 6.1.

Table 6.1 Mitigation measures

Control type	Mitigation measures	Responsibility	Timing
Asset Protection Zone	A BAL-29 APZ would be applied to the structures where combustible goods are stored and site offices are located. The southeasternmost generator units do not have enough space to support a BAL-29 APZ due to proximity to the boundary, however it is recommended that the APZ be established up to the boundary to minimise the risk of ember attacks and radiant heat to the most vulnerable units.	LMS / Contractor	Operation
Bushfire management	Details of fire management are to be outlined in the bush fire emergency management and evacuation plan to be included as part of the CEMP and OEMP, including: – requirements for emergency access and egress including nomination of an alternative access route – formal preparedness procedures for staff and contractors to maintain awareness of and respond to escalating forecast fire danger including identification of firefighting equipment and fire water supply – formal pre-rehearsed procedures for staff and contractors to respond to respond to a formal bushfire warning being issued by emergency services, including identification of escape routes and refuge areas.	LMS / Contractor	Construction / Operation
Construction requirements	Building work will comply with BAL-29 construction requirements as applicable to Class 5 to 8 structures. The southeasternmost generator units will comply with BAL-FZ.	LMS / Contractor	Construction
Water supply and fire suppression	A reticulated potable water supply will be provided on site to service amenities, hose reels, and safety systems. The high-voltage switchroom will be fitted with an internal fire and smoke detection system.	LMS / Contractor	Operation
Access	The site is accessible directly via Little Forest Road.	LMS / Contractor	Construction / Operation

7. Evaluation and conclusions

This bushfire assessment considers the potential bushfire risks arising from the construction and operation of the project, both in terms of the impacts on the project and impacts arising from the project.

The northern portion of the site is located on land classified as BFPL (Vegetation buffer) which is part of the 100 metre buffer that surrounds the existing LHRRP. The LHRRP is surrounded by forested areas classified as bushfire prone land (Vegetation Category 1) which is high risk for bush fires.

During construction and operation, the bushfire risks are associated with two main scenarios:

– the ignition and movement of fires from surrounding vegetation into the project footprint
– the ignition of bushfires within the project footprint and movement into surrounding areas.

A Bushfire Emergency Management and Evacuation Plan will be developed for construction and operational phases of the project, based on guidance from PBP and existing bushfire management procedures and controls for LHRRP. A draft Bushfire Emergency Management and Evacuation Plan has been prepared to support the assessment.

Other measures include maintenance of existing access arrangement to ensure suitability for emergency service vehicle response, the implementation and maintenance of both existing and proposed water availability to the bioenergy facility to meet the relevant requirements outlined in NSW RFS guidelines.

Adoption of the measures described in this report is expected to reduce the risk of bushfire ignition by construction and/or operation of the project and the risk that bushfires in the landscape pose to the project across the construction and operation phases of the project.

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Appendices

Appendix A

Draft Bushfire Emergency Management and Evacuation Plan

Lucas Heights Bioenergy Facility

Bushfire Emergency Management and Evacuation Plan (BEMEP) - DRAFT

Report Date:	28/10/2025
Report Reference:	20057-RG-004
Revision:	B

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Report Title:	Lucas Heights Bioenergy Facility Bushfire Emergency Management and Evacuation Plan
Report Reference:	20057-RG-004
Written/Submitted By:	
Reviewed/Approved By:	
Client:	

Document Number: TP1 Rev 9

Document Control

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Revision status

Rev No.	Status (Draft \Final) / Description of changes	Date	Writer	Reviewer	Approver
A	Draft	2/10/2025	F. Lambert	A. Johnston D. Lansdowne	
B	Draft	28/10/2025	A. Johnston	D. Lansdowne S. Bernhardt (CWY) LC. Chiang (CWY) K. Goss (CWY)	Y. Sarich D. Williams

Record of distribution (this revision)

Type (Electronic, Paper copy)	Recipient Name	Position & Company
Electronic	TBA	

Table of Contents

1. Facility Details

Facility: Lucas Heights Bioenergy Facility

Address: 19 Little Forest Road, Lucas Heights NSW 2234

1.1. Scope

The scope of this plan is to detail bushfire emergency management and evacuation procedures for LMS' Lucas Heights Bioenergy Facility (BEF) (the Project), during both construction and operational phases. Evacuation procedures are consistent with the LHRRP Emergency Response Plan (Cleanaway, 2025).

This plan outlines procedures for Site evacuation to enhance the protection of Workers from the threat of bushfire.

1.2. Primary Action

The primary action to follow in the event of a bushfire is to evacuate the Site.

Please refer to the following contact person for more information:

Site Details	
Contact Person	TBA
Position:	Manager – Bioenergy (Lucas Heights)
Phone Number:	TBA
Description of Facility:	22MW Bioenergy Facility
Number of Buildings:	2 x offices & amenities block
	1 x control building
	20 x generator modules
	1 x workshop
	1 x storage shed
Number of Employees:	6
Number of Occupants:	0
Number of Occupants with support needs:	0

1.3. Roles and Responsibilities

The following outlines who has the responsibility of implementing the emergency procedures in the event of a bushfire.

Roles and Responsibilities			
Position	**Name**	**Area of Responsibility**	**Mobile**
Manager – Bioenergy (Lucas Heights)	TBA	Bioenergy Facility	TBA

1.4. Emergency Contacts

Emergency Contacts		
Name of Organisation	**Office / Contact**	**Phone Number**
NSW Rural Fire Service	Sutherland Incident Management Facility (126 Wilson Parade, Heathcote NSW 2233)	02 8508 4040
NSW Rural Fire Service	Bushfire Information Line	1800 679 737 1800 NSW RFS
NSW Rural Fire Service	Website	www.rfs.nsw.gov.au
NSW Police Force	Sutherland Police Station	02 9542 0899
Cleanaway – Emergency Controller	TBA	TBA
LMS – Incident Controller	TBA	TBA

2. Immediate Response

The LMS Incident Controller will liaise with the CWY – Emergency Controller to establish the immediate response which may include:

a) Assembly at the primary or secondary evacuation point

b) Site evacuation to off-site refuges

c) Establishing No Go Zones – exclusion areas

The LMS Incident Controller will be responsible for accounting for all Workers and visitors when transferring to the CWY Emergency Assembly Areas.

On-site sheltering will only be considered as a last resort when all other options have been exhausted and will be undertaken in direct consultation with the NSW Rural Fire Service and Cleanaway.

3. Site Evacuation Procedure

Where Site evacuation is deemed necessary all workers will be directed to the Designated off-site Refuge. The LMS Incident Controller will provide LMS Workers with instruction on which off-site refuge is to be used in consultation with the CWY-Emergency Controller and NSW Rural Fire Services.

3.1. Designated Off-Site Refuges (Neighbourhood Safer Places)

The following are the designated off-site refuges (known as Bushfire Neighbourhood Safer Places by NSW RFS) within close proximity to the Lucas Heights Bioenergy Facility.

a) Anzac Oval, Open Space. Anzac Oval, Engadine (approx. 9.9km drive southeast of the site)
b) Akuna Oval, 100 Menai Road, Bangor (approx. 9.1km drive northwest of the site)

The LMS Incident Controller will be responsible for accounting for all Workers and visitors when transferring to off-site refuges.

3.2. Primary Refuge

Name of Location: **Anzac Oval, Open Space. Anzac Oval, Engadine**
Map reference: -34.05792377785557, 151.00646682537342

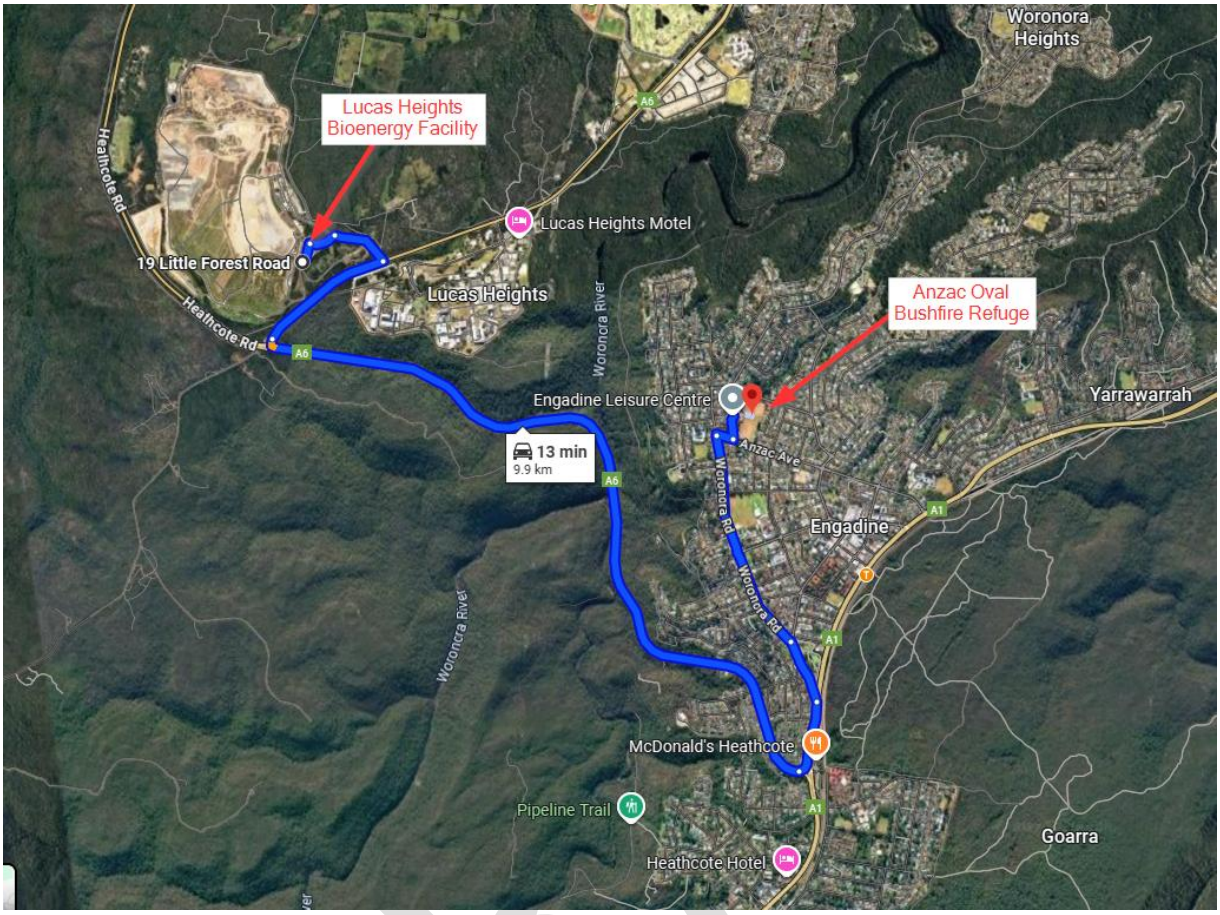

Figure 1 - Directions to Anzac Oval (Source: Google Maps, 2025)

3.3. Secondary Refuge

Name of Location: **Akuna Oval, 100 Menai Road, Bangor**
Map reference: -34.021142889702524, 151.03672157058654

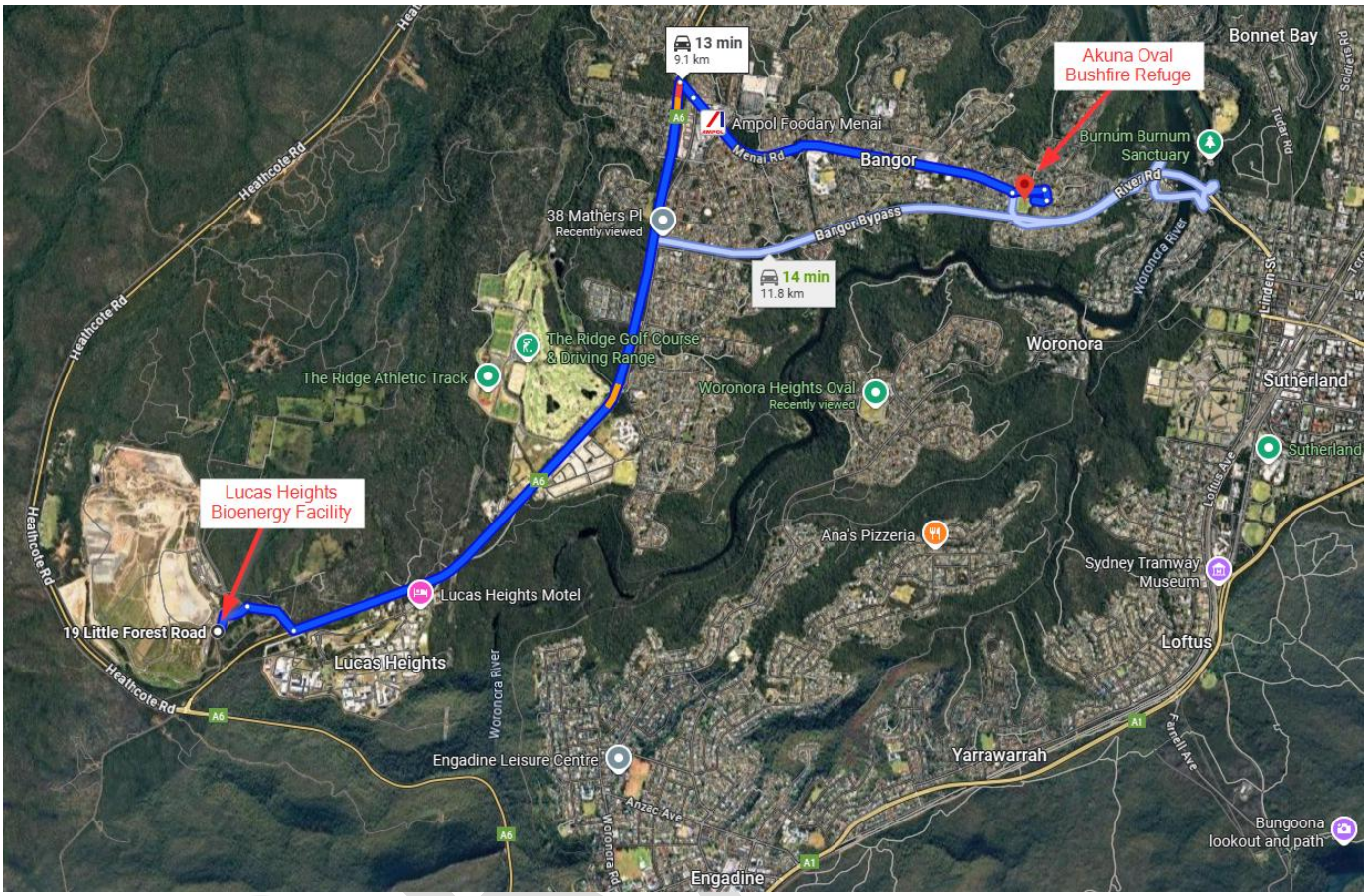

Figure 2 - Directions to Akuna Oval Bushfire Refuge (Source: Google Maps, 2025)

3.4. Transportation Arrangements

All workers have access to either their own or company issued vehicles to be used for transportation from the Site in the event of an emergency.

Any visitors or contractors who do not have suitable transport will be provided with transportation.

3.5. Before and at the commencement of the Bushfire Danger Period we will:

a) Ensure that all Workers are aware of the requirements in accordance with this Bushfire Emergency Management and Site Emergency Response Plan.

b) Ensure that all Workers and visitors are informed of onsite Emergency Assembly Areas and off-site Refuges.

c) Complete HV Bushfire Preparedness inspections including engaging an independent third party to conduct inspections

d) Inspect the facility for debris and vegetation

e) Ensure site fire extinguishers are serviced

Procedure for evacuation in the event of a bushfire	
Trigger	**Action**
When a bushfire emergency is in the vicinity (10km away)	**Actions to be taken as directed by the emergency services (RFS)**
When a bushfire emergency is in the vicinity (5km away)	**Actions to be taken as directed by the emergency services (RFS)**
When a bushfire emergency is in the vicinity (1km away)	**Actions to be taken as directed by the emergency services (RFS)**

3.6. After the Bushfire Event

a) Clearance to return to Site is to be gained from the NSW Rural Fire Services.
b) The LMS Incident Controller to liaise with the CWY Emergency Controller before workers return to Site.
c) If property damage has occurred, the workplace will need to be inspected and assessed to confirm steps required prior to a full return of workers to Site. A risk assessment may be required prior to any return to Site.
d) The LMS Incident Controller is to account for all Workers when returning to Site, only when deemed safe to do so and after all assessments have been completed.

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