Preliminary Site Investigation – Lake Munmorah

315, 325 & 335 Pacific Highway, Lake Munmorah, NSW 2259

20222732

19 October 2021

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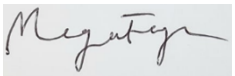	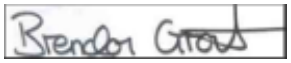	
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EXECUTIVE SUMMARY

Kleinfelder was commissioned by EDH Group on behalf of Shopbox Pty Ltd to undertake a Stage 1 Preliminary Site Investigation (PSI) to support the Rezoning Application for properties located at 315, 325 and 335 Pacific Highway (the Site), Lake Munmorah, NSW.

The objective of this PSI, as guided by State Environmental Planning Policy SEPP 55, was to conduct an initial stage of investigation to determine if there is a potential for contamination to be present on the Site that may pose a risk to future residential users (including future construction workers) and the surrounding environment. A key focus of this desk-based assessment was determining the suitability of the Site for its intended use as low density residential land and if intrusive investigation works are required to understand the need for management of potential contamination during redevelopment.

The scope of work has encompassed a review of available desk-based information to identify the historical development of the Site and potential sources of contamination, followed by a comprehensive site walkover to visually assess the current condition of the land.

This study has identified the historical development of the Site and following key features with the potential to cause localised contamination of soil and groundwater:

- The Site has maintained its land use as residential (Lot 27) through to residential/commercial industrial (Lot 12 & 83) since 1971 with very little change.
- Potential sources of contamination identified at the Site are common to many properties that have been subject to similar use and include:
    - Potential hydrocarbon impacts from fuel storage. Current and historical status of soil and groundwater surrounding underground storage tanks (USTs) at the service station (Lot12) has not been confirmed.
    - Other potential hydrocarbon impacts. Several small areas of used oils/fuels including behind the service station/workshop and throughout the grassed area of the RV dealership (Lot 83).
    - Soil stockpiles containing fill material (plastic, fibro and concrete fragments) within the central part of Lot 83.
    - Several small areas of discarded building materials such as fibro, brick, pavers, timber and disused framing within Lot 83.
    - Degraded building material dislodged from current Site structures and embedded within the soils (Lot 12). This may include asbestos.
    - Isolated occurrences of discarded vehicles and engine parts within Lot 12 & Lot 83.
    - A leak from the septic tank identified at Lot 27.
    - Isolated occurrences of empty fuel/oil drums located at Lot 12 and Lot 83.

The preliminary conceptual site model (CSM) has identified potential source-pathway-receptor (SPR) linkages at the Site which will require intrusive investigation to further assess potential risks to human health and the environment and determine if management measures are necessary as part of redevelopment works.

Notwithstanding, based on the findings of this PSI, it is considered that contamination (if present) should not be seen as a major impediment to the suitability of the Site for its intended residential land use.

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1 INTRODUCTION

1.1 BACKGROUND

Kleinfelder Australia Pty Ltd (Kleinfelder) was commissioned by EDH Group (EDH) on behalf of Shopbox Pty Ltd (Shopbox) to undertake a Stage 1 Preliminary Site Investigation (PSI) to support the Rezoning Application for properties located at 315, 325 and 335 Pacific Highway, Lake Munmorah, NSW 2259 (herein referred to as the 'Site'). The location of the Site is presented in **Figure 1** and **Figure 2**. It is understood that the Site generally consists of one semi-rural property with a residential dwelling (Lot 27 – DP755266,), one semi-rural property with a residential dwelling and commercial office/workshop (Lot 83 – DP650114) and a commercial property including service station, shop and mechanic workshop (Lot 12 – DP1771284). It is proposed that the Site be rezoned to R2 – Low Density Residential, therefore a preliminary contamination assessment is required to support the rezoning application.

1.2 REGULATORY CONTEXT

Within the context of development applications, the governing guidance for the assessment of contaminated land in NSW is set out in the following document:

- Managing Land Contamination, Planning Guidelines, SEPP 55 – Remediation of Land, NSW EPA (1998).

SEPP 55 requires planning authorities to consider whether the current or historical use of the land under consideration may have caused contamination, and if that has a material effect on the proposed change in land use. Consequently, rezoning or development applications on sites with a potential for contamination should be supported by a sufficient level of assessment demonstrating that the land is suitable for the proposed use or can be made suitable, either by remediation or the way the land is used.

SEPP 55 sets out a staged approach for the investigation, the initial approach comprising of a desk based preliminary investigation followed by a subsequent stage of detailed investigation (comprising sampling of soil and groundwater) should potential contamination risk be identified.

1.3 OBJECTIVE

The objective of this PSI, as guided by State Environmental Planning Policy SEPP 55, was to conduct an initial stage of investigation to determine if there is a potential for contamination to be present on the Site that may pose a risk to future residential users (including future construction workers) and the surrounding environment. A key focus of this desk-based assessment was determining the suitability of the Site for its intended use as low density residential land and if intrusive investigation works are required to understand the need for management of potential contamination during redevelopment.

1.4 SCOPE OF WORK

The scope of work has been organised into three main tasks as outlined below:

1.4.1 Task 1 – Desktop Study

Undertake a desktop assessment of the Site including:

- Detailed review of relevant available historical reports; and
- Reviewing current and historical data for the Site outlining:
  - Council information, including the Local Environment Plan (LEP) and land zoning maps;
  - Historical aerial photographs which were used to identify physical changes to the Site and surrounding landscape;
  - Site hydrogeology, geology and hydrology records;

- Contaminated Land Public Register search through the NSW Environmental Protection Authority (EPA);
- Potentially contaminating activities;
- Natural hazards; and
- Nearby sensitive receptors.

1.4.2 Task 2 – Site Walkover Inspection

Attend Site to conduct a detailed inspection of accessible areas, with a key focus on identifying potential contaminating activities and areas of environmental concern (AEC) identified from a review of historical information. The Site visit aimed to confirm AEC with a particular emphasis on:

- The Truck Stop and Service Centre including drainage lines and bunding around fuelling infrastructure;
- Vehicle workshop areas including the RV dealership and Truckstop Service Centre;
- Current operations, including the storage, handling and use of fuels, lubricants and chemicals;
- Potential fill areas around the Site or areas where extensive soil movement is evident from historical photographs;
- Building materials – including old sheds (currently standing or demolished) for the potential presence of Asbestos; and
- Identify any potential illegal dumping of contaminated material that may be present on Site and / or other potential off-site sources of significant contamination that may migrate onto the Site.

1.4.3 Task 3 – Reporting

Present the information and investigation findings within a comprehensive report, including development of a preliminary Conceptual Site Model (CSM) assessing potential contamination risks to confirm the suitability of the Site for rezoning. The report presents the following stages as outlined in the Consultants Reporting on Contaminated Land Guidelines (EPA 2020):

- The purpose of the investigation;
- The Site history;
- Past and present potentially contaminating activities (on and off-site sources);
- Potentially contaminating media;
- The condition of the Site and surrounding environment;
- The geological and hydrogeological setting;
- A preliminary assessment of site contamination and contaminants of potential concern (CoPC);
- A preliminary CSM;
- Identification of data gaps requiring further stages of investigation/assessment prior to the proposed new use of the Site; and
- A statement on the suitability of the Site for the proposed rezoning to a more sensitive land use.

The desktop review did not include a Hazardous Building Materials Assessment or search of NSW WorkCover Dangerous Goods Records.

2 SITE DESCRIPTION AND ENVIRONMENTAL SETTING

2.1 SITE IDENTIFICATION

Table 2.1 presents Site-specific details for the feasibility of rezoning as R2 – Low density residential.

Table 2.1: Site Identification

Site Address	315, 325 & 335 Pacific Highway, Lake Munmorah, NSW 2259
Current Title Identification Details	Lot 27 – DP755266 – Semi-rural property with one residential dwelling with attached demountable (2.12 ha). Lot 83 – DP650114 – Semi-rural property with one residential dwelling and detached commercial business including an office and workshop (1.93 ha). Lot 12 – DP1771284 – Commercial business including service station, shop and mechanical workshop (0.25 ha).
Proposed Land Use	R2 – Low density residential
Site Total Area	Approximately 43,000m^2
Current Ownership	Private ownership
Current Zoning[1]	RU6 – Transition
Local Council	Central Coast Council

[1] – Wyong Local Environmental Plan 2013 – Land Zoning Map: Sheet LZN_018 (LEP 2013)

2.2 SURROUNDING LAND USE

A summary of the surrounding land use and the corresponding zoning has been gathered from the desktop assessment and through review of the Enviro-Screen Report (**Appendix A**). This was later confirmed through ground truthing while undertaking the Site walkover.

An overview of the surrounding land use is summarised in

Table 2.2 below.

Table 2.2: Surrounding Land Use

Direction	Land Use
North	North (approximately 232 m) is land zoned as Public Recreation (RE1) and Environmental Conservation (E1). Infrequent occurrences of semi-rural/commercial properties are present within areas to the northeast (approximately 240m) zoned as Environmental Management (E3). Joey Reserve is located approximately 185 m north. The southernmost extent of Lake Macquarie is located approximately 1,160 m north.
South	Directly south is the Pacific Highway which runs east/west along the southern boundary. Approximately 120 m south is Munmorah United Bowling Club, with basketball courts and tennis courts located a further 50 m south. Lake Munmorah Dog Park is situated south of the sporting courts. Private Recreation (RE2) zoned land lies to the east of the Bowling Club where an Italian restaurant is located. Low density residential land (R2) generally surrounds the south-eastern area before the northern most extent of Lake Munmorah (approximately 550 m).
West	Adjacent properties to the west are zoned Transition (RU6). Further west the area is divided into several zones, including Local Centre (B2) which includes a shopping centre complex (approximately 682 m), Environmental Management (E3) which includes bushland to the north of the shopping complex, Public Recreation (RE1) approximately 656 m and Low density residential (R2). The majority of land up to the Local Centre is considered semi-rural with single residential dwellings.

East	Directly east is a small area of Low density residential land (R2) along Kangaroo Ave. Approximately 120 m east is semi-rural land zoned as Transition (RU6). Lake Munmorah Public School is located approximately 590 m east and is zoned as Infrastructure (SP2).

2.3 TOPOGRAPHY

The Site has an approximate average downward slope of 5.9% to the northwest, generally elevated between 24 m AHD in the south adjacent to the Pacific Highway, down to 16 m AHD in the northern end (Google Earth Pro). This is confirmed in the Enviro-Screen report (LIR 2021) which details gently undulating rises with slope gradients below 10% and local relief to 30 m.

2.4 GEOLOGY

According to the Gosford-Lake Macquarie 1:100,000 Geological Sheet, the major geological unit is Munmorah Conglomerate of the Lower Triassic period. The lithostratigraphic unit present is the Narrabeen Group, with sandstone being the dominant lithology. Medium to coarse-grained lithic to quartz-lithic sandstone, granule to pebble polymictic conglomerate, minor siltstone and white claystone are also featured in the geology of the Site. Furthermore, inclusions of thin lenticular coal seams are found in the strata.

Soils identified in the Enviro-Screen report that occur on sandstones and conglomerates include moderately deep Yellow Earths (Gn2.24), Yellow Podzolic Soils (Dy2.21, Dy3.21) and Soloths (Dy2.41, Dy3.41). Moderately deep Yellow Podzolic Soils (Dy2.11, Dy3.21), Soloths (Dy2.41) and some Red Podzolic Soils (Dr3.21) occur on fine grained siltstones and claystone, while moderately deep to deep Yellow Leached Earths (Gn2.74), Grey Earths (Gn2.94), Soloths (Dy3.41) and Gleyed Podzolic Soils (Dg4.41) occur along drainage lines.

A review of the Australian Soil Resources Information System (ASRIS) – Atlas of Australian Acid Sulfate Soils (ASRIS, 2013) was undertaken to determine the potential for Acid Sulfate Soil (ASS) on Site. The search indicated that the Site was an “extremely low probability of occurrence” area regarding ASS risk (LIR, 2021). Following a review of the ASS Map provided in the Wyong LEP 2013, Class 3 land was identified within a minor area of the Site buffer (2000 m), while class 5 land was identified on the Site. No observations (i.e. staining, odour) indicative of ASS were noted during the Site walkover.

2.5 HYDROGEOLOGY

The Enviro-Screen report (LIR, 2021) identified porous, extensive aquifers of low to moderate productivity underlying the Site. No previous environmental investigations have been undertaken, therefore, groundwater flow is generally unknown. Despite this, the groundwater flow can be inferred based on regional topography and observed hydrological features. There is an area of low elevation in the northwest corner of the Site where groundwater is expected to flow, before deviating to the north-east and reaching Karignan Creek which leads into Lake Macquarie.

A search for registered groundwater wells within a 2km radius of the Site identified that a total of eight bores were installed between 1967 and 2009, with details as follows (none are located on or within 500m of the Site):

- Two groundwater bores were identified to be used for household purposes (671 m east and 1663 m west of the Site);
- One groundwater bore was identified to be used for manufacturing and industry (755 m west of the Site);
- One groundwater bore was identified to be used for monitoring installed at a depth of 210 m (918 m east of the Site);
- Three groundwater bores were identified to be used for unknown purposes (1583 m west, 1593 m west and 1636 m west of the Site); and
- One groundwater bore was identified to be used for irrigated agriculture (1636 m west of the Site).

2.6 HYDROLOGY

The Site is comprised mostly of grassed and vegetated areas of private land with residential and commercial structures built on the southern end. Adjacent to this is the Pacific Highway which runs along the Site boundary.

Open drainage lines run parallel to the Pacific Highway in an east/west direction. Concreted areas on the Site include driveways leading to residential housing and commercial buildings, as well as car parking and refuelling forecourt areas for vehicles visiting the service station. Stormwater captured from the impermeable concrete is likely to be directed into a sub-surface stormwater drainage system or directed as runoff into open drainage lines and directed towards surrounding grassed areas where it is expected to percolate into the underlying soils.

The following surface water drainage features were identified to fall within the 2km search area around the Site:

- Chain Valley Creek beginning approximately 700 m north-east of the Site and continues north-east for a further 550 m until its confluence with;
- Karignan Creek, which flows into Lake Macquarie, a large water body directly north of the Site;
- Lake Munmorah is located approximately 550 m south of the Site;
- Colongra Creek flows from Lake Munmorah and continues west for approximately 500 m where it discontinues;
- Hammond Canal flows north from Colongra Power Station, then meanders to the east until discharging into Lake Munmorah; and
- Colongra Lake located approximately 1200 m south-west of the Site.

2.7 ECOLOGICAL SETTING

The Site and its immediate surroundings generally consist of open space/vegetated grassland, low-density residential properties and commercial properties, increasing to medium density residential properties and community infrastructure. No national parks / state conservation areas or wetlands were identified; however, lakes were found within the buffer at three primary locations (approximately 1300 m north, 600 m south and 1500 m south-west of the Site).

The Site is located within an Underground Petroleum Storage Systems (UPSS) Environmentally Sensitive Zone. Environmentally Sensitive Zones are areas which serve as buffers around sensitive features, such as groundwater bores or surface water bodies, and are considered necessary to provide an acceptable level of protection in the event of a leak from nearby UPSS (Lot 12).

Numerous Groundwater Dependent Ecosystems (GDE) were identified within the 2km buffer ranging from high to low potential, generally correlating to identified vegetated areas. On the Site itself, three GDEs were identified; one with low potential for groundwater interaction generally in the centre of the Site, the second a moderate potential GDE in the eastern-central area, and the third a high potential GDE to the north of the Site where the land has remained generally undeveloped. Additionally, numerous GDEs, ranging from low to high potential, are located off-site predominately to the east and north of the Site.

2.8 ENVIRONMENTAL PLANNING CONSTRAINTS

A review of the Enviro-Screen Report (LIR, 2021) identified that no items or areas were registered as having aboriginal or non-aboriginal heritage value in local, state, national or worldwide databases within 200m of the subject area.

The subject area was determined to have bush fire prone land planning constraints with “vegetation buffer” and “vegetation category 1” occurring within the subject area and vegetation category 2 identified within 500 m of the subject area. Five wildfires were recorded within a 500 m buffer of the area between 1987 and 2014 surrounding the western, northern and eastern sides of the Site.

Minor to moderate erosion hazards were identified to be extensive, spanning the subject area and the surrounding 500 m radius. This was characterised by the instability of batters, minor to moderate sheet erosion, and rilling of batters and along roads / tracks.

3 HISTORICAL SETTING

3.1 HISTORICAL ACTIVITIES

A review of the Enviro-Screen Report (LIR, 2021) identifies historical commercial and trade directory data (**Appendix A**) for the Site and adjacent buffer areas. **Table 3.1** provides a summary of business which may undertake potentially contaminating activities within the Site and a 200 m buffer of the boundary. A full list of historical commercial and trade directory data is provided in **Appendix A**. Historical commercial and trade data was only available from 1990.

Table 3.1: Summary of Potentially Contaminating Historical Business (LIR, 2021)

Activity	Name	Address	Approximate Year of Operation	Distance (m) from Site	Direction
Auto Electrical Services Including Mobile	G & D Auto Electrical	1139 Pacific Hwy, Lake Munmorah, NSW	1990	0.0	South
Tyre Retailers	Gaz & Daz Automotive	1139 Pacific Hwy, Lake Munmorah, NSW	1990	0.0	South
Air Conditioning – Car & Automotive	G & D Auto Electrical	1139 Pacific Hwy, Lake Munmorah, NSW	1990	0.0	South
Motor Garage Equipment & Supplies	Ampol Ltd.	1139 Pacific Hwy, Lake Munmorah, NSW	1990	0.0	South
Roof Construction Specialists	Clover's Roofworks	342a Pacific Hwy, Lake Munmorah, NSW	2005	0.0	South
Auto Electrical Services Including Mobile	Twin Lakes Auto Electrical Services	1139 Pacific Hwy, Lake Munmorah, NSW	2005	0.0	South
Recyclers	A.M.S Recycling	475 Pacific Hwy, Lake Munmorah, NSW	2005	0.0	South
Auto Electrical Services Including Mobile	Ask Us Auto & Air Lake Munmorah	1139 Pacific Hwy, Lake Munmorah, NSW	2005	0.0	South
Motor Sport Services	Mobil Oil Aust Pty Ltd, Lake Munmorah	335 Pacific Hwy, Lake Munmorah, NSW	2005	0.0	South
Storage – General Facilities & Service	Munmorah Landscape Supplies & Nursery	295 Pacific Hwy, Lake Munmorah, NSW	2005	177.9	West
Petrol Stations & Garages	Mobil Oil Aust Pty Ltd	335 Pacific Hwy, Lake Munmorah, NSW	2010	0.0	South
Tanks & Tank Equipment Manufacturing, Construction & Installation	Munmorah Chainsaw & Mower Repairs	295 Pacific Hwy, Lake Munmorah, NSW	2010	177.9	West
Hardware – Retailers	Building And Landscape Supplies	295 Pacific Hwy, Lake Munmorah, NSW	2010	177.9	West
Security & Alarm Systems & Consultants	Central Coast Alarm Installations	325 Pacific Hwy, Lake Munmorah, NSW	2015	0.0	South
Petrol Stations & Garages	BP Lake Munmorah	335 Pacific Hwy, Lake Munmorah, NSW	2015	0.0	South

Activity	Name	Address	Approximate Year of Operation	Distance (m) from Site	Direction
Water Coolers Retail or Hire	AuzWater	325 Pacific Hwy, Lake Munmorah, NSW	2015	0.0	South
Marketing Consultants & Services	Auzwide Marketing	325 Pacific Hwy, Lake Munmorah, NSW	2015	0.0	South
Boarding Kennels – Dogs	All Paws Pet Motel	305 Pacific Hwy, Lake Munmorah, NSW	2015	31.9	North
Plumbers & Gasfitters	S & N Pinney Plumbing	32 Possum St, Lake Munmorah, NSW	2015	94.7	East
Boarding Kennels – Dogs	Central Coast Veterinary Centre	166 Pacific Hwy, Wyong North, NSW	2015	115.3	South-east
Cars – New	ELN Ford Pty Ltd	136 Pacific Hwy, Tuggerah, NSW	2015	115.3	South-east
Roof Construction Specialists	John Crooks Roofing	44 Mercator Cl, Lake Munmorah, NSW	2015	165.8	East
Chainsaws Brushcutters & Power Equipment	Munmorah Chainsaw & Mower Repairs	295 Pacific Hwy, Lake Munmorah, NSW	2015	177.9	West
Car Wreckers – Used/Recycled Parts	Budgewoi Munmorah Auto Wreckers	Pacific Hwy, Lake Munmorah NSW	2015	Unknown	East
Petrol Stations & Garages	Lake Munmorah (Mobil Service Station)	Pacific Hwy, Lake Munmorah NSW	2015	Unknown	South-east

The majority of activities outlined in **Table 3.1** are considered to be businesses registered to residential properties as no evidence of commercial style buildings or commercial rubbish or waste removal facilities has been observed in aerial imagery or historical aerial photographs (as discussed below in **Section 3.2**).

3.2 HISTORICAL AERIAL PHOTOGRAPHS

The LIR 2021 report provides eleven aerial photographs dating from 1966 through to 2021 (Error! Reference source not found.). These have been reviewed with a description provided for key on-site and off-site features outlined in **Table 3.2** below.

The red line within each of the images provided by LIR 2021 outlines the Site boundary, with the surrounding dotted line representing the 500 m buffer zone.

Table 3.2: Historical Aerial Photograph Review

Date	Site	Surrounding Area
1966 – Black and White (Map B1)	The Site is entirely undeveloped, free of buildings and infrastructure. The Site is mostly grassed with sparse tree cover and patches of bare earth.	• **North:** No developments are present north of the Site, with expansive areas of cleared land in the north-east and vegetated land in the north-west. Joey Reserve is located approximately 160 m north of the Site, adjacent to Kangaroo Avenue. Further north-east (approximately 350 m from the Site), there appears to be a body of water that diverges into two streams flowing south-west and south-east, neither of which intersect the study area. The streams are represented by blue lines on the aerial photographs. • **South:** Munmorah United Bowling Club is located approximately 100 m south of the Site on the opposing side of the Pacific Highway which runs parallel to the southern Site boundary. Approximately 170 m further south of the Bowling Club lies Munmorah Sportsground surrounded by dense vegetation. Lake Munmorah Rural Fire Brigade is also situated south-east of the Site along Acacia Ave. The remaining land is undeveloped with sparse tree cover to the south-east and dense vegetation to the south-west of the Site. • **East:** The land to the east of the Site is undeveloped and sparsely vegetated. Kangaroo Ave runs parallel to the eastern Site boundary and appears to be intersected by an unnamed road that leads to the Site. Further east, one of the two branches of the aforementioned water body passes down and branches into two smaller streams that end before reaching the Pacific Highway. • **West**: To the immediate west of the Site, dense vegetation can be seen up to 250 m from the Site. The second arm of the northern water body flows through this vegetated area and ceases at the Pacific Highway. The land beyond this is mostly cleared yet undeveloped, with an additional stream that enters from outside of the 500 m radius to the north-west. There are no apparent roads / tracks that pass through the area west of the Site.
1971 – Black and White (Map B2)	There appears to be new infrastructure in the south-east of the Site, potentially residential housing and a commercial business. Another structure appears to be newly built slightly south-west of the centre, though it is unclear from the photograph. The remaining grassed and vegetated areas are unchanged.	• **North**: Development has occurred south of Joey Reserve and along Kangaroo Ave, potentially the subdivision of land for future housing construction (though the purpose cannot be confirmed through the photograph). The remaining land is unchanged, with the water body and vegetated land still evident. • **South**: Housing development has taken place since 1966, with low density residential housing located to the south-east and south-west of the subject area. The Bowling Club and sportsground remained unchanged, as well as the vegetated land south-west of the Site. • **East**: Minor developments have occurred to the east of the Site, appearing to be a residential building with some smaller structures (possibly sheds) adjacent. Cleared land surrounds this, with the stream flowing further east of this. • **West**: The land to the immediate west of the Site remains unchanged, though the cleared land beginning approximately 250 m from the Site has been further developed as residential land with housing and sheds.

Date	Site	Surrounding Area
1975 – Black and White (Map B3)	Appears generally consistent with the 1971 aerial photograph, with improved image quality confirming the presence of housing and shed structures previously observed, as well as a service station in the south-east corner.	• **North:** Appears generally consistent with the 1971 aerial photograph, with further housing development occurring on the land adjacent to Kangaroo Ave. • **South:** The low density residential housing seen in 1971 has continued to develop, with the density increasing in all identified areas. • **East:** Sheds (storage or animal housing) appear to have been built to the north-east of the previously identified residential development. To the far east of the 500 m buffer zone, an area of land appears to have been cleared for future development. • **West:** Appears generally consistent with the 1971 aerial photograph, though slight clearing has occurred to the north-east of the land that was previously identified as a residential property.
1984 – Black and White (Map B4)	Appears generally consistent with the 1975 aerial photograph, with the addition of a commercial or residential building in the south-east corner, west of the existing service station.	• **North**: Appears generally consistent with the 1975 aerial photograph, however, further residential development has occurred in the area south of Joey Reserve and adjacent to Kangaroo Ave. • **South**: The low density residential housing has continued to be developed since 1975, as well as the addition of a recreational area south of the Bowling Club. The remainder of the southern area appears to be consistent with the previous aerial photograph. • **East:** Minor housing development has occurred adjacent to Kangaroo Ave. Additionally, the stream that flowed south adjacent to Kangaroo Ave appears to have dried out, allowing for what is believed to be a residential house to be built on the cleared area of land. Further clearing of land has also occurred on the eastern side of the stream to the north-east. • **West**: Appears generally consistent with the 1975 aerial photograph, with revegetation occurring to the far west, and clearing occurring on a large block of land east of this.
1994 – Colour (Map B5)	Appears generally consistent with the 1984 aerial photograph, though two more sheds have been built behind the existing service station to the far south-east of the Site.	• **North**: Appears generally consistent with the 1984 aerial photograph, however, extensive residential development has occurred in the area south of Joey Reserve and adjacent to Kangaroo Ave. Furthermore, the water body north-east of the subject area appears to be drying out. It has reduced in size and begun to form separate pools of water where the elevation varies. • **South**: The low density residential housing has continued to be developed since 1984, particularly in the south-west corner of the buffer zone. The previously mentioned recreational area is now identifiable as tennis courts and basketball courts. The remainder of the southern area appears to be consistent with the 1984 aerial photograph. • **East:** Extensive housing development has occurred along both sides of Kangaroo Ave. The cleared land to the far north-east remains mostly unchanged, however, a pool of water appears to have formed on the north-western end of the land. • **West**: Appears generally consistent with the 1984 aerial photograph, however, residential/commercial buildings are newly present in two locations; south-west corner of the lot that was cleared in the 1994 aerial photograph, and adjacent to the north-western side of the Site boundary.

Date	Site	Surrounding Area
2001 – Colour (Map B6)	Appears generally consistent with the 1994 aerial photograph, though the structure that was located towards the centre of the Site (shed/large bus) is no longer present.	• **North**: Appears generally consistent with the 1994 aerial photograph. • **South**: Appears generally consistent with the 1994 aerial photograph. • **East:** Appears generally consistent with the 1994 aerial image, however, the land approximately 500 m east of the Site has been cleared and the construction of a large community/public service (potentially a school) has taken place. This includes both the buildings and a sports court. • **West**: Appears generally consistent with the 1994 aerial photograph.
2010 – Colour (Map B7)	Appears generally consistent with the 2001 aerial photograph, with the addition of a driveway and larger building on the south-east corner of the Site. The purpose is presumably a commercial business.	▪ **West**: Appears generally consistent with the 2001 aerial photograph, however, the building with the green roof located approximately 280 m west of the subject area has been demolished. The remainder of the surrounding areas appears generally consistent with the 2001 aerial photograph.
2012 – Colour (Map B8)	Appears generally consistent with the 2010 aerial photograph, though another addition has been made to the south-east corner of the Site. This new building is believed to be a residential property to be used by the owners of the existing business also on-site (a swimming pool can be seen at the back of the building).	• **West**: Appears generally consistent with the 2010 aerial photograph, however, the cleared area approximately 280 m west of the subject area where the building had been removed appears to now have ongoing construction taking place. ▪ The remainder of the surrounding areas appears generally consistent with the 2010 aerial photograph.
2015 – Colour (Map B9)	Appears generally consistent with the 2012 aerial photograph, however, a small area of vegetated land behind the service station and commercial business has been cleared and now appears to hold a few small vehicles/boats.	• **West**: Appears generally consistent with the 2012 aerial photograph, however, the cleared area with construction taking place approximately 280 m west of the subject area appears to be expanding, with a long curving track heading north from this area. ▪ The remainder of the surrounding areas appears generally consistent with the 2012 aerial photograph.
2018 – Colour (Map B10)	Appears generally consistent with the 2015 aerial photograph, with the addition of what appears to be three sheds towards the south-east of the Site behind the service station. There has also been slight clearing of the vegetated area in front of the residential property located to the south-west of the subject area.	• **West**: Appears generally consistent with the 2015 aerial photograph, however, a few additional buildings have been constructed south of the development located adjacent to the western Site boundary. There also appears to be a pool located amongst these buildings. Additionally, what is presumably a commercial building has been constructed on the land where development had been taking place approximately 280 m west of the subject area. North of this, a driveway is now located by the building that is expected to be residential or a private business. • **East**: Another educational facility appears to have been built approximately 200 m north of the previously identified school. ▪ The remainder of the surrounding areas appears generally consistent with the 2015 aerial photograph.

Date	Site	Surrounding Area
2021 – Colour (Map B11)	Appears generally consistent with the 2018 aerial photograph, with several boats/vehicles parked behind the service station and commercial buildings to the south-east of the Site. The most recent image also shows the extent of grease/oil to the rear of the mechanics workshop at Lot 12.	Appears generally consistent with the 2018 aerial photograph.

3.3 NSW EPA RECORDS

3.3.1 Contaminated Sites Notified to the NSW EPA

A search of the NSW EPA Contaminated Land List including the NSW Government PFAS Investigation Program (reviewed 1/10/21) identified Munmorah Power Station as a contaminated site notified to the NSW EPA 950 m south-west of the Site. The EPA Site Management Class is still under assessment, and the activity that caused contamination is unclassified. This was also confirmed within the Enviro-Screen Report (**Appendix A**).

3.3.2 NSW EPA Licenses Records and Dangerous Goods

A search of the NSW EPA Licensed Activities (LIR 2021) (**Appendix A**) list identified one licence within a 500 m buffer of the Site. The licence holder is the Forestry Corporation of NSW (EPL – 3957), with logging operations being the fee-based activity.

4 FIELDWORKS

4.1 SITE WALKOVER

A site walkover was undertaken on the 24 September 2021 to identify potential sources of contamination, ground truth historical data, review information by documenting Site surroundings and conditions, and collect a photographic log of key areas. The Site walkover was undertaken by Daniel Kousbroek and Megan Ferguson. Photographs collected during the Site walkover are compiled in **Appendix**BBBBB **B**B. As outlined in **Section 2.1,** the Site has been divided into three lots. These divisions have been applied to the Site walkover to facilitate describing the conditions observed in each lot.

Generally, buildings throughout the southern section of the Site were considered to potentially contain asbestos given buildings appeared to be mostly constructed prior to the 1980s which was confirmed in the review of historical aerial photography (**Section 3.2**). Potential bonded asbestos fragments were found at two locations behind the service station, as well as amongst fill material at Lot 83. Additionally, grass die-back and oily liquids were identified on the ground surface at the rear of the service station and adjacent to fill/building material at the Kookaburra Avenue entrance to Lot 83.

4.1.1 Residential Property – 315 Pacific Hwy, Lake Munmorah (Lot 27)

Lot 27 is a 2.12 ha semi-rural property with one dwelling **(Photo 1)** and a detached demountable building **(Photo 2)** adjacent to the garage. The lot is generally grassed with a moderate density of native trees and goats grazing along the northern section of the property **(Photo 3)**. A chainwire fence supported by wooden beams runs along the perimeter, with an additional fence line running east to west to control the movements of the goats on the northern half of the property. A rough asphalt surface begins at the gate on the south-west end of the Lot and leads to the fibro house located approximately 75 m north-east **(Photo 4)**. A rainwater tank is located behind the demountable building to the east of the dwelling, while an above ground pool is situated on the west side **(Photo 5)**.

On the northern side of the house are a series of raised garden beds and a small fire pit. Approximately 15 m north-east of the house are three shipping containers **(Photo 6)** used for general outdoor storage, with a chicken shed adjacent to the storage shed housing several chickens **(Photo 7)**. A septic tank **(Photo 8)** is located directly west of the residential dwelling and appears to have moist soils and exceptionally green grass appearing to trail from it further to the west **(Photo 9)**. The apparent saturated nutrient-rich and mist soil indicates that the septic tank is leaking, though no odour was present. No other sources of potential contamination were evident.

4.1.2 Commercial Business – 325 Pacific Hwy, Lake Munmorah – (Lot 83)

Lot 83 is a 1.93 ha semi-rural property with a commercial business and a residential dwelling attached. The main entrance to the back of the Site is through a gate located on the eastern perimeter via Possum St, approximately 95 m north of the Pacific Highway. The Site is predominantly grassed with sparse Eucalypt tree growth **(Photo 10)** which appeared to be well established. The northern end of the Site has been cleared and recently mulched **(Photo 11)**, with a bare patch of grass that was likely previously covered by timber (no signs of contamination were observed). Additionally, an approximate 3 m x 3 m patch of asphalt **(Photo 12)** was located adjacent to this area, where a former structure or roadway once stood.

An isolated waste pile **(Photo 13)** was located within the central section of the lot north of the more active areas where the business and storage of vehicles takes place. The waste pile comprised mostly of wooden slats, metal, plastic and insulation material. Slightly west of this was a soil stockpile **(Photo 14)** approximately 1.5 m at its highest point. Fill material was evident throughout the stockpile including fibro sheeting, concrete, plastic, glass and potential asbestos fragments **(Photo 15)** were found amongst the stockpile. An additional waste pile **(Photo 16)** was located approximately 80 m north-east of the main commercial building in a small, treed area adjacent to the Possum Street entry. Materials observed included tin, plastic, concrete, brick and rock. Potential asbestos fragments **(Photo 17)** were also found amongst the waste. A pile of bricks and pavers **(Photo 18)** were discovered adjacent to the back gate, where a small patch of oil/ grease **(Photo 19)** was located (source unconfirmed).

Several buses, cars and boats were present on the southern half of the lot, north of the residential and commercial buildings. Small-scale discharge of oil or fuel from one of the buses was evident on a grassed area adjacent to the bus **(Photo 20)**. Other similar patches of fuel / oil were identified within this area. A shed with two shipping containers either side **(Photo 21)** were located along the western perimeter of the lot behind the residential building (approximately 30 m away), where several small piles of assorted waste/building materials are situated. They are currently being used for storage of various items, including a refrigerator and old drums. A large shed storing building materials and a mower backs onto the workshop, with a rainwater tank adjacent **(Photo 22)**.

A concreted area approximately 15 m from the Pacific Highway forms a parking area on the site **(Photo 23)**, with the residential and commercial buildings (including office and mechanical workshop) located immediately behind. Between the buildings and the highway, the ground is mostly crushed concrete/gravel and grass where additional vehicles (cars and buses) are parked **(Photo 24)**. The residential building, garage, and adjacent commercial building all appear to be recently built and in good condition. The residence has a large paved area with a pool and two spas on the northern side of the dwelling **(Photo 25)**.

4.1.3 BP Service Station – 335 Pacific Hwy, Lake Munmorah (Lot 12)

Lot 12 is an operating BP branded service station consisting of one primary commercial building including a mechanical workshop, retail shop and a canopy and three smaller structures on the northern side of the property. Four fuel bowsers are located within the forecourt area **(Photo 26)**. The bowsers appear to be recently upgraded, with new concrete surrounding the bowser sumps. Two of the four bowsers were not in use at the time of the walkover, likely due to recently applied concrete **(Photo 27)**. Two underground storage tanks (USTs) were present; one 55 kL fibreglass split tank holding unleaded and premium unleaded, the other a 45 kL steel tank containing diesel. The bowsers were bunded beneath the canopy and no offsite contamination (fuel in exposed drains) was evident. Four drainage pits were identified within the forecourt, two of which are in close proximity to the adjacent residential property to the east. Two monitoring wells were also identified, one the eastern side of the forecourt **(Photo 28)** and another on the western side.

Two 210 kg LPG gasoline tanks **(Photo 29)** were present in the north-west corner of the BP service station, as well as approximately 20 smaller 8.5kg exchangeable LPG gas bottles contained in a storage cage. Chlorine containers **(Photo 30)** are also stored outside the shop window on the west side of the main building. Due to their age, the buildings likely contain asbestos material, though they appeared to be in good condition with no obvious signs of significant deterioration **(Photo 31)**. Along the wall on the western side of the garage service centre, old jerry cans / fuel containers were stored **(Photo 32)**, though appear empty. Other waste was also located here, such as tyres, scrap metal and old piping.

The remaining area of land behind (north) the buildings is grassed and mostly cleared of vegetation. A small shed is located behind the main garage service centre building to the east, with stacked oil drums **(Photo 33)** and a small pile of potential asbestos fragments **(Photo 34)** on either side. Surrounding this is a large patch of an oily grease substance that has caused some localised die-back and staining of the grassed surface **(Photo 35)**. Sand has been stockpiled to absorb the substance ,but not spread at the time of the walkover. A shipping container **(Photo 36)** is also present in the north-east corner with two old bowsers stored beside it. A half-fence separates the back grassed area of the two buildings, to the west of which is fill material / rubble (tile, concrete and small fragments of asbestos). Another shed **(Photo 37)** is present in the centre of the back area behind the main building, holding various equipment and machinery. It appears in a degraded state. A third shed **(Photo 38)** is located on the western side of the lot where additional fill material and oil drums are stored. This shed appears to hold general inventory/stock for the service station and retail store. Directly behind the service station building the area appears to be used for additional storage for the service station and retail shop **(Photo 39)**. In addition to these structures, two boats, two cars and a shipping container are stored on the lot.

5 PRELIMINARY CONCEPTUAL SITE MODEL

A CSM is a qualitative description of potential contamination sources, pathways and receptors identifying plausible exposure routes to human and ecological receptors that could cause harm. The key elements of a CSM are outlined in National Environmental Protection Council, National Environmental Protection (Assessment of Site Contamination) Measure, 2013 (NEPM, 2013) and generally comprise the identification of known and potential sources of contamination and their associated CoPC; a description of potentially affected environmental media and potential exposure pathways which may result in harm to human health and/or the environment.

5.1 POTENTIAL SOURCES OF CONTAMINATION

5.1.1 On-Site

Following the Site walkover and the review of historical information, **Table 5.1** below outlines potential on-site sources of contamination, key CoPC and potential transport mechanisms.

Table 5.1: Potential On-Site Sources of Contamination and Transport Mechanisms

Source Description	Contaminants of Potential Concern	Transport Mechanism
Potential leakage of septic tank on Lot 27	• Nitrogen • Phosphorus • Harmful bacteria	• Degradation of asbestos-containing building materials and deposition to soil. • Airborne dispersion of soil dust / asbestos fibres. • Potential leaks and spills from on-Site infrastructure to on-Site soils. • Erosion and surface water run-off of contaminated materials in shallow surface soils. • Vertical migration and/or leaching of contaminants in soils to groundwater via surface water infiltration and percolation. Subsequent lateral groundwater migration.
Fill material from unknown sources identified during the walkover in several areas across the Site	• Asbestos • Metals (e.g. Iron, aluminium, lead, zinc, copper, tin, nickel, chromium and oxides)	
Material potentially present in Site infrastructure	• Asbestos	
Oil/lubricants discharged from vehicles and jerry cans / fuel containers	• Total Recoverable Hydrocarbons (TRH) • Benzene, Toluene, Ethylene, Total Xylenes and Naphthalene (BTEXN) • Polyacrylic Aromatic Hydrocarbons (PAHs)	
Storage and use of petroleum hydrocarbons (diesel, petrol and base oils) across localised areas of the Site and within USTs/fuel infrastructure	• BTEXN • TRH • PAHs • Lead	

5.1.2 Off-Site

Following the Site walkover and the review of historical information **Table 5.2** provides details on potential off-Site sources of contamination.

Table 5.2: Potential Off-Site Sources of Contamination and Transport Mechanism

Source Description	Contaminants of Potential Concern	Transport Mechanisms
Caltex Woolworths (service station) – 275 Pacific Hwy, Lake Munmorah, NSW – Located approximately 590 m west of the Site and is across gradient.	• BTEXN • TRH • PAHs • Lead	• Potential leaks and spills from off-Site infrastructure to soil. • Leaching of contaminants from contaminated soil materials and lateral groundwater migration of contaminants.

Source Description	Contaminants of Potential Concern	Transport Mechanisms
		• Airborne dispersion of soil dust / asbestos fibres.

5.2 HUMAN HEALTH RECEPTORS AND EXPOSURE PATHWAYS

5.2.1 Receptors

Based on the desktop assessment and Site walkover, the following human receptors have been considered:

- On-Site future construction/maintenance workers.
- On-Site future residents following potential low density residential development.
- Off-Site residents in low-density residential areas with accessible soils.
- Off-Site recreational users of Joey Reserve, Munmorah United Bowling Club, tennis courts, basketball courts, Lake Munmorah Dog Park, Lake Munmorah Public School and Lake Munmorah High School.

5.2.2 Potential Human Exposure Pathways

Potential exposure pathways for uptake of contamination by human receptors include:

- Dermal (skin) contact and incidental ingestion of contaminated soil / soil dust.
- Inhalation of soil dust in outdoor air (including airborne asbestos fibres).
- Vapour inhalation from soil derived vapour in indoor and outdoor air.

5.3 ECOLOGICAL RECEPTORS AND EXPOSURE PATHWAYS

Based on the review of the environmental setting (refer to **Section 2**) the following aquatic ecological receptors have been identified:

- Terrestrial ecosystems that may be present within vegetated areas of the Site.
- Chain Valley Creek located approximately 450 m north-east of the Site.
- Lake Munmorah approximately 500 m south of the Site.

In accordance with the guidance provided by NEPM (Schedule B2) ecological receptors (identified in **Section 2.7**) which are at distances of greater than 500m from the Site have been discounted. On the Site itself, three GDEs were identified; one with low potential for groundwater interaction generally in the centre of the Site, the second a moderate potential GDE in the eastern-central area, and the third a high potential GDE to the north of the Site where the land remains undeveloped.

5.4 SOURCE – PATHWAY – RECEPTOR SUMMARY

Based on the information presented above, **Table 5.3** and **Table 5.4** below considers the SPR linkages from potential on- and off-site sources.

Table 5.3 below considers the SPR linkages from potential on-Site sources.

Table 5.3: Summary of Source – Pathway – Receptor Linkages (on-Site)

Source	Relevant Exposure Pathway	Relevant Receptor	S-P-R Linkage	Justification / Comment
Asbestos or ACM associated with Site infrastructure	Inhalation of asbestos-impacted dust in indoor / outdoor air	On-Site future construction / maintenance workers	Potentially complete	Potential asbestos fragments were identified behind the service station on Lot 12 in two separate locations, as well as amongst fill material on Lot 83. Demolition of current buildings on-Site and disturbance to soils may expose potential asbestos used in the construction of residential and commercial buildings. It is understood that all construction works are to be undertaken in accordance with relevant WH&S regulations and institutional controls (such as a Health and Safety Plan which would mitigate the risks to workers.
		On-Site current and future residents, commercial workers		
		Off-Site residents	Incomplete	Residential receptors are located in all directions surrounding the Site, with the closest being to the north and east. It is considered that asbestos inhalation would be unlikely due to the attenuation of potential airborne fibres.
Unidentified fill material	Incidental ingestion of soil / soil dust	On-Site current / future residents, commercial workers, construction / maintenance workers	Potentially complete	The origin of fill material identified during the Site inspection is unknown, therefore the potential presence of CoPC cannot be discounted.
		Off-Site residents and recreational users	Incomplete	It is considered that any future works completed at the Site will be barricaded and access restricted, therefore soils will not be accessible to residential or recreation users.
	Inhalation of dust in indoor / outdoor air	On-Site current / future residents, commercial workers, future construction / maintenance workers	Potentially complete	The origin of fill material identified during the site inspection is unknown, therefore the potential presence of CoPC cannot be discounted.

Source	Relevant Exposure Pathway	Relevant Receptor	S-P-R Linkage	Justification / Comment
		Off-Site residents and recreational users	Incomplete	Receptors are considered too remote from the Site and sufficient attenuation would occur. It is considered that potential future construction works will be undertaken in accordance with a Site Construction Environment Management Plan (CEMP) and follow Central Coast Council guidance on dust management which will mitigate the potential for dispersion of impacted dusts to the off-Site environment.
	Uptake (flora) and dermal contact (fauna) with soil, groundwater and surface water	On and off-site ecology	Incomplete	Potential leaching of CoPC may occur from fill materials to groundwater and surface water bodies. Albeit the quantity of fill materials is considered small and localised. No phytotoxic effects or signs of stressed vegetation were observed during the Site walkover at fill locations.
Bulk Material Storage / Service Station (Petroleum Hydrocarbons)	Dermal contact, incidental ingestion of soil and inhalation of soil dust	On-Site commercial workers	Potentially complete	Exposure to current workers is limited by the hardstand/building cover and current occupational hygiene practices deployed at the Site. However, oily substances were found to have leeched into the soils at two locations on-Site (behind the service station/workshop and Lot 83) most likely due to poor handling practices.
		On-Site current / future residents, future construction / maintenance workers	Potentially complete	As above, albeit institutional controls will be in place to mitigate risks to future construction / maintenance workers.
	Inhalation of soil / groundwater derived vapour in indoor / outdoor air	On-Site commercial workers	Potentially complete	Oily substances were found to have leeched into the soils at two locations on-Site (behind the service station/workshop and Lot 83) most likely due to poor handling practices. A moderate hydrocarbon odour was identified at these locations.
		On-Site current / future residents, future construction / maintenance workers (trench workers)	Potentially complete	As above, albeit controls will be in place to mitigate risks to future construction / maintenance workers.
	dermal contact and ingestion of soil	On-Site terrestrial flora and fauna	Potentially complete	Potential leaching of hydrocarbons into surrounding soils may occur from identified USTs and the spilled oily substances identified at two locations on-Site (and potentially present at other discrete stockpile locations)

Source	Relevant Exposure Pathway	Relevant Receptor	S-P-R Linkage	Justification / Comment
Leakage of septic tank	Uptake from soil and groundwater	On-site current / future residents (including construction / maintenance workers ecology (flora)	Potentially complete	Evidence of a leaking septic tank was identified on the residential property, with nearby grass appearing exceptionally green.

Table 5.4: Summary of Source – Pathway – Receptor Linkages (off-Site)

Source	Relevant Exposure Pathway	Relevant Receptor	S-P-R Linkage	Justification /Comment
Caltex Woolworths (service station) – 275 Pacific Hwy, Lake Munmorah, NSW	Incidental ingestion of groundwater / surface water	On-Site current / future residents, current commercial workers, future construction / maintenance workers	Incomplete	Evidence of potentially contaminating historical activities are difficult to discern from historical imagery however are not considered large scale and sources are remote from the Site. Groundwater is not abstracted for potable use and surface water is not present on-site. Additionally, surface water and groundwater in the area is expected to flow north in a north westerly direction away from the Site.
	Inhalation of groundwater derived vapour in indoor / outdoor air	On-Site current / future residents, commercial workers, future construction / maintenance workers	Incomplete	

In summary, potentially complete SPR linkages have been identified for the following key receptors which may present a risk of harm to human health and / or the environment, unless managed appropriately:

- On-Site future construction / maintenance workers.
- On-Site current and future residents.
- On-Site commercial workers.
- On-Site terrestrial flora and fauna.

6 CONCLUSIONS AND RECOMMENDATIONS

6.1 CONCLUSIONS

Kleinfelder was commissioned by EDH Group on behalf of Shopbox Pty Ltd to undertake a Stage 1 PSI to support the Rezoning Application for properties located at 315, 325 and 335 Pacific Highway (the Site), Lake Munmorah, NSW.

The objective of this PSI, as guided by State Environmental Planning Policy SEPP 55, was to conduct an initial stage of investigation to determine if there is a potential for contamination to be present on the Site that may pose a risk to future residential users, including future construction workers, and the surrounding environment. A key focus of this desk-based assessment was determining the suitability of the Site for its intended use as low density residential land and if intrusive investigation works are required to understand the potential need for management of contamination during redevelopment.

The scope of work has encompassed a review of available desk-based information to identify the historical development of the Site and potential sources of contamination, followed by a comprehensive site walkover to visually assess the current condition of the land.

This study has identified the historical development of the Site and following key features with the potential to cause localised contamination of soil and groundwater:

- The Site has maintained its land use as residential (Lot 27) through to residential/commercial industrial (Lot 12 & 83) since 1971 with very little change.
- Potential sources of contamination identified at the Site are common to many properties that have been subject to similar use and include:
    - Potential hydrocarbon impacts from fuel storage. Current and historical status of soil and groundwater surrounding underground storage tanks (USTs) at the service station (Lot12) has not been confirmed.
    - Other potential hydrocarbon impacts. Several small areas of used oils/fuels including behind the service station/workshop and throughout the grassed area of the RV dealership (Lot 83).
    - Soil stockpiles containing fill material within the central part of Lot 83.
    - Several small areas of discarded building materials such as fibro, brick, pavers, timber and disused framing.
    - Degraded building material dislodged from current Site structures and embedded within the soils. This may include asbestos.
    - Discarded vehicles and engine parts.
    - A leak from the septic tank identified at Lot 27.
    - Empty fuel/oil drums located at Lot 12 and Lot 83.
    -

6.2 RECOMMENDATIONS

The preliminary CSM has identified potential SPR linkages at the Site which will require intrusive investigation to further assess potential risks to human health and the environment and determine if management measures are necessary as part of redevelopment works.

Notwithstanding, based on the findings of this PSI, it is considered that contamination (if present) should not be seen as a major impediment to the suitability of the Site for its intended residential land use.

7 LIMITATIONS AND ASSUMPTIONS

This report has been prepared by Kleinfelder Australia Pty Ltd (Kleinfelder) and may be used only by the Client and its designated representatives or relevant statutory authorities and only for the purposes stated for this specific engagement within a reasonable time from its issuance, but in no event later than two (2) years from the date of the report.

This work was performed in a manner consistent with that level of care and skill ordinarily exercised by other members of Kleinfelder's profession practicing in the same locality, under similar conditions and at the date the services are provided. Our conclusions, opinions, and recommendations are based on a limited number of observations and data. It is possible that conditions could vary between or beyond the data evaluated. Kleinfelder makes no other representation, guarantee, or warranty, express or implied, regarding the services, communication (oral or written), report, opinion, or instrument of service provided.

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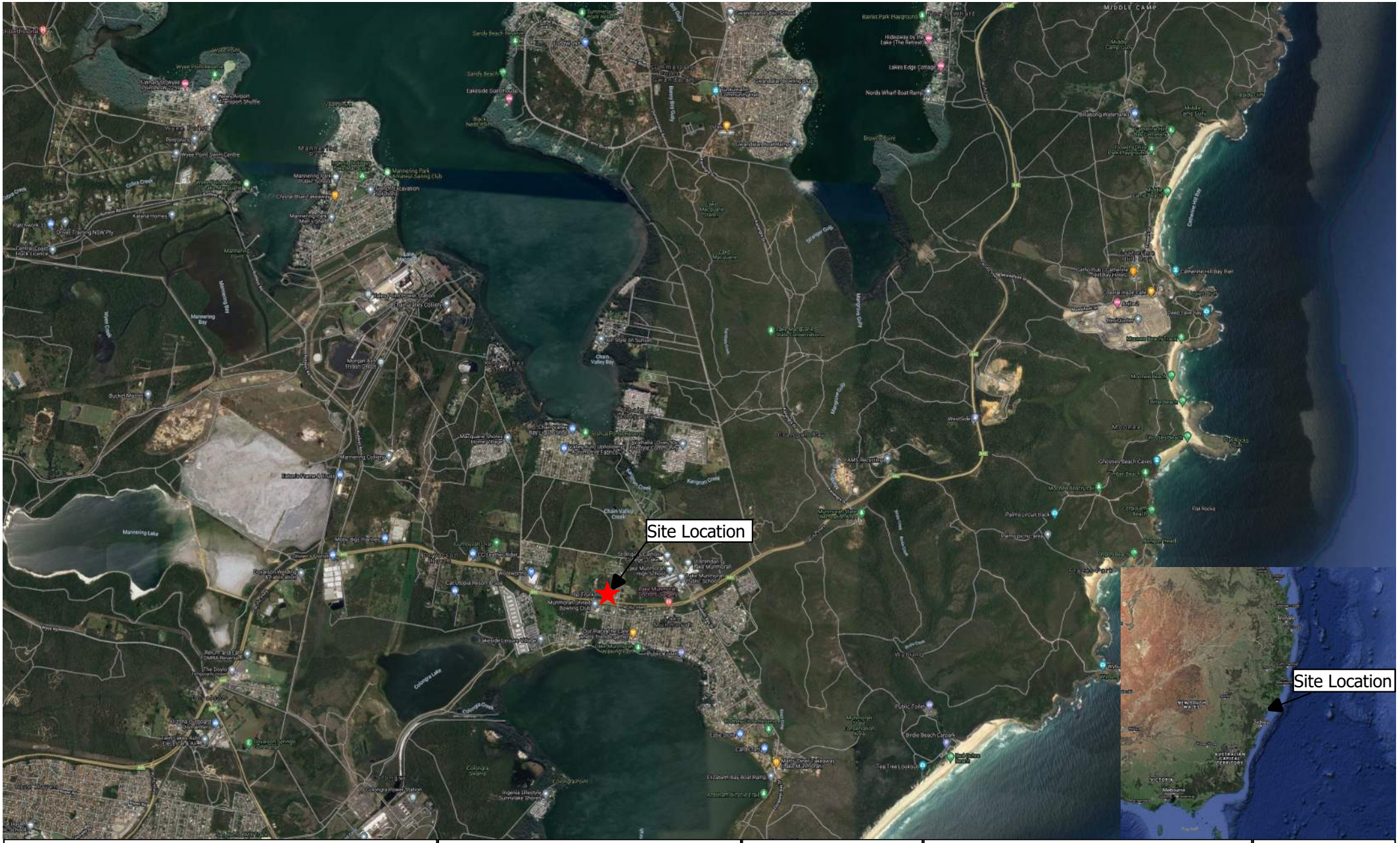
The findings and conclusions contained within this report are relevant to the conditions of the site and the state of legislation currently enacted in the relevant jurisdiction in which the site is located as at the date of this report.

Additionally, the findings and conclusions contained within this report are made following a review of certain information, reports, correspondence and data noted by methods described in this report including information supplied by the client or its assigns. Kleinfelder has designed and managed the program for this report in good faith and in a manner that seeks to confirm the information provided and test its accuracy and completeness. However, Kleinfelder does not provide guarantees or assurances regarding the accuracy, completeness and validity of information and data obtained from these sources and accepts no responsibility for errors or omissions arising from relying on data or conclusions obtained from these sources.

Any representation, statement, opinion or advice expressed or implied in this report is made on the basis that Kleinfelder, its agents and employees are not liable to any other person taking or not taking (as the case may be) action in respect of any representation, statement, opinion or advice referred to above.

FIGURES



0 1 2 km

North

KLEINFELDER
Bright People. Right Solutions.
www.kleinfelder.com

Project Reference:20222732.001A

Date Drawn: 2021-10-08

Drawn by: D. Kousbroek

Data Source:
Nearmap - 2021
Google Map

Regional Context

Shop Box Pty Ltd
Lake Munmorah PSI
315, 325 & 335 Pacific Highway, Lake Munmorah

Figure:

1

0 50 100 m

North

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Project Reference:20222732.001A
Date Drawn: 2021-10-08
Drawn by: D. Kousbroek

Data Source:
Nearmap - 2021
Google Map

Site Overview

Shop Box Pty Ltd
Lake Munmorah PSI
315, 325 & 335 Pacific Highway, Lake Munmorah

Figure:
2

APPENDIX A: LOTSEARCH REPORTS

Appendix A

REPORT MAPS

PROPERTY SETTING

MAP 1.1

Subject Area and Sensitive Receptors

Subject area

Sensitive receptors
- Parks
- Sports and Recreation Activities

Transmission line

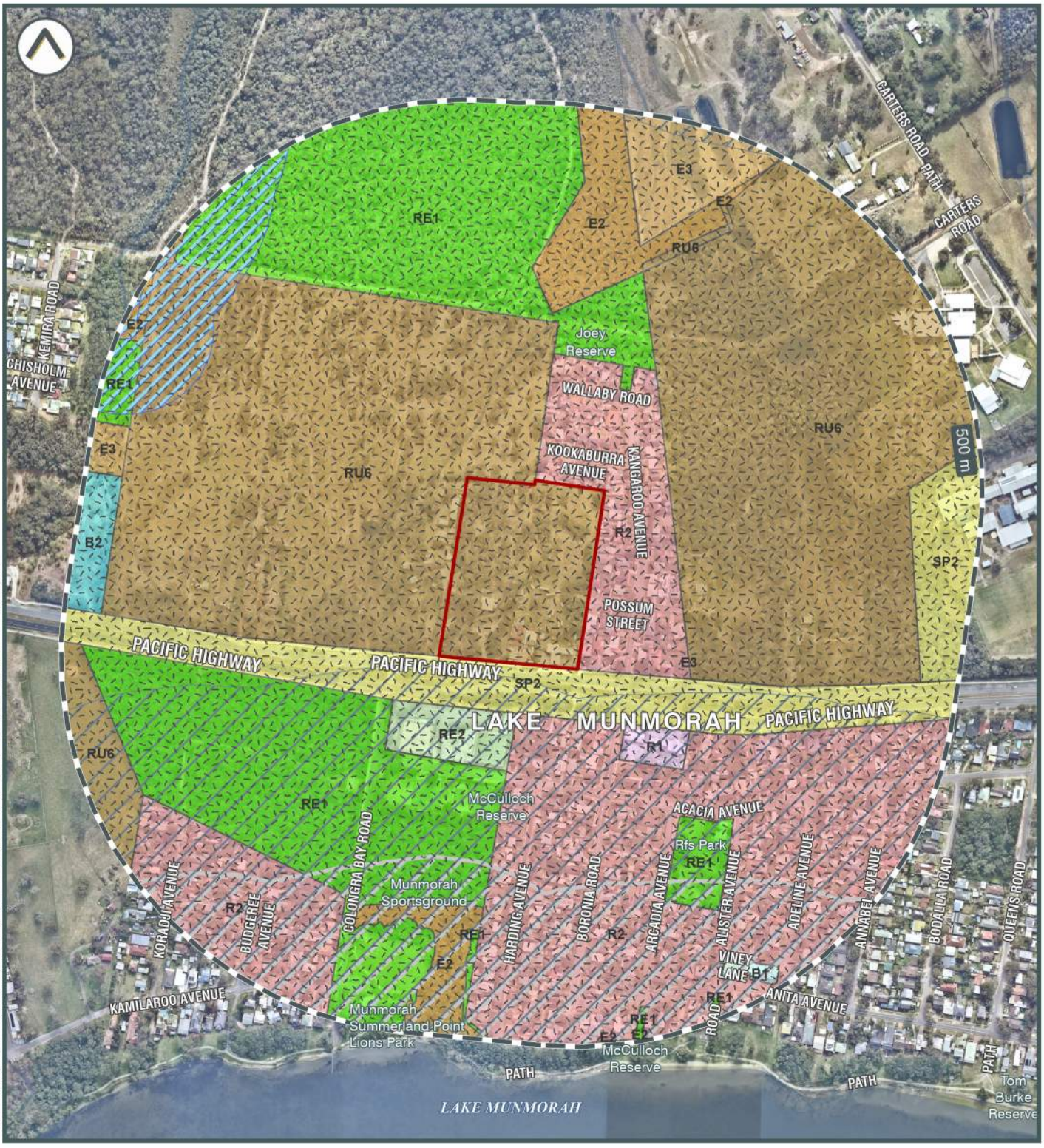
0 50 100 150 200 250m

Land Insight

PROPERTY SETTING

Planning Controls

MAP 1.2



- Subject area
- Mines Subsidence District Area

Coastal Management SEPP
- Coastal Wetlands and Littoral Rainforest Map
- Coastal Use Area Map
- Coastal Environment Area Map

Land Zoning
- B1 | Neighbourhood Centre
- B2 | Local Centre
- E2 | Environmental Conservation
- E3 | Environmental Management
- R1 | General Residential
- R2 | Low Density Residential
- RE1 | Public Recreation
- RE2 | Private Recreation
- RU6 | Transition
- SP2 | Special Purposes Zone – Infrastructure

0 50 100 150 200 250m

Land Insight

PROPERTY SETTING

Heritage

MAP 1.3

Subject area

Heritage conservation Area (LEP)
State Heritage Register
Commonwealth Heritage List (CHL)

National Heritage List (NHL)
World Heritage Area (WHA)

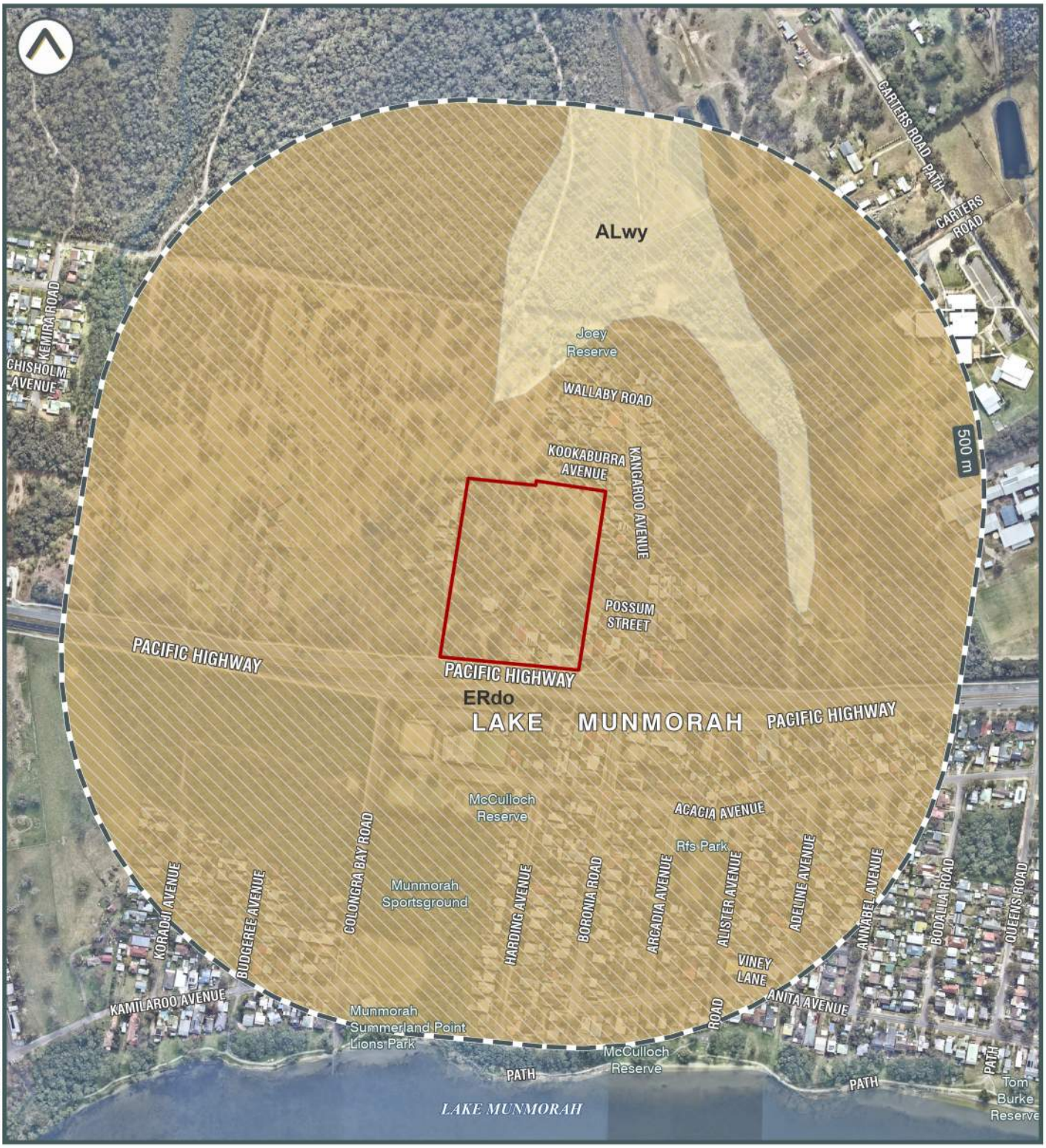
0 50 100 150 200 250m

Land Insight

PROPERTY SETTING

Soil Landscape and Salinity

MAP 1.4a



Subject area

Radon Level (Bq/m3)
<5

Soils Landscape
ALwy | ALLUVIAL
ERdo | EROSIONAL

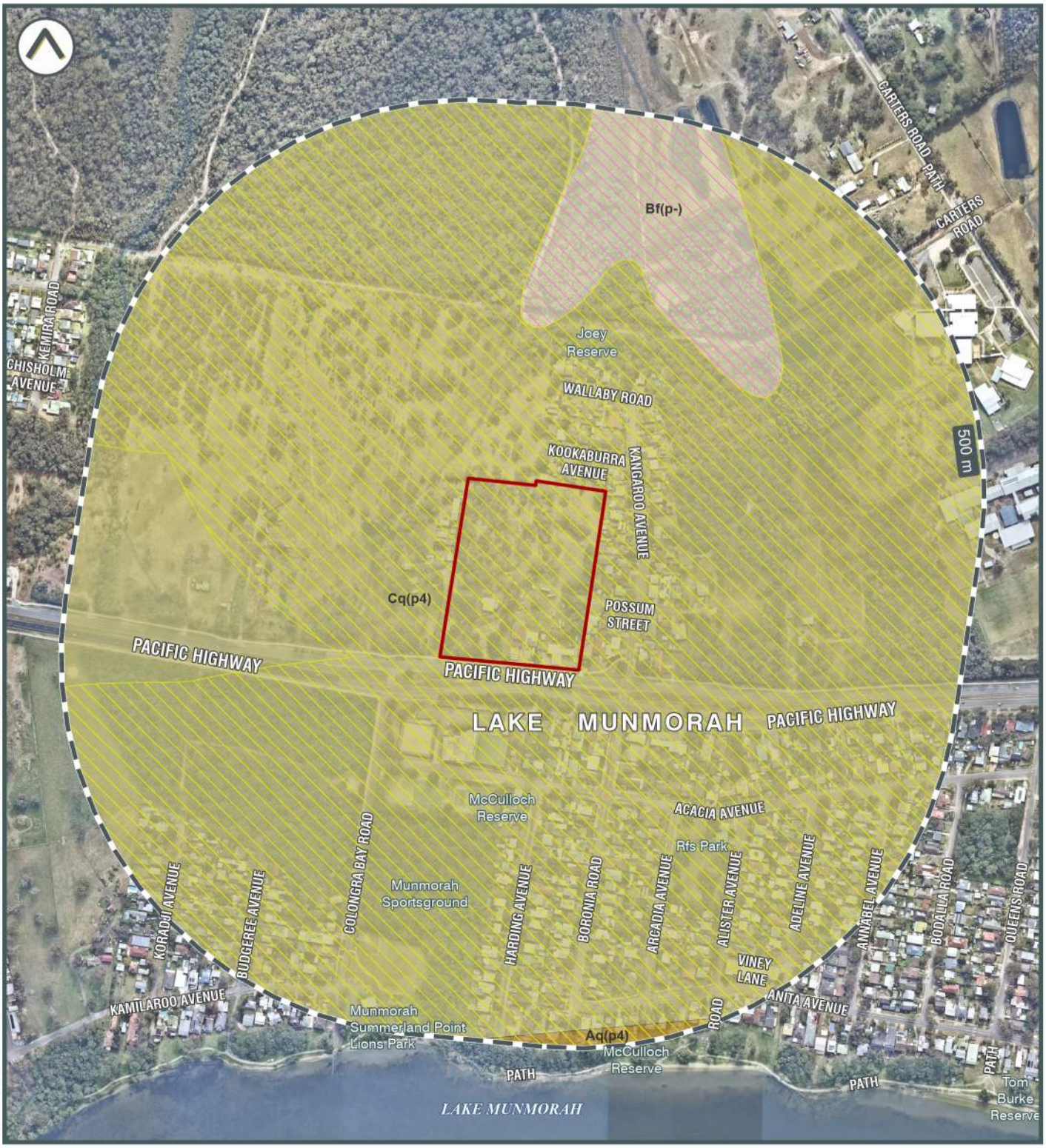
0 50 100 150 200 250m

Land Insight

PROPERTY SETTING

Acid Sulfate Soils

MAP 1.4b



Subject area

Acid Sulfate Soil Risk
- Class 3
- Class 5

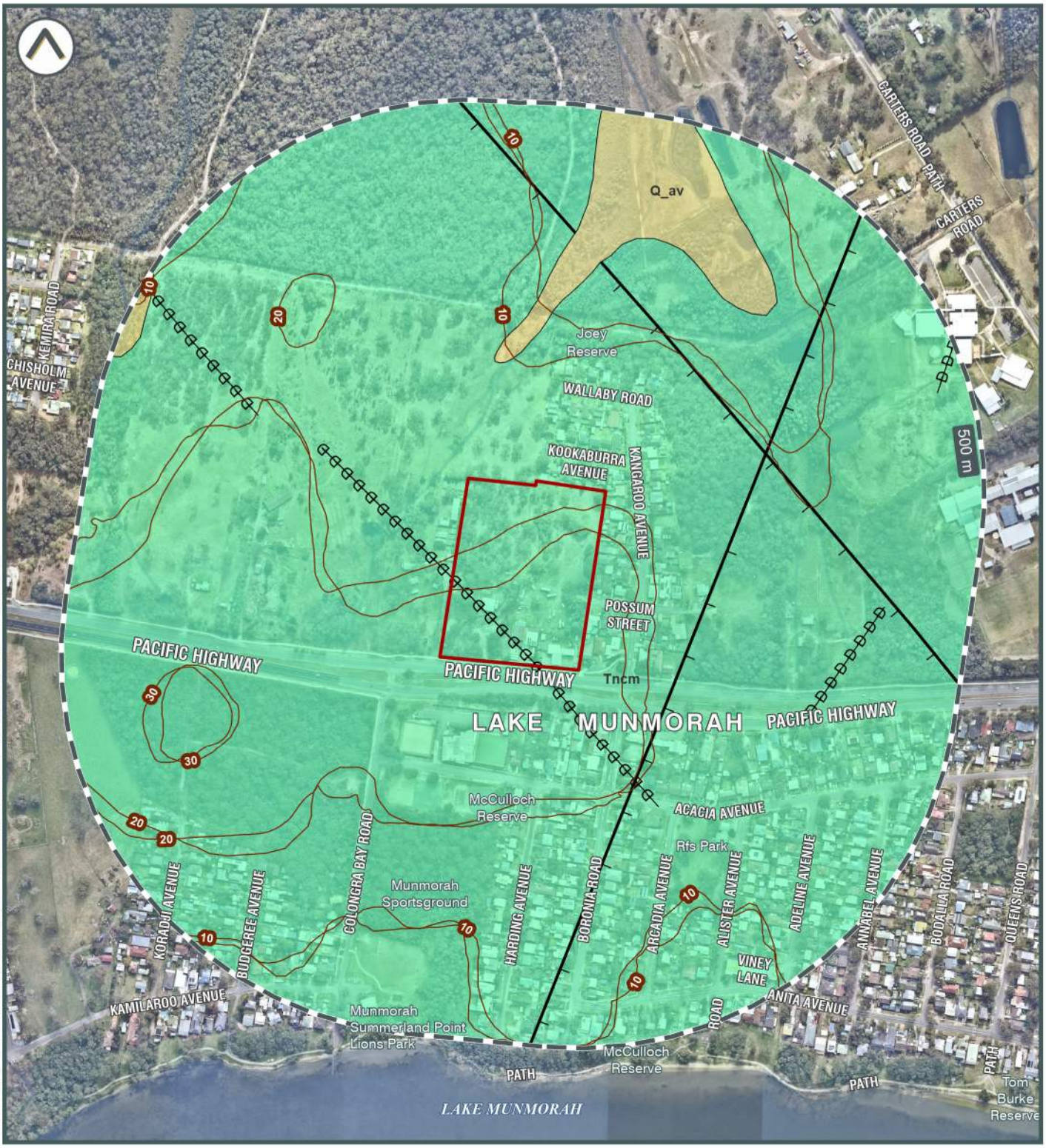
ASRIS Atlas of Australian Sulfate Soils
- Aq(p4) | ASS in inland lakes, waterways, wetlands and riparian zones
- Bf(p-) | ASS in floodplains
- Cq(p4) | ASS in inland lakes, waterways, wetlands and riparian zones

0 50 100 150 200 250m

Land Insight

Geology and Topography

MAP 1.5



Subject area
Topographic contour (m)
Dyke, accurate
Normal fault, accurate
Cenozoic Sedimentary Province
Q_av
PERMO-TRIASSIC BASINS
Tncm

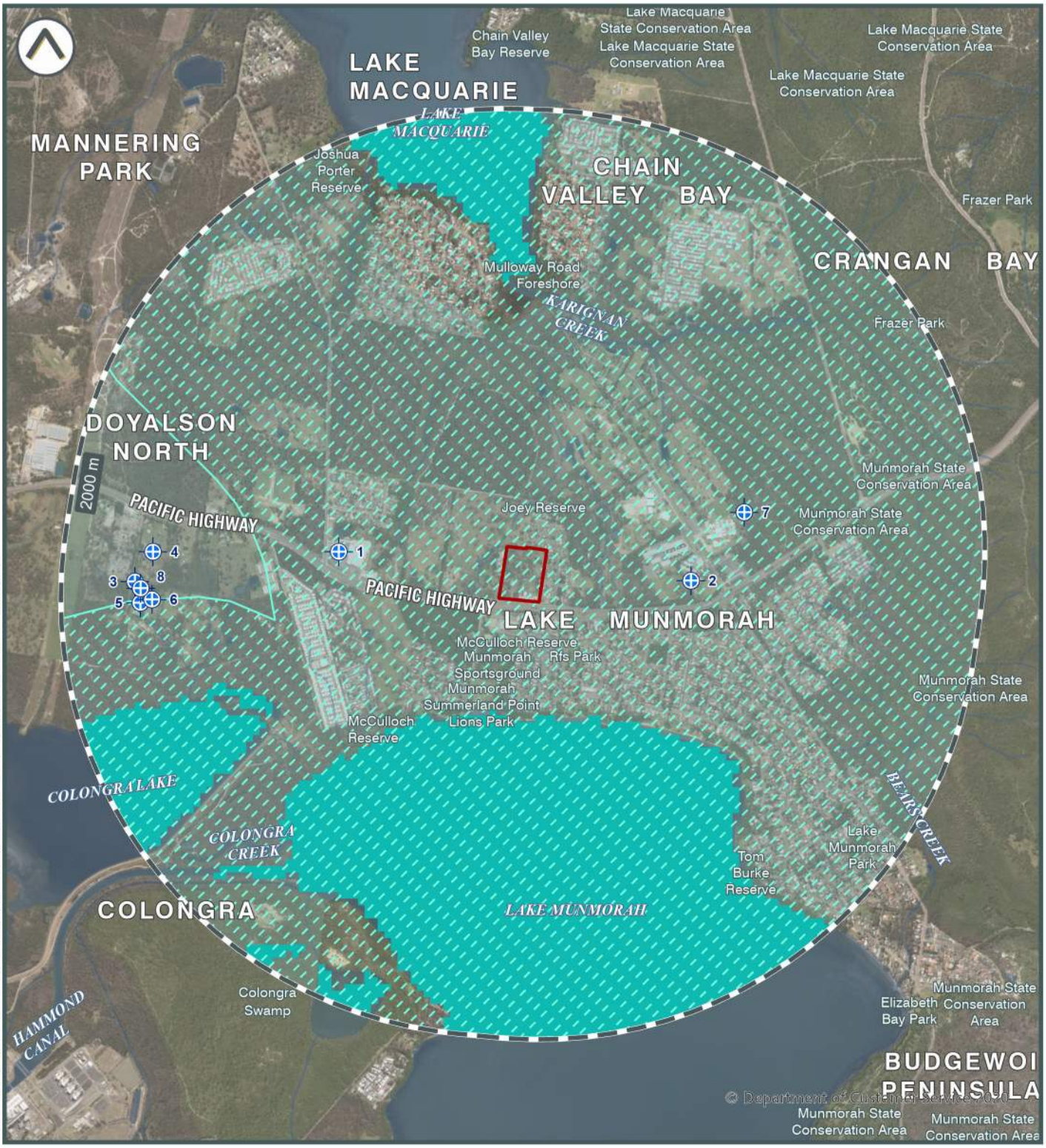
0 50 100 150 200 250m

Land Insight

HYDROGEOLOGY

MAP 2.1

Hydrogeology and Groundwater Boreholes



Subject area

Groundwater bores

UPSS Environmentally Sensitive Zone

Wetlands

Aquifer type

Porous, extensive aquifers of low to moderate productivity

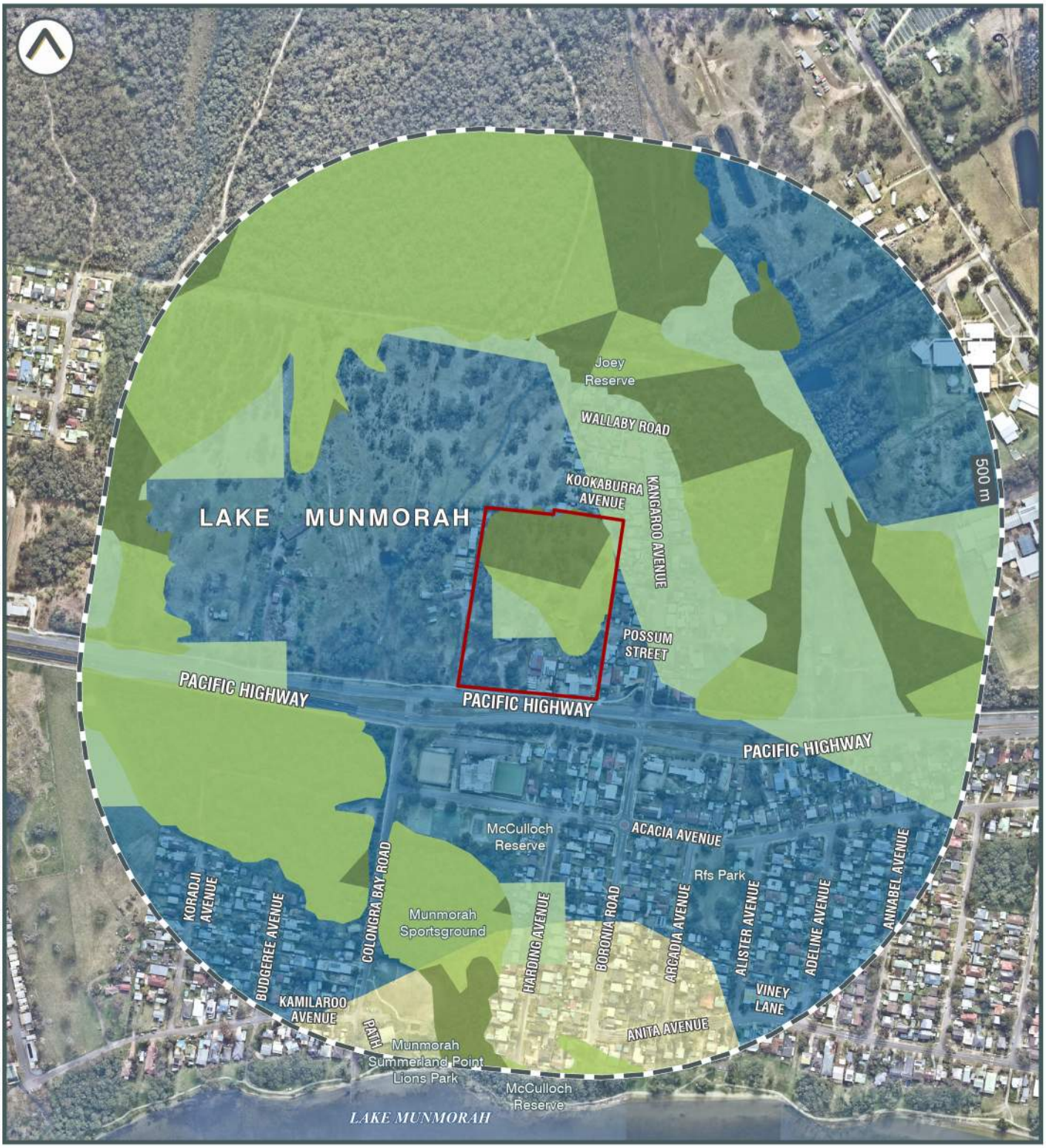
0 200 400 600 800 1,000m

Land Insight

HYDROGEOLOGY

MAP 2.2

Hydrogeology and Other Boreholes



Subject area
Other borehole/monitoring well location

Ecosystems that rely on Subsurface presence of Groundwater
- High potential GDE – from regional studies
- Moderate potential GDE – from regional studies
- Low potential for GW interaction

Hydrogeologic Unit
- Surficial Sediment Aquifer (porous media – unconsolidated)
- Late Permian/Triassic sediments (porous media – consolidated)

0 50 100 150 200 250m

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ENVIRONMENTAL REGISTERS LICENSES AND INCIDENTS

MAP 3.1

Contaminated Land Public Register

Subject area

Contaminated Land Register (EPA)
Contaminated Land Register (EPA)
Contaminated Land Record of Notices

0 200 400 600 800 1,000m

Land Insight

ENVIRONMENTAL REGISTERS LICENSES AND INCIDENTS

MAP 3.2

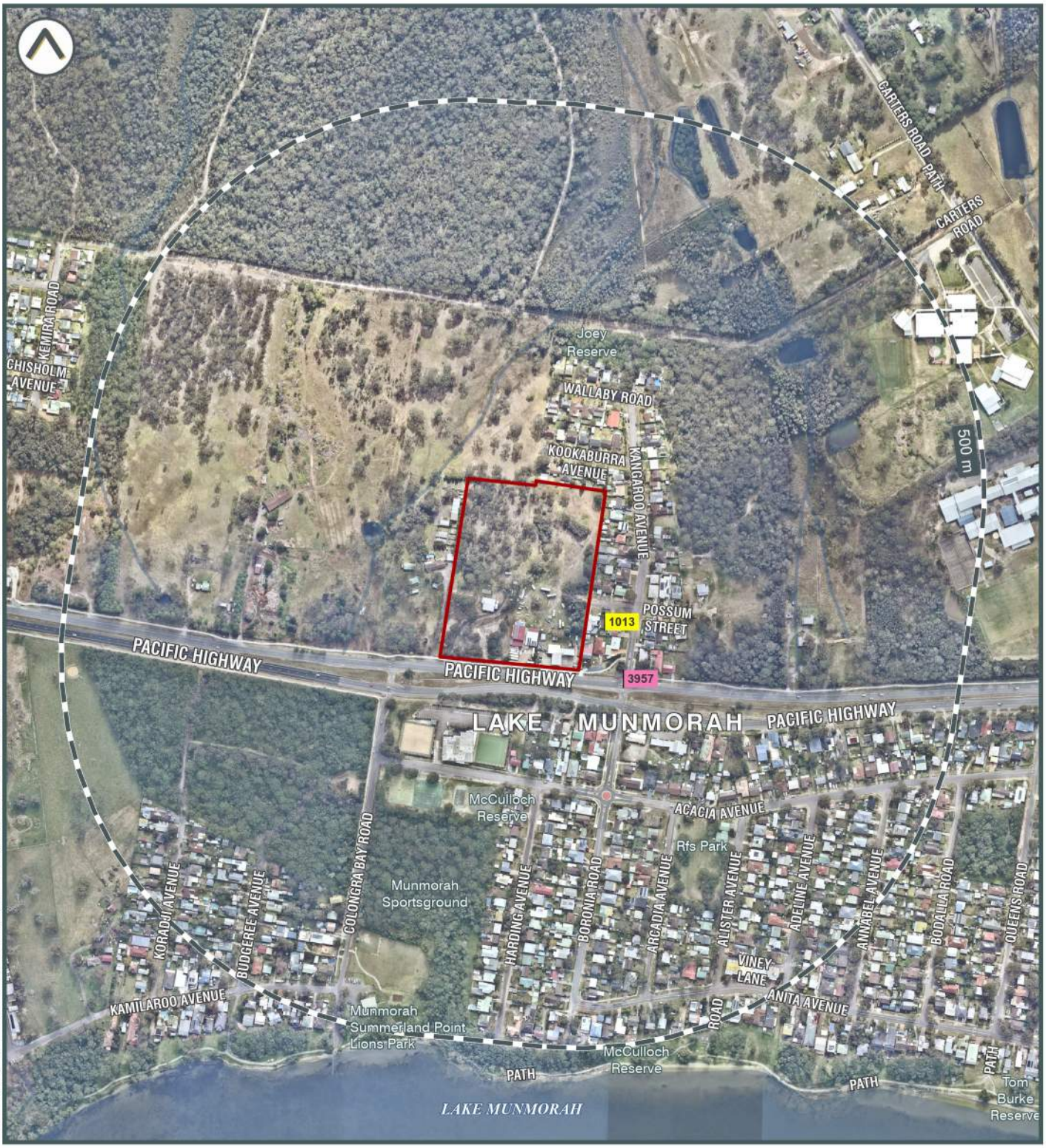
Sites Regulated by other Jurisdictional Body

Subject area

0 200 400 600 800 1,000m

Land Insight

Licensing Under the POEO Act



Subject area

POEO Licences
- Issued
- Surrendered / Suspended / Revoked
- Delicensed / No longer in force

Clean Up and Penalty Notices

0 50 100 150 200 250m

Land Insight

POTENTIALLY CONTAMINATED AREAS

MAP 4.1

Potentially Contaminating Activities (PCAs)

Subject area

Liquid Fuel Depots

Operational Petrol Stations

Former Petrol Stations

Waste Management Facilities

Data is current as when this report was created. However due to the turnover of business locations, some addresses may be former.

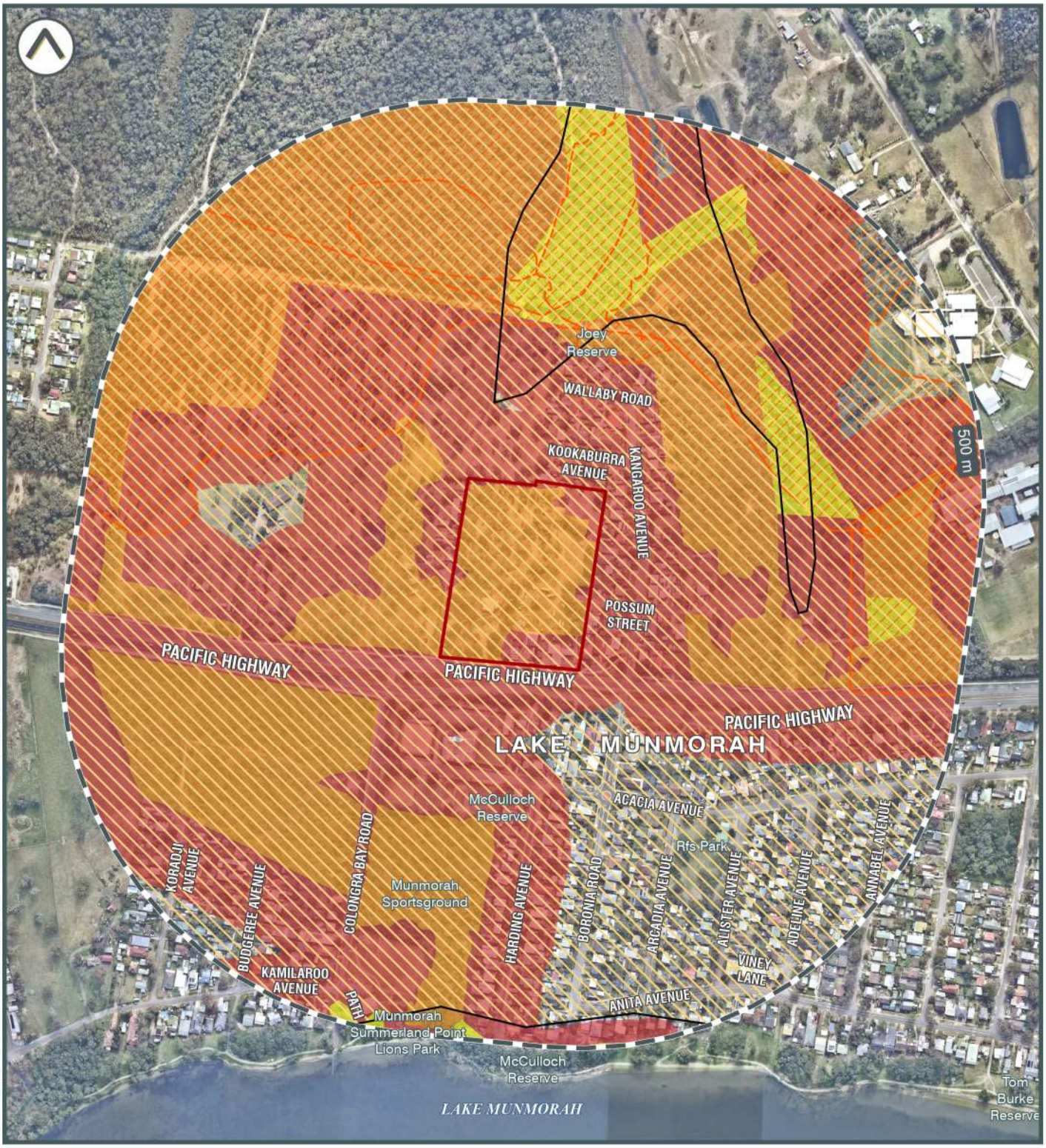
0 50 100 150 200 250m

Land Insight

NATURAL HAZARDS

MAP 5.1

Fire and Flood Hazards



Subject area | Fire History

Bush Fire Prone Land
- Vegetation Buffer
- Vegetation Category 1
- Vegetation Category 2

Erosion Hazard
- Minor to moderate

0 50 100 150 200 250m

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Land Insight RESOURCES

Appendix B

HISTORIC IMAGERY

Historic Aerial Photograph - 1966

LIR-02112 Aerial Photograph 1966 22 09 2021. Data source: Please refer to 'Digital Data Sources' in the Product Guide

Subject area

0 200m

Land Insight

Historic Aerial Photograph - 1971

LIR-02112 Aerial Photograph 1971 22 09 2021. Data source: Please refer to 'Digital Data Sources' in the Product Guide

Subject area

0 200m

Land Insight

Historic Aerial Photograph - 1975

LIR-02112 Aerial Photograph 1975 22 09 2021. Data source: Please refer to 'Digital Data Sources' in the Product Guide

Subject area

0 200m

Land Insight

Historic Aerial Photograph - 1984

LIR-02112 Aerial Photograph 1975 22 09 2021. Data source: Please refer to 'Digital Data Sources' in the Product Guide

Subject area

0 200m

Land Insight

Historic Aerial Photograph - 1994

LIR-02112 Aerial Photograph 1994 22 09 2021. Data source: Please refer to 'Digital Data Sources' in the Product Guide

Subject area

0 200m

Land Insight

Historic Aerial Photograph - 2001

LIR-02112 Aerial Photograph 2001 22 09 2021. Data source: Please refer to 'Digital Data Sources' in the Product Guide

Subject area

0 200m

Land Insight

Historic Aerial Photograph - 2010

Subject area

0 200m

Land Insight

Historic Aerial Photograph - 2012

LIR-02112 Aerial Photograph 2012 22 09 2021. Data source: Please refer to 'Digital Data Sources' in the Product Guide

Subject area

0 200m

Land Insight

Historic Aerial Photograph - 2015

LIR-02112 Aerial Photograph 2012 22 09 2021. Data source: Please refer to 'Digital Data Sources' in the Product Guide

Subject area

0 200m

Land Insight

Historic Aerial Photograph - 2018

Subject area

0 200m

LIR-02112 Aerial Photograph 2018 22 09 2021. Data source: Please refer to 'Digital Data Sources' in the Product Guide

Land Insight

Historic Aerial Photograph - 2021

LIR-02112 Aerial Photograph 2021 22 09 2021. Data source: Please refer to 'Digital Data Sources' in the Product Guide

Subject area

0 200m

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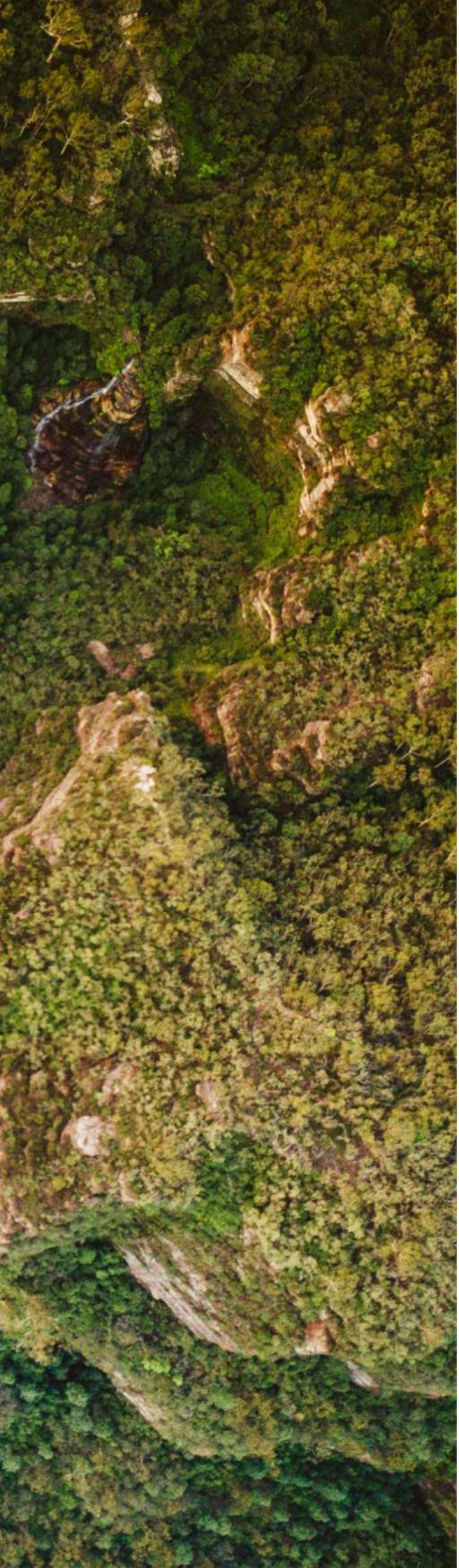
Land Insight RESOURCES

Land Insight

Enviro-Screen

315, 325 & 335 Pacific Highway
Lake Munmorah, NSW

23 September 2021



Understanding your report

Your Report has been produced by Land Insight and Resources (Land Insight).

Your Report is based on information available from public databases and sources at the date of reporting. The information gathered relates to land that is within a 200 to 2000m radius (buffer zone) from the boundaries of the Property. A smaller or larger radius may be applied for certain records (as listed under records and as shown in report maps).

While every effort is made to ensure the details in your Report are correct, Land Insight cannot guarantee the accuracy or completeness of the information or data provided.

The report provided by Land Insight includes data listed on page 4 (table of contents). All sources of data and definitions are provided in the Product Guide (Attached). For a full list of references, metadata, publications or additional information not provided in this report, please contact info@liresources.com.au

The report does not include title searches; dangerous good searches or; property certificates (unless requested); or information derived from a physical inspection, such as hazardous building materials, areas of infilling or dumping/spilling of potentially contaminated materials. It is important to note that these documents and an inspection can contain information relevant to contamination that may not be identified by this Report.

Due to the ongoing nature of database development and frequency of updates provided by various state government regulators the data displayed within this report is only current from date of production.

This Report, and your use of it, is regulated by Land Insight's Terms and Conditions (See Land Insight's Product Guide).

Index

SUMMARY

Section 1	**PROPERTY SETTING**	**Identified**
Sensitive Receptors Planning Control Heritage Soil and Land Information Geology and Topography		

Section 2	**HYDROGEOLOGY**	**Identified**
Aquifer Groundwater Bores and Other Borehole investigations Groundwater Dependent Ecosystems (GDE) Hydrogeology Units Wetlands		

Section 3	**ENVIRONMENTAL REGISTERS LICENCES AND INCIDENTS**	**Identified**
Contaminated Land Public Register Sites Regulate by Other Jurisdictional Body (Former Gaswork sites / PFAS sites) Licensing and Regulated Sites National Pollutant Inventory (NPI)		

Section 4	**POTENTIALLY CONTAMINATED AREAS**	**Identified**
Former Potentially Contaminated Land Current and Historical Potentially Contaminating activities (PCA)		

Section 5	**NATURAL HAZARDS**	**Identified**
Erosion risk Bushfire prone land Fire history Flood hazards		

Section 1 Property Setting

1.1 SENSITIVE RECEPTORS

Map 1.1 (200m Buffer)

Sensitive receptor	Category	Distance (m)	Direction
Munmorah United Bowling Club	Sports and Recreation Activities	120.0	South
Netball Courts	Sports and Recreation Activities	170.0	South
Tennis Courts	Sports and Recreation Activities	180.0	South
Joey Reserve	Parks	185.0	North

1.2 PLANNING CONTROLS

Map 1.2 (onsite)

Zoning

Code	Zoning	Details
RU6	Transition	Land Zoning Map

Environmental Planning Instruments

Type	Category	Details
Not identified	-	-

Other Planning Information

Type	Category	Details
Subsidence	Mine Subsidence	Swansea-North Entrance District

1.3 HERITAGE

Map 1.3 (200m Buffer)

State and Local Heritage

Site ID	Site Name	Type	Details	Distance (m)	Direction
Not identified	-	-	-	-	-

Australian Heritage Database

Site ID	Site Name	Type	Details	Distance (m)	Direction
Not identified	-	-	-	-	-

Commonwealth Heritage List, National Heritage List and World Heritage Area.

1.4 SOIL AND LAND USE INFORMATION

Map 1.4a/1.4b (onsite)

Soil Landscape

Soil Landscape	ERdo	DOYALSON	Soil Group	EROSIONAL
Description	Landscape—gently undulating rises on Munmorah Conglomerate. Slope gradients <10%; local relief to 30 m. Broad crests and ridges and long gently inclined slopes. Predominantly cleared eucalypt open-forest. Soils—moderately deep (50–150 cm) Yellow Earths (Gn2.24), Yellow Podzolic Soils (Dy2.21, Dy3.21) and Soloths (Dy2.41, Dy3.41) occur on sandstones and conglomerates; moderately deep (50–150 cm) Yellow Podzolic Soils (Dy2.11, Dy3.21), Soloths (Dy2.41) and some Red Podzolic Soils (Dr3.21) occur on fi negrained siltstones and claystone; moderately deep to deep (100–>150 cm) Yellow Leached Earths (Gn2.74), Grey Earths (Gn2.94), Soloths (Dy3.41) and Gleyed Podzolic Soils (Dg4.41) occur along drainage lines. Limitations—high erosion hazard, foundation hazard (localised), high run-on (localised), mine subsidence district, seasonal waterlogging (localised), hardsett ing, stoniness, strongly acid soils of low fertility.			

Salinity

Salinity Hazard	Not identified	-

Radon

Radon Level	Bq/m³	4

Typical radon levels in Australia are low and the values shown are the average values for each census district. For specific location, factors such as the local geology and house type could lead to different values. (ARPANSA).

Acid Sulfate Soil

ASS Risk Map *(Table 1.4.1)*	On the Property?	Within Buffer?
Class 3	Not identified	Yes
Class 5	Yes	Yes

National Acid Sulfate Soils Atlas

Atlas of Australian ASS *(Table 1.4.2)*	Cq(p4)	ASS in inland lakes, waterways, wetlands and riparian zones	Probability of Occurrence	Extremely low probability of occurrence

Table 1.4.1. Classification scheme in the ASS Planning Maps	
Class of Land as shown on ASS Planning Maps	
1	Any works.
2a	Works below the natural ground surface. Works by which the watertable is likely to be lowered.
2b	Works other than ploughing below the natural ground surface. Works by which the watertable is likely to be lowered.
3	Works more than 1 metre below the natural ground surface. Works by which the watertable is likely to be lowered more than 1 metre below the natural ground surface.
4	Works more than 2 metres below the natural ground surface. Works by which the watertable is likely to be lowered more than 2 metres below the natural ground surface.
5	Works within 500 metres of adjacent Class 1, 2a, 2b, 3 or 4 land that is below 5 metres Australian Height Datum and by which the watertable is likely to be lowered below 1 metre Australian Height Datum on adjacent Class 1, 2a, 2b, 3 or 4 land.

For each class of land, the maps identify the type of works likely to present an environmental risk if undertaken in the particular class of land. If these types of works are proposed, further investigation is required to determine if ASS are actually present and whether they are present in such concentrations as to pose a risk to the environment.

Table 1.4.2. Atlas of Australian Acid Sulfate Soils1 (ASRIS) (CSIRO/NatCASS)	
Probability of Occurrence of ASS[1]	
A	**High Probability of occurrence -** (>70% chance of occurrence in mapping unit)
B	**Low Probability of occurrence** - (6-70% chance of occurrence in mapping unit)
C	**Extremely low probability of occurrence** - (1-5% chance of occurrence in mapping unit)
D	**No probability of occurrence** - (<1% chance of occurrence in mapping unit)
x	**Disturbed ASS[1] terrain -** (ASS[1] material present below urban development).
u	**Unclassified** - (Insufficient information to classify map unit)
Zones	
a	Potential acid sulfate soil material and/or Monosulfidic Black Ooze (MBO).
b, c	Potential acid sulfate soil generally within upper 1 m.
c, d, e	ASS[1] generally within upper 1 m.
f	ASS[1] generally below 1 m from the surface
g	ASS[1], generally below 3 m from the surface.
h	ASS[1] generally within 1 m of the surface.
i, j	ASS[1] generally below 1 m of the surface.
k	ASS[1] material and/or Monosulfidic Black Ooze (MBO).
l, m, n, o, p, q	ASS[1] generally within upper 1 m in wet / riparian areas.
Subscripts to codes	
(a)	Actual acid sulfate soil (AASS) = sulfuric material.
(p)	Potential acid sulfate soil (PASS) = sulfidic material.
(q)	Monosulfidic Black Ooze (MBO) is organic ooze enriched by iron monosulfides.
Confidence levels	
(1)	All necessary analytical and morphological data are available
(2)	Analytical data are incomplete but are sufficient to classify the soil with a reasonable degree of confidence
(3)	No necessary analytical data are available, but confidence is fair, based on a knowledge of similar soils in similar environments
(4)	No necessary analytical data are available, and classifier has little knowledge or experience with ASS, hence classification is provisional

[1]Acid Sulfate Soils (ASS) are all those soils in which sulfuric acid may be produced, is being produced, or has been produced in amounts that have a lasting effect on main soil characteristics (Pons 1973). Acid sulfate soil (ASS) may include PASS or AASS + PASS. Potential acid sulfate soil (PASS) = sulfidic material. Actual acid sulfate soil (AASS) = sulfuric material.

1.5 GEOLOGY AND TOPOGRAPHY Map 1.5 (onsite)

Geology

Map Sheet	Code	Formation	Age	Group	Dominant Lithology	Description
Gosford-Lake Macquarie 1:100,000 Geological Sheet	Tncm	Munmorah Conglomerate	Lower Triassic	Narrabeen Group	Sandstone	Medium- to coarse-grained lithic to quartz-lithic sandstone, granule to pebble polymictic conglomerate; minor siltstone and white claystone, thin lenticular coal seams.

Naturally Occurring Asbestos Potential (NOA)

Category	On the Property?	Within Buffer?
Not identified	-	-

Topography

Topography	20 mAHD

Section 2 Hydrogeology

2.1 HYDROGEOLOGY AND GROUNDWATER BORES

Map 2.1 (2000m Buffer)

	On the Property?	Within Buffer?
Aquifer Type	Porous, extensive aquifers of low to moderate productivity	Porous, extensive aquifers of low to moderate productivity
Drinking Water Catchments	Not identified	Not identified
Protected Riparian Corridor	Not identified	Not identified
UPSS Environmentally Sensitive Zone	Macquarie-Tuggerah Lakes	Macquarie-Tuggerah Lakes
Wetlands	Not identified	Coastal lagoons and lakes

Groundwater Bores

Map ID	Groundwater Bore ID	Authorised Purpose	Completion Date	Drilled Depth (m)	Final Depth (m)	SWL (m)	Salinity (mg/l)	Yield (L/s)	Distance (m)	Direction
2	GW028443	Household	1/09/1967	14.6	14.6	1.8	Good	0.126	671.4	East
1	GW024560	Manufacturing and industry		15.2	15.2	6	Good	0.025	755.1	West
7	GW200836	Monitoring	13/08/2009	210.0	210.0			0.2	917.9	East
6	GW200173	Unknown	17/02/2003						1583.3	West
4	GW080419	Unknown	13/11/2002	30.0	30.0	6	Good	5	1593.5	West
8	GW047061	Irrigated agriculture	1/01/1975		7.3		0-500 ppm		1636.0	West
5	GW200174	Unknown	17/02/2003						1636.4	West
3	GW032383	Household	1/05/1970	18.3	18.2		Good	0.884	1663.4	West

Groundwater Bores Driller Lithology Details

Groundwater Bore ID	From Depth – To Depth (m) Lithology	Distance (m)	Direction
GW028443	0m-0.3m Soil 0.3m-3.96m Clay stones 3.96m-7.01m Sandstone 7.01m-14.63m Conglomerate water supply	671.4	East
GW024560	0m-0.15m Soil 0.15m-1.67m Stones 1.67m-3.65m Clay 3.65m-7.31m Sandstone 7.31m-13.71m Conglomerate 13.71m-14.02m Clay water supply 14.02m-15.24m Conglomerate	755.1	West
GW200836	0m-2m Sandy clay, yellow 2m-4.5m Clay, red/white 4.5m-9.5m Sandstone, yellow 9.5m-10m Sandstone, quartz 10m-28.5m Sandstone/conglomerate 28.5m-28.8m Sandstone/conglomerate, fractured 28.8m-56m Sandstone/conglomerate 56m-58m Siltstone, red 58m-62m Sandstone/conglomerate 62m-82m Siltstone, red/grey 82m-112m Sandstone/conglomerate 112m-118m Sandstone, grey 118m-119.5m Coal 119.5m-121m Sandstone, grey 121m-136m Sandstone/conglomerate 136m-138.5m Coal 138.5m-141m Siltstone, grey 141m-167m Sandstone/conglomerate 167m-174m Coal 174m-205m Sandstone/conglomerate 205m-208m Coal 208m-210m Sandstone/conglomerate	917.9	East
GW200173	#N/A	1583.3	West
GW080419	0m-0.3m Top soil 0.3m-1.3m Pebble 1.3m-30m Conclomerate	1593.5	West
GW047061	#N/A	1636.0	West
GW200174	#N/A	1636.4	West
GW032383	0m-0.3m Soil 0.3m-1.37m Clay gravel 1.37m-8.53m Clay 8.53m-10.66m Sandstone 10.66m-13.41m Conglomerate loose water supply 13.41m-18.28m Conglomerate	1663.4	West

2.2 HYDROGEOLOGY AND OTHER BOREHOLES

Map 2.2 (500m Buffer)

	On the Property?	Within Buffer?
Groundwater Vulnerability	Not identified	Not identified
Groundwater Exclusion Zones[1,2]	Not identified	Not identified
Hydrogeologic Unit	Late Permian/Triassic sediments (porous media - consolidated)	Late Permian/Triassic sediments (porous media - consolidated) Surficial Sediment Aquifer (porous media - unconsolidated)

[1] - Botany Groundwater Management Zones (BGMZ): Zone 1 – the use of groundwater remains banned; Zones 2 to 4 – domestic groundwater use is banned, especially for drinking water, watering gardens, washing windows and cars, bathing, or to fill swimming pools.
[2] - Williamtown Groundwater Management Zones (WGMZ): Primary Management Zone – this area has significantly higher levels of PFAS detected and therefore, the strongest advice applies. Secondary Management Zone – this area has some detected levels of PFAS; Broader Management Zone – the topography and hydrology of the area means PFAS detections could occur now and into the future.

Groundwater Dependent Ecosystems (GDE)

	On the Property?	Within Buffer?
Aquatic	Not identified	Not identified
Terrestrial	Low potential for GW interaction Moderate potential GDE - from regional studies High potential GDE - from regional studies	Low potential for GW interaction Moderate potential GDE - from regional studies High potential GDE - from regional studies

Aquatic - Ecosystems that rely on the Surface expression of groundwater.
Terrestrial - Ecosystems that rely on the Subsurface expression of groundwater.

Other Known Borehole Investigations (Coal Seam Gas (CSG), Petroleum Wells and Other Boreholes)

Borehole ID	Purpose	Project	Client/ Licence	Date Drilled	Depth (m)	Distance (m)	Direction
Not identified	-	-	-	-	-	-	-

Section 3 Environmental Registers, Licences and Incidents

3.1 CONTAMINATED LAND PUBLIC REGISTER

Map 3.1 (1000m Buffer)

Sites Notified as Contaminated to the EPA

Site Name	Address	Activity that caused Contamination	EPA Site Management Class *(Table 3.1.1)*	Distance (m)	Direction
Munmorah Power Station	(Central Coast Highway) Scenic Drive, DOYALSON	Unclassified	Under assessment	950.0	South-west

If the record does not contain a complete street address and/or cannot be located, the records' geographic location will be approximated and reported as being within the surrounding area.

Contaminated Land Record of Notices

Site Name	Area n°	Address	Notices	Distance (m)	Direction
Not identified	-	-	-	-	-

If the record does not contain a complete street address and/or cannot be located, the records' geographic location will be approximated and reported as being within the surrounding area.

Table 3.1.1. EPA Site Management Class Explanation

Table 3.1.1 EPA Site Management Class	
EPA Site Management Class	
Under Assessment	The contamination is being assessed by the EPA to determine whether regulation is required. The EPA may require further information to complete the assessment. For example, the completion of management actions regulated under the planning process or Protection of the Environment Operations Act 1997. Alternatively, the EPA may require information via a notice issued under s77 of the Contaminated Land Management Act 1997 or issue a Preliminary Investigation Order.
Regulation under the CLM Act not required	The EPA has completed an assessment of the contamination and decided that regulation under the Contaminated Land Management Act 1997 is not required.

Table 3.1.1 EPA Site Management Class	
Regulation being finalised	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation under the Contaminated Land Management Act 1997. A regulatory approach is being finalised.
Contamination currently regulated under the CLM Act	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation under the Contaminated Land Management Act 1997 (CLM Act). Management of the contamination is regulated by the EPA under the CLM Act. Regulatory notices are available on the EPA's Contaminated Land Public Record.
Contamination currently regulated under the POEO Act	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation. Management of the contamination is regulated under the Protection of the Environment Operations Act 1997 (POEO Act). The EPA's regulatory actions under the POEO Act are available on the POEO public register.
Contamination being managed via the planning process (EP&A Act)	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation. The contamination of this site is managed by the consent authority under the Environmental Planning and Assessment Act 1979 (EP&A Act) planning approval process, with EPA involvement as necessary to ensure significant contamination is adequately addressed. The consent authority is typically a local council or the Department of Planning and Environment.
Contamination formerly regulated under the CLM Act	The EPA has determined that the contamination is no longer significant enough to warrant regulation under the Contaminated Land Management Act 1997 (CLM Act). The contamination was addressed under the CLM Act.
Contamination formerly regulated under the POEO Act	The EPA has determined that the contamination is no longer significant enough to warrant regulation. The contamination was addressed by the appropriate consent authority via the planning process under the Environmental Planning and Assessment Act 1979 (EP&A Act).
Contamination was addressed via the planning process (EP&A Act)	The EPA has determined that the contamination is no longer significant enough to warrant regulation. The contamination was addressed by the appropriate consent authority via the planning process under the Environmental Planning and Assessment Act 1979 (EP&A Act).
Ongoing maintenance required to manage residual contamination (CLM Act)	The EPA has determined that ongoing maintenance, under the Contaminated Land Management Act 1997 (CLM Act), is required to manage the residual contamination. Regulatory notices under the CLM Act are available on the EPA's Contaminated Land Public Record.

The EPA maintains a record of sites that have been notified to the EPA by owners or occupiers as contaminated land. The sites notified to the EPA are recorded on the register at various stages of the assessment and/or remediation process.

3.2 SITES REGULATED BY OTHER JURISDICTIONAL BODY

Map 3.2 (2000m Buffer)

Defence, Military Sites and UXO Areas

Site name	Type*	Details	Distance (m)	Direction
Not identified	-	-	-	-

**RCIP (Regional Contamination Investigation Program). UXO (Unexploded Ordnance Areas)*

Former Gasworks Sites

Site name	Description	Distance (m)	Direction
Not identified	-	-	-

PFAS Sites

Site name	Description	Source	Distance (m) *	Direction
Not identified	-	-	-	-

National Pollutant Inventory (NPI)

Facility name	Address	Primary ANZSIC Class	Latest report	Distance (m)	Direction
Not identified	-	-	-	-	-

3.3 LICENCES, APPROVALS & NOTICES

Map 3.3 (500m Buffer)

Licences

Licence N°	Licence holder	Location Name	Premise Address	Fee Based Activity	Distance (m)*	Direction
3957	FORESTRY CORPORATION OF NEW SOUTH WALES	LOWER NORTH EAST REGION (L.N.E.R) MEANS STATE FORESTS AND CROWN - TIMBER LANDS (EX. PLANTATIONS)	WITHIN THE L.N.E.R. SHOWN ON MAP 1 TO THE NSW L.N.E.R. FOREST AGREEMENT GRANTED ON THE 5 MARCH 1999, KEMPSEY, NSW 2440	Logging operations	not mapped	not mapped

If the record does not contain a complete street address and/or cannot be located, the records' geographic location will be approximated and reported as being within the surrounding area.

Other Licences still Regulated by EPA

Licence N°	Licence holder	Location Name	Premise Address	Fee Based Activity	Status	Distance (m)*	Direction
Not identified	-	-	-	-	-	-	-

If the record does not contain a complete street address and/or cannot be located, the records' geographic location will be approximated and reported as being within the surrounding area.

Clean Up and Penalty Notices

Location ID	Notice Type	Notice N°	Licence holder	Location Name	Premise Address	Distance (m)*	Direction
1013	Penalty Notice	1512244	FORESTRY CORPORATION OF NEW SOUTH WALES	LOWER NORTH EAST REGION (L.N.E.R) MEANS STATE FORESTS AND CROWN - TIMBER LANDS (EX. PLANTATIONS)	WITHIN THE L.N.E.R. SHOWN ON MAP 1 TO THE NSW L.N.E.R. FOREST AGREEMENT GRANTED ON THE 5 MARCH 1999, KEMPSEY, NSW, 2440	not mapped	not mapped
1013	Penalty Notice	1512245	FORESTRY CORPORATION OF NEW SOUTH WALES	LOWER NORTH EAST REGION (L.N.E.R) MEANS STATE FORESTS AND CROWN - TIMBER LANDS (EX. PLANTATIONS)	WITHIN THE L.N.E.R. SHOWN ON MAP 1 TO THE NSW L.N.E.R. FOREST AGREEMENT GRANTED ON THE 5 MARCH 1999, KEMPSEY, NSW, 2440	not mapped	not mapped
1013	Penalty Notice	1512247	FORESTRY CORPORATION	LOWER NORTH EAST REGION (L.N.E.R) MEANS	WITHIN THE L.N.E.R. SHOWN ON MAP 1 TO THE	not mapped	not mapped

Location ID	Notice Type	Notice N°	Licence holder	Location Name	Premise Address	Distance (m)*	Direction
			OF NEW SOUTH WALES	STATE FORESTS AND CROWN - TIMBER LANDS (EX. PLANTATIONS)	NSW L.N.E.R. FOREST AGREEMENT GRANTED ON THE 5 MARCH 1999, KEMPSEY, NSW, 2440		
1013	Penalty Notice	-	FORESTRY CORPORATION OF NEW SOUTH WALES	LOWER NORTH EAST REGION (L.N.E.R) MEANS STATE FORESTS AND CROWN - TIMBER LANDS (EX. PLANTATIONS)	WITHIN THE L.N.E.R. SHOWN ON MAP 1 TO THE NSW L.N.E.R. FOREST AGREEMENT GRANTED ON THE 5 MARCH 1999, KEMPSEY, NSW, 2440	not mapped	not mapped
1013	Penalty Notice	-	FORESTRY CORPORATION OF NEW SOUTH WALES	LOWER NORTH EAST REGION (L.N.E.R) MEANS STATE FORESTS AND CROWN - TIMBER LANDS (EX. PLANTATIONS)	WITHIN THE L.N.E.R. SHOWN ON MAP 1 TO THE NSW L.N.E.R. FOREST AGREEMENT GRANTED ON THE 5 MARCH 1999, KEMPSEY, NSW, 2440	not mapped	not mapped
1013	Penalty Notice	1566080	FORESTRY CORPORATION OF NEW SOUTH WALES	LOWER NORTH EAST REGION (L.N.E.R) MEANS STATE FORESTS AND CROWN - TIMBER LANDS (EX. PLANTATIONS)	WITHIN THE L.N.E.R. SHOWN ON MAP 1 TO THE NSW L.N.E.R. FOREST AGREEMENT GRANTED ON THE 5 MARCH 1999, KEMPSEY, NSW, 2440	not mapped	not mapped
1013	Penalty Notice	1566081	FORESTRY CORPORATION OF NEW SOUTH WALES	LOWER NORTH EAST REGION (L.N.E.R) MEANS STATE FORESTS AND CROWN - TIMBER LANDS (EX. PLANTATIONS)	WITHIN THE L.N.E.R. SHOWN ON MAP 1 TO THE NSW L.N.E.R. FOREST AGREEMENT GRANTED ON THE 5 MARCH 1999, KEMPSEY, NSW, 2440	not mapped	not mapped
1013	Clean Up Notice	1024530	FORESTRY CORPORATION OF NEW SOUTH WALES	LOWER NORTH EAST REGION (L.N.E.R) MEANS STATE FORESTS AND CROWN - TIMBER LANDS (EX. PLANTATIONS)	WITHIN THE L.N.E.R. SHOWN ON MAP 1 TO THE NSW L.N.E.R. FOREST AGREEMENT GRANTED ON THE 5 MARCH 1999, KEMPSEY, NSW, 2440	not mapped	not mapped
1013	Clean Up Notice	1024598	FORESTRY CORPORATION OF NEW SOUTH WALES	LOWER NORTH EAST REGION (L.N.E.R) MEANS STATE FORESTS	WITHIN THE L.N.E.R. SHOWN ON MAP 1 TO THE NSW L.N.E.R.	not mapped	not mapped

Location ID	Notice Type	Notice N°	Licence holder	Location Name	Premise Address	Distance (m)*	Direction
				AND CROWN - TIMBER LANDS (EX. PLANTATIONS)	FOREST AGREEMENT GRANTED ON THE 5 MARCH 1999, KEMPSEY, NSW, 2440		
1013	Clean Up Notice	1028085	FORESTRY CORPORATION OF NEW SOUTH WALES	LOWER NORTH EAST REGION (L.N.E.R) MEANS STATE FORESTS AND CROWN - TIMBER LANDS (EX. PLANTATIONS)	WITHIN THE L.N.E.R. SHOWN ON MAP 1 TO THE NSW L.N.E.R. FOREST AGREEMENT GRANTED ON THE 5 MARCH 1999, KEMPSEY, NSW, 2440	not mapped	not mapped
1013	Clean Up Notice	1051696	FORESTRY CORPORATION OF NEW SOUTH WALES	LOWER NORTH EAST REGION (L.N.E.R) MEANS STATE FORESTS AND CROWN - TIMBER LANDS (EX. PLANTATIONS)	WITHIN THE L.N.E.R. SHOWN ON MAP 1 TO THE NSW L.N.E.R. FOREST AGREEMENT GRANTED ON THE 5 MARCH 1999, KEMPSEY, NSW, 2440	not mapped	not mapped
1013	Clean Up Notice	1087543	FORESTRY CORPORATION OF NEW SOUTH WALES	LOWER NORTH EAST REGION (L.N.E.R) MEANS STATE FORESTS AND CROWN - TIMBER LANDS (EX. PLANTATIONS)	WITHIN THE L.N.E.R. SHOWN ON MAP 1 TO THE NSW L.N.E.R. FOREST AGREEMENT GRANTED ON THE 5 MARCH 1999, KEMPSEY, NSW, 2440	not mapped	not mapped
1013	Clean Up Notice	1090202	FORESTRY CORPORATION OF NEW SOUTH WALES	LOWER NORTH EAST REGION (L.N.E.R) MEANS STATE FORESTS AND CROWN - TIMBER LANDS (EX. PLANTATIONS)	WITHIN THE L.N.E.R. SHOWN ON MAP 1 TO THE NSW L.N.E.R. FOREST AGREEMENT GRANTED ON THE 5 MARCH 1999, KEMPSEY, NSW, 2440	not mapped	not mapped
1013	Clean Up Notice	1543465	FORESTRY CORPORATION OF NEW SOUTH WALES	LOWER NORTH EAST REGION (L.N.E.R) MEANS STATE FORESTS AND CROWN - TIMBER LANDS (EX. PLANTATIONS)	WITHIN THE L.N.E.R. SHOWN ON MAP 1 TO THE NSW L.N.E.R. FOREST AGREEMENT GRANTED ON THE 5 MARCH 1999, KEMPSEY, NSW, 2440	not mapped	not mapped

If the record does not contain a complete street address and/or cannot be located, the records' geographic location will be approximated and reported as being within the surrounding area.

Section 4 Potentially Contaminated Areas

4.1 POTENTIALLY CONTAMINATING ACTIVITIES

Map 4.1 (500m Buffer)

Liquid Fuel Facilities

Site name	Category	Location	Status*	Distance (m)	Direction
BP Truckstop	Petrol Station	335 Pacific Highway, Lake Munmorah	Operational	0.0	onsite

Waste Management Facilities & Recycling Centres

Site name	Category	Location	Status*	Distance (m)	Direction
Not identified	-	-	-	-	-

Liquid Fuel Facilities Datasets, representing the spatial locations of liquid fuel depots, refineries, terminals and petrol stations present in the Australian Government National Liquid Fuel Facilities Dataset and Petrol stations identified by Land Insights.
Waste Management Facilities, representing the spatial locations of reprocessing facilities, transfer stations and landfills present in the Australian Government National Waste Management Facilities Dataset and Waste/Recycling facilities identified by Land Insights.

A more comprehensive list of all Potentially Contaminating Activities is available in the Due Diligence Insight report.

**Status:*
Data is current as when this report was created. However due to the turnover of business locations, some addresses may be former.
Current: business is operating on the day this report was issued.
Former: business that have been closed or discontinued 1 to 2 years prior from the day this report was issued. All former sites older than 2 years will be reported in the 'Historical Potentially Contaminating Activities' section 4.4 in this report.

4.2 HISTORICAL POTENTIALLY CONTAMINATING ACTIVITIES (not mapped)

1930 Historical Business Data

Activity	Name	Address	Positional accuracy[1]	Distance (m)	Direction
Not identified	-	-	-	-	-

1940 Historical Business Data

Activity	Name	Address	Positional accuracy[1]	Distance (m)	Direction
Not identified	-	-	-	-	-

1950 Historical Business Data

Activity	Name	Address	Positional accuracy[1]	Distance (m)	Direction
Not identified	-	-	-	-	-

1965 Historical Business Data

Activity	Name	Address	Positional accuracy	Distance (m)	Direction
Not identified	-	-	-	-	-

1970 Historical Business Data

Activity	Name	Address	Positional accuracy[1]	Distance (m)	Direction
Not identified	-	-	-	-	-

1980 Historical Business Data

Activity	Name	Address	Positional accuracy[1]	Distance (m)	Direction
Not identified	-	-	-	-	-

1990 Historical Business Data

Activity	Name	Address	Positional accuracy	Distance (m)	Direction
Auto Electrical Services Including Mobile	G & D Auto Electrical	1139 Pacific Highway, Lake Munmorah,NSW	Address	0.0	South
Tyre Retailers	Gaz & Daz Automotive	1139 Pacific Highway, Lake Munmorah,NSW	Address	0.0	South
Air Conditioning - Car & Automotive	G & D Auto Electrical	1139 Pacific Highway, Lake Munmorah,NSW	Address	0.0	South
Motor Garage Equipment & Supplies	Ampol Ltd.	1139 Pacific Highway Lake Munmorah, NSW	Address	0.0	South

2005 Historical Business Data

Activity	Name	Address	Positional accuracy	Distance (m)	Direction
Roof Construction Specialists	Clover's Roofworks	342a Pacific Hwy,LAKE MUNMORAH,NSW,2259	Address	0.0	South
Auto Electrical Services Including Mobile	Twin Lakes Auto Electrical Services	1139 Pacific Hwy,LAKE MUNMORAH,NSW,2259	Address	0.0	South

Activity	Name	Address	Positional accuracy	Distance (m)	Direction
Recyclers	A.M.S. Recycling	475 Pacific Hwy,LAKE MUNMORAH,NSW,2259	Address	0.0	South
Auto Electrical Services Including Mobile	Ask Us Auto & Air Lake Munmorah	1139 Pacific Hwy,LAKE MUNMORAH,NSW,2259	Address	0.0	South
Motor Sport Services	Mobil Oil Aust Pty Ltd, Lake Munmorah	335 Pacific Hwy W,LAKE MUNMORAH,NSW,2259	Address	0.0	South
Storage - General Facilities & Service	Munmorah Landscape Supplies & Nursery	295 Pacific Hwy,LAKE MUNMORAH,NSW,2259	Address	177.9	West

2010 Historical Business Data

Activity	Name	Address	Positional accuracy	Distance (m)	Direction
Petrol Stations & Garages	Mobil Oil Aust Pty Ltd	335 Pacific Hwy LAKE MUNMORAH 2259 NSW	Address	0.0	South
Tanks & Tank Equipment M/Factr Construction & Installation	Munmorah Chainsaw & Mower Repairs	295 Pacific Hwy LAKE MUNMORAH 2259 NSW	Address	177.9	West
Hardware - Retailers	Building And Landscape Supplies	295 Pacific Hwy LAKE MUNMORAH 2259 NSW	Address	177.9	West

2015 Historical Business Data

Activity	Name	Address	Positional accuracy	Distance (m)	Direction
Security & Alarm Systems & Consultants	Central Coast Alarm Installations	325 Pacific Hwy,Lake Munmorah,NSW,2259	Address	0.0	South
Petrol Stations & Garages	BP Lake Munmorah	335 Pacific Hwy,Lake Munmorah,NSW,2259	Address	0.0	South
Water Coolers Retail Or Hire	AuzWater	325 Pacific Hwy,Lake Munmorah,NSW,2259	Address	0.0	South
Marketing Consultants & Services	Auzwide Marketing	325 Pacific Hwy,Lake Munmorah,NSW,2259	Address	0.0	South
Boarding Kennels - Dogs	All Paws Pet Motel	305 Pacific Hwy,Lake Munmorah,NSW,2259	Address	31.9	North
Plumbers & Gasfitters	S & N Pinney Plumbing	32 Possum St,Lake Munmorah,NSW,2259	Address	94.7	East
Boarding Kennels - Dogs	Central Coast Veterinary Centre	166 Pacific Hwy,Wyong North,NSW,2259	Address	115.3	South-east
Cars - New	ELN Ford Pty Ltd	136 Pacific Hwy, Tuggerah,NSW,2259	Address	115.3	South-east
Roof Construction Specialists	John Crooks Roofing	4 4 Mercator Close Cl,Lake Munmorah,NSW,2259	Address	165.8	East
Chainsaws Brushcutters & Power Equipment	Munmorah Chainsaw & Mower Repairs	295 Pacific Hwy,Lake Munmorah,NSW,2259	Address	177.9	West
Car Wreckers - Used/Recycled Parts	Budgewoi Munmorah Auto Wreckers	Pacific Hwy,Lake Munmorah,NSW,2259	Street		East
Petrol Stations & Garages	Lake Munmorah (Mobil Service Station)	Pacific Hwy,Lake Munmorah,NSW,2259	Street		South-east

Land Insight uses a number of address geocoding techniques and characterised them according to the following criteria: completeness (match rates) and positional accuracy. When a historical street address does not contain complete details or a match is not found, a record identified as being in the surrounding area will be included for reference and the accuracy of the data is approximate only. The positional accuracy of the records is listed below:

Historical data positional accuracy and georeferencing results explanation		
Positional accuracy	**Georeferenced**	**Description**
Address	Located to the address level	*When street address and names fully match.*
Street	Located to the street centroid	*When street names match but no exact address was found. Location is approximate.*
Place	Located to the structure, building or complex	*When building, residential complex or structure name match but no exact address was found. Location is approximate.*
Suburb	Located to the suburb area	*When suburb name match but no exact address was found. Location is approximate.*

The data used in this section was extracted from range of historical commercial trade directories and historical business listing information. The business addresses were geocoded using historical information and cannot be relied upon as some of the addresses no longer exist. From 2005, the historical business records in this section are considered more accurate as information was extracted from digital directories with geographic coordinate location information available. For more information on how these records were geocoded and the methodology used by Land Insight, contact us at info@landinsight.co.

Historical Industries or business activities deemed to be of negligible or lesser risk are not reported. Please note that any record not identified within this section (due to error or unforeseen omission) does not necessarily mean that the screened area is not potentially contaminated or free of any risks.

Section 5 Natural Hazards

5.1 Natural Hazards

Map 5.1 (500m Buffer)

Erosion Risk

Category	On the Property?	Within Buffer?
Erosion Hazard	Some instability of batters/ Minor to moderate sheet erosion/ rilling of batters and along roads and tracks	Some instability of batters/ Minor to moderate sheet erosion/ rilling of batters and along roads and tracks

Fire Hazard

Category	On the Property?	Within Buffer?
Bush Fire Prone Land (BLP)	Yes	Yes
1987-88 2002-03 2005-06 2008-09 2013-14	-	Yes

Flood Hazard

Category	On the Property?	Within Buffer?
Not identified	-	-

Land Insight

Tower Three, Level 24
300 Barangaroo Avenue
Sydney NSW 2000 Australia
02 8067 8870
info@liresources.com.au
www.liresrouces.com.au

APPENDIX B: PHOTOGRAPHIC LOG

Photo 1:
Residential dwelling located on Lot 27 (semi-rural property).

Photo 2:
Detached demountable building adjacent to the garage on Lot 27.

Photo 3:
Grassed area comprising the majority of Lot 27 with moderate sporadicity of native trees and several goats grazing the land.

Photo 4:
Rough asphalt driveway leading to the residential house located onsite.

Photo 5:
View of the back of the dwelling, showing a rainwater tank located behind the demountable building, and an above ground swimming pool on the opposing side of the house.

Photo 6:
Two of the three shipping containers located on the eastern side of Lot 27.

Photo 7:
The third shipping container onsite with a chicken shed adjacent.

Photo 8:
Septic tank located to the west of the above ground swimming pool on Lot 27.

Photo 9:
Exceptionally green grass trailing west from the septic tank, indicating a potential leak.

Photo 10:
View of the back of Lot 83, showing the predominantly grassed area with sparse Eucalypt tree growth.

Photo 11:
Recently mulched area on Lot 83.

Photo 12:
Asphalt patch (approximately 3m x 3m) located on the northern end of Lot 83, suggesting a previously built structure has since been removed.

	KLEINFELDER Bright People. Right Solutions.	Project No: 20222732	SITE PHOTOGRAPHS
		Date: 1 October 2021	Shopbox Pty Ltd c/o Barker Ryan Stewart
		Suite 3, 240-244 Pacific Highway, Charlestown, NSW 2290	315, 325 & 335 Pacific Highway, Lake Munmorah, NSW 2259
		Phone: +61 2 4949 5200	

Photo 13:
Waste pile located behind the area of parked buses on Lot 83 containing wooden slats, metal, plastic and insulation material.

Photo 14:
Soil stockpile on containing some fill material that has the potential to have been relocated from a contaminated site.

Photo 15:
Potential ACM found amongst the fill material in the soil stockpile from Photo 14.

Photo 16:
Waste pile located approximately 80 m north-east of the main commercial building (Lot 83) in a dense area of trees. Materials include tin, plastic, concrete and brick.

Photo 17:
Potential ACM found amongst the waste pile in Photo 16.

Photo 18:
Pile of bricks and pavements located adjacent to the back gate of Lot 83.

	KLEINFELDER Bright People. Right Solutions.	Project No: 20222732	SITE PHOTOGRAPHS
		Date: 1 October 2021	Shopbox Pty Ltd c/o Barker Ryan Stewart
		Suite 3, 240-244 Pacific Highway, Charlestown, NSW 2290	315, 325 & 335 Pacific Highway, Lake Munmorah, NSW 2259
		Phone: +61 2 4949 5200	

Photo 19:
Patch of oil/grease located adjacent to the pile of bricks and pavements from Photo 18 (source unconfirmed).

Photo 20:
Discharge of oil from a bus parked behind the main buildings on Lot 83.

Photo 21:
A shed with two shipping containers either side used for storage of various items. Numerous piles of waste are also located here.

Photo 22:
Large shed backing the main commercial building on Lot 83, with a rainwater tank adjacent.

Photo 23:
Concreted area on the southern end of Lot 83 in front of the commercial and residential buildings located onsite.

Photo 24:
Crushed concrete/gravel area at the main entrance to the front of the lot where the site buildings are located.

	KLEINFELDER Bright People. Right Solutions.	Project No: 20222732	SITE PHOTOGRAPHS
		Date: 1 October 2021	Shopbox Pty Ltd c/o Barker Ryan Stewart
		Suite 3, 240-244 Pacific Highway, Charlestown, NSW 2290	315, 325 & 335 Pacific Highway, Lake Munmorah, NSW 2259
		Phone: +61 2 4949 5200	

Photo 25:
Swimming pool and two spas located at the back of the residential property on Lot 83 (adjacent to the commercial business building).

Photo 26:
View of Lot 12 (BP service station) from the footpath adjacent to the Pacific Highway, showing the main BP shop building, adjacent garage service centre and the four bowsers of the service station.

Photo 27:
Two bowsers currently not in operation, with newly laid concrete at their bases.

Photo 28:
Monitoring well located on the eastern side of the service station.

Photo 29:
Two large LPG gas tanks located in the north-west corner of Lot 12

Photo 30:
Chlorine containers stacks outside the BP shop window to the west.

KLEINFELDER Bright People. Right Solutions.	**Project No: 20222732**	**SITE PHOTOGRAPHS**	
	Date: 1 October 2021	**Shopbox Pty Ltd c/o Barker Ryan Stewart**	
	Suite 3, 240-244 Pacific Highway, Charlestown, NSW 2290	**315, 325 & 335 Pacific Highway, Lake Munmorah, NSW 2259**	
	Phone: +61 2 4949 5200		

Photo 331:
Garage service centre adjacent to the BP shop. Appears to be in good condition and recently painted.

Photo 332:
Old jerry cans, tyres and other various waste materials stored against the eastern wall of the garage service centre building.

Photo 333:
Small storage shed behind the garage service centre building, with stacked oil drums adjacent.

Photo 334:
Pile of asbestos fragments located adjacent to the small shed in Photo 33.

Photo 335:
Large patch of an oily grease substance that has stained the grassed area. It appears to have originated from the small shed.

Photo 336:
Shipping container located in the north-eastern corner of Lot 12 with two old bowsers beside it.

Photo 37:
A second shed at the back of the main site buildings that appears to be in poor condition with broken walls exposing the contents.

Photo 38:
Third shed onsite holding general inventory/stock for the BP shop. This shed is in relatively good condition.

Photo 39:
Workshop backing onto the service station building.