APPENDIX R – PRELIMINARY SITE INVESTIGATION

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Luddenham Advanced Resource Recovery CentrŜ

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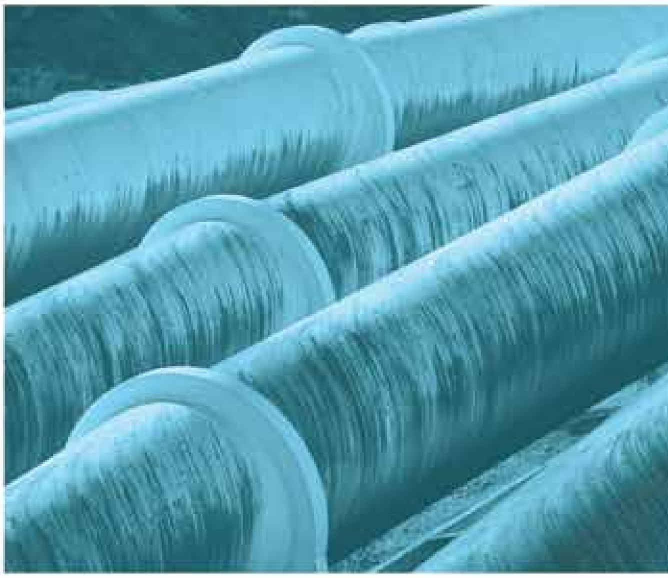
Prepared for Coombes Property Group & KLF Holdings Pty Ltd
June 2020

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Luddenham Advanced Resource Recovery Centre

Preliminary Site Investigation

Report Number

J190749 RP24

Client

Coombes Property Group (CPG) and KLF Holdings Pty Ltd (KLF)

Date

16 June 2020

Version

v2 Final

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16 June 2020

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16 June 2020

Executive Summary

CFT No 13 Pty Ltd, a member of Coombes Property Group (CPG), has recently acquired the property at 275 Adams Road, Luddenham NSW (Lot 3 in DP 623799, 'the site') within the Liverpool City Council municipality. The site is host to an existing shale/clay quarry.

CPG owns, develops, and manages a national portfolio of office, retail, entertainment, land, and other assets. The company's business model is to retain long-term ownership and control of all its assets. CPG has the following staged vision to the long-term development of the site:

- Stage 1 Quarry Reactivation: **Solving a problem**. CPG intends to responsibly avoid the sterilisation of the remaining natural resource by completing the extraction of shale which is important to the local construction industry as raw material used by brick manufacturers in Western Sydney. Following the completion of approved extraction activities, the void will be prepared for rehabilitation.

- Stage 2 Advanced Resource Recovery Centre (ARRC) and Quarry Rehabilitation: **A smart way to fill the void**: CPG in partnership with KLF Holdings Pty Ltd (KLF) and in collaboration between the circular economy industry and the material science research sector, intends to establish a technology-led approach to resource recovery, management, and reuse of Western Sydney's construction waste, and repurposing those materials that cannot be recovered for use to rehabilitate the void. This will provide a sustainable and economically viable method of rehabilitating the void for development.

- Stage 3 High Value Employment Generating Development: **Transform the land to deliver high value agribusiness jobs**. CPG intends to develop the rehabilitated site into a sustainable and high-tech agribusiness hub supporting food production, processing, freight transport, warehousing, and distribution, whilst continuing to invest in the resource recovery research and development (R&D) initiatives. This will deliver the vision of a technology-led agribusiness precinct as part of the Aerotropolis that balances its valuable assets including proximity to the future Western Sydney Airport (WSA) and Outer Sydney Orbital.

This report relates to a new development application for the development and operation of an Advanced Resource Recovery Centre (ARRC) relating to the delivery of Stage 2 above.

EMM Consulting Pty Limited (EMM) was commissioned by CPG, in partnership with KLF, to undertake a preliminary site investigation (PSI) for the proposed ARRC within the site. The site is located approximately 19 kilometres (km) north-west of the city of Liverpool, 25 km south-west of the city of Parramatta and approximately 43 km south-west of the city of Sydney, NSW.

This PSI is specific to the proposed footprint of the ARRC which is located in the northern portion of the site, hereafter referred to as 'the ARRC site'.

CPG in partnership with KLF are seeking development consent for the construction and operation of a proposed ARRC at the ARRC site. The subject property shares its southern and eastern boundaries with the Western Sydney Airport development site. There is an existing clay and shale quarry on the site approved under Development Consent DA 315-7-2003 as modified. The quarry is currently inactive, however CPG and KLF have commenced the application process to modify the quarry's consent to allow operations to recommence. A new State Significant Development (SSD) consent under Division 4.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) is required to establish the ARRC on the site.

The objective of the PSI is to develop an understanding of potential contamination at the ARRC site which may affect the development and intended future use of the ARRC site as a resource recovery facility. The PSI included review of historical information, including aerial photography, database searches and a walkover of the ARRC site and the site.

Potential sources of contamination identified at the ARRC site as part of this PSI were considered to be associated with waste storage and disposal on-site and on the subject property to the immediate south of the ARRC site, as well as quarrying activities on the southern portion of the site, and agricultural activities in the surrounding area.

Potentially complete contaminant source-pathway-receptors (S-P-R) linkages were identified for construction and maintenance workers associate with development of the ARRC site and future ARRC site users (workers and visitors to the ARRC). Down gradient users of surface and groundwater were also identified to have potentially complete S-P-R linkages, as were terrestrial and aquatic ecosystems in the Oaky Creek (at the eastern boundary of the site and Cosgroves Creek (to the west of the site) catchments.

Review of sampling and analytical data obtained by others from stockpiled material located in the north eastern portion of the ARRC site indicated the material was classified as “General Solid Waste” (non-putrescible) for off-site disposal purposes. Following removal of the stockpiled material to an appropriately licensed facility, EMM considers that, based on the information reviewed, there is a low potential for contamination to be present which would prevent the future development of the ARRC site as a resource recovery facility.

Notwithstanding, EMM recommends that a construction environmental management plan (CEMP), including an unexpected finds protocol, is prepared and implemented to manage any contamination which may be encountered during development works at the ARRC site. Should contamination be identified, an assessment of deeper soils, leachability and/or groundwater may be necessary to assess potential impacts to Oaky Creek and Cosgroves Creek.

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1 Introduction

1.1 Overview

CFT No 13 Pty Ltd, a member of Coombes Property Group (CPG), has recently acquired the property at 275 Adams Road, Luddenham NSW (Lot 3 in DP 623799, 'the site') within the Liverpool City Council municipality. The site is host to an existing shale/clay quarry.

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This report relates to a new development application for the development and operation of an Advanced Resource Recovery Centre (ARRC) relating to the delivery of Stage 2 above.

KLF is an Australian-owned and operated waste management company that operates two strategically located resource recovery and recycling facilities in Sydney; one at Camellia and another at Asquith. KLF has 20 years' experience in the waste recycling and resource recovery industry. KLF facilities are licensed by the NSW Environment Protection Authority (EPA) and have full International Organisation for Standardisation (ISO) accreditation.

1.2 The site

There is an existing clay and shale quarry on the subject property approved under Development Consent DA-315-7-2003, as modified. The quarry is currently inactive. CPG and KLF (the 'applicants') have commenced the application process to modify the quarry's consent to allow quarry operations to recommence, with the primary intention of changing the approved access to the subject property to allow quarry operations (Modification 5, also referred to as MOD 5).

It is proposed to develop the ARRC within the same lot to the north of the existing quarry void (hereafter referred to as 'the ARRC site' and shown in Figure 1.1. The project is integral in achieving the intended future commercial/industrial land use for the site as the project provides a commercially viable means to infill the quarry void (subject to separate development consent). This will support the Western Sydney Airport and ongoing development of the Western Sydney Aerotropolis.

A new State significant development (SSD) consent under Division 4.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) is required to establish the ARRC. On 24 April 2020, the Department of Planning, Industry and Environment (DPIE) issued Secretary's Environmental Assessment Requirements (SEARs) for the environmental impact statement (EIS) for the project. The SSD consent application number is SSD-10446.

This report has been prepared by EMM Consulting Pty Ltd (EMM) on behalf of the applicants.

1.3 Project overview

The key components of the ARRC project are as follows:

- construction and operation of an advanced construction and demolition resource recovery centre;
- accepting and processing up to 600,000 tonnes per annum (tpa) of waste for recycling;
- despatch of approximately 540,000 tpa of recycled product;
- despatch of approximately 60,000–120,000 tpa of unrecyclable material either to an offsite licensed waste facility or to the adjacent quarry void (the later will be subject to separate approval);
- if required, upgrade the access road from the subject property to Adams Road;
- use of the access road from subject property to Adams Road;
- the ARRC will not accept putrescibles, liquid or hazardous waste; and
- the ARRC will operate up to 24 hours a day, 7 days per week.

The ARRC will accept general solid waste comprising building and demolition waste as well as selected commercial and industrial waste. No special, liquid, hazardous, restricted solid water, putrescible solid waste, or odorous waste will be accepted at the ARRC.

The vast majority of materials accepted will be recovered, the remaining minor amount (10–20%) of unrecyclable materials will be disposed of at an offsite licensed landfill or to the quarry void on the site as part of rehabilitating the void.

The proposed project layout is shown in Figure 1.1.

1.4 Report objectives

EMM was commissioned by the applicants to undertake a preliminary site investigation (PSI) for the ARRC site to develop an understanding of potential contamination at the ARRC site which may affect the development and intended future use of the ARRC site as a resource recovery facility. The findings of the PSI will inform the need for further investigations, remediation and/or management to address contamination at the ARRC site, if identified.

EMM has prepared this PSI to address the contamination related Secretary's Environmental Assessment Requirement (SEARs) (refer Section 1.5) in general accordance with the National Environment Protection (Assessment of Site Contamination) Measure, 1999 as amended in 2013 (the ASC NEPM) and the guidelines published by the NSW Environment Protection Authority (EPA), as defined in Section 1.8.

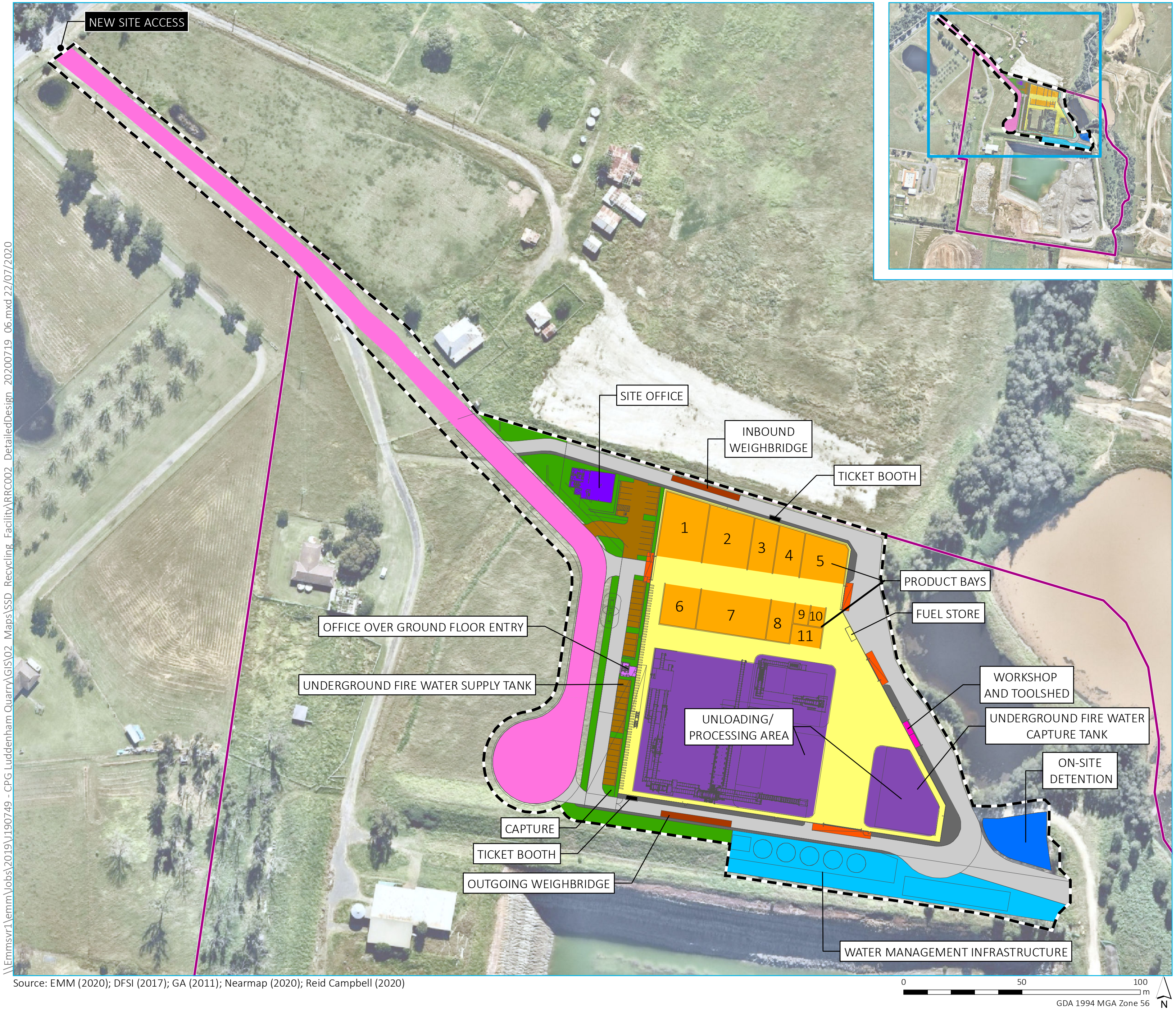
1.5 Secretary's Environmental Assessment Requirements

The SEARs for the ARRC development were issued on 24 April 2020. The SEAR related to contamination requires the applicant to address contamination – including an assessment of site suitability under the provisions of State Environmental Planning Policy No.55 – Remediation of Land.

1.6 Scope of work

To achieve the above objective, and in accordance with the requirements of the ASC NEPM and relevant guidelines, EMM undertook the following tasks:

- a review of the history of the ARRC site, using aerial photographs, land titles information and other public information regarding previous land uses (for example, local council databases and NSW EPA registers);
- a review of the current ARRC site setting and characteristics, including geological, hydrogeological and topographic maps, zoning and land use maps and registered groundwater bore records;
- a walkover of the ARRC site to assess the potential presence of contaminants of concern or contaminating activities, on-site and in the surrounding area which have the potential to impact on the ARRC site;
- a review of publicly available information regarding contamination on-site and in the surrounding area; and
- preparation of a report documenting the findings of the PSI and the potential for contamination to be present at the ARRC site which may impact the redevelopment of the ARRC site. The report includes a preliminary conceptual site model (CSM) outlining potential sources of contamination, migration pathways and sensitive receptors, which will inform the need for further investigations (if any).



KEY

- Subject property
- ARRC site
- Indicative detailed layout

Proposed element

- Awning
- Carpark
- Hardstand
- ARRC access road
- Kerb/pedestrian area
- Landscaping
- Office over ground floor
- On-site detention
- ARRC warehouse
- Product bay
- Site office
- Ticketbooth
- Tool shed, workshop
- Unloading/processing
- Water management infrastructure, including treatment plant and storage
- Weighbridge

Product bays

1. Concrete/ rubble masonry
2. Clean timber
3. Rigid plastics
4. Paper/cardboard/film
5. Stumps/asphalt/metal
6. Heavy residual
7. Fines screened
8. Soil audit
9. Ferrous
10. Non-ferrous
11. Non-recyclables

Project overview

Luddenham Advanced Resource
Recovery Centre
Primary Site Investigation
Figure 1.1

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Source: EMM (2020); DFSI (2017); GA (2011); Nearmap (2020); Reid Campbell (2020)

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1.7 Regulatory framework

The ASC NEPM establishes a nationally consistent approach to the assessment and management of contaminated land in Australia and is given effect by legislation and guidelines in each state and territory. Contaminated land in NSW is primarily dealt with by the NSW EPA and planning authorities (state and local governments).

1.7.1 NSW Contaminated Land Management Act 1997

The NSW *Contaminated Land Management Act 1997* (CLM Act) aims to better promote the management of contaminated land. The objectives of the CLM Act are to establish a process for investigating and (where appropriate) remediating land areas where contamination presents a significant risk of harm to human health or some factor of the environment.

The NSW EPA has powers to respond to contamination that is causing significant risk of harm to human health or the environment. The NSW EPA can direct landowners to investigate or remediate contaminated land and requires landowners to report contamination where there is a significant risk of harm (duty to report). The CLM Act may be triggered if contamination migrates beyond site boundaries.

1.7.2 NSW Protection of the Environment Operations Act 1997

The NSW *Protection of the Environment Operations Act 1997* (POEO Act) is also administered by the NSW EPA. It prohibits any person to cause pollution of waters, land or air and provides penalties for specified offences. The POEO Act enables the NSW Government to set out explicit protection of the environment policies and adopt more innovative approaches to reducing pollution. The POEO Act also requires 'scheduled activities' listed at Schedule 1 to the POEO Act to be carried out in accordance with an Environment Protection Licence (EPL).

1.7.3 Environmental Planning and Assessment Act 2000 and State Environmental Planning Policy 55 – Remediation of Land

State Environmental Planning Policy 55 – Remediation of Land (SEPP 55) is a planning instrument under the *EP&A* Act) that applies to state land.

SEPP 55 Clause 7 outlines considerations regarding contamination and remediation in determining development applications by local government authorities and provides requirements for investigations to be undertaken where a change of land use is proposed.

SEPP 55 also specifies when remediation works will require Development Consent from the Local Government Authority (LGA).

1.8 Guidelines

Relevant guidelines that have been developed or endorsed by the NSW EPA and considered in this PSI include:

- the ASC NEPM[1];
- NSW EPA (2020) *Consultants reporting on contaminated land*; and
- NSW Department of Environment and Conservation (2007) *Guidelines for the Assessment and Management of Groundwater Contamination*.

[1] The ASC NEPM is made under the *National Environment Protection Council Act 1994 (Cth)* and is given effect by individual legislation and guidelines in each state and territory.

1.9 Data sources

In preparing the PIS, EMM has referred to the following data sources:

- Enviro-Screen report, Property Details: Lot 3 DP623799, 275 Adams Road, Luddenham NSW. 01 April 2020. Land Insight and Resources (included in Appendix A);
- Luddenham Resource Recovery Centre Scoping Report. EMM March 2020.
- NSW Government SIX Maps (https://maps.six.nsw.gov.au); and
- Australian Government Bureau of Meteorology Climate Data Online (http://www.bom.gov.au/climate/data/index.shtml).

2 Environmental Setting

2.1 ARRC site location and description

The site, including the ARRC site, is located at 275 Adams Road, Luddenham NSW, approximately 19 km north-west of the city of Liverpool, 25 km south-west of the city of Parramatta and approximately 43 km south-west of the city of Sydney NSW.

The ARRC site encompasses approximately 3 hectares (ha), which is the proposed footprint of the ARRC. The ARRC site is predominantly vacant, comprising a gravel access road from Adams Road, an area of grassed land with small stands of trees, a small retention pond and an area of gravel/unsealed ground cover in the north-east corner.

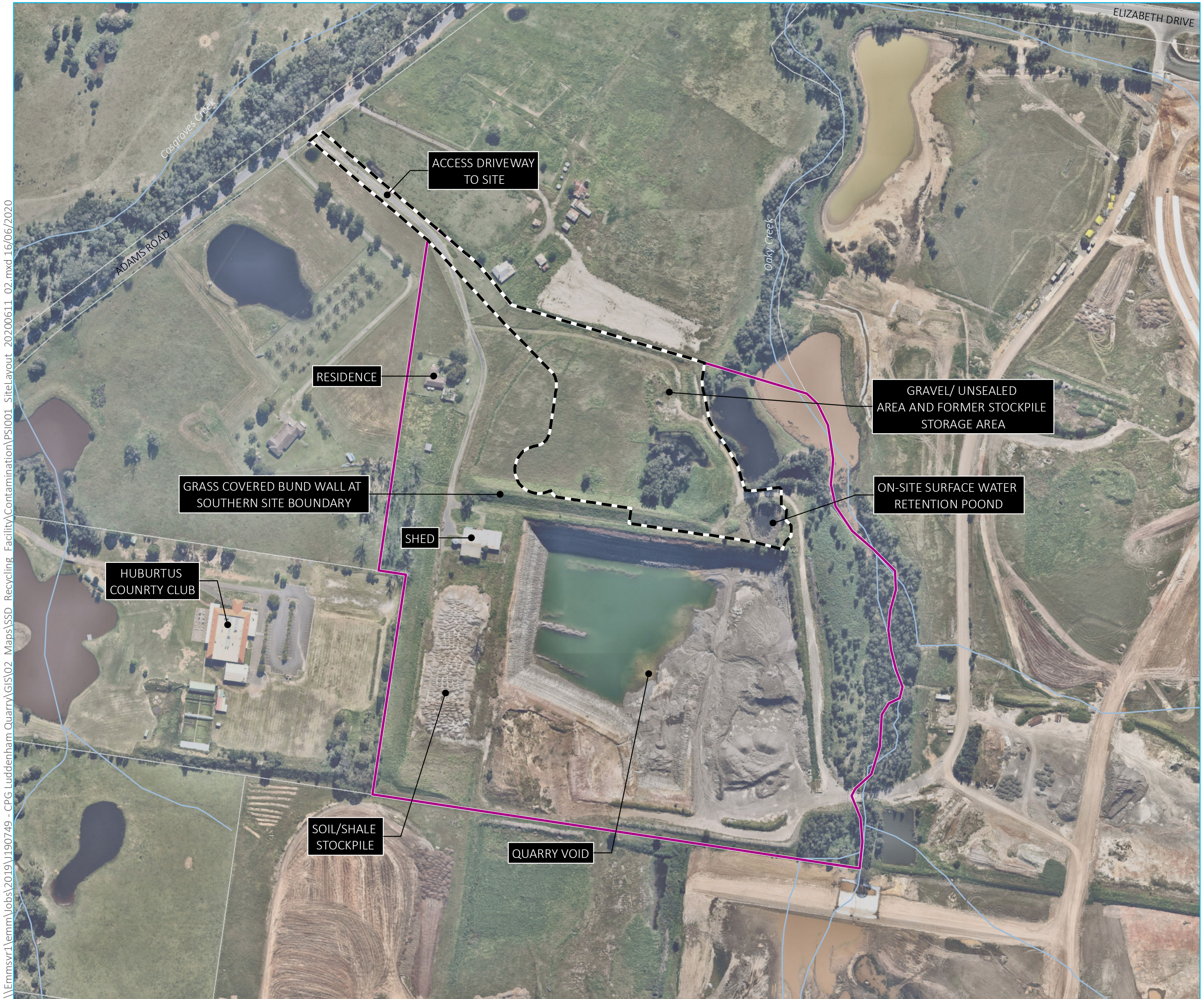
The surrounding area to the south is occupied by a disused quarry and associated infrastructure and amenities, and a residence and agricultural sheds are present to the west of the ARRC site (all located within the site boundary). Oaky Creek borders the ARRC site to the east and more extensive native vegetation patches are present along the Creek.

The site is bordered to the east and south by the Western Sydney Airport (WSA) site. Agricultural properties are present to the north and west, with the closest occupied property located approximately 70 metres (m) north of the access road. Workers Hubertus Country Club and pistol range are located immediately south-west of the ARRC site.

Site features are detailed further on Figure 2.1.

2.2 Site identification

The ARRC site comprises a portion of Lot 3 in development plan (DP) 623799, as shown on Figure 2.1.



Source: EMM (2020); DFSI (2017); GA (2011); Nearmap (2020)

Site context

Luddenham Advanced Resource Recovery Centre
Preliminary Site Investigation
Figure 2.1

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2.3 Zoning

The ARRC site is currently zoned RU1 – Primary Production under the Liverpool Local Environmental Plan (LEP) 2008.

2.4 Surrounding land uses

The ARRC site is located in a generally rural area, with the WSA development to the east and south. Notable features in the surrounding area are summarised in Table 2.1.

Table 2.1 Surrounding land uses

Direction	Surrounding land uses
North	The area to the north of the ARRC site is generally rural and agricultural land. Elizabeth Drive is located approximately 300 m to the north of the ARRC site, running in a south-east/north-west orientation. The access road for the ARRC site ends at Adams Road. Directly to the north of Adams Road is Cosgroves Creek. Oaky Creek and two dams are located to the east, north-east of the ARRC site.
East	The area to the east of the ARRC site currently comprises the development site of the WSA. The rural residential and commercial area of Badgerys Creek is located beyond the WSA site.
South	The area to the immediate south of the ARRC site comprises a disused quarry (purposed to be reactivated as part of the larger redevelopment project at 275 Adams Road). Beyond, the surrounding area to the south comprises the WSA development site with some remnant rural and agricultural land in some areas. The rural residential and commercial area of Bringelly is beyond the WSA site.
West	The area to the west of the ARRC site is generally rural and agricultural land. Workers Hubertus Country Club and pistol range are located immediately south-west of the ARRC site.

2.5 Topography

The site is generally flat with the exception of the quarry void. The property slopes gently from the south-west to the north-east flat (approximately 60 to 75 metres Australian Height Datum (m AHD) (refer to Appendix A). The surrounding areas are noted to generally flat-lying, with gentle slopes towards Oaky Creek at the eastern boundary of the ARRC site and the site, or towards Cosgroves Creek, to the west of Adams Road. It is also noted that natural topography in the surrounding area has been altered by quarrying activities.

2.6 Geology and Soils

The Penrith 1:100,000 geological map indicates that the ARRC site is underlain by Bringelly Shale of the Wianamatta Group, comprising shale, claystone, laminite and sandstone, with rare coal and tuff (refer to Appendix A).

Quaternary alluvium (sand, silt and clay) is identified to the north and west of the ARRC site, consistent with the alignment of Cosgroves Creek to the west and the northern reaches of Oaky Creek.

The soils at the ARRC site are identified as residual soils of the Blacktown soil landscape. Salinity potential is reported as 'Very High' while Acid Sulfate Soils (ASS) have an 'Extremely Low' probability of occurrence (refer to Appendix A).

2.7 Hydrogeology

The aquifer type beneath the ARRC site is identified as porous, extensive and of low to medium productivity (Appendix A).

Three registered groundwater bores (monitoring bores) are identified within the 275 Adams Road property, but none are located within the ARRC site itself. The bores were drilled to approximately 30 m below ground level (bgl). No information on water levels or quality is provided. A registered groundwater bore approximately 690 m to the north-west of the ARRC site reported a standing water level (SWL) of 23.8 m bgl and a total bore depth of 100 m bgl.

Based on local topography, groundwater flow would be expected to the north, consistent with the flow of Oaky Creek and Cosgroves Creek. However, it is noted that quarrying activities on thesite is likely to have disrupted natural groundwater flow. Groundwater in the immediate vicinity of the quarry pit is likely to flow toward the pit.

2.8 Surface water and drainage

A surface water retention pond is identified at the eastern boundary of the ARRC site, with two additional water storages located outside of the ARRC site, but within the site, to the north-east. The larger storage is an online storage on Oaky Creek, which forms the eastern boundary of the site.

Surface water is also observed in the quarry void immediately to the south of the ARRC site. Cosgroves Creek is present immediately to the west of Adams Road, to the west of the ARRC site. Cosgroves Creek and Oaky Creek flow in a northerly direction and join approximately 850 m north of the ARRC site.

There are a number of farm dams and retention ponds on the properties surrounding the ARRC site and the site. Surface water flow at the ARRC site would be expected to infiltrate the ground due to the unsealed surface. If sufficient water is present to generate flow, flow direction would be consistent with topography, towards the water storages to the north-east.

No groundwater dependent ecosystems (GDE) were identified within the ARRC site. High potential GDE (ecosystems that rely on the subsurface presence of groundwater) were identified at the eastern boundary of the site (approximately 100 m to the east and south-east of the ARRC site) and the to the north-west, consistent with the alignment of Cosgroves Creek.

2.9 Climate

Climate data collected from Badgerys Creek Automatic Weather Station (AWS) (site number 67108)[2], located approximately 3 km to the south-east of the site, indicates that the ARRC site is located in a temperate region, with mean maximum temperatures ranging between 17.5°C (July) and 30.3°C (January) and mean minimum temperatures of between 4.1°C (July) and 17.3°C (January).

Average annual rainfall is 658.1 millimetres (mm), with most rainfall in the autumn months (108.8 mm in February) and the lowest rainfall in winter (22.6 mm in July).

[2] http://www.bom.gov.au/climate/data/index.shtml

3 Site history

3.1 Aerial photographs

Aerial photographs of the ARRC site and the site were obtained from 1947 to the present day, as summarised in Table 3.1. Aerial photographs are included in Appendix A.

Table 3.1 Aerial photograph review

Year	RRC site	Surrounding Area
1947	The ARRC site is generally undeveloped, grass covered with some small stands of trees. An access track is visible through the ARRC site, from south-east to north-west.	The surrounding area is generally rural/agricultural. Adams Road and Elizabeth Drive are visible to the west and north, respectively. Some agricultural activities are visible on the property to the immediate north (and appear to partially encroach on the northern boundary of the ARRC site). Several buildings are visible, with some potential equipment and/or materials storage. A surface water retention pond was visible at the north-eastern corner of the site and off-site to the north-east.
1955	There are no substantial changes at the ARRC site, although the access track is no longer visible.	There are no substantial changes in the surrounding areas. The agricultural activities to the immediate north appear to have reduced and are no longer encroaching on the northern ARRC site boundary.
1961	A surface water retention pond is visible at the north-eastern boundary of the ARRC site. No other significant changes were observed at the ARRC site.	No substantial changes were observed in the surrounding area. A trench was visible to the immediate north of the ARRC site access road.
1969	No significant changes were observed at the ARRC site.	Development was visible on the property to the north-east of the ARRC site and appeared industrial/agricultural in nature. No other significant changes were observed.
1970	The surface water retention pond at the north-east was reduced in size, likely due to evaporation of water.	No significant changes were observed in the surrounding area.
1975	The surface water retention pond appeared to have expanded. Some indications of development were visible at the south-western portion of the ARRC site and areas to the south and west (within the site).	A residential property is visible to the west of the ARRC site, and an access track leading from Adams Road to the south-western corner of the site. Development on the southern portion of site is visible, with several small structures in a grid pattern observed. This development appears consistent with small animal farming, such as poultry.

Table 3.1 Aerial photograph review

Year	RRC site	Surrounding Area
1984	No substantial changes were visible within the ARRC site.	The grid pattern and structures on the southern portion of the site had expanded and a building, consistent with the current agricultural shed on the site was visible. An unsealed oval track was present to the immediate south-east of the ARRC site. An oval track and development of rural residential properties was apparent to the south. A large surface water retention pond was present to the north-east.
1991	No substantial changes were observed within the ARRC site, although possible material storage associated with agricultural activities to the south was visible at the southern boundary of the ARRC site.	Ground disturbance was visible inside the oval track to the south-east of the ARRC site. The ARRC site access track was moved to its current position, in the north-west portion of the ARRC site. Development of a sealed oval track and a large surface water retention pond to the south of the ARRC site were visible, with additional rural and agricultural development also apparent.
1994	No substantial changes were observed within the ARRC site.	No significant changes were observed on the southern portion of the site, with the exception of the land inside the oval track, where possible waste disposal was observed. Development to the south-west of the ARRC site was apparent, in the location of the current Workers Hubertus Country Club. A small area of excavation adjacent to the ARRC site access road, partially filled with water, was observed. Upgrades to Elizabeth Drive to the north were visible.
2005	No significant changes were observed at the ARRC site.	No significant changes were observed in the surrounding area. The Workers Hubertus County Club was constructed.
2009	No significant changes were observed at the ARRC site.	The farming operations on the southern portion of the site were no longer operational, and a large are of this property was undergoing excavation, with exposed soils and stockpiles visible. An access road leading from Elizabeth Drive to the south-eastern portion of this property was noted.
2011	Some areas of ground disturbance (exposed soil, and small retention ponds) were visible in the south-eastern portion of the ARRC site.	Large excavations were visible in the eastern portion of the southern portions of the site. The remaining farming infrastructure was also removed from this area and ground disturbance was apparent. Excavations and/or stockpiles were also visible on land to the south-east of the ARRC site, immediately east of the southern portion of the site. Some minor excavations and stockpiles were also visible to the south.

Table 3.1 Aerial photograph review

Year	RRC site	Surrounding Area
2014	Disturbed ground in the south-east was now grass covered, with mounds /stockpiles also visible and grass covered.	Excavations in the southern portion of the site have continued to expand. A large number of stockpiles were visible to the south of the site.
2017	An unsealed access track is present at the eastern boundary of the ARRC site. A number of stockpiles or waste materials are visible in the north-eastern portion of the ARRC site. A small detention pond is visible immediately to the south of the stockpiles.	Excavations in the southern portion of the site have continued to expand. Stockpiles are visible to the west of the excavations. The stockpiles to the south of the site have been removed, with unsealed, partially revegetated, ground visible. Properties to the south of the site are no longer present, with the land partially revegetated. The oval track also appears in a state of disrepair.
2020	The stockpiles have been removed and the ARRC site is generally grass covered. The access track is still visible, but appears to be less frequently used and no longer extends onto the property immediately to the north of the ARRC site.	The excavation on the portion of the site immediately to the south of the ARRC site has expanded, and filled with water. The quarry appears to be inactive. The stockpiles to the west of the excavations remain visible. Significant earthworks are visible on properties to the east and south of the ARRC site, presumed to be associated with construction of the WSA.

4 Database search results

Database search results are presented in Appendix A.

4.1 EPA databases

Contaminated Land

The ARRC site and surrounding properties were not identified on the NSW EPA contaminated land record of notices or as sites notified as contaminated to the EPA.

NSW PFAS Investigation Program

No sites on the NSW Government PFAS Investigation Program were identified at the ARRC site or in the surrounding area.

Environment Protection Licences

The ARRC site was identified as being included on the EPL 12863 issued on 14 December 2000 for the quarry. The licence was suspended on the 9 August 2019 as the previous site owners had not paid the annual licence fees. The EPA noted that licenced activities were no longer being carried on at the premises. The applicants have recently been notified that the EPL was revoked on the 29 May 2020. The scheduled activity in the EPL was 'land-based extractive activities', with the approved scale being 100,000–500,000 tpa

Waste streams permitted to be accepted at the subject property under this licence included waste that meets the conditions of a resource recovery exemption (RRE) and any waste that is below licensing thresholds in Schedule 1 of the POEO Act. Under this licence, the recipient (EPIC Mining Pty Limited) was permitted to discharge effluent into Oaky Creek. Two licenced water quality monitoring points were listed on the licence, with licence limited applied for biological oxygen demand (BOD), oil and grease, pH and total suspended solids (TSS).

In 2015, the site was investigated by the NSW EPA for unauthorised composting at the licenced premises. A Pollution Study was required to investigate environmental impacts of composting. The licence was subsequently amended to prohibit the receipt of raw mulch or compost at the site.

It is further noted that in January 2017, the subject property was issued with a NSW EPA penalty notice for unlawful use as a waste facility.

In 2018, as the result of "*unlawful deposition of … shale-type material*"[3] on a property to the north of the RRC site, the licence for the site was varied to require fencing to be installed between the site and the property to the north.

No other EPLs were identified in the area surrounding the ARRC site, within a 500 m buffer. Two properties to the north-west and north-east, were identified as having penalty and clean up notices issued.

[3] Notice of Variation of Licence no. 12863 (Notice Number 1562511), from NSW EPA to Epic Mining Pty Limited, 21 March 2018. https://apps.epa.nsw.gov.au/prpoeoapp/ViewPOEONotice.aspx?DOCID=-1&SYSUID=1&LICID=12863

4.2 Other databases

No sites on the Department of Defence (Defence) PFAS Investigation and Management Program, or Regional Contamination Investigation Program, were identified at the ARRC site or in the surrounding area.

The ARRC site was not identified on the AirServices Australia National PFAS Management Program.

4.3 Previous reports

Hibbs and Associates Pty Ltd (Hibbs) (2020) characterised a stockpile (referred to as Stockpile A) with an estimated volume of 125 m^3 within the north eastern portion of the ARRC site. Stockpile A was identified to contain foreign material which may have been illegally disposed following cessation of previous operations at the site.

A site inspection was carried out by Hibbs prior to sampling on 1 April 2020. Stockpile A was noted to be stable and covered with dense grass. Stockpiled material generally comprised of clayey, silty sand, brown to dark brown, fine to coarse, angular to sub-angular gravel, concrete, brick, and granule to cobble size sandstone.

A total of five stockpile samples were analysed for waste characterisation purposes for a range of contaminants of potential concern (CoPC) including total recoverable hydrocarbons (TRH), total polycyclic hydrocarbons (PAHs), benzene, toluene, ethylbenzene and xylenes (BTEX), metals and metalloids, polychlorinated biphenyls (PCBs), pesticides (OCP/OPP) and asbestos.

Laboratory results were assessed against Table 1 of the Waste Classification Guidelines, (NSW EPA 2014) and the material was classified as “General Solid Waste” (non-putrescible) for offsite disposal purposes.

5 Site walkover

A walkover of the ARRC site and the site was undertaken by an EMM environmental scientist on 17 April 2020. Key observations are summarised below:

- the entrance to the ARRC site comprises an unsealed, gravel driveway, with a locked gate at the entrance to Adams Road;
- the ARRC site is covered with overgrown vegetation and access was limited;
- a grass covered bund wall is present at the southern boundary of the ARRC site;
- there is an area of disturbed ground at the north-eastern corner of the ARRC site;
- one surface water detention pond is present within the ARRC site while another is located to the north-east of the ARRC site;
- a single-storey residence was present to the west of the ARRC site (within the site). A small shed adjacent to the residence was observed to include potential asbestos containing materials (ACM) sheeting;
- a quarry void was present to the immediate south of the ARRC site (within the site). The void was partially filled with water;
- a steel and masonry shed was present to the south-west of the ARRC site, adjacent to the quarry void. Machinery and chemical storage were observed inside the shed, and a small area of back surface staining was noted; and
- a large stockpile of overburden/shale/clay was located to the south of the shed.

A selection of photographs from the walkover are included in Appendix B.

6 Conceptual site model

This PSI has considered information from a range of sources to assess potential contamination risks to ARRC site users. This preliminary conceptual site model (CSM) has been developed based on the available information, as presented in this report, to identify complete or potentially complete linkages between contaminant sources and sensitive receptors, in the context of commercial/industrial land use.

6.1 Contaminant sources

Based on the information available, potential sources of contamination and CoPC identified at the ARRC site are summarised in Table 6.1.

Table 6.1 Potential contaminant sources and CoPC

Source	CoPC	Likelihood of contamination / release mechanism
On-site: former stockpiling/storage of waste	Asbestos, petroleum hydrocarbons, heavy metals, PFAS, hazardous ground gas (HGG)	The ARRC site was identified as part of a larger parcel of land licenced for the storage and disposal of waste. Additionally, stockpiles of unknown materials in the north-east portion of the ARRC site were observed on aerial photographs between 2014 and 2017.
Off-site: agricultural activities	Pesticides, herbicides	Surrounding land to the north and west appeared to be used for agricultural purposes through the mid-late twentieth century. The potential use of pesticides and herbicides, including organochlorine and organophosphorus pesticides (OCP/OPPs) cannot be precluded.
Off-site: quarrying and waste disposal	Asbestos, petroleum hydrocarbons, heavy metals, PFAS, explosives	The land to the immediate south of the ARRC site has been used as a shale quarry and for waste disposal/storage. Potential for explosive residue, used in blasting activities, cannot be precluded. Additionally, the use and/or storage of fuels and other oils for heavy machinery used at the property is considered likely. The nature of waste materials stored and/or disposed at the property cannot be precluded.
Off-site: chemical and machinery storage	Petroleum hydrocarbons, heavy metals, pesticides	Storage of chemicals and machinery was observed inside a shed to the south of the ARRC site. Quantities stored appeared to be small, but no secondary containment (bunding) was observed and black staining was noted in one area.

6.2 Pathways

Potential transport mechanisms for contamination include:

- leaching of contaminants from waste materials into soils;
- spills and leaks from chemical storage onto soil and/or into surface water;
- infiltration through the soil profile;
- release of windblown dust and fibres;
- migration of contaminated groundwater (based on topography groundwater would be expected to flow to the north-east and north);
- discharge of groundwater into nearby surface water catchments (Oaky Creek and Cosgroves Creek);
- overland flow of impacted surface water, likely to be to the north-east towards surface water holding ponds and Oaky Creek; and
- migration of soil vapour/HGG, through soils and preferential pathways such as underground service conduits.

Potential exposure pathways include:

- direct contact/incidental ingestion of contaminated soil, groundwater and/or surface water;
- inhalation of windblown dust and/or fibres;
- inhalation of soil vapour/HGG; and
- uptake of contaminated groundwater/surface water by terrestrial and aquatic ecosystems.

6.3 Receptors

In the context of the proposed use of the ARRC site as a resource recovery centre and longer-term commercial/industrial land use, potential sensitive receptors are considered to comprise:

- construction and maintenance workers involved in development of the ARRC site;
- future ARRC site users (workers and ARRC site visitors);
- users of adjacent properties (commercial/industrial); and
- terrestrial ecology and aquatic ecosystems in the Oaky Creek and Cosgroves Creek catchments, both of which are described at high-potential GDEs in the vicinity of the ARRC site.

6.4 Preliminary CSM

An assessment of the completeness of linkages between contaminant sources, pathways and sensitive receptors is provided in .

7 Conclusions and recommendations

The objective of the PSI was to develop an understanding of potential contamination at the ARRC site which may affect the development and intended future use of the ARRC site as a resource recovery facility. The ARRC site forms part of a larger proposed development, which includes rehabilitation of a currently disused quarry, progressive filling of the quarry void and long-term commercial use of the property.

The ARRC site is located in a generally rural residential and agricultural area. Land to the east and south has been acquired by the Commonwealth of Australia for construction of the WSA.

The ARRC site is located in the northern portion of a larger parcel of land (Lot 3 in DP 623799, also referred to as 275 Adams Road, Luddenham [the site]). Although historically cleared for agricultural purposes, the ARRC site has been generally undeveloped, with the exception of stockpiling or waste disposal observed in the eastern portions between 2014 and 2017. Stormwater retention ponds were also observed in the eastern portion of the ARRC site and at the eastern boundary.

The southern portion of the site, to the immediate south of the ARRC site, appeared to be occupied by a poultry farm in the late 1900s with quarrying activities evident from at least 2009. Storage and/or disposal of waste was also apparent on this property.

An EPL was previously held for the site (including the ARRC site), permitting resource extraction, waste disposal and storage. The EPL was revoked on the 29 May 2020 due to licence fees not being paid and the licenced activities no longer being undertaken at the subject property.

Based on the findings of this PSI, potential sources of contamination at the ARRC site were considered to be associated with waste storage and disposal on-site, and on the property to the immediate south of the ARRC site, as well as quarrying activities and chemical storage on the southern portion of the subject property, and agricultural activities in the surrounding area.

Potentially complete contaminant S-P-R linkages were identified for construction and maintenance workers associated with development of the ARRC site and future ARRC site users (workers and visitors to the ARRC). Down gradient users of surface and groundwater were also identified to have potentially complete S-P-R linkages, as were terrestrial and aquatic ecosystems in the Oaky Creek and Cosgroves Creek catchments.

Review of sampling and analytical data obtained by others from stockpiled material located in the north-eastern portion of the ARRC site indicated the material was classified as “General Solid Waste” (non-putrescible) for offsite disposal purposes. Following removal of the stockpiled material to an appropriately licensed facility, EMM considers that, based on the information reviewed, there is a low potential for contamination to be present which would prevent the future development of the site as a resource recovery facility.

Notwithstanding, EMM recommends that a construction environmental management plan (CEMP), including an unexpected finds protocol, is prepared and implemented to manage any contamination which may be encountered during development works at the ARRC site. Should contamination be identified, an assessment of deeper soils, leachability and/or groundwater may be necessary to assess potential impacts to Oaky Creek and Cosgroves Creek.

Table 7.1 Source-pathway-receptor linkages

Source	Pathway(s)	Receptor(s)	SPR linkages potentially complete, without mitigation/management measures?
On-site: former stockpiling/ storage of waste	Direct contact with or ingestion of impacted soil or surface water	construction and maintenance workers	Yes
		future ARRC site users (commercial/industrial)	Yes
		adjacent property users	Yes (surface water)
	Direct contact with or incidental ingestion of impacted groundwater	construction and maintenance workers	Yes
		future ARRC site users (commercial/industrial)	Unlikely
		adjacent property users	Unlikely
	Inhalation of windblown dust/fibres	construction and maintenance workers	Yes
		future ARRC site users	Yes
		adjacent property users	Yes
	Inhalation of soil vapour/HGG	construction and maintenance workers	Yes
		future ARRC site users	Yes
		adjacent property users	Unlikely
	Infiltration to regional aquifer	on-site and down gradient users of regional groundwater	Yes
	Uptake or ingestion of contaminated surface water	terrestrial ecology	Yes
		aquatic ecology	Yes
	Surface water flow overland and via Oaky Creek/ Cosgroves Creek	downgradient users of surface water	Yes
		aquatic ecology	Yes
		terrestrial ecology	Yes

Table 7.2 Source-pathway-receptor linkages

Source	Pathway(s)	Receptor(s)	SPR linkages potentially complete, without mitigation/management measures?
Off-site: previous agricultural activities	Direct contact with or ingestion of impacted soil or surface water	construction and maintenance workers future ARRC site users (commercial/industrial)	Unlikely Unlikely
	Direct contact with or incidental ingestion of impacted groundwater	construction and maintenance workers future ARRC site users (commercial/industrial)	Yes Unlikely
	Infiltration to regional aquifer	on-site and down gradient users of regional groundwater	Yes
	Uptake or ingestion of contaminated surface water	terrestrial ecology aquatic ecology	Yes Yes
	Surface water flow overland and via Oaky Creek/ Cosgroves Creek	downgradient users of surface water (including on-site) aquatic ecology terrestrial ecology	Yes Yes Yes

Table 7.3 Source-pathway-receptor linkages

Source	Pathway(s)	Receptor(s)	SPR linkages potentially complete, without mitigation/management measures?
Off-site: quarrying and waste disposal	Direct contact with or ingestion of impacted soil or surface water	construction and maintenance workers	Yes
		future ARRC site users (commercial/industrial)	Yes
	Direct contact with or incidental ingestion of impacted groundwater	construction and maintenance workers	Yes
		future ARRC site users (commercial/industrial)	Unlikely
	Inhalation of windblown dust/fibres	construction and maintenance workers	Yes
		future ARRC site users	Yes
	Inhalation of soil vapour/HGG	construction and maintenance workers	Yes
		future ARRC site users	Yes
	Infiltration to regional aquifer	on-site and down gradient users of regional groundwater	Yes
	Uptake or ingestion of contaminated surface water	terrestrial ecology	Yes
		aquatic ecology	Yes
	Surface water flow overland and via Oaky Creek/ Cosgroves Creek	downgradient users of surface water (including on-site)	Yes
		aquatic ecology	Yes
		terrestrial ecology	Yes

Table 7.4 Source-pathway-receptor linkages

Source	Pathway(s)	Receptor(s)	SPR linkages potentially complete, without mitigation/management measures?
Off-site: chemical and machinery storage	Direct contact with or ingestion of impacted soil or surface water	construction and maintenance workers	Unlikely, based on small quantities observed
		future ARRC site users (commercial/industrial)	No
	Direct contact with or incidental ingestion of impacted groundwater	construction and maintenance workers	Unlikely, based on small quantities observed
		future ARRC site users (commercial/industrial)	No
	Inhalation of windblown dust/fibres	construction and maintenance workers	Unlikely
		future ARRC site users	Unlikely
	Inhalation of soil vapour/HGG	construction and maintenance workers	Unlikely
		future ARRC site users	Unlikely
	Infiltration to regional aquifer	on-site and down gradient users of regional groundwater	Unlikely, based on small quantities observed
	Uptake or ingestion of contaminated surface water	terrestrial ecology	Unlikely
		aquatic ecology	Unlikely

8 References

Australian and New Zealand Environment and Conservation Council and the National Health and Medical Research Council (1992) Guidelines for Assessment and Management of Contaminated sites.

ANZECC 2000, *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*, Volume 1, Australian and New Zealand Environment and Conservation Council (ANZECC) & Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ), October 2000.

HEPA 2018, PFAS National Environmental Management Plan January 2018.

HIBBS (2020) Stockpile A Waste Classification – 275 Adams Rd, Luddenham May 2020.

National Environment Protection Council (NEPC) 1999. *National Environment Protection (Assessment of Site Contamination) Measure 2013* (ASC NEPM, 2013).

NSW Department of Environment and Conservation (2006) Guidelines for the NSW site Auditor Scheme.

NSW Department of Environment and Conservation (2007) Guidelines for the Assessment and Management of Groundwater Contamination.

NSW EPA (2014) Waste Classification Guidelines Part 1: Classifying waste.

NSW EPA (2020) Guidelines for consultants reporting on contaminated land.

Appendix !

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Fast, Accurate and Comprehensive Environmental and Development Risk Information

LAND INSIGHT & RESOURCES

ENVIRO-SCREEN

Property Details

Lot 3 DP623799

275 Adams Road, Luddenham NSW

Search Date: 01 April 2020

Executive Summary

Dataset	Identified	Not identified
Sensitive Receptors	✓	
Planning Controls	✓	
Soil Landscape	✓	
Salinity	!	
Acid Sulfate Soil	!	
Geology	✓	
Topography	✓	
Hydrogeology	✓	
Groundwater Bores	✓	
Groundwater Dependent Ecosystems	✓	
Other Bores		✗
Environmental Registers, Licences and Incidents		
Contaminated Land Record of Notices		✗
Sites Notified as Contaminated to the NSW EPA		✗
Potentially Contaminated Areas		
Defence Sites (current, former and RCIP)		✗
Former Gasworks Sites		✗
PFAS Sites		✗
Licensing under the POEO Act		
Licences		✗
Surrendered Licences still Regulated by EPA	!	
Clean Up and Penalty Notices	!	
NPI Industrial Facilities		✗
Public Register of Properties Affected by Loose-Fill Asbestos Insulation		✗
Other Potentially Contaminating Activities		
Contamination Legacy Areas		✗
Derelict Mines and Quarries	!	
Historical Landfills		✗
Unexploded Ordnance (UXO) Sites - Department of Defence (DoD)		✗
Aviation Fuel Depots/Terminals		✗
Cattle Dip Sites		✗
Dry Cleaners		✗
Liquid Fuel Depots/Terminals		✗
Fire and Rescue Sites		✗
Mines and Quarries	!	
Power Stations		✗
Service Stations		✗
Substation/Switching Station		✗
Telephone Exchanges		✗
Waste Management Facilities		✗
Wastewater Treatment Facilities		✗
Current Commercial & Trade Directory Data		✗
Historic Commercial & Trade Directory Data		✗
Federal, State and Local Heritage		✗
Natural Hazards	!	
State Environmental Planning Policy (Coastal Management)		✗

Understanding your Report

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

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 2000 m 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, LI Resources cannot guarantee the accuracy or completeness of the information or data provided.

The report provided by LI Resources includes data listed on page 3 (table of contents). All sources of data and definitions are provided on the report maps and as listed in the Product Guide (Attached). For a full list of references, metadata, publications or additional information not provided in this report, please contact LI Resources at 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.

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INDEX

Section 1 - Property Setting

1.1 SITE LOCATION MAP AND SENSITIVE RECEPTORS

Map 1 (200m Buffer)

Sensitive receptor	Category	Distance (m)*	Direction
Workers Hubertus Country Club	Community Facility	102	west

*Distance from the sensitive receptor point feature to the site boundary centroid.

1.2 PLANNING CONTROLS

Map 2 (onsite)

Zoning

Zoning	RU1	Primary Production

Environmental Planning Instruments

Type	Local Environmental Plan	Classification
Not identified	-	-

1.3 SOIL AND LAND USE INFORMATION

Map 3a/3b (onsite)

Soil Landscape

Soil Landscape	REbt	BLACKTOWN	Soil Group	RESIDUAL
Description	**Landscape**—gently undulating rises on Wianamatta Group shales. Local relief to 30 m, slopes usually >5%. Broad rounded crests and ridges with gently inclined slopes. Cleared Eucalypt woodland and tall open-forest (dry schlerophyll forest). **Soils**—shallow to moderately deep (>100 cm) hardsetting mottled texture contrast soils, red and brown podzolic soils (Dr3.21, Dr3.31, Db2.11, Db2.21) on crests grading to yellow podzolic soils (Dy2.11, Dy3.11) on lower slopes and in drainage lines. **Limitations—**localised seasonal waterlogging, localised water erosion hazard, moderately reactive highly plastic subsoil, localised surface movement potential.			

Salinity

Salinity Hazard	Very High	Western Sydney Hydrogeological Landscapes

Acid Sulfate Soil

ASS Risk Maps *(Table 1.3.1)*	On the Property?		Within Record Search Buffer?	
Class	Not identified		Not identified	
Atlas of Australian Acid Sulfate Soil *(Table 1.3.2)*	Cq(p4)	ASS in inland lakes, waterways, wetlands and riparian zones	Probability of Occurrence	Extremely low probability of occurrence

Table 1.3.1. Classification scheme in the ASS Planning Maps

Class of Land as shown on ASS Planning Maps	
1	Acid sulfate soils in a class 1 area are likely to be found on and below the natural ground surface.
2	Acid sulfate soils in a class 2 area are likely to be found below the natural ground surface.
3	Acid sulfate soils in a class 3 area are likely to be found beyond 1 metre below the natural ground surface.
4	Acid sulfate soils in a class 4 area are likely to be found beyond 2 metres below the natural ground surface.
5	Acid sulfate soils are not typically found in Class 5 areas. Areas classified as Class 5 are located within 500 metres on adjacent class 1,2,3 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 1.3.2. Atlas of Australian Acid Sulfate Soils[1] (ASRIS) (CSIRO/NatCASS)

Code	Distinguishing soil/sediment properties, vegetation, landforms, or other characteristics
	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.

1.4 GEOLOGY AND TOPOGRAPHY

Map 4 (onsite)

Geology

Map Sheet	Symbol	Formation	Group	Era	Period	Description
Penrith 1:100 000 Geological Map	Rwb	Bringelly Shale	Wianamatta Group (undifferentiated)	Mesozoic	Middle Triassic	Shale, carbonaceous claystone,claystone, laminite, fine to medium-grained lithic sandstone, rare coal and tuff

Topography

Topography	60-72mAHD

Section 2 - Hydrogeology

2.1 HYDROGEOLOGY AND GROUNDWATER BORES

Map 5a (500m - 2000m Buffer)

	On the Property?	Within Record Search Buffer?[1]
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	Cosgroves Creek
UPSS Environmentally sensitive zone	Not identified	Not identified
Wetlands	Not identified	Not identified
Groundwater Bores	Not identified	Yes, see 2.1.1 and 2.1.2

[1] - Groundwater bore buffer size will change depending on the number of GW bores found within buffer; if there are less than 7 bores within buffer, buffer will increase to max 2km until bores are found.

Table 2.1.1. Groundwater Bore Details

Groundwater Bore ID	Authorised Purpose	Completion Date	Drilled Depth (m)	Final Depth (m)	SWL (m)	Salinity	Yield (L/s)	Distance (m)	Direction
GW111838	Monitoring Bore	39825	30	30	-	-	-	0	onsite
GW111840	Monitoring Bore	39832	30.7	30.7	-	-	-	0	onsite
GW111839	Monitoring Bore	39828	30.4	30.4	-	-	-	0	onsite
GW100136	Unknown	33569	110.7	110.7	23.8		0.6	690	north-west

Table 2.1.2. Groundwater Bore Driller Lithology Details

Groundwater Bore ID	From Depth (m)	To Depth (m)	Lithology	Description	Distance (m)	Direction
GW111838	0	5.5	Shale	SHALE/CLAYSTONE BROWN TO YELLOW WEATHERED	0.00	onsite
GW111838	5.5	30	Shale	SHALE/CLAYSTONE BROWN TO GREY	0.00	onsite
GW111839	0	8	Shale	SHALE/CLAYSTONE BROWN TO YELLOW,WEATHERED	0.00	onsite
GW111839	8	30.4	Shale	SHALE BROWN TO GREY,CLAYSTONE	0.00	onsite
GW111840	0	12.5	Shale	BROWN TO YELLOW BROWN WEATHERED SHALE/CLAYSTONE	0.00	onsite
GW111840	12.5	30.7	Shale	BROWN TO GREY SHALE/CLAYSTONE	0.00	onsite
GW100136	0	0.3	<Null>	Topsoil	690.00	north-west
GW100136	0.3	1.5	<Null>	Brown clay	690.00	north-west
GW100136	1.5	11.6	<Null>	Red clay	690.00	north-west
GW100136	11.6	39.6	<Null>	Yellow sandstone	690.00	north-west

GW100136	39.6	80.2	<Null>	Grey shale	690.00	north-west
GW100136	80.2	110.7	<Null>	Black shale	690.00	north-west

2.2 HYDROGEOLOGY AND OTHER BOREHOLES

Map 5b (500m Buffer)

	On the Property?	Within Record Search 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) Surficial Sediment Aquifer (porous media - unconsolidated)	Late Permian/Triassic sediments (porous media - consolidated) Surficial Sediment Aquifer (porous media - unconsolidated)
Other known borehole investigations	Not identified	Not identified

[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

Site	On the Property?	Within Record Search Buffer?
Ecosystems that rely on the Surface expression of Groundwater	High potential GDE - from national assessment	High potential for GW interaction High potential GDE - from national assessment
Ecosystems that rely on Subsurface presence of Groundwater	Not identified	Not identified

Table 2.2.1. Other known borehole investigations (Coal Seam Gas (CSG), Petroleum Wells and Other Boreholes) (500m buffer)

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

Section 3 – Environmental Registers, Licences and Incidents

3.1 CONTAMINATED LAND PUBLIC REGISTER

Map 6 (1000m Buffer)

Contaminated Land Record of Notices

Site Name[2]	Site ID	Address[1]	Notices	Distance (m)	Direction
Not identified	-	-	-	-	-

1. Some addresses do not contain specific street numbers. Records identified as being in the surrounding area have been added for information.
2. Former NSW EPA sites. These sites have been removed from the Record of Notices and/or the Sites Notified lists and are kept here for information purposes only.

Sites Notified as Contaminated to the EPA

Site Name[2]	Address[1]	Activity that caused Contamination	EPA Site Management Class[3]	Distance (m)	Direction
Not identified	-	-	-	-	-

1. Some addresses do not contain specific street numbers. Records identified as being in the surrounding area have been added for information.
2. Former NSW EPA sites. These sites have been removed from the Record of Notices and/or the Sites Notified lists and are kept here for information purposes only.
3. 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 and recorded on the register are at various stages of the assessment and/or remediation process. Table 5 outlines the possible management status that can be attributed to a registered contaminated site.

Table 3.3.1. EPA Site Management Class Explanation

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.
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).

EPA Site Management Class	
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.

3.2 POTENTIALLY CONTAMINATED AREAS

Map 6 (1000m Buffer)

Defence Sites

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

*RCIP (Regional Contamination Investigation Program)

Former Gasworks Sites

Site	Location	Distance (m)	Direction
Not identified	-	-	-

PFAS Sites

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

*2km search

3.3 LICENSING UNDER THE POEO ACT

Map 7 (500m Buffer)

Licences

EPL Number	Licence holder	Location Name	Premise Address[1]	Fee Based Activity	Distance (m)	Direction
Not identified	-		-	-	-	

[1]. Some sites do not contain specific addresses. Records identified as being in the surrounding area have been added for information.

Surrendered Licences still Regulated by EPA

Licence Nº	Licence holder	Location Name	Premise Address[1]	Fee Based Activity	Status	Distance (m)	Direction
12863	EPIC MINING PTY LIMITED	EPIC MINING PTY LIMITED	275 Adams Road, LUDDENHAM, NSW, 2745	Land-based extractive activity Waste disposal by application to land	Suspended	0	onsite

Licence Nº	Licence holder	Location Name	Premise Address[1]	Fee Based Activity	Status	Distance (m)	Direction
				Waste storage - other types of waste			

[1]. Some sites do not contain specific addresses. Records identified as being in the surrounding area have been added for information.

Clean Up and Penalty Notices

Location ID	Penalty Nº	Notice Type	Licence holder	Location Name	Premise Address[1]	Distance (m)	Direction
200	1548901	Penalty Notice	EPIC MINING PTY LIMITED	<Null>	275 Adams Road, KEMPS CREEK	0	onsite
200	1532175	Penalty Notice	EPIC MINING PTY LIMITED	<Null>	275 Adams Road, KEMPS CREEK	0	onsite
202	31735282 52	Penalty Notice	SARAH AKBAR KHAN	889 Luddenham Road (aka 2161-2177 ELIZABETH DRIVE LUDDENHAM)	889 Luddenham Road, LUDDENHAM, NSW, 2745	342	north-west
202	1572981	s.91 Clean Up Notice	SARAH AKBAR KHAN	889 Luddenham Road (aka 2161-2177 ELIZABETH DRIVE LUDDENHAM)	889 Luddenham Road, LUDDENHAM, NSW 2745 ,	342	north-west
168	1539783	Penalty Notice	CRUSH AND HAUL PTY LIMITED	1953 - 2109 Elizabeth Dr, BADGERYS CREEK	1953 - 2109 Elizabeth Drive,	381	north-east
168	1538734	Penalty Notice	CRUSH AND HAUL PTY LIMITED	1953 - 2109 Elizabeth Dr, BADGERYS CREEK	1953 - 2109 Elizabeth Drive,	381	north-east
168	1541899	Penalty Notice	CRUSH AND HAUL PTY LIMITED	1953 - 2109 Elizabeth Dr, BADGERYS CREEK	1953 - 2109 Elizabeth Drive,	381	north-east
168	1541896	Penalty Notice	Luke Cauchi	1953 - 2109 Elizabeth Dr, BADGERYS CREEK	1953 - 2109 Elizabeth Drive,	381	north-east
168	1536719	s.91 Clean Up Notice	CRUSH AND HAUL PTY LIMITED	1953 - 2109 Elizabeth Dr, BADGERYS CREEK	1953 - 2109 Elizabeth Dr,	381	north-east
168	1545739	s.91 Clean Up Notice	Michael Vicary	1953 - 2109 Elizabeth Dr, BADGERYS CREEK	1953 - 2109 Elizabeth Dr,	381	north-east
168	1537085	s.91 Clean Up Notice	Michael Vicary	1953 - 2109 Elizabeth Dr, BADGERYS CREEK	1953 - 2109 Elizabeth Dr,	381	north-east
168	1536774	s.91 Clean Up Notice	Michael Vicary	1953 - 2109 Elizabeth Dr, BADGERYS CREEK	1953 - 2109 Elizabeth Dr,	381	north-east

[1]. Some sites do not contain specific addresses. Records identified as being in the surrounding area have been added for information.

3.4 NATIONAL POLLUTANT INVENTORY (NPI)

Map 7 (500m Buffer)

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

3.5 PUBLIC REGISTER OF PROPERTIES AFFECTED BY LOOSE-FILL ASBESTOS INSULATION

Map 7 (onsite)

Address	Match Found
Not identified	-

Section 4 – Other Potentially Contaminating Activities

4.1 FORMER POTENTIALLY CONTAMINATED LAND

Map 8a (500m Buffer)

Contaminated Legacy Areas

Site Name	Description	Source	Distance (m)	Direction
Not identified	-	-	-	-

Note: This section includes known contaminated areas such as James Hardies Asbestos waste legacy areas, Pasminco Smelter and Uranium processing site.

Derelict Mines and Quarries

Site name	Method	Description	Source	Distance (m)	Direction
Luddenham Dyke	Quarry, Construction Materials	Luddenham dyke is a basaltic intrusion. A small quarry was developed with limited production (Adamson 1967). No potential for further quarrying. Jv8 in GS1973/441.	The Geological Survey of New South Wales, Department of Primary Industries (Mineral Resources)	0	west

Historical Landfills

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

Unexploded Ordnance (UXO) Areas

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

4.2 POTENTIALLY CONTAMINATING ACTIVITIES

Map 8b (500m Buffer)

Aviation Fuel Depots/Terminals

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

Cattle Dip Sites

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

Dry Cleaners

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

Fire Rescue Sites

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

Liquid Fuel Depots/Terminals

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

Mines and Quarries

Deposit Name	Method	Description	Status*	Distance (m)	Direction
Luddenham, Adams Road	Clays , Quarry	Proposal by Ferndale Resources to extract 6.8 Mt of clay/shale. Proposed that the quarry void be filled with non-putrescible waste. Entire operation expected to last about 14 years. Original proposal made in 1992.	Current	0	onsite

Power Stations

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

Service Stations

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

Substation / Switching Stations

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

Telephone Exchanges

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

Waste Management Facilities

Site name	Owner	Class	Status*	Distance (m)	Direction
Not identified	-	-	-	-	-

Wastewater Treatment Facilities

Site name	Operator	Class	Status*	Distance (m)	Direction
Not identified	-	-	-	-	-

***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 that are operational on the day this report was issued.
Former: business that have been closed or discontinued 1 to 2 years from the day this report was issued. All former sites older than 2 years will be reported in the historical business section in this report.

4.3 CURRENT COMMERCIAL AND TRADE DATA

Map 8c (200m Buffer)

Current Commercial and Trade Data

Site name [1]	Category	Location	Status [2]	Distance (m)	Direction
Not identified	-		-	-	-

[1] Data includes categories associated with potentially contaminating activities. All negligible risk data is not reported.

[2] 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 that are operational on the day this report was issued.
Former: business that have been closed or discontinued 1 to 2 years from the day this report was issued. All former sites older than 2 years will be reported in the historical business section in this report.

Tanks (AST/UST)

ID	Tank type	Description	Status	Distance (m)	Direction
Not identified	-		-	-	-

Note: This is not an exhaustive list of all existing tanks.

4.4 HISTORICAL COMMERCIAL AND TRADE DATA (not mapped)

1932 Historical Commercial & Trade Directory Data

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

1940 Historical Commercial & Trade Directory Data

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

1950 Historical Commercial & Trade Directory Data

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

1965 Historical Commercial & Trade Directory Data

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

1970 Historical Commercial & Trade Directory Data

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

1971 Historical Commercial & Trade Directory Data

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

1974 Historical Commercial & Trade Directory Data

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

1980 Historical Commercial & Trade Directory Data

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

1981 Historical Commercial & Trade Directory Data

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

1990 Historical Commercial & Trade Directory Data

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

1991 Historical Commercial & Trade Directory Data

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

2005 Historical Commercial & Trade Directory Data

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

Note: Directories for the years 1932, 1940, 1950, 1965, 1970, 1980 and 1990 cover the Sydney CBD and greater Sydney area only. Directories for 1971, 1981 and 1991 cover regional NSW, but may also contain data for the Sydney area.

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.*
Not georeferenced	Not found	*When it was not georeferenced, and address could not be found.*

Land Insight and Resources use a number of different address georeferencing methods and characterised them according to the following criteria: completeness (match rates) and positional accuracy. When address do not contain specific street numbers or a match is not found, records identified as being in the surrounding areas are included for reference.

Section 5 - Other Environmental Constraints

5.1 FEDERAL, STATE AND LOCAL HERITAGE

Map 9 (200m Buffer)

Local Environment Plan (LEP) Heritage

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

National Heritage List (NHL)

Site ID	Site Name	Class	Status	Distance (m)	Direction
Not identified	-	-	-	-	-

Register of the National Estate (RNE)

Site ID	Site Name	Class	Status	Distance (m)	Direction
Not identified	-	-	-	-	-

Non-Aboriginal heritage item (Local)

Site ID	Site Name	Class	Status	Distance (m)	Direction
Not identified	-	-	-	-	-

Non-Aboriginal heritage item (SHR)*

Site ID	Site Name	Listing nº	Plan nº	Distance (m)	Direction
Not identified	-	-	-	-	-

*State Heritage Register

Commonwealth Heritage List (CHL)

Site ID	Site Name	Class	Status	Distance (m)	Direction
Not identified	-	-	-	-	-

World Heritage Area (WHA)

Site ID	Site Name	IUCN	Status	Distance (m)	Direction
Not identified	-	-	-	-	-

5.2 NATURAL HAZARDS

Map 10 (500m Buffer)

Bush Fire Prone Land (BLP)

Category	On the Property?	Within Record Search Buffer?
Vegetation Buffer	Yes	Yes
Vegetation Category 1	Yes	Yes
Vegetation Category 2	Not Identified	Yes

Fire History

Category	On the Property?	Within Record Search Buffer?
2006-07 Wildfire	Not Identified	Yes

Flood Hazard

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

5.3 COASTAL MANAGEMENT (STATE ENVIRONMENTAL PLANNING POLICY)

Map 10 (500m Buffer)

Type	On the Property?	Within Record Search Buffer?
Coastal Wetlands Proximity Area	-	-
Coastal Wetlands	-	-
Coastal Environment Area Map	-	-
Coastal Use Area Map	-	-

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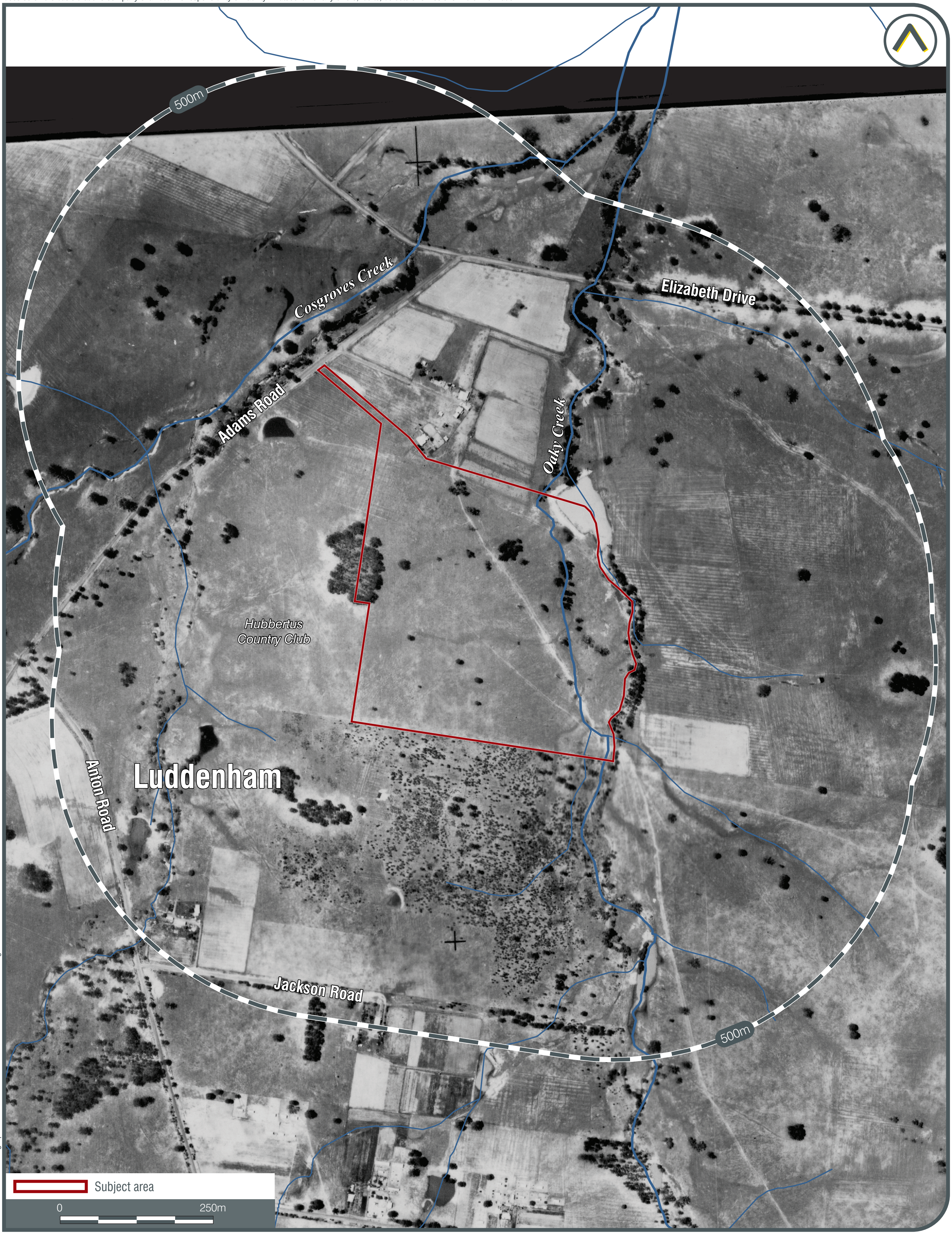
ATTACHMENT B

Historical Imagery



LIR-01216 Aerial Photograph 1947 01 04 2020. Data source: Please refer to 'Digital Data Sources' in the Product Guide

HISTORIC AERIAL PHOTOGRAPH - 1947

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MAP 11

LIR-01216 Aerial Photograph 1955 01 04 2020. Data source: Please refer to 'Digital Data Sources' in the Product Guide

HISTORIC AERIAL PHOTOGRAPH - 1955

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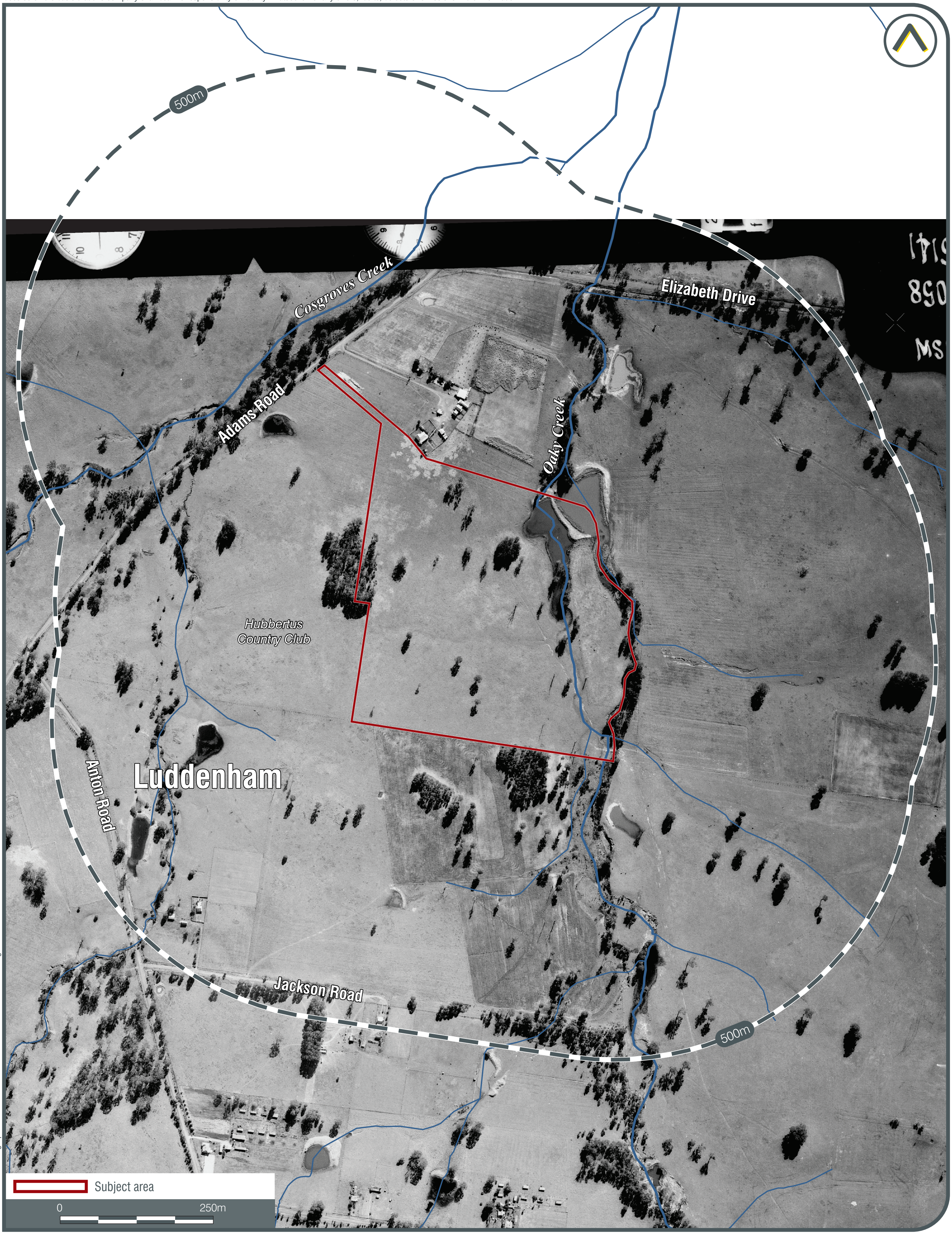
MAP 12



LIR-01216 Aerial Photograph 1961 01 04 2020. Data source: Please refer to 'Digital Data Sources' in the Product Guide

HISTORIC AERIAL PHOTOGRAPH - 1961

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MAP 13

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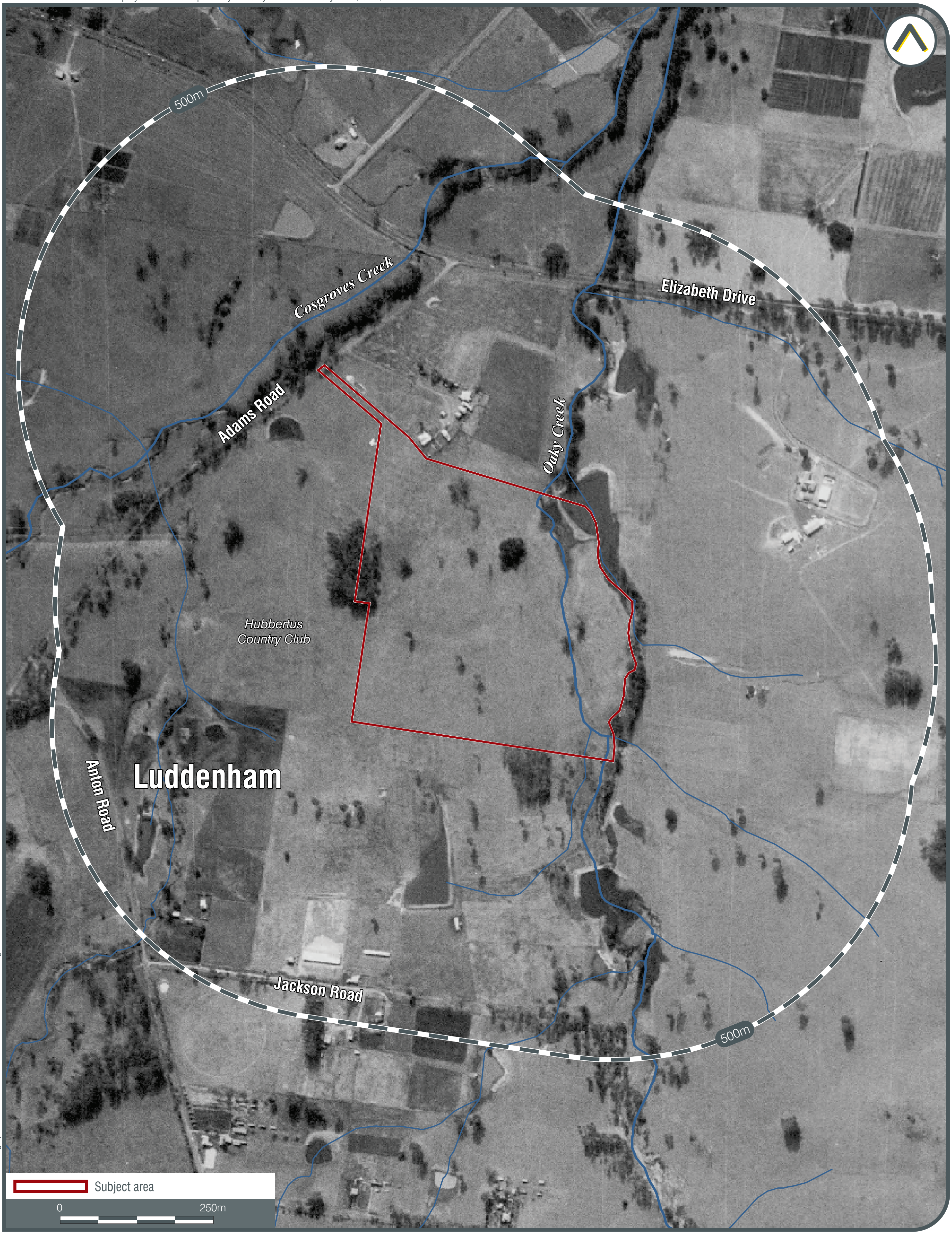

LIR-01216 Aerial Photograph 1969 01 04 2020. Data source: Please refer to 'Digital Data Sources' in the Product Guide

HISTORIC AERIAL PHOTOGRAPH - 1969

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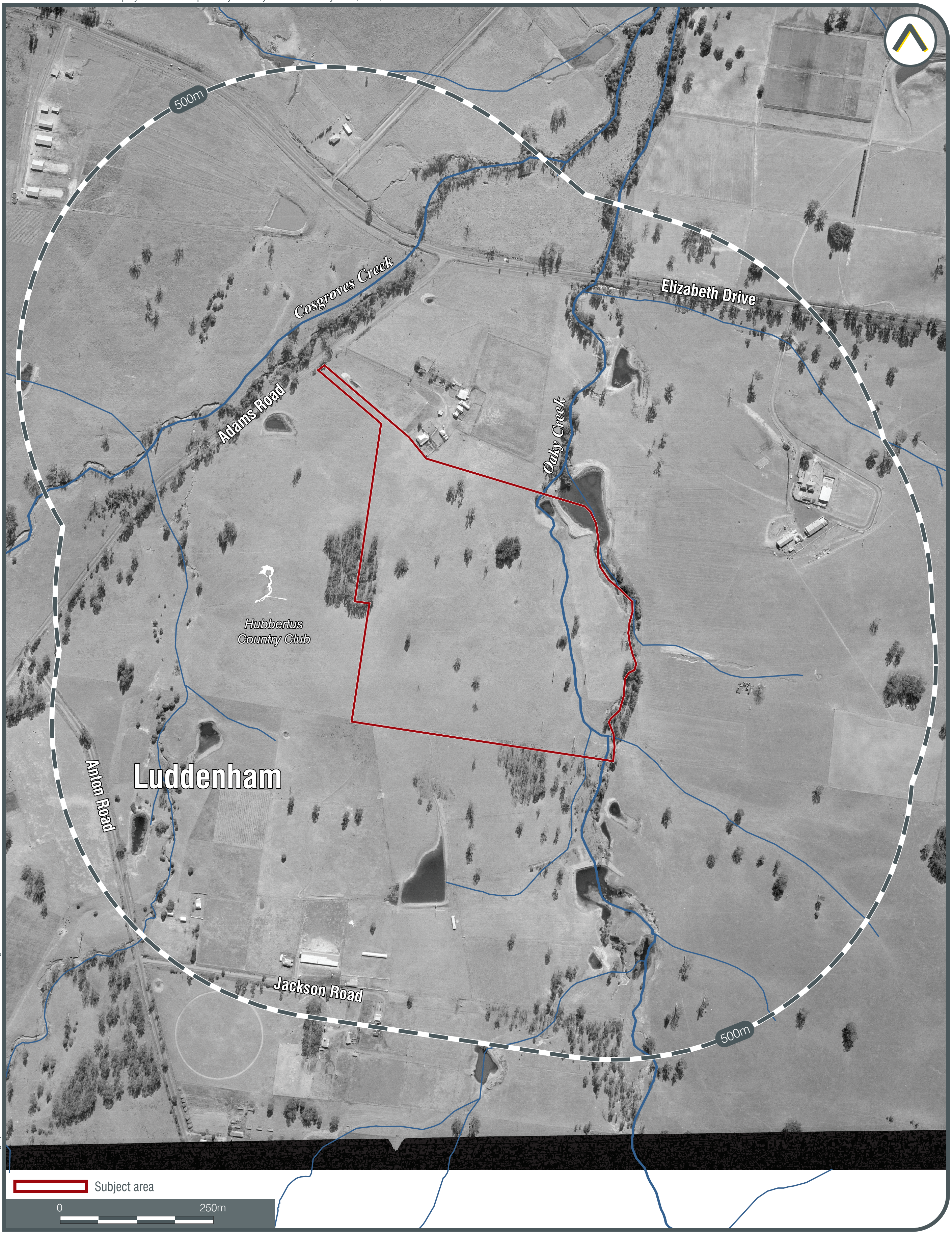
MAP 14



LIR-01216 Aerial Photograph 1970 01 04 2020. Data source: Please refer to 'Digital Data Sources' in the Product Guide

HISTORIC AERIAL PHOTOGRAPH - 1970

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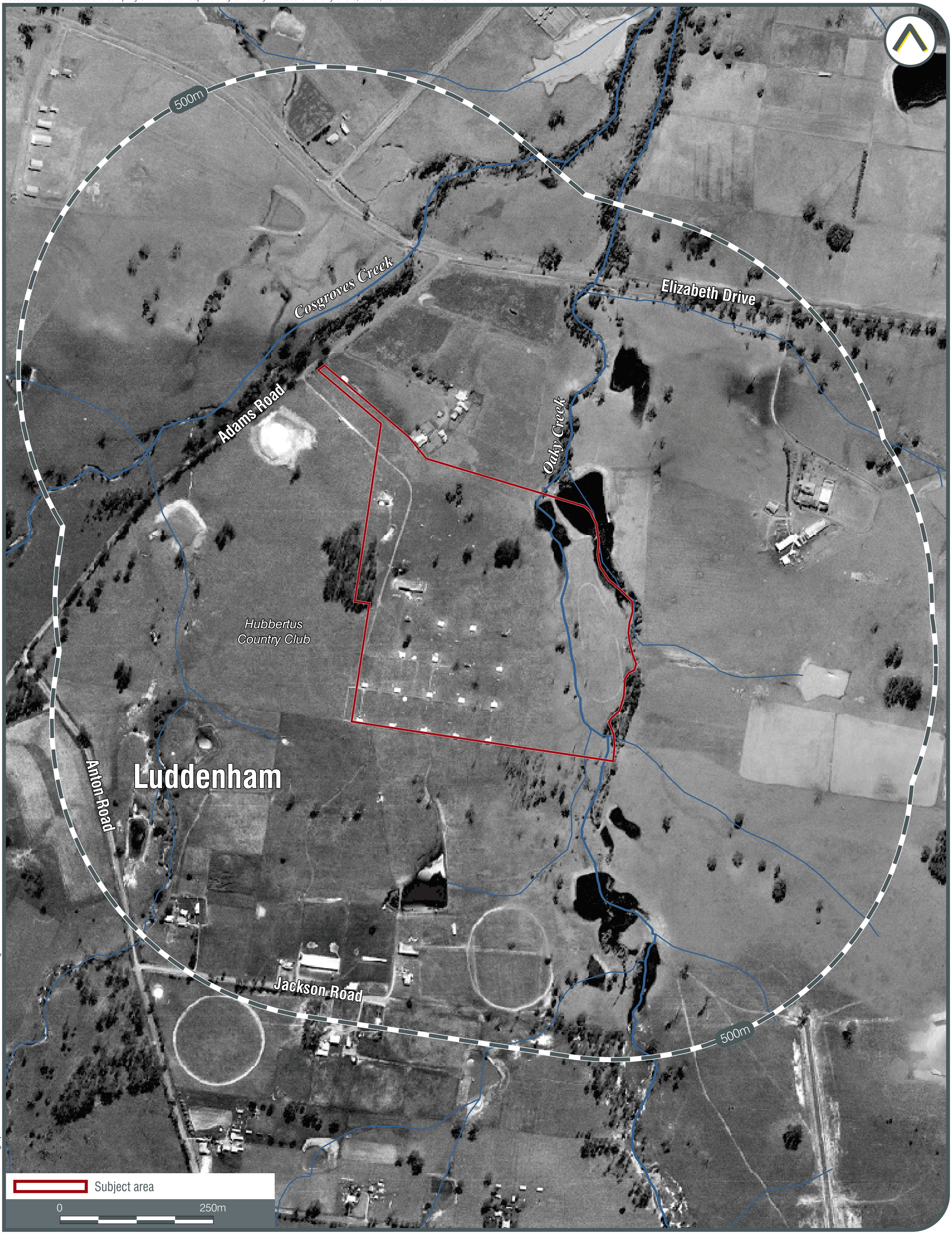
MAP 15



LIR-01216 Aerial Photograph 1975 01 04 2020. Data source: Please refer to 'Digital Data Sources' in the the Product Guide

HISTORIC AERIAL PHOTOGRAPH - 1975

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MAP 16

LIR-01216 Aerial Photograph 1984 01 04 2020. Data source: Please refer to 'Digital Data Sources' in the Product Guide

HISTORIC AERIAL PHOTOGRAPH - 1984

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MAP 17

LIR-01216 Aerial Photograph 1991 01 04 2020. Data source: Please refer to 'Digital Data Sources' in the Product Guide

HISTORIC AERIAL PHOTOGRAPH - 1991

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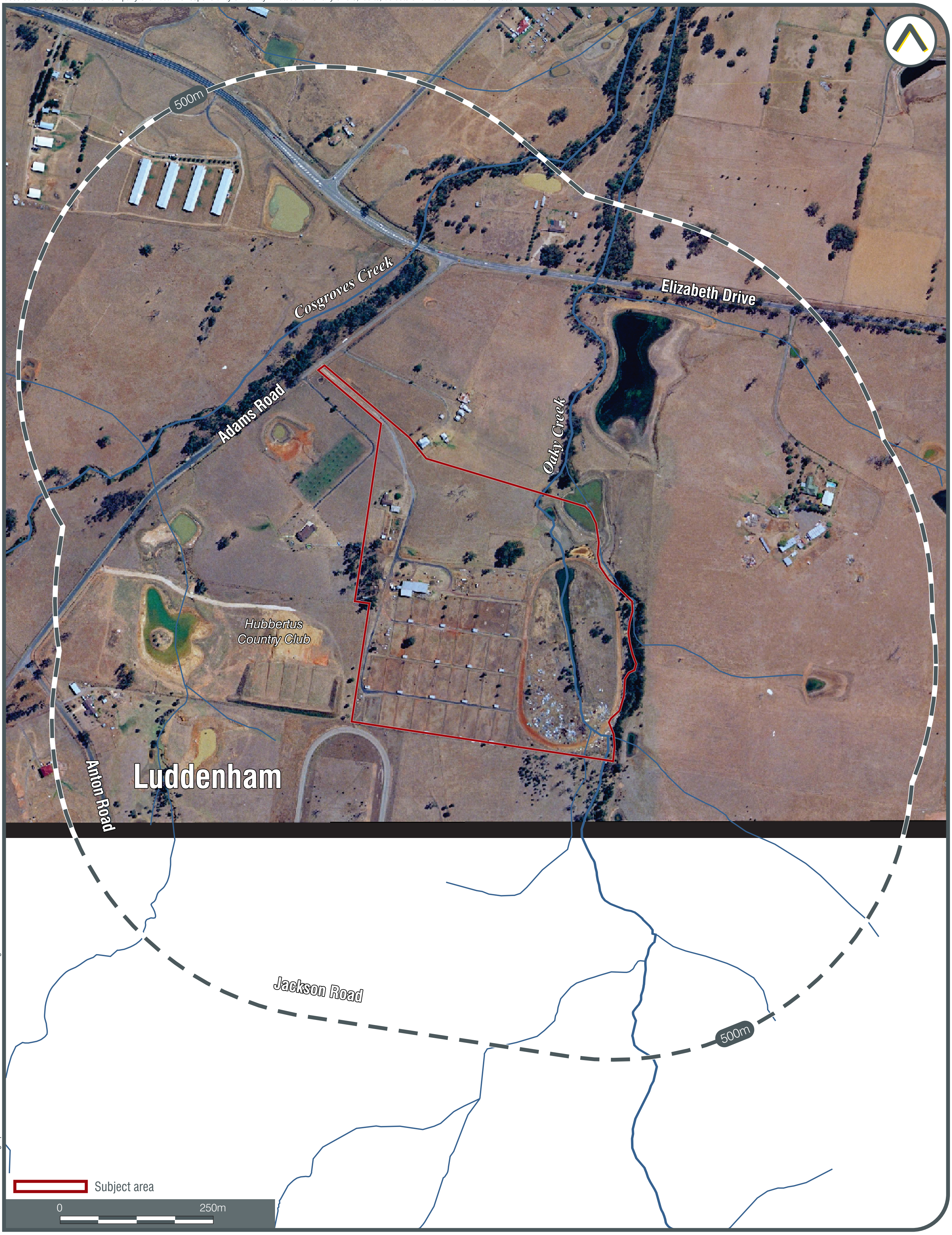
MAP 18



LIR-01216 Aerial Photograph 1994 01 04 2020. Data source: Please refer to 'Digital Data Sources' in the Product Guide

HISTORIC AERIAL PHOTOGRAPH - 1994

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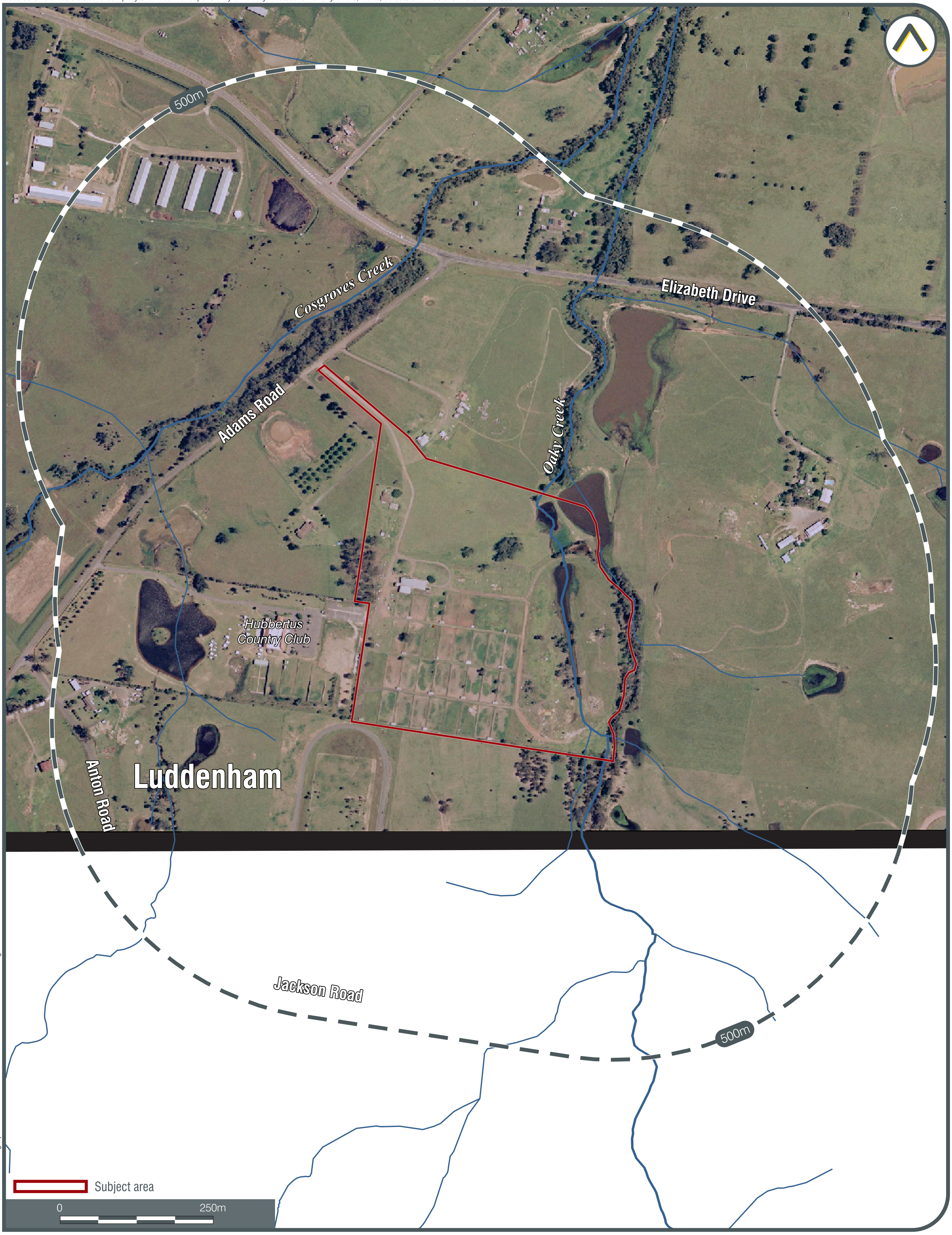
MAP 19



LIR-01216 Aerial Photograph 2005 01 04 2020. Data source: Please refer to 'Digital Data Sources' in the Product Guide

HISTORIC AERIAL PHOTOGRAPH - 2005

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MAP 20

LIR-01216 Aerial Photograph 2009 01 04 2020. Data source: Please refer to 'Digital Data Sources' in the Product Guide

HISTORIC AERIAL PHOTOGRAPH - 2009

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MAP 21

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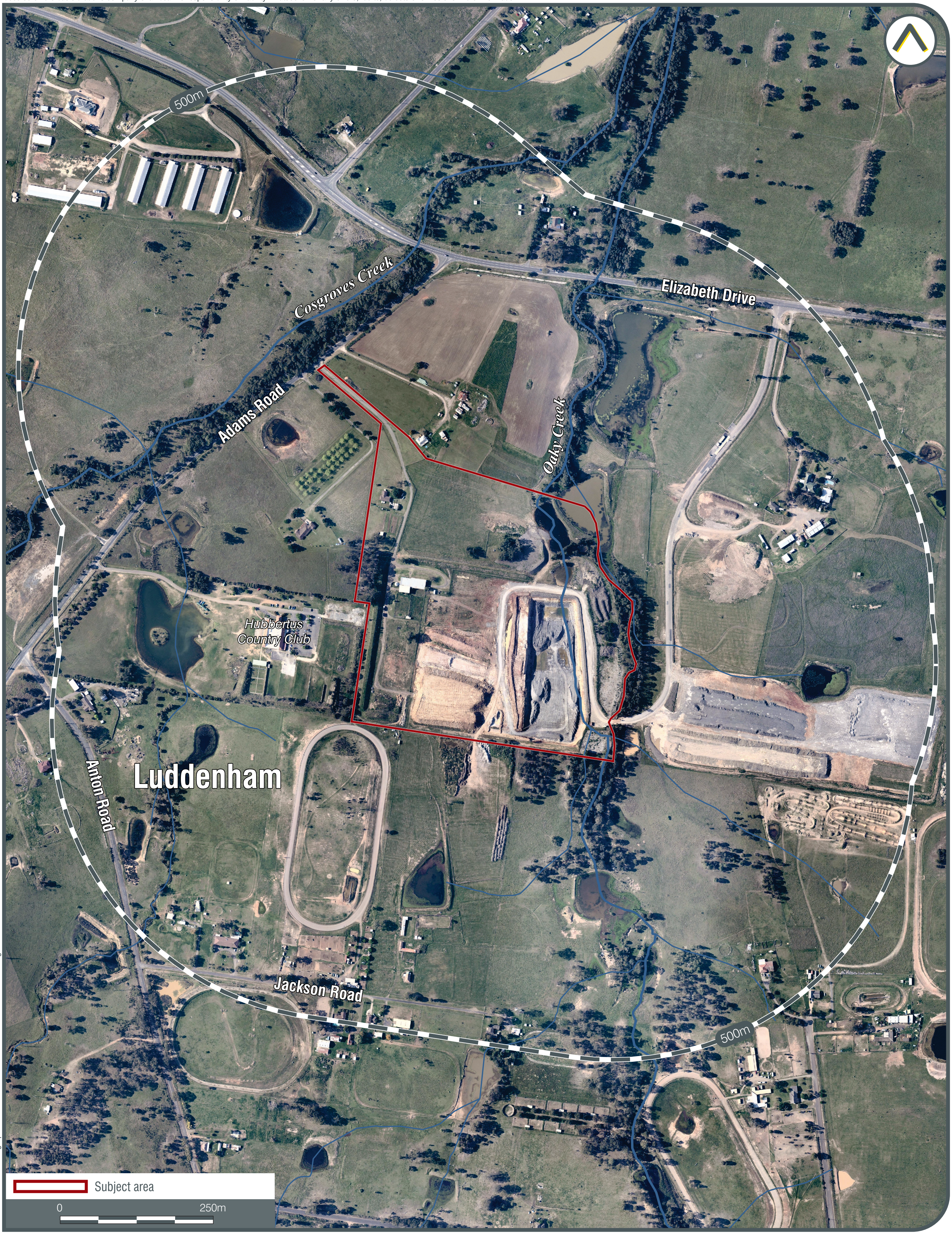

LIR-01216 Aerial Photograph 2011 01 04 2020. Data source: Please refer to 'Digital Data Sources' in the Product Guide

HISTORIC AERIAL PHOTOGRAPH - 2011

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MAP 22

LIR-01216 Aerial Photograph 2014 01 04 2020. Data source: Please refer to 'Digital Data Sources' in the Product Guide

HISTORIC AERIAL PHOTOGRAPH - 2014

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MAP 23

LIR-01216 Aerial Photograph 2017 01 04 2020. Data source: Please refer to 'Digital Data Sources' in the Product Guide

HISTORIC AERIAL PHOTOGRAPH - 2017

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MAP 24

LIR-01216 Aerial Photograph 2020 01 04 2020. Data source: Please refer to 'Digital Data Sources' in the Product Guide

HISTORIC AERIAL PHOTOGRAPH - 2020

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MAP 25

LIR-01216 Pre-1991 Topographic Map 01 04 2020. Data source: Please refer to 'Digital Data Sources' in the Product Guide

1969-1991 TOPOGRAPHIC MAP SERIES (PENRITH 9030-3N & WARRAGANBA 9030-3S)

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MAP 26

ATTACHMENT A

Report Maps

Subject area

Transmission Line

Stormwater channel

Sewer Main

Water Main

Pipeline

Sensitive receptors

Community

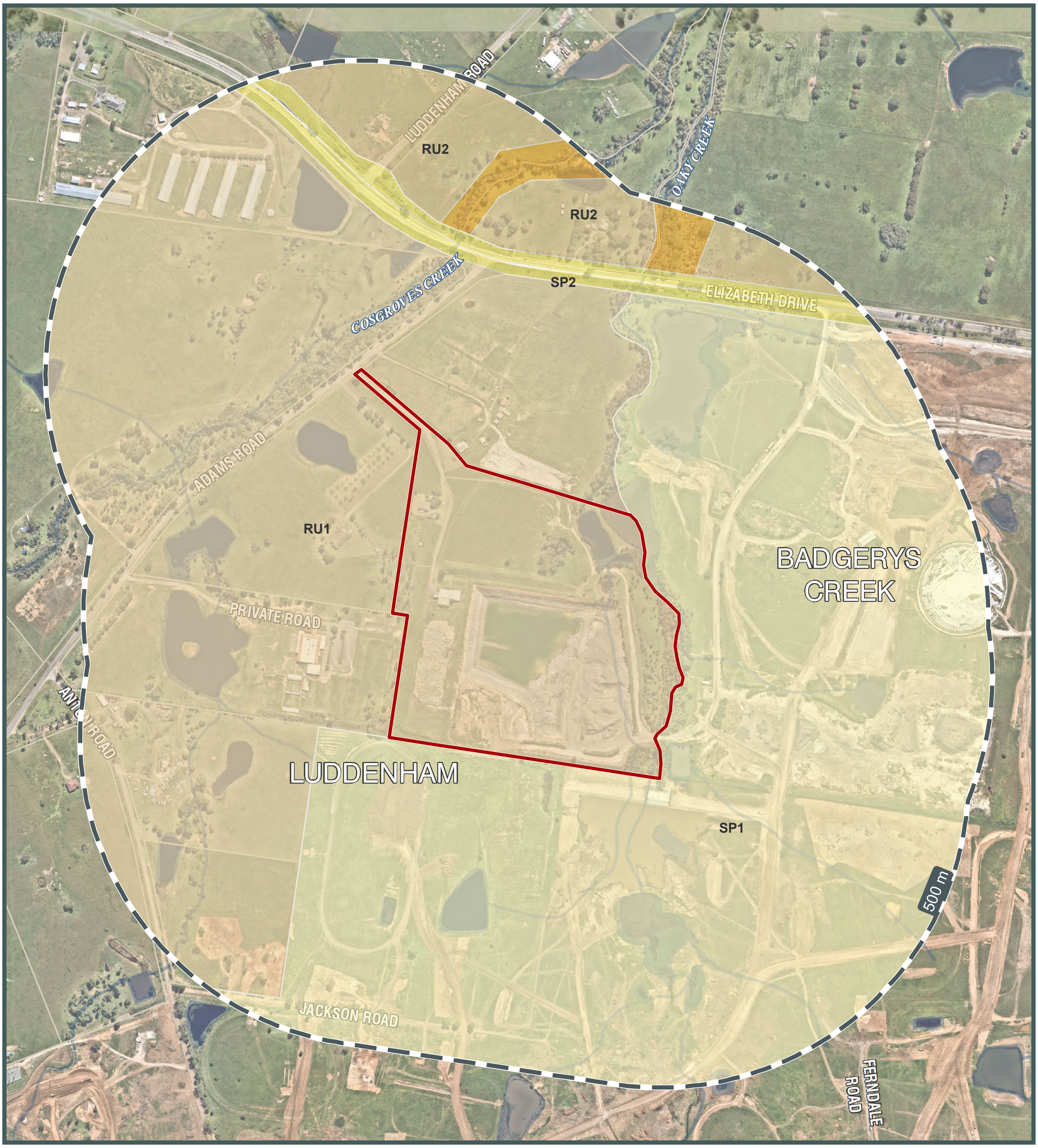
0 100 200 300 400m

SUBJECT AREA AND SENSITIVE RECEPTORS

LAND INSIGHT & RESOURCES

MAP 1

Enviro-Screen



Subject area

Land Zoning

- E2, Environmental Conservation
- RU1, Primary Production
- RU2, Rural Landscape
- SP1, Special Activities
- SP2, Infrastructure

0 200 400 600 800m

PLANNING CONTROLS

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MAP 2

Enviro-Screen

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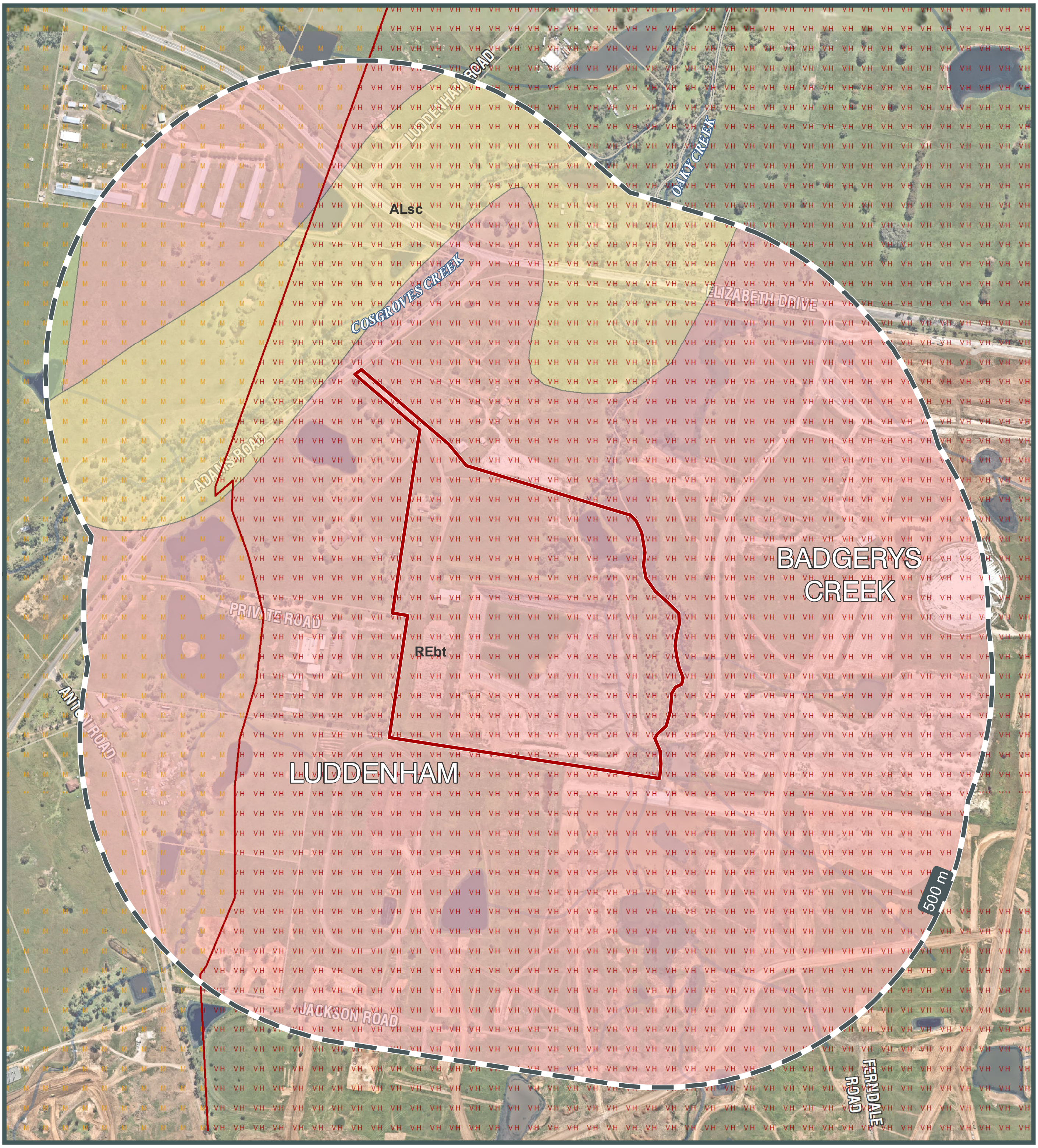


Subject area

Salinity Hazard
- Very High
- Moderate

Soils Landscape
- ALsc | ALLUVIAL
- ERlu | EROSIONAL
- REbt | RESIDUAL

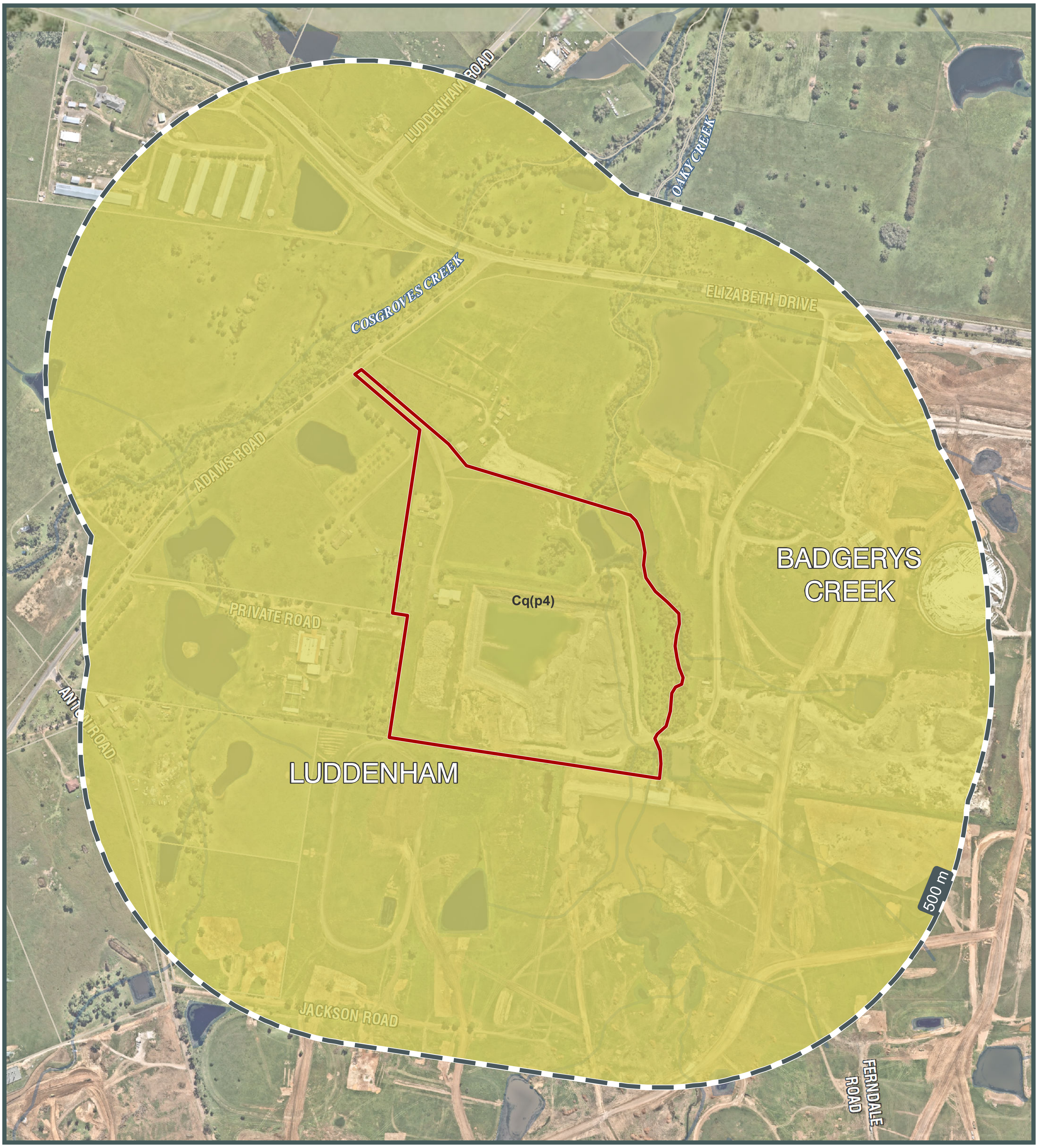
0 200 400 600 800m

SOIL LANDSCAPES AND SALINITY

LAND INSIGHT & RESOURCES

MAP 3a

Enviro-Screen



Subject area

ASRIS Atlas of Australian Sulfate Soils

Cq(p4) | ASS in inland lakes, waterways, wetlands and riparian zones

0 200 400 600 800m

ACID SULFATE SOILS

LAND INSIGHT & RESOURCES

MAP 3b

Enviro-Screen

Subject area

20 Topographic contour (m)

1:100 000 Geological Map

Qal | Fine-grained sand, silt and clay

Rwb | Shale, carbonaceous claystone,claystone, laminite, fine to medium-grained lithic sandstone, rare coal and tuff

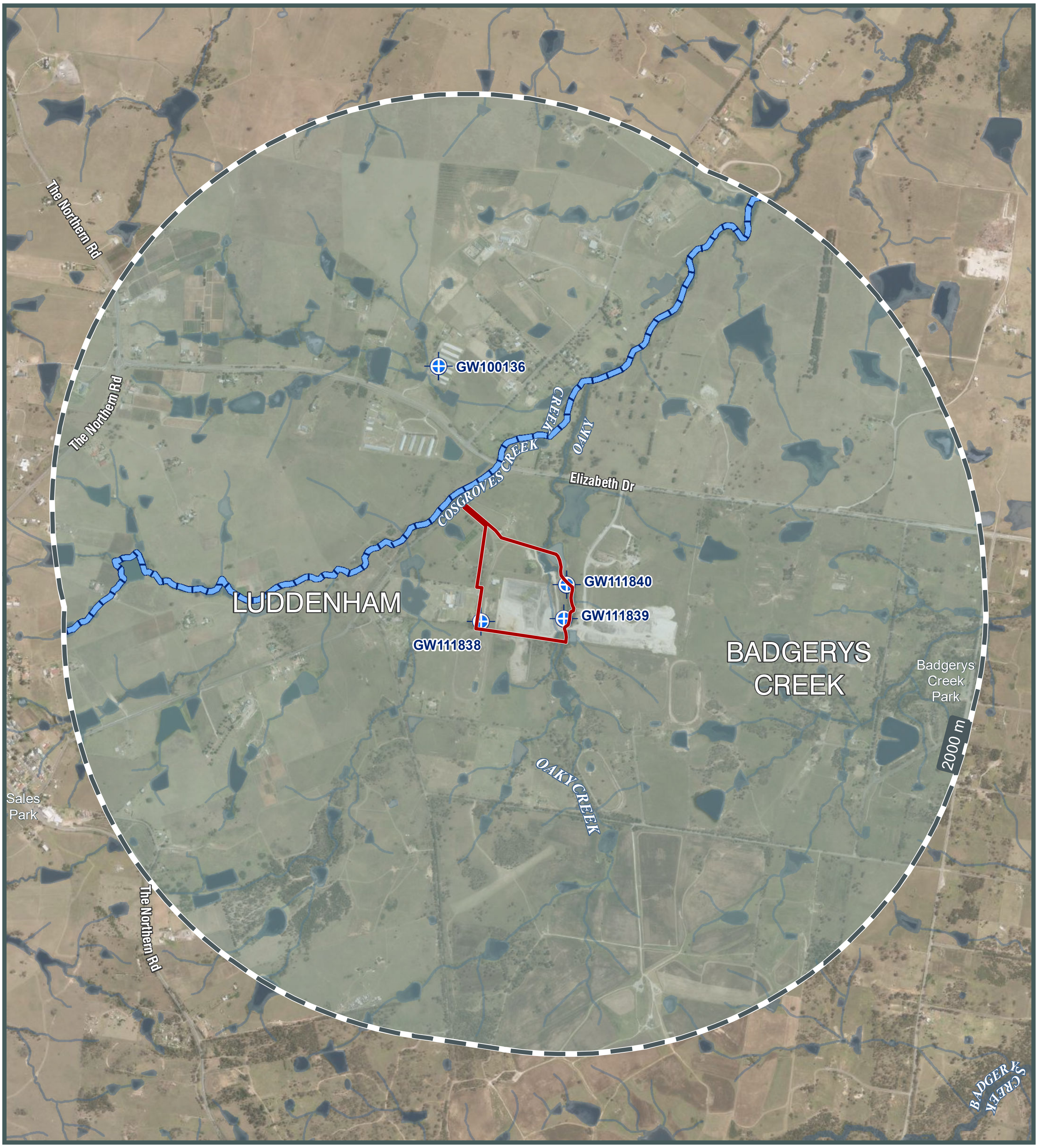
0 200 400 600 800m

GEOLOGY AND TOPOGRAPHY

LAND INSIGHT & RESOURCES

MAP 4

Enviro-Screen



Subject area

Groundwater bores

Protected riparian corridor

Wetlands

Drinking Water Catchments

UPSS Environmentally Sensitive Zone

Aquifer Type

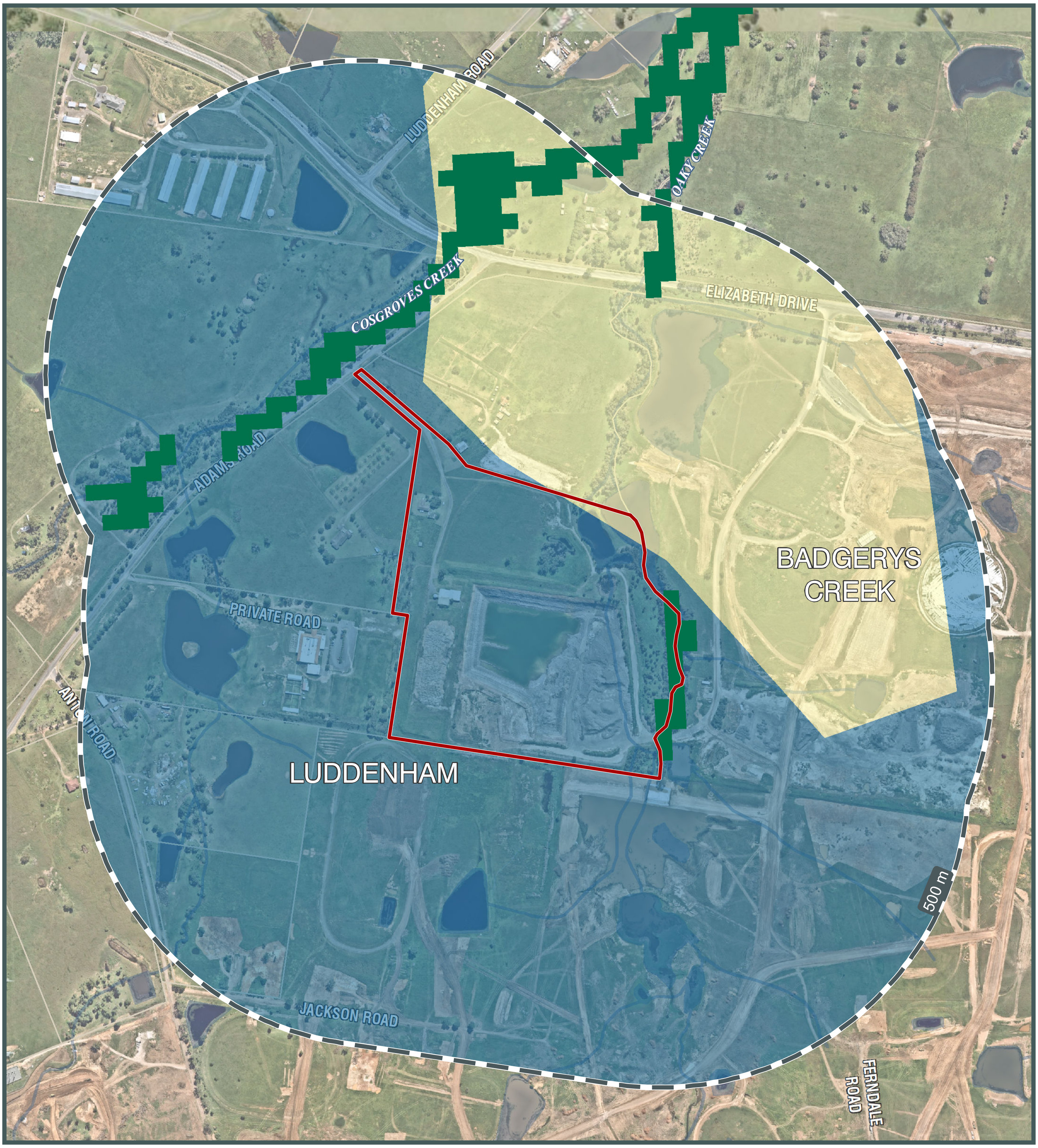
Porous, extensive aquifers of low to moderate productivity

0 200 400 600 800m

HYDROGEOLOGY AND GROUNDWATER BORES

LAND INSIGHT & RESOURCES

MAP 5a **Enviro-Screen**



Subject area

Other borehole/monitoring well location

Ecosystems that rely on Subsurface presence of Groundwater

High potential GDE - from national assessment

Ecosystems that rely on Subsurface presence of Groundwater

High potential for GW interaction

Hydrogeologic Unit

Surficial Sediment Aquifer (porous media - unconsolidated)

Late Permian/Triassic sediments (porous media - consolidated)

0 200 400 600 800m

HYDROGEOLOGY AND OTHER BOREHOLES

LAND INSIGHT & RESOURCES

MAP 5b

Enviro-Screen

Subject area

Contaminated Land Register (EPA)

- Current - Sites notified as contaminated
- Former - Sites notified as contaminated
- Contaminated Land Record of Notices

Potentially Contaminated Areas

- Defence Sites
- Former Gasworks Sites
- PFAS Sites

0 250 500 750 1,000 1,250 1,500m

CONTAMINATED LAND REGISTER AND POTENTIALLY CONTAMINATED AREAS

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MAP 6 Enviro-Screen

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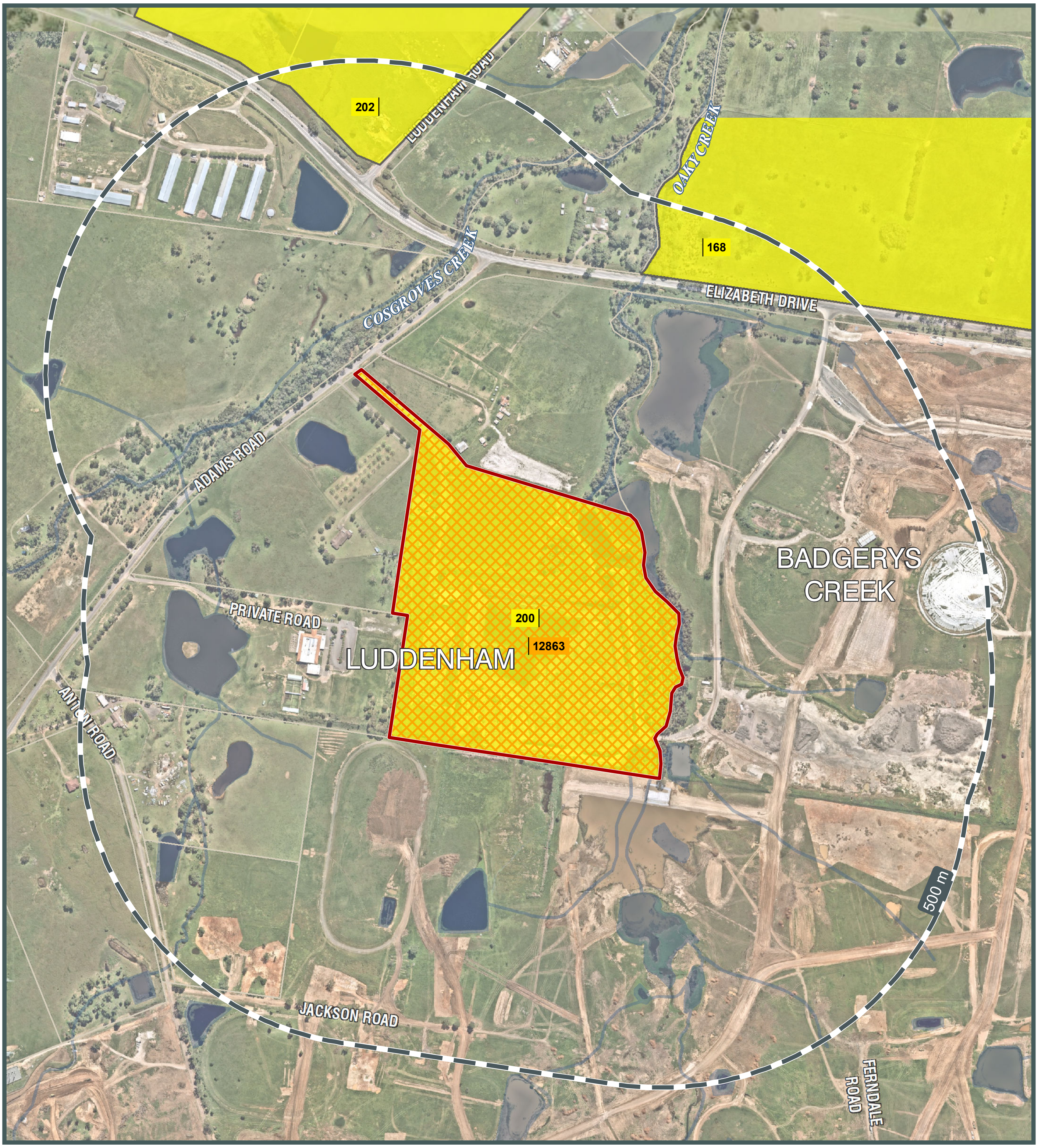


Subject area

POEO Register

POEO licences

Surrendered Licences still Regulated by EPA

Clean Up and Penalty Notices

NPI Facilities

0 200 400 600 800m

ENVIRONMENTAL REGISTER & LICENCES AND NPI FACILITIES

LAND INSIGHT & RESOURCES

MAP 7 Enviro-Screen

Subject area

Contaminated Legacy Areas
- Contaminated Legacy Areas
- Derelict Mines and Quarries
- Historical (Legacy) Landfills

Unexploded Ordnance (UXO) Areas
- Defence Controlled Area
- UXO Area: Substantial Occurence
- UXO Area: Slight Occurence
- UXO Area: Other

0 200 400 600 800m

FORMER POTENTIALLY CONTAMINATED LAND

LAND INSIGHT & RESOURCES

MAP 8a Enviro-Screen

Land Insight & Resources do no warrant the accuracy or completeness of information in this publication and any person using or relying upon such information does so on the basis that this company shall bear no responsibility or liability whatsover for any errors, faults, defects or omissions in the information.

Subject area

Aviation fuel depots
Cattle dip
Dry cleaners
Fire Rescue sites
Liquid fuel depots / terminals
Mine/quarry
Power stations
Service stations
Substation locations
Telephone exchanges
Waste management facilities
Wastewater Treatment Facility

Current: business that are operational on the day this report was issued.
Former: business that have been closed or discontinued 1 to 2 years from the day this report was issued. All former sites older than 2 years will be reported in the historical business section in this report.

0 200 400 600 800m

POTENTIALLY CONTAMINATING ACTIVITIES

LAND INSIGHT & RESOURCES

MAP 8b

Enviro-Screen

Land Insight & Resources do no warrant the accuracy or completeness of information in this publication and any person using or relying upon such information does so on the basis that this company shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information.

Subject area

Commercial & Trade Directory

- Other potentially contaminating activities
- Former potentially contaminating activities

Tanks

- Aboveground Storage Tank - Current
- Aboveground Storage Tank - Former
- Underground Storage Tank - Current
- Underground Storage Tank - Forrmer
- Unknown

*This is not an exhaustive list of all tanks.

0 100 200 300 400m

CURRENT COMMERCIAL AND TRADE DATA

LAND INSIGHT & RESOURCES

MAP 8c

Enviro-Screen

Subject area

Federal, State and Local Heritage

- Heritage conservation Area (LEP)
- Register of the National Estate (RNE)
- National Heritage List (NHL)
- Non-Aboriginal heritage item (Local)
- Non-Aboriginal heritage item (SHR)
- Commonwealth Heritage List (CHL)
- World Heritage Area (WHA)

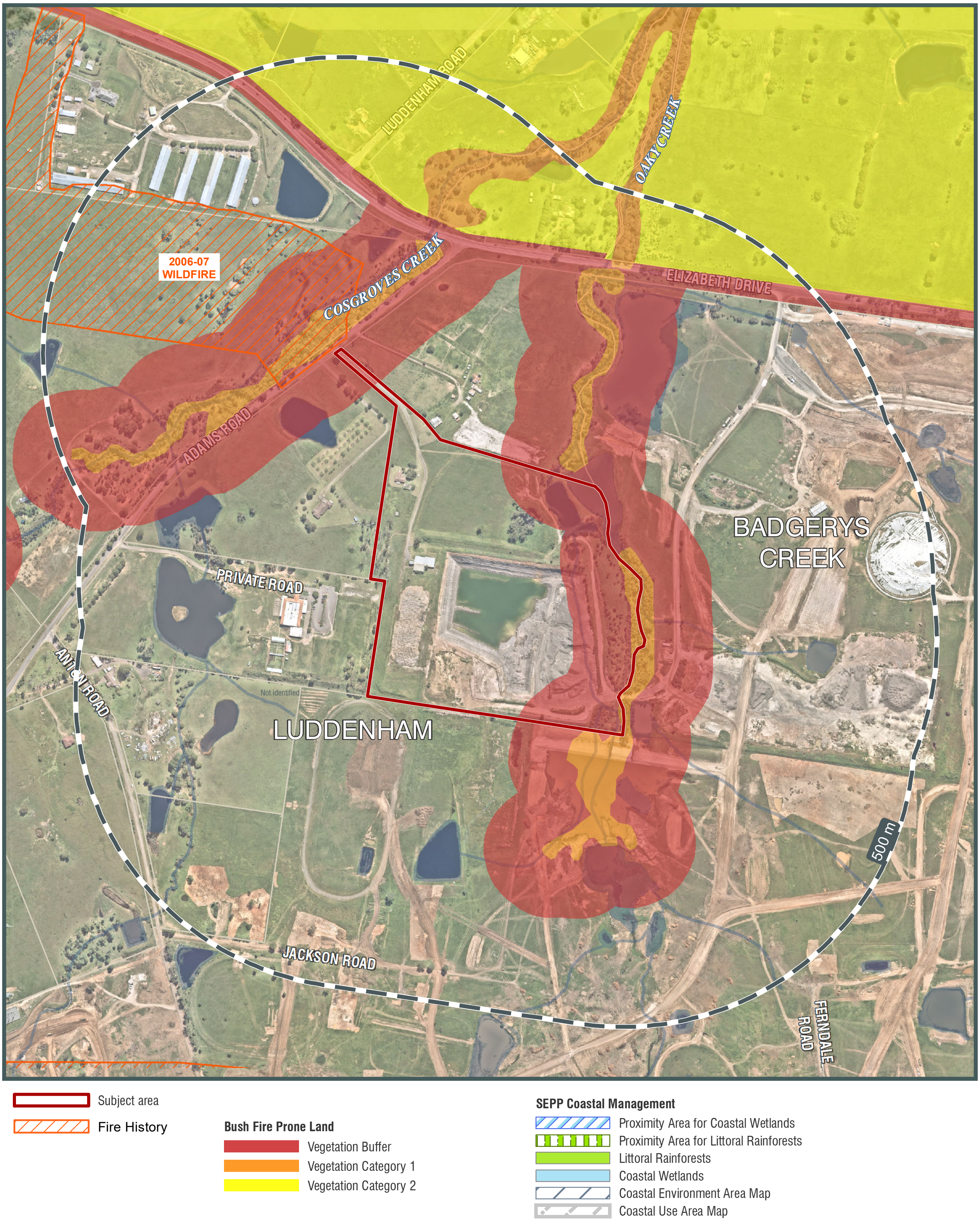
0 100 200 300m

HERITAGE

LAND INSIGHT & RESOURCES

MAP 9

Enviro-Screen



NATURAL HAZARDS

LAND INSIGHT & RESOURCES

MAP 10

Enviro-Screen

Fast, Accurate and Comprehensive Environmental and Development Risk Information

PRODUCT GUIDE

About this Report

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

The data used in this report was sourced from:

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Soil, Acid Sulfate Soil & Salinity – © State Government of New South Wales and Office of Environment and Heritage (OEH) 2012 (Creative Commons Attribution 4.0 https://creativecommons.org/licenses/by/4.0/deed.en) and Commonwealth Scientific and Industrial Research Organisation (CSIRO) 2015-2017 Australian Soil Resource Information System (ASRIS). Hydrogeological Landscapes of New South Wales and the Australian Capital Territory, Department of Planning, Industry & Environment, 2019 & Environmental Planning Instrument, Department of Planning, Industry & Environment, 2019

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Contaminated Land Record of Notices, Sites Notified as Contaminated to the NSW EPA, Former Gasworks and PFAS investigation program - © State of NSW Environment Protection Authority

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UXO and Military Facilities- Australian Government - Various sources and Department of Defence © Commonwealth of Australia, 2017-2019. *The data supplied is based on Defence's assessment of information obtained from a variety of sources. It does not reflect any UXO remediation conducted on behalf of any person or organisation other than Defence. While Defence makes all reasonable efforts to ensure that the information provided is accurate, complete and up-to-date, there may be limitations to the sources available to Defence and the information may be subject to change.*
The information relating to a specific parcel of land should not be relied upon without additional checks and/or verification from the relevant state, territory or local government. Further information as to Defence's UXO categorisation criteria; along with Defence's recommendations to state and local authorities, is available on the Defence internet.

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NPWS Fire History, Wildfires and Prescribed Burns - © State of New South Wales, National Parks and Wildlife Management Unit licenced under Creative Commons CC-BY (https://creativecommons.org/licenses/by/4.0/deed.en), 2018

Flood Hazard Area - © State of New South Wales, Planning and Environment Information Management Unit licenced under Creative Commons CC-BY (https://creativecommons.org/licenses/by/4.0/deed.en), 2019.

Other Data – if applicable

Cattle Dip Site Locator Northern Rivers Region - © State of New South Wales through NSW Department of Industry

Legacy Landfills – LI Resources proprietary dataset. Dataset is derived from verified Council Records, Aerial Photography Interpretation, Historic Zoning Maps, Historic Topographic Maps, Historic Parish Maps and Derelict Mines and Quarries Information - © State of New South Wales through NSW Department of Industry, 2019

Parramatta River Catchment Land Use Areas - Compiled by LIR, derived from Parramatta River Estuary Processes Study (2010)

Naturally Occurring Asbestos - © State of New South Wales and Department of Planning and Environment licenced under Creative Commons CC-BY (https://creativecommons.org/licenses/by/4.0/deed.en)

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Historical Commercial & Trade Directory Data –

Sydney

1932-1933 John Sands Sydney Trades Directory – Copyright Expired

1940 & 1950 Commonwealth of Australia Telephone Directory Sydney – Copyright Expired

1960-1961 Telecom Australia Pink Pages Sydney – Permission for use Sensis 2017

1970-1971 United Business Directories Sydney – Licenced under Hardie Grant 2017.

1974-1975 NSW Post Office Yellow Pages Sydney Buying Guide and Commercial/Industrial Directories – Permission for use Sensis 2017

1980-1981 & 1990-1991 Telecom Australia Yellow Pages Sydney – Permission for use Sensis 2017

Regional NSW

1971, 1981 & 1991 Telecom Australia Yellow Pages Country NSW Directories – Permission for use Sensis 2017

While every effort is made to ensure the details in your Report are correct, LI Resources cannot guarantee the accuracy or completeness of the information or data provided or obtained from the data sources.

For more detailed information regarding data source and update frequency, please contact LI Resources at info@liresources.com.au

Glossary

AVIATION RESCUE FIRE FIGHTING FACILITIES (ARFF); LIQUID FUEL & AVIATION FUEL DEPOTS/TERMINALS; POWER STATIONS; TELEPHONE EXCHANGES & WASTEWATER TREATMENT FACILITIES

These facilities may be associated with the use, storage, treatment and disposal of a range of chemicals and products such as PFAS (Per- and poly-fluoroalkyl substances), solvents, petroleum products, asbestos, PCBs (polychlorinated biphenyls) and others.

BUSHFIRE PRONE LAND

This data may assist environmental consultants, developers and others understand whether any bushfire risk is present in the area that may require specific management and/or restrict site investigations and development works.

COAL SEAM GAS, PETROLEUM WELLS AND BOREHOLES

This data may assist environmental consultants during investigations as to previous resource exploration with an area, resources present (i.e. coal, gas and petroleum), lithological data and potential for environmental contamination.

DEPARTMENT OF DEFENCE UNEXPLODED ORDNANCE (UXO) SITES

UXO is any sort of military ammunition or explosive ordnance which has failed to function as intended. It includes a range of ammunition used by the Navy, Army and Air Force; and many other types of ammunition and explosives including training munitions. UXO contamination has arisen mainly as a result of military training activities, since European settlement. In the past large numbers of ranges and training areas were approved for use in many areas of Australia. As a result, there are now a number of sites around Australia which are affected by UXO. For more information see www.defence.gov.au/UXO

DERELICT MINES AND QUARRIES

Outstanding legacy issues surrounding derelict mines and quarries have the potential to cause safety and environmental impacts and may also be an indicator of the presence of unregulated landfill.

DRY CLEANERS (CURRENT)

Dry cleaners often use or have used hazardous and flammable chemicals in their operations. Incorrect storage and disposal of these chemicals may result in fire/explosion risks or contamination of soil and groundwater or result in human health risks.

GROUNDWATER EXCLUSION ZONES

Groundwater exclusion zones are present in certain areas where aquifers are known to be contaminated or where past activities may have affected groundwater quality. Restrictions on the use of groundwater in those areas are in place and differ between the various management/exclusion zones.

HERITAGE – FEDERAL, STATE AND LOCAL

This data may assist environmental consultants, developers and others understand whether any heritage items are present on the site that may require specific management and/or restrict site investigations and development works.

HISTORICAL COMMERCIAL & TRADE DIRECTORY DATABASE (1932, 1940, 1950, 1960, 1970; 1974, 1980 and 1990)

An LI Resources proprietary database of historical potentially contaminating activities previously listed as having been undertaken on the property or surrounding area. Activities have been catalogued based on 'low to high risk activities' either known to cause potential contamination risk (based on Managing Land Contamination Planning Guidelines, SEPP 55 remediation of land, 1998) or to assist in guidance for sampling and remediation programs by environmental consultants.

HISTORICAL (LEGACY) LANDFILLS

An LI Resources proprietary dataset containing the location of former legacy landfills. Legacy landfills are widely present across the country, with many locations unknown. Most of these landfills were created prior to current environmental guidelines (i.e. remain unlined and uncapped) resulting in the potential for leaching of hazardous substances into waterways, production of odours, migration of landfill gas and stability issues.

HYDROGEOLOGY

This data includes information for environmental consultants on aquifer properties, the presence of wetlands and groundwater monitoring bores. This information can assist in the understanding of contaminant pathways and receptors.

Groundwater monitoring bores are primarily needed to assess changes to water table levels, groundwater quality and to assess groundwater flow direction. Impacts on groundwater result from contaminated water movement, leaching of surface pollutants caused by rainfall or irrigation water percolation, leakage of stored matter or the disposal of wastes. The presence of a monitoring bore may indicate that a site has been or is being investigated.

LICENSING UNDER THE POEO ACT 1997

The POEO public register includes a range of specified information on environment protection licences issued under the POEO Act to regulate air, noise, water and waste pollution and impacts. The licences and notices provide information on the type of industrial activities undertaken in an area and if any clean-up and preventative action notices have been issued under that licence.

MILITARY FACILITIES

Military practices at certain facilities may cause potential contamination through the use of chemicals ranging from cleaning solvents and paints to ammunition, explosives and firefighting foam. These chemicals can cause human and ecological health risks.

NATURALLY OCCURRING ASBESTOS

Asbestos is found as a naturally occurring mineral in many areas of regional NSW and may occur in veins within rock formations. Naturally occurring asbestos is generally found when building roads, working on construction sites and undertaking excavation activities. This data provides information on the areas identified with a low to high probability of naturally occurring.

NPI INDUSTRIAL FACILITIES

Industrial facilities that trigger a defined threshold(s) for the emission of pollutants identified in the National Pollution Inventory (NPI), must estimate and report their emissions. The pollutants identified under the NPI are those that are known to have possible effects on human health and the environment.

NSW EPA CONTAMINATED LAND RECORD OF NOTICES ISSUED UNDER THE CLM Act 1997

The EPA is required by law to maintain a record of notices relating to contaminated land, including notices declaring land to be 'Significantly Contaminated Land' under the Contaminated Land Management Act 1997. The EPA record of notices provides information on all sites that have been declared significantly contaminated.

NSW EPA FORMER GASWORKS SITES

Former gasworks often leave a legacy of soil and groundwater contamination. The major contaminants in these instances include tars, oils, hydrocarbon sludges, spent oxide wastes, ash and ammoniacal recovery wastes. Some of these contaminants are carcinogenic to humans and toxic to aquatic ecosystems and therefore may pose a risk to human health and the environment.

NSW EPA FORMER URANIUM PROCESSING SITE AT HUNTERS HILL

In 2008 a Parliamentary Inquiry held into the former uranium processing site at Hunters Hill, Sydney, found radiation levels were too low to require site remediation. During the investigation it became evident that there were two separate causes of gamma radiation in the vicinity of Nelson Parade (7-9 Nelson Parade – former uranium processing plant and Kelly's Bush – former tin smelter). The investigations found that levels of radiation on properties surrounding 7-9 Nelson Parade, at Kelly's Bush and in nearby areas of Hunters Hill were below relevant national and international guidelines for the protection of health and therefore remediation was not warranted. Further information can be found at www.epa.nsw.gov.au

NSW EPA JAMES HARDIE ASBESTOS WASTE CONTAMINATION LEGACY

During the 1960s and 70s, bulk asbestos waste associated with manufacturing and waste disposal by the former James Hardie Industries was delivered as fill to areas targeted because of their low-lying geography. Between December 2007 and February 2008, the Department of Environment Climate Change and Water conducted site inspections of those disposal sites. None of the inspected sites were found to be a significant risk to human health or the environment, provided the sites remained sealed or undisturbed. Further information can be found at www.epa.nsw.gov.au

NSW EPA SITES NOTIFIED AS CONTAMINATED TO THE NSW EPA

The EPA maintains a record of all sites notified to it by owners or occupiers of sites believed to be significantly contaminated.

NSW EPA PFAS INVESTIGATION PROGRAM

The NSW EPA is investigating particular sites to better understand the extent of PFAS use and contamination in NSW. PFAS are a group of chemicals that include perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA).

They have many specialty applications and are widely used in a range of products in Australia and internationally. PFAS are an emerging contaminant, which means that their ecological and/or human health effects are unclear. Further information can be found at www.epa.nsw.gov.au

OTHER POTENTIALLY CONTAMINATED SITES

An LI Resources proprietary database of recent potentially contaminating activities previously listed as having been undertaken on the property or surrounding area. Activities have been catalogued based on 'moderate to high risk activities' either known to cause potential contamination risk or to assist in guidance for sampling and remediation programs by environmental consultants. Please note this database is not exhaustive and may not list all activities in the area.

PARRAMATTA RIVER CATCHMENT LAND USE AREAS

An LI Resources proprietary dataset containing land use changes around the Parramatta River catchment area. Details include land reclamation areas, loss of foreshore and major land use changes (i.e. industrial to residential land). These changes may indicate presence of unregulated landfill and potential contamination associated with former industrial land use.

PUBLIC REGISTER OF PROPERTIES AFFECTED BY LOOSE-FILL ASBESTOS INSULATION

The NSW Government is required to maintain a register of residential properties that contain loose-fill asbestos insulation. This assists members of the wider community to be informed about any risks associated with a specific property and to take any appropriate safety measures. For more information see www.fairtrading.nsw.gov.au

SENSITIVE RECEPTORS

This data may assist environmental consultants during investigations as to the location and proximity of any sensitive receptors in the area, such as aged care, child care, community and religious facilities; sports grounds; national and state parks etc.

COASTAL MANAGEMENT (STATE ENVIRONMENTAL PLANNING POLICY)

The aim of this Policy is to promote an integrated and co-ordinated approach to land use planning in the coastal zone in a manner consistent with the objects of the Coastal Management Act 2016, including the management objectives for each coastal management area, by

(a) managing development in the coastal zone and protecting the environmental assets of the coast, and

(b) establishing a framework for land use planning to guide decision-making in the coastal zone, and

(c) mapping the 4 coastal management areas that comprise the NSW coastal zone for the purpose of the definitions in the Coastal Management Act 2016.

SOIL LANDSCAPE AND GEOLOGY

This data may assist environmental consultants during investigations as to the physical site properties that could govern potential contaminant retention or migration.

SERVICE STATIONS (CURRENT)

Service stations may contain leaking tanks which can result in petroleum products migrating into, and contaminating, the soil or groundwater or other pathways to human and biological contact.

UNDERGROUND PETROLEUM STORAGE SYSTEMS (UPSS) ENVIRONMENTALLY SENSITIVE ZONES

UPSS environmentally sensitive zones represent a conservative assessment of areas likely to be vulnerable to contamination from leaking UPSS. This information can assist environmental consultants on the risk a UPSS site poses to a recognised environmentally sensitive receptor.

WASTE MANAGEMENT FACILITIES

A waste facility is a premises used for the storage, treatment, processing, sorting or disposal of waste. These include landfills, waste transfer stations and waste reprocessing facilities. Waste facilities emit regulated substances to air and water, such as methane gas, and can produce odours, dust and noise.

Terms and Conditions

1. Land Insight and Resources (LI Resources) will perform the Services in accordance with these terms and conditions

2. By submitting the Application Form, the User acknowledges that it has read and understood these terms and conditions and agrees to be bound by them.

3. LI Resources reserves the right to change these terms and conditions. Any change shall be effective upon notice, which may be given by LI Resources posting such change on the Website, or by direct communication with the User.

Services

4. LI Resources agrees to undertake the Services using due skill, care and diligence.

5. The User assumes the sole risk of making use of, and/or relying on, the Report and the Services. LI Resources makes no representations about the suitability, completeness, timeliness, reliability, legality, or accuracy of the Services.

6. Unless LI Resources agrees expressly otherwise:

   (A) The Services are solely for the use and benefit of the User; and

   (B) LI Resources does not accept any liability, whether directly or indirectly, for any liability or loss suffered or incurred by any third party placing any reliance on the performance of the Services or any Documents or material arising from or in connection with the Services.

7. The User warrants to LI Resources that it will not use the Services for any purpose that is unlawful or is otherwise inconsistent with these terms and conditions.

8. The User will not alter in any way or provide a copy of the Report or any Document prepared by LI Resources to any other person without LI Resources's prior written consent.

Payment Terms

9. The Fee will be payable at the time of submitting the Application Form unless invoicing payment terms have been negotiated prior to purchase with LI Resources.

10. The User and LI Resources may agree in writing to vary the Services. The fee for each variation shall be agreed between LI Resources and the User.

11. The User agrees to pay LI Resources the Fee, including the fee for any variation requested in accordance with clause 12.

12. If the User's rights are terminated and the User has made an advance payment, LI Resources will refund the User a reasonable proportion of the balance as determined by LI Resources in relation to the value of Services already provided.

13. GST at the prevailing rate is payable in addition to the Fee. The User agrees to pay any other applicable taxes, duties or government imposed fees related to the User's use of the Services.

Intellectual Property

14. LI Resources owns all intellectual property in the Report and arising from or in connection with the Services.

15. LI Resources grants the User a royalty free licence to use LI Resources's intellectual property for that User's personal assessment of its Property(s) only.

Privacy Policy

16. Upon submitting the Application Form the User consents to LI Resources's use of the personal data provided by the User for the purposes of providing the Services.

17. The Reliance on the Report, the use of the Services and the use of LI Resources's Website is at the User's own risk. The User accepts that LI Resources does not guarantee the confidentiality of any communication or information transmitted through the use of the Website.

18. LI Resources will not provide to any third party any personal data provided by a User without the User's permission.

19. The User acknowledges that any feedback provided to LI Resources over the Website is not confidential and that LI Resources has the right to publish, reproduce, disseminate, transmit, distribute and copy (in whole or in part) any such feedback without the approval of the User.

20. LI Resources assumes no responsibility or liability for any content, communications or feedback submitted by a User over the Website. If a User has submitted objectionable content, communications or Feedback, LI Resources may, in its sole discretion, terminate that User's account, take legal action, or notify the appropriate authorities or parties, without prior notice.

Third Party Services

21. The User accepts that, although the Website may contain or provide information regarding applications, products and/or services provided or offered by third parties, LI Resources does not recommend or endorse any such third party applications, products and/or services.

22. The report contains content provided to LI Resources by other parties (Third Party Content). LI Resources is not responsible for, does not endorse and makes no representations either expressly or impliedly concerning the accuracy or completeness of any Third Party Content. You rely on the Third Party Content completely at your own risk.

Limit and Extent of Liability

23. LI Resources's liability is limited to the amount of the Fee. Liability arising in the provision of the Services is reduced to the extent that it arises out of or in connection with any negligent act or omission by the User.

24. Neither party is liable to the other for loss of actual or anticipated revenue or profits, increased capital or financing costs, increased operational or borrowing costs, pure economic loss, exemplary or punitive damages or indirect or consequential damages or loss.

25. In no event shall LI Resources or any directors, officers, employees or agents be liable for any indirect, punitive, incidental, special, or consequential damages arising out of or in any way connected with the use of the Website, any delay or inability to use the Website, any information available on the Website, or otherwise arising out of the utilisation of the Website, whether based in contract, tort, strict liability, or otherwise, even if LI Resources has been advised of the possibility of such damages. The negation of damages set forth herein is a fundamental element of the basis of the bargain between LI Resources and the User. The Services would not be provided without such limitations.

Property Verification

26. The User accepts that the Services provided do not take into account any information relating to the actual state or condition of the Property.

27. The User acknowledges that the Services are not to be interpreted as commenting on the physical characteristics or condition of the Property, any particular purpose or use of that Property or the saleability or value of the Property.

Termination and Modification

28. LI Resources reserves the right in its sole discretion to terminate, block or restrict the User's use of the Services or any portion thereof, for any reason, and without notice. In addition, LI Resources reserves the right in its sole discretion to terminate or modify any part of the Website without notice, for any reason.

Anti-Hacking

29. The User agrees not to directly or indirectly, attempt to or disrupt, impair, interfere with, alter or modify the Website or any of its content.

30. The User agrees not to allow, aid or abet third parties to directly or indirectly, attempt to or disrupt, impair, interfere with, alter or modify the Website or any of its content, or obtain access to any information regarding any User or any other Report issued to a User.

Complaints

31. Any complaints in relation to the Services should, in the first instance, be in writing and addressed to LI Resources Customer Service at: info@liresources.com.au. LI Resources will respond to any such complaints in writing as soon as practicably possible.

General Matters

32. These terms and conditions are governed by and will be construed and enforced in accordance with the laws of the State of New South Wales, Australia. If any dispute, controversy or claim arises out of or relating to these terms and conditions, whether sounding in contract, tort or otherwise, it shall be resolved by use of an alternative dispute resolution procedure acceptable to both parties with the assistance of a mediator. If the dispute has not been resolved to the satisfaction of either party within 60 days of initiation of the procedure or if either party fails or refuses to participate in or withdraws from participating in the procedure, then either party may refer the dispute to the court.

33. These terms and conditions apply to all Services provided by LI Resources.

34. If there is any inconsistency between these terms and conditions and any other document or agreement between the parties, these terms and conditions will prevail.

35. These terms and conditions represent the entire agreement between the parties.

36. The User authorises LI Resources to destroy Documents which LI Resources has prepared or holds in connection with the Services 7 years after the last date on which the Services were provided.

37. If any of the terms of the Application Form or the terms and conditions are invalid, unenforceable or void, the relevant term must be read down to the maximum extent possible or severed from the rest of the Application Form or these terms and conditions.

38. These terms and conditions can only be amended or varied by a written document signed by both parties.

39. Neither party may assign or transfer any rights or obligations arising in the provision of the Services or these terms and conditions without the other party's written consent.

Defined Terms

Application Form	Means the form and accompanying information provided on the Website, completed and submitted by the User to request the Services.
Document	Includes a report, and any other written or electronic document.
Fee	Means the amount set out in the Application Form or confirmed via an invoice.
Property	Means the property to which the Services and the Report relate.
Report	Means the Document prepared by LI Resources and provided to the User which contains the environmental and development data which is relevant to the Property.
Services	Means the review of data and information on which the Report is based, and the preparation and provision to the User of the Report.
Website	Means LI Resources's online site, that is: www.liresources.com.au
User	Means the person(s) set out in the Application Form including that person's permitted successors.

LAND INSIGHT & RESOURCES

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Appendix .

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B.1 Site walkover photographs

Table B.1 Site photographs

Gates and gravel driveway at Adams Road entrance to the site

Potential ACM sheeting in shed adjacent to residence

Table B.1 Site photographs

Shed and silo to south of the ARRC site

Machinery and chemical storage inside shed

Table B.1 Site photographs

Soil/shale stockpile on 275 Adams Road property to south of the ARRC site

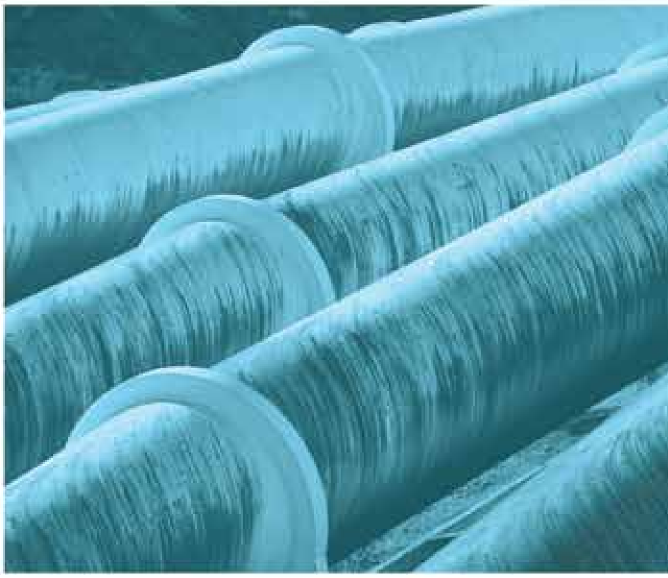
Quarry void to south of Site. Grass covered bund at southern ARRC site boundary is also visible

Table B.1 Site photographs

View to south-east of the ARRC site. Construction works visible on the Western Sydney Aidport Site to the south-east.

Looking north towards the ARRC site



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