

ACT MATERIALS RECOVERY FACILITY

ADDENDUM TO APPENDIX H

PRELIMINARY SITE INVESTIGATIONS

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Hume Material Recovery Facility

Preliminary Site Investigation

Transport Canberra and City Services

4 April 2023

→ The Power of Commitment



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Executive Summary

The Australian Capital Territory (ACT) Government is seeking approval to replace and upgrade the existing Material Recovery Facility (MRF) on Block 12, Section 25 Hume, ACT (the site). The existing MRF building was extensively damaged as a result of fire on 26 December 2022 and the proposed replacement facility would be designed to process up to 115,000 tonnes per annum of mixed recyclables.

Development Act 2007 (P&D Act), requiring the preparation of an Environmental Impact Assessment (EIS) in accordance with the Scoping Document for application number 202100005. Section 8.2.6 of the Scoping Document requires *an environmental assessment of potential existing contamination from previous and adjacent land uses at the development site undertaken by a suitably qualified environmental consultant*. This environmental assessment was completed through a preliminary site investigation.

The objective of this preliminary site investigation (PSI) is to evaluate:

- The potential for contamination to exist on or adjacent to the site from past or present activities.
- Whether contamination (if present) poses a potentially unacceptable risk to human health and the environment during the construction and operation of MRF.
- Provide recommendations to manage or mitigate the potential risk posed by contamination (if identified).
- Where possible, consider the suitability of the site for its intended general industrial land use.

The key findings of the investigation include:

- The southern portion of the site has been an operational recycling facility for approximately 25 years.
- The site runoff likely enters the vacant land in the north of the site.

The site is recorded in the EPA's contaminated land database.

Based on the findings, the site is likely to pose a contamination risk to future construction workers.

GHD recommends that a targeted site investigation (TSI) be completed by a qualified environmental consultant including investigation of:

- Soil sampling to the north of the existing MRF building and hardstand which surface water (from rain, refuelling or vehicle washdown) would flow towards and seep into the ground.
- Soil sampling at the open earth bale storage area as contaminants from the recycled material may seep into the soil.
- Water and sediment sampling at the dam in the northern portion of the site to determine baseline levels and ensure the proposal does not contribute to contamination of the water.

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

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Terminology

Terminology	Definition
Impact	The effect of a project, which can be adverse or beneficial, when measured against an existing condition
Proposal	The construction and operation of the proposed materials recovery facility in Hume, Australian Capital Territory
Proposal site	The area within which all the Project construction and operational elements will be contained within
Study area	Consists of land in the vicinity of, and including, the proposal site. The study area is a wider area surrounding the proposal site as defined in this assessment, including land that has the potential to be indirectly impacted by the proposal
AS 4123.7-2006	Mobile Waste Container

Abbreviations and meaning

Abbreviations	Meaning
ACM	Asbestos Containing Materials
ACT	Australian Capital Territory
AHD	Australia Height Datum
APEC	Areas of Potential Environmental Concern
AST	Above Ground Storage Tank
BoM	Bureau of Meteorology
BTEX	Benzene, Toluene, Ethylbenzene and Xylene
CDS	Container Deposit Scheme
CMP	Contamination Management Plan
COPC	Contaminant of Potential Concern
CSEPP	<i>Contaminated Sites Environment Protection Policy</i>
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CSM	Conceptual Site Model
EIS	Environmental Impact Statement
EPA	Environment Protection Authority
EPSDD	Environment, Planning and Sustainable Development Directorate
FOGO	Food Organics and Garden Organics
GHD	GHD Pty Ltd
ha	Hectare
HDPE	High Density Polyethylene
HGL	Hydrogeological Landscape
HRRE	Hume Resource Recovery Estate
IBC	Intermediate Bulk Container
IZ1	General Industry land-zoning
m	Metre
MRF	Materials Recovery Facility
NSW	New South Wales
OCP	Organochlorine Pesticides
OPP	Organophosphate
PAH	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated biphenyl
PFAS	Per- or Polyfluoroalkyl Substance
PSI	Preliminary Site Investigation
RAP	Remediation Action Plan
TRH	Total Recoverable Hydrocarbons
TSI	Targeted Site Investigation
UST	Underground Storage Tank

1. Introduction

1.1 Overview

The ACT Government is proposing to replace and upgrade the existing Material Recovery Facility (MRF) on Block 12, Section 25 Hume, ACT (the proposal site). The proposal site is located to the north of the Monaro Highway in an industrial and rural area located approximately 12.5 km south of Canberra City (refer to Figure A.1). The existing MRF was extensively damaged due to fire on 26 December 2022 and the facility is non-operational. The main shed remains standing and is currently being used as a waste transfer station to accept recyclables, sort, and store materials before being shipped to other processing facilities.

The proposal would replace the existing MRF and provide technological improvements to facilitate greater resource recovery by both increasing the quality of recycled materials and by reducing the amount of nonrecyclable residual waste generated that is currently sent to landfill. The new Hume MRF would be one of the first advanced facilities in Australia to enable separation mixed plastics. Upgraded technology would also improve the quality and therefore marketability of paper and mixed cardboard, mixed plastics and glass that would be received from the ACT and five regional NSW councils.

The proposal would be designed to process up to 115,000 tonnes per year of mixed recyclables. The proposed capacity would provide for population growth and changing consumer behaviours which are expected to contribute to increases in recoverable materials over time.

Key features of the proposal include:

- Replacement of the existing MRF.
- Additional warehouse style facilities.
- Civil works and piling to support the dynamic loads imposed by rotating and high frequency vibrating equipment.
- Expansion of hardstand space towards the west of the proposal site.
- A trade waste system to capture contaminated stormwater runoff.

1.1.1 Approval and assessment requirements

This report has been prepared by GHD Pty Ltd (GHD) as part of the environmental impact assessment (EIS) for the proposal. The EIS supports the application for approval of the proposal and to address the requirements provided by the ACT Department of Environment, Planning and Sustainable Development Directorate (EPSDD) dated 21 July 2022.

The proposal is subject to approval by the planning and land authority within the Environment, Planning and Sustainability Development Directorate.

1.2 The proposal location

The proposal would be located within the current bounds of the Hume Resource Recovery Estate (HRRE) on Block 12, Section 25 Hume, Recycling Road (see Figure A.1). The proposal site is surrounded by industrial facilities including:

- ACT Skip Hire across Recycling Road to the east.
- Soft Landing Mattress Recycling located south-east, across John Cory Road.
- Hume Industrial Estate located to the south and east across Monaro Highway.
- Mugga Lane Landfill located approximately 200 metres (m) to the north-west.
- Proposed FOGO facility located to the east, across John Cory Road.

The proposed relevant built area is estimated to be 3.5 hectares (ha) which includes the loading bay, processing area, and car park. The roadways on-site would be 0.5 ha, whereas the building would be 1.05 ha. The new MRF would be accessed via Recycling Road, which is situated at the east of the proposal site.

1.3 Objectives

The objectives of the Preliminary Site Investigation (PSI) are to:

- Evaluate the potential for contamination to exist on and adjacent to the proposal site from past or present activities.
- Evaluate whether contamination (if present) poses a potentially unacceptable risk to human health and the environment during the construction and operation of MRF.
- Provide recommendations to further investigation and / or manage or mitigate the potential risk posed by contamination (if identified).
- Where possible, consider the suitability of the proposal site for its intended general industrial land use as a materials recovery facility.

1.4 Scope of work

The PSI has been completed in general accordance with the ACT Government’s *Information Sheet 7 – Guidance for undertaking preliminary contamination investigations for development/lease variation purposes*. To support the investigation GHD acquired a Lotsearch report which consolidates many of the environmental searches (a copy is presented in Appendix B).

The scope of work included:

- Searches and review of:
 - Historic aerial photographs.
 - Contaminated Land Search of records held by the Environment Protection Authority (EPA) (copy provided in Appendix C).
 - Groundwater bore records.
 - Current and former uses of the proposal site through desk-based searches.
 - Dangerous substances storage at the proposal site.
 - Soils, geology, hydrology, hydrogeology, and borehole logs.
- A site inspection.
- Preparation of a preliminary conceptual risk assessment.
- Provision of conclusions and recommendations (as required) in the context of redevelopment of the proposal site.

This assessment report has been prepared in general accordance with the guidelines endorsed by the EPA as detailed in the *Contaminated Sites Environment Protection Policy (CSEPP)* (ACT Government, 2020) made under the *Environment Protection Act 1997*.

1.5 Scoping document requirements

The scoping document requirements and sections where they are addressed in are presented in Table .

Table 1.1 Scoping document requirements

Requirement	Section addressed in
Describe the soil and geology features of the area.	Section 2.3
Provide an environmental assessment of potential existing contamination from previous and adjacent land uses at the development site undertaken by a suitably qualified environmental consultant.	Section 2 and 3
Discuss any contamination impacts that are present at the proposal site (soil and groundwater), and how the site will be remediated (if required).	Section 4
Describe the potential impacts of contaminant spills on the local soils.	Section 4

1.6 Limitations

This report: has been prepared by GHD for Transport Canberra and City Services and may only be used and relied on by Transport Canberra and City Services for the purpose agreed between GHD and Transport Canberra and City Services as set out in Section 1.3 of this report.

GHD otherwise disclaims responsibility to any person other than Transport Canberra and City Services arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

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

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

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

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If this report is required to be accessible in any other format, this can be provided by GHD upon request and at an additional cost if necessary.

2. Site setting

2.1 Site identification

A summary of the proposal site information is provided in Table . The proposal site location is shown in Figure A.1, Appendix A.

Table 2.1 Proposal site information summary

Information	Summary
Address	1 John Cory Circuit, Hume ACT 2620
Block and Section	Block 12, Section 25 (recently amalgamated Block 6 and Block 10)
Previous Land Use	Southern portion (associated with Block 6, Section 25): an operational MRF which separates comingled recycling into glass, plastics and paper/cardboard. Plastics and glass were washed on-site. Plastics and cardboard/paper were baled for loading out. Glass was crushed on-site before being loaded out. Northern portion (associated with Block 10, Section 25): vacant land since 1944. It is unknown if the land was vacant prior to this.
Current Land Use	Southern portion: waste transfer including storage of glass and cardboard/paper and baling of plastics. Northern portion: vacant.
Size (m ²)	50,619 m ²
Land Zoning	IZ1: General Industry
Immediate Surrounds	<ul style="list-style-type: none">– North: Dog Trap Creek, Mugga Landfill leachate and surface water management ponds and landfill site.– South: Mugga Lane and Mugga Lane Solar Park.– East: ACT Skip Hire, Recycling Road and proposed food organics and garden organics (FOGO) facility site.– West: Vacant land and drainage areas alongside Mugga Lane.

2.2 Site inspection

Two suitably qualified Environmental Scientists from GHD undertook a site inspection on 15 March 2023. The observations are outlined within this section. The general proposal site layout is shown in Figure A.2, Appendix A. Photographs taken during the site inspection, as referenced below, are provided in Appendix D.

2.2.1 Southern portion

The southern portion of the proposal site comprises:

- Existing MRF hardstand area.
- Existing MRF building.
- Open earth area.

Existing MRF hardstand

- Hardstand area associated with the existing MRF covers Block 6, Section 25 excluding the north-west boundary which is open earth area. Block 6 Section 25 is currently being used as a waste transfer area.
- The hardstand area adjacent north-west of the existing MRF was being used to dump unsorted recyclables from waste trucks to be transferred by forklifts for sorting (see Photograph 1).
- Mixed recyclables (including, but not limited to, high density polyethylene (HDPE) plastics, glass, aluminium cans were dumped onto the hardstand area in the southern portion of the proposal site prior to being sorted in large storage bags or bales (see Photographs 2-4).

- Bales of HDPE plastics were also stored along the western border of the hardstand storage and an open earth strip adjacent to the fence with litter scattered about (see Photograph 5).
- Drains were located on the southern boundary of the proposal site near the storage bags and bales (see Photograph 6-9). Only one of the drains had a ledge around it to prevent escaped materials from entering the drain (see Photograph 7).
- Two drains in the north of the proposal site had been blocked in January 2023. This was directed by the EPA after a diesel spill occurred at the proposal site in January 2022. The block drains are located in a waste receival area and historical runoff would be directed to these points. Given the drains are now blocked, surface runoff is expected to follow natural topography of the proposal site and flow northwards to open earth area (see Photograph 10-11).
- There was no designated vehicle wash down area. A vehicle was in the process of being washed down at the southern boundary of the proposal site. It has been assumed that the entirety of the site could be used as a wash down area (see Photograph 12).
- There was a battery and oil storage area immediately adjacent to existing MRF building (see Photographs 13). There were eight car batteries stored on a pallet either for machinery or had been incorrectly transported to the proposal site. The batteries are transferred off-site for disposal.
- A workshop area stored motor and waste oil and diesel for machinery in 20-30 litre drums or plastic fuel containers stored on the ground within and next to the workshop area (see Photographs 14-16). This is located adjacent to north of battery and oil storage area and approximately five metres north of the existing MRF building (see Figure A.2, Appendix A).
- Adjacent to the workshop area and still outside the bounds of the existing MRF building, a 5000-litre diesel storage tank was stored directly on the ground with a spill kit located to the left (see Photograph 17-18). During the visit, diesel was stored in the intermediate bulk container (IBC) next to the tank as a temporary measure, according to the site operator.
- ABE (powder) fire extinguishers were located around the proposal site (see Photograph 13 and 17).

Existing MRF building

- The inside of the existing MRF is no longer used for sorting material given the fire on 26 December 2022.
- The building historically had designated areas to sort and temporarily store; plastics (eastern portion), aluminium (unknown), glass (middle portion) and cardboard (western portion).
- Within the building, litter was observed on the ground (see Photograph 19).
- There were six empty IBCs that were used to store oil (not pictured). The site operator anecdotally shared that the IBCs were not usually stored here, and it was a temporary measure given the fire.

Open earth area

- Scrap metal / machinery and used tyres were temporarily stored at the back of the existing MRF site boundary along the grass area. The site operator indicated the scrap metal would be removed and disposed of offsite while the tyres would be used at a later date for site machinery (see Photograph 20).
- Large cobbles were placed between the hardstand and open earth bale storage area and extended into the bale storage area. These were used for trucks or machinery to clean the tyres (see Photograph 21-22)
- The open earth bale storage area is scraped down using an excavator bucket on an ad hoc basis (see Photograph 23).

2.2.2 Northern portion

Vacant grassy area

- Grasses covered the northern portion of the proposal site outside of the existing MRF boundary. A dam is also located in this area which is not associated with the MRF (see Photographs 24-25). The area adjacent to the existing MRF open earth storage area was noted to be damp and waterlogged. Drainage is expected to flow from the existing MRF hardstand area and open earth area to this grassy area and towards the dam.
- The grassy area contained thick patches of blackberry bushes (see Photograph 26).

- There is a grassy area adjacent west of the existing MRF building that is fenced off (see Photograph 27).
- A mix of rubbish and tree stump was observed along Recycling Road within the proposal site boundary (see Photograph 28).

Additional proposal site observations

- Underground / above ground storage tanks (UST / ASTs): No underground ground storage tanks were observed or known to be present on-site.
- Chemicals / Oils / Greases: Motor and waste oil and diesel for site machinery are stored on-site.
 - Oil was stored on a hardstand area on a bund next to eight car batteries (see Photograph 13).
 - One IBC half full of diesel was stored on a bund (see Photograph 17) next to the diesel tank. The site operator advised this was generally empty as the fuel is generally used up or transported to the relevant vehicle.
 - The 5000-litre diesel tank was stored across a small walkway area from the workshop.
 - There was no designated vehicle refuelling area.
 - Small 20-30 litre fuel containers were stored on the ground within and around the workshop area (see Photographs 19-23).
- Polychlorinated biphenyls (PCB's): No substations were observed or known to be present on-site.
- Waste management: The property is subject to an Environmental Authorisation under the EPA Act. The Authorisation is associated with the existing MRF for the 'Operation of waste transfer (Activity 48) Recycle Operations (Canberra) Pty Ltd'.
- Surface Water: The northern most portion of the proposal site contains a dam that is not considered to be associated with the existing MRF operation. Given the waterlogged area adjacent to the open earth storage area (see Photograph 29), it is likely that potentially contaminated water from the MRF hardstand and open earth area may drain into this dam.
- Foul Water: Foul water was not observed on-site.
- Asbestos containing materials (ACM): No ACM were observed on the ground surface at the time of the walkover.
- Current waste storage on-site: the current storage differs from historical storage given the fire that occurred at the proposal site.
 - HDPE is currently stored in large white storage bags (see Photograph 3).
 - HDPE is also stored in bales along the western boundary (see Photograph 5).
 - Glass was stored in an outdoor, uncovered area (see Photograph 4).
 - It was unknown where aluminium or cardboard is currently stored. It is expected these are stored as bales throughout the proposal site.
- There is one weighbridge at the MRF site which is associated with a diesel spill (see Photograph 30, refer to Section 3.4).

2.3 Environmental setting

Information provided in the following section has been obtained from the Lotsearch Report (Appendix B), site visit and available mapping as referenced in the text below.

2.3.1 Topography

The proposal site area varies between 612 – 617 metres (m) Australia Height Datum (AHD), according to topographic data from the EPSDD. The regional topography is mostly flat in the southern area with a slight fall from south to north. The western grassy area has a small dip of roughly three metres though this was difficult to discern during the proposal site visit (Photograph 26).

2.3.2 Soils and landscapes

According to the Atlas of Australian Soils (CSIRO, 2011) the proposal site is within the Williamsdale Landscape. This unit is characterised by Kandosols which are associated with yellow leached earths in intermediate drainage areas and hard neutral and/or alkaline yellow mottled soils in poorly drained areas. Within the one-kilometre site buffer the Disturbed Terrain Landscape is present in the north-west area and the Burra landscape in the northern buffer. Sodosol soils are present in the western area of the report buffer.

According to the Atlas of Australian Acid Sulfate Soils, the proposal site area falls under acid sulphate soil Class C, thus the works would have an extremely low probability of encountering acid sulphate containing soils (CSIRO, 2011). Approximately 100 m west of the proposal site Class B soils are present. Here there is a low probability of encountering acid sulphate containing soils.

2.3.3 Hydrology

Surface water is expected to follow the local topography and generally flow northwards.

There is a small dam located northern portion of the proposal site, between the creek and the current MRF. Run-off from the proposal site is expected to flow towards this dam and towards Dog Trap Creek based on natural topography.

Drainage from Mugga Lane flows into the proposal site via a culvert in the western edge of the site. This area was observed to be waterlogged. Drainage from this area flows towards the small dam or towards Dog Trap Creek.

There is a natural creek, Dog Trap Creek, located to the north of the proposal site (the closest point being approximately 35 metres away) which is a tributary of Jerrabomberra creek and flows from west to east. It is expected that surface water flows from the proposal site, and the small dam, flows into Dog Trap Creek and then branches off into small drainage networks in Gilmore Paddocks. This system is part of the Jerrabomberra Creek Catchment (ACT Government, 2018).

2.3.4 Geology

The 1:250,000 scale geological structures map (NSW Department of Industry, Resources & Energy, 2014) indicated the proposal site is situated on the Silurian aged Deakin Volcanics – Rhyodacitic ignimbrite and minor volcanoclastic and argillaceous sediments.

2.3.5 Hydrogeology

The proposal site and surrounding area is located on extensive fractured or fissured aquifers described to have low to moderate productivity. The proposal site is on the Symonston Hydrogeological Landscape (HGL) which is characterised by low land salinity and moderate salt store and mobility.

There are no ACT Government boreholes on-site or within the report buffer. There are 32 boreholes owned by the Bureau of Meteorology (BoM) within the report buffer however none within the proposal site boundary. The five closest boreholes are shown in Table .

Table 2.2 BoM five closest boreholes to the proposal site

State Bore ID	Purpose	Depth to GW (m)	Drilled Depth (m)	AHD (m)	Distance from site
620	Unknown*	Unknown*	5.67	619.37	313 m, east
631	Unknown*	Unknown*	4.58	620.39	463 m, east
630	Unknown*	Unknown*	5.17	620.60	558 m, east
604	Unknown*	Unknown*	5.94	632.42	634 m, south
603	Unknown*	Unknown*	4.40	634.30	703 m, south-east

**Information could not be found on BoMs Australian Groundwater Explorer (BoM, 2022)*

3. Site history

3.1 Historical aerial photographs

A selection of aerial photographs were examined in order to ascertain past activities and land uses at the proposal site. The years examined were 1944, 1961, 1967, 1976, 1978, 1981, 1985, 1992, 1997, 2004 and 2019. A review is shown in Table .

Extracts are provided in Appendix B and the current aerial photograph of the proposal site location is also provided in Appendix A.

Table 3.1 Review of historic aerial photography

Year	Observations	
	On-site	Immediate surrounds
1944	Proposal site was undeveloped with approximately nine scattered trees. A small open earth area, where the current day dam is located, can be observed.	Undeveloped area and consists of scattered trees, particularly along current day Mugga Lane and Monaro Highway. Dog Trap Creek located to the north of the site.
1961	Proposal site remains mostly unchanged. Water can be observed in the dam.	Surroundings remain mostly unchanged, small dam located across Mugga Lane in vacant area.
1967	Proposal site remains mostly unchanged. Small drainage line running south-east to north-west is visible in the western boundary of the site.	Surroundings remain unchanged.
1976	Proposal site remains unchanged.	Surroundings remain unchanged.
1981	Proposal site remains mostly unchanged. Four scattered trees located within site.	Surroundings remain unchanged.
1985	Proposal site remains unchanged.	Surroundings remain unchanged.
1992	Proposal site remains mostly unchanged. Three scattered trees located within the site.	Trees around the Monaro Highway intersection mostly cleared. Ponds associated with Mugga Landfill to the north across Dog Trap Creek.
1997	Proposal site remains unchanged.	Surroundings remain unchanged.
2004	Existing MRF is located in the southern portion of the Proposal site. The immediate surroundings of the building appear to be hardstand. One tree located on the northern boundary of the site. The northern portion of the site is grasslands.	Trees to the south-east mostly cleared. Large open earth area adjacent east. Roundabout located adjacent south.
2019	Additional hardstand area expanding to the north and a small portion towards the west of the existing MRF used for bale storage. Grassy area to the north of the Proposal site appears very dense and green. Open earth area from an apparent turnaround area extends into the eastern site boundary (associated with Recycling Road).	Current day ACT Skip Hire located to the east, Soft Landing Mattress to the south-east and Mugga Lane Solar Park to the south-west.

The historical aerial photographs show that the proposal site remained undeveloped until 2004, when the existing MRF was established. In 2019, the MRF hardstand area expanded to the north and is used as storage area. There is also a small hard portion extending to the western site boundary by 2019 and appears to also be used as an uncovered storage area. The northern-west portion of the proposal site is mostly swampy grasslands.

3.2 Other potential sources of contamination and pertinent information

The following information presented in was obtained from the Lotsearch report (Appendix B), ACT EPA (Appendix C) and/or from publicly available information including ACT EPA and ACT Planning & Environment websites (Table 3.2).

Table 3.2 Other potential sources of contamination

Item	Notes	Information Source
Land use designations	The proposal site and surrounding area are located within the suburb of Hume in the District of Jerrabomberra. The proposal site's designated Land Use Zone is General Industry as well as the surrounding areas except Mugga Lane landfill site to the north and the Solar Park to the south-west which are zoned as Broadacre.	ACTMapi
Contaminated land register	<p>The block is recorded on the EPA's contaminated sites management database and geographic information system. The EPA Contaminated Sites Environment Protection Policy 2017 lists waste storage, treatment or disposal and landfill as activities associated with land contamination which may present a risk to human health or the environment.</p> <p>EPA records indicated that the site adjacent to the Mugga Lane Landfill located at Block 2114 Jerrabomberra.</p> <p>The EPA notes that under the precautionary principal, all blocks adjacent to sites which contain potential land contamination activities are identified and persons making enquiries are made aware of potential for impacts from adjacent sites due to the ability of hydrocarbons and other contaminants to migrate through the environment.</p> <p>The EPA has not issued any orders of assessment or remediation under sections 91C (1) or 91D (1) respectively, environment protection orders under sections 125 (2) or (3), requested an audit under section 76 (2) or received an audit notification under section 76A (1) of the Environment Protection Act 1997 (the Act) over the proposal site and as a result it is not recorded on the Register of contaminated sites under section 21A of the Act.</p>	ACT EPA
Landfilling / Recycling / waste management	<p>Former site use was by the existing MRF which recently burnt down on 26 December 2022. It had been in operation for 25 years. This facility processed co-mingled 'yellow-bin' material from households as well as plastics and bottles from the container deposit scheme (CDS). It is now used as a waste transfer store.</p> <p>Mugga Lane Landfill is located approximately 60 m to the northwest of the proposal site.</p>	City Services
PFAS investigations	No per- and polyfluoroalkyl substance (PFAS) investigations have been identified associated with the proposal site.	<p>Defence PFAS Investigation and Management Program</p> <p>Airservices Australia National PFAS Management Program</p>
EPA Authorised activities	<p>There are two businesses that hold current authorisations to conduct EPA Authorised Activities on the proposal site and within 100 metres of the site.</p> <ul style="list-style-type: none"> – Re-Cycle Operations (Canberra) Pty Ltd located on Block 6, Section 25, (southern portion of the proposal site i.e. the existing MRF) for operation of waste transfer (see Appendix E). – ACT NoWaste located on Block 2114 and 2247 (60 metres north-west of the proposal site) for the placement of soil on land. 	Lotsearch and ACT EPA
Former EPA Authorised activities	<p>There is one former licenced activity within 500 metres radius of the site.</p> <ul style="list-style-type: none"> – BMD Constructions located 301 m north-west for the extraction of aterial from waterways; Greater than 100m³ (Activity 1). 	Lotsearch

3.3 Hazardous substances

A report dated May 2021 presented the findings of a Hazardous Materials survey (Appendix F) conducted at the southern portion of the proposal site on 14 May 2021 at the request of the existing MRF operator.

The survey was undertaken to assess the extent and condition of hazardous materials and document safe management procedures in accordance with current legislation at the time.

No hazardous materials were recorded to be present at the proposal site at the time of the investigation.

The report recommended that prior to any demolition that the Robson Environmental Pty Ltd office be contacted. Their licensed Asbestos Assessors can attend the proposal site to observe the demolition process, advise as necessary and in the event of previously inaccessible hazardous materials being located, assist with assessing the extent, type and removal or abatement of materials as required.

3.4 Spills

There was a diesel spill on the proposal site in January 2022.

The operator informed the GHD staff that this had been cleaned up by the EPA however no letter was supplied to confirm this statement.

3.5 Summary of site history

The southern portion of the proposal site has been operational for 25 years according to client information. It is now primarily used as a waste transfer station since the fire on the 26 December 2022. Based on the review of proposal site history information, the past site activities (i.e. operational MRF) had the potential for contaminating soil, surface water to the north and/or groundwater.

The northern portion of the proposal site has been vacant land since 1944. It is unknown whether the land was used prior to the time. The dam has been located on the proposal site since 1994.

4. Preliminary conceptual site model

4.1 Areas of potential environmental concerns

Based on review of historical aerial photography, information from the Lotsearch reports, information provided by the EPA, publicly available resources and proposal site walkover on 15 March 2023, areas of potential environmental concerns (APECs) have been identified and included in Table 4.1, and shown in Figure A.3 in Appendix A.

Table 4.1 List of APECs

APEC ID	APEC name details	Rationale	Relation to the site
1	Open earth bale storage area	Given the area is not undercover, rainwater may flow into the bales and onto the soil. The bales may still be contaminated with PFAS or fuel leakage from machinery used to transport bales.	Within proposal site boundary.
2	Dam	The runoff from the southern portion of the proposal site is expected to have been flowing towards the dam since operation of the facility. Given the dam has been a receptor for the last 25 years, it is also considered a source of contamination given the history of the site.	Within proposal site boundary

4.2 Potential receptors

4.2.1 Human receptors – Human health

The proposal site and surrounding land uses are industrial land uses.

The proposal site would be used for continued commercial and industrial land use as a replacement and upgraded MRF. The proposal site and surrounding areas are also commercial and industrial land uses. The following potential human health receptors have been identified:

- Construction workers for the MRF.
- Future MRF employees including intrusive / extrusive maintenance workers and site visitors.

4.2.2 Ecological receptors

Ecological receptors include aquatic ecosystems that are located within the Dog Trap Creek to the north and the dam in the northern portion of the proposal site and the soil in the vacant area to the north of the site.

4.3 Potential exposure pathways

The primary potential pathways by which receptors could be exposed to potential sources of contamination within the proposal site are considered to be:

- Direct contact with contaminated soil.
- Vapour inhalation.
- Ingestion of soils and dust.
- Direct contact with surface water.
- Direct contact with groundwater.
- Migration of surface water towards down gradient receptors.
- Migration of groundwater towards down gradient receptors.

- Discharge of groundwater to surface water bodies.

4.4 Potential Source-Pathway-Receptor linkages

Based on the current information, a preliminary conceptual site model (CSM) has been developed as presented in Table . The CSM shows the source-pathway-receptors linkages identified for the study area, contaminant of potential concern (COPCs) and a discussion on where they are likely to be complete.

Table 4.2 Preliminary conceptual site model

Sources	COPCs	Pathway	Receptor	Potentially or complete exposure pathway
APEC 1: Open earth bale storage area	<ul style="list-style-type: none"> – Heavy metals (including arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc). – Petroleum hydrocarbons including TRH, BTEX, PAH, Phenols. – PFAS 	Direct contact or inhalation with contaminated soil, fill materials or groundwater. Vapour inhalation. Ingestion of soils and dust. Direct contact with groundwater.	Human <ul style="list-style-type: none"> – Construction workers – Future MRF employees 	Likely complete
		Migration of surface water towards down gradient receptors. Migration of groundwater towards down gradient receptors. Discharge of groundwater to surface water bodies.	Ecological <ul style="list-style-type: none"> – Aquatic ecological receptors – Soils 	
APEC 2: Dam	<ul style="list-style-type: none"> – Heavy metals (including arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc). – OCP – OPP – Petroleum hydrocarbons including TRH, BTEX, PAH, Phenols. – PFAS 	Migration of surface water towards down gradient receptors. Migration of groundwater towards down gradient receptors. Discharge of groundwater to surface water bodies.	Ecological <ul style="list-style-type: none"> – Aquatic ecological receptors – Soils 	Likely complete

5. Conclusions and recommendations

5.1 Conclusions

In accordance with the objectives detailed in Section 1.3, and based on the information contained within this assessment, the following findings were made in regard to the proposal site (subject to the limitations outlined in Section 1.6).

- The southern portion of the proposal site has been an operational recycling facility for approximately 25 years.
- The proposal site runoff likely enters the vacant land in the north of the site.
- The proposal site is recorded in the EPA's contaminated land database.

Based on the findings of this PSI, GHD considers there is a potential for contamination to be present within the proposal site, as detailed in Table .

Table 5.1 Potential contamination within the proposal site boundary

Potential contamination	APEC
Given the area is not undercover, rainwater may flow into the bales and onto the soil.	1
The runoff from the southern portion of the proposal site is expected to have been flowing towards the dam since operation of the facility. Given the dam has been a receptor for the last 25 years, it is also considered a source of contamination given the history of the site.	2

5.2 Recommendations

Based on the findings, the proposal site is likely to pose a contamination risk to future construction workers.

GHD recommends a targeted site investigation (TSI) be completed by a qualified environmental consultant including investigation of:

- Soil sampling to the north of the existing MRF building and hardstand which surface water (from rain, refuelling or vehicle washdown) would flow towards and seep into the ground.
- Soil sampling at the open earth bale storage area as contaminants from the recycled material and machinery operating in the area may seep into the soil.
- Water and sediment sampling at the dam in the northern portion of the proposal site to determine baseline levels and ensure the proposal does not contribute to contamination of the water.

GHD also recommends the following regarding the demolition and future operation of the facility:

- An asbestos assessor ensures there is no ACM on the proposal site.
- Designated washdown area on the proposal site or washdown area located at truck depot off-site.
- Create appropriate storage areas for batteries and fuel that are compliant with relevant standards.
- Improve drainage on the proposal site to minimise runoff towards Dog Trap Creek.

If contamination is identified on the proposal site that could pose a risk to human health or the environment, a Contamination Management Plan (CMP) or Remediation Action Plan (RAP) should be prepared with measures to mitigate that risk during construction.

Any contaminated soil removed from the study area during the proposed development should be classified in accordance with ACT EPA *Requirements for the reuse and disposal of contaminated soil in the ACT* (2019) and disposed of at a suitable licensed waste facility.

6. References

ACT EPA, 1997. *Environment Protection Act*.

ACT Government, 2018. *Flood information for Jerrabomberra creek*, accessed 07 March 2023 at https://www.environment.act.gov.au/data/assets/pdf_file/0006/1286907/ACT-Flood-Maps-Jerrabomberra-Creek-ACCESS.pdf

ACT Government, 2019. *Information Sheet 4 - Requirements for the reuse and disposal of contaminated soil in the ACT*

ACT Government, 2020. *Information Sheet 7 - Guidance for undertaking preliminary contamination investigations for development/lease variation purposes*

ACT Government, 2023. *Environment Protection authorisation search*, accessed on 07 March 2023 at [**Environment Protection authorisation search \(act.gov.au\)**](#)

ACT Government, 2023. *Canberra's Recycling Story*, accessed on 07 March 2023 at [**Canberra's Recycling Story - Recyclopaedia \(act.gov.au\)**](#)

BoM, 2023. *Australian Groundwater Explorer*, accessed 07 March 2023 at [**http://www.bom.gov.au/water/groundwater/explorer/map.shtml**](http://www.bom.gov.au/water/groundwater/explorer/map.shtml)

CSIRO, 2011. *Soil Resource Information System (ASRIS)*.

NSW Department of Industry, Resources & Energy, 2014. *Geological Structures 1:250,000*

Appendices

Appendix A

Figures



- Legend**
- Proposal Site
 - Cadastre
 - Watercourses

Paper Size ISO A4
 0 25 50
 Metres



Map Projection: Transverse Mercator
 Horizontal Datum: GDA 1994
 Grid: GDA 1994 MGA Zone 55

Transport Canberra and City Services
 Hume Materials Recovery Facility
 Preliminary Site Investigation

Project No. 12540460
 Revision No. 0
 Date 15/08/2023

Proposal Location

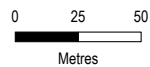
FIGURE A1



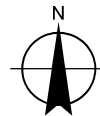
Legend

- Cadastre
- Watercourses
- ▲ Drains
- Site areas**
- Existing MRF building
- Existing MRF hardstand
- Grassy area
- Battery storage area
- Open area

Paper Size ISO A4



Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

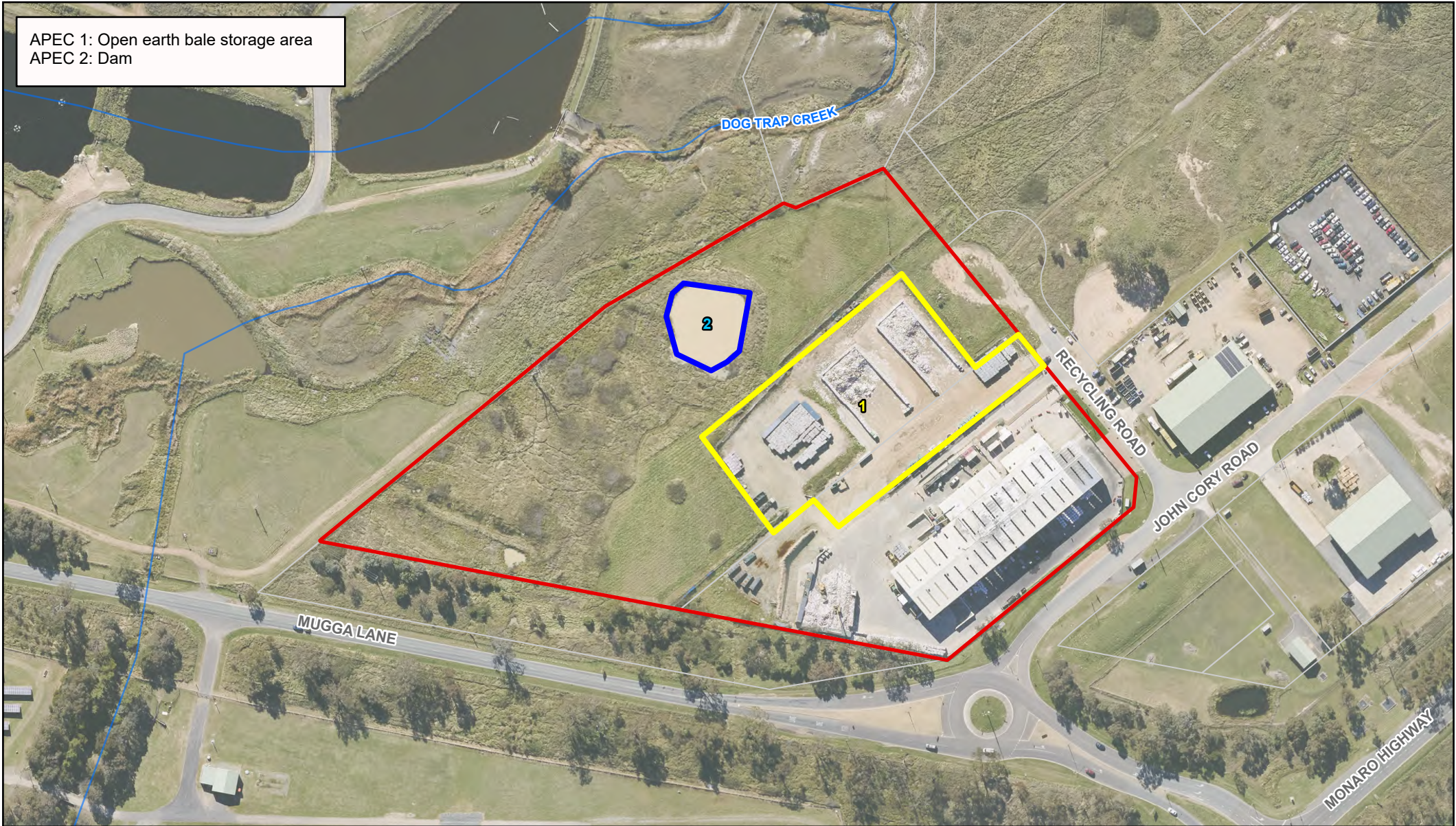


**Transport Canberra and City Services
Hume Materials Recovery Facility
Preliminary Site Investigation**

Project No. 12540460
Revision No. 0
Date 15/08/2023

General proposal layout

FIGURE A2

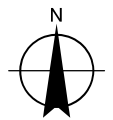


APEC 1: Open earth bale storage area
 APEC 2: Dam

- Legend**
- Proposal site
 - Cadastre
 - Watercourses

Paper Size ISO A4
 0 25 50
 Metres

Map Projection: Transverse Mercator
 Horizontal Datum: GDA 1994
 Grid: GDA 1994 MGA Zone 55



Transport Canberra and City Services
 Hume Materials Recovery Facility
 Preliminary Site Investigation

Project No. 12540460
 Revision No. 0
 Date 15/08/2023

Areas of potential environmental concern

FIGURE A3

Appendix B

Lotsearch Report



LOTSEARCH

LOTSEARCH ENVIRO PROFESSIONAL

Address: 1 John Cory Circuit, Hume, ACT 2620

Date: 06 Mar 2023 10:39:42

Reference: LS041127 EP

Report Buffer: 1000m

Disclaimer:

The purpose of this report is to provide an overview of some of the site history, environmental risk and planning information available, affecting an individual address or geographical area in which the property is located. It is not a substitute for an on-site inspection or review of other available reports and records. It is not intended to be, and should not be taken to be, a rating or assessment of the desirability or market value of the property or its features. You should obtain independent advice before you make any decision based on the information within the report. The detailed terms applicable to use of this report are set out at the end of this report.

Dataset Listing

Datasets contained within this report, detailing their source and data currency:

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	No. Features Onsite	No. Features within 100m	No. Features within Buffer
Land Administration Databases	ACT Government	17/11/2022	17/11/2022	Quarterly	-	-	-
Register of Contaminated Sites	ACT Environment Protection Authority	27/02/2023	27/02/2023	Monthly	0	0	1
National Waste Management Facilities Database	Geoscience Australia	26/05/2022	07/03/2017	Annually	0	1	2
National Liquid Fuel Facilities	Geoscience Australia	23/08/2022	15/03/2012	Annually	0	0	1
Defence PFAS Investigation & Management Program - Investigation Sites	Department of Defence	14/02/2023	14/02/2023	Monthly	0	0	0
Defence PFAS Investigation & Management Program - Management Sites	Department of Defence	14/02/2023	14/02/2023	Monthly	0	0	0
Airservices Australia National PFAS Management Program	Airservices Australia	13/02/2023	13/02/2023	Monthly	0	0	0
Defence 3 Year Regional Contamination Investigation Program	Department of Defence	02/09/2022	02/09/2022	Quarterly	0	0	0
EPA Authorisations	ACT Environment Protection Authority	13/02/2023	13/02/2023	Monthly	0	7	29
EPA Agreements	ACT Environment Protection Authority	13/02/2023	13/02/2023	Monthly	0	0	0
UBD Business Directories (Premise & Intersection Matches)	Hardie Grant			Not required	0	0	0
UBD Business Directories (Road & Area Matches)	Hardie Grant			Not required	-	5	6
UBD Business Directory Dry Cleaners & Motor Garages/Service Stations (Premise & Intersection Matches)	Hardie Grant			Not required	0	0	0
UBD Business Directory Dry Cleaners & Motor Garages/Service Stations (Road & Area Matches)	Hardie Grant			Not required	-	0	0
Features of Interest	ACT Government	14/10/2022	14/10/2022	Quarterly	0	0	2
Hydrogeology Map of Australia	Commonwealth of Australia (Geoscience Australia)	08/10/2014	17/03/2000	As required	1	1	1
Hydrogeological Landscapes Units	ACT Government - Environment, Planning and Sustainable Development Directorate	04/01/2018	22/11/2017	As required	1	1	1
Groundwater Boreholes (ACT)	ACT Government	20/12/2022	20/12/2022	Quarterly	0	0	0
Groundwater Boreholes (Bureau of Meteorology)	Commonwealth of Australia (Bureau of Meteorology)	20/11/2017	25/08/2017	Annually	0	0	33
Geological Units 1:250,000	NSW Department of Industry, Resources & Energy	20/08/2014	20/08/2014	Annually	1	-	2
Geological Structures 1:250,000	NSW Department of Industry, Resources & Energy	20/08/2014	20/08/2014	Annually	0	-	0
Atlas of Australian Soils	ABARES	19/05/2017	17/02/2011	As required	1	1	2
Soil Landscapes	NSW Office of Environment & Heritage	12/08/2014		None planned	1	-	3
Atlas of Australian Acid Sulfate Soils	CSIRO	19/01/2017	21/02/2013	As required	1	1	2
Territory Plan Zones	ACT Government - Environment, Planning and Sustainable Development Directorate	14/10/2022	14/10/2022	Quarterly	1	7	18

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	No. Features Onsite	No. Features within 100m	No. Features within Buffer
Territory Plan Overlays (Areas)	ACT Government - Environment, Planning and Sustainable Development Directorate	14/10/2022	14/10/2022	Quarterly	0	0	1
Territory Plan Overlays (Lines)	ACT Government - Environment, Planning and Sustainable Development Directorate	02/11/2022	16/08/2022	Quarterly	0	2	7
Commonwealth Heritage List	Australian Government Department of Agriculture, Water and the Environment	03/06/2022	13/04/2022	Annually	0	0	0
National Heritage List	Australian Government Department of Agriculture, Water and the Environment	03/06/2022	13/04/2022	Annually	0	0	2
Heritage Sites	ACT Government - Environment, Planning and Sustainable Development Directorate	14/10/2022	14/10/2022	Quarterly	0	12	37
Bushfire Prone Areas	ACT Government - Environment, Planning and Sustainable Development Directorate	24/08/2022	24/08/2022	Quarterly	1	1	1
Bushfire Abatement Zones	ACT Government - Environment, Planning and Sustainable Development Directorate	24/08/2022	24/08/2022	Quarterly	0	0	2
Bushfire Operational Plan - Access Management	ACT Government - Environment, Planning and Sustainable Development Directorate	07/01/2020	07/01/2020	Quarterly	0	0	0
Bushfire Operational Plan - Fuel Management	ACT Government - Environment, Planning and Sustainable Development Directorate	07/01/2020	07/01/2020	Quarterly	0	2	7
Flood 1 percent Annual Exceedance Probability	ACT Government - Environment, Planning and Sustainable Development Directorate	22/08/2022	20/08/2021	Annually	0	0	0
Vegetation Communities	ACT Government	10/02/2022	21/12/2018	Annually	2	8	65
Vegetation Subformation	ACT Government	14/01/2019	14/01/2019	Annually	0	1	1
Threatened Woodland	ACT Government	10/02/2022	08/06/2021	Annually	0	6	28
Tree Register	ACT Government	18/10/2022	18/10/2022	Annually	0	0	0
Important Wetlands	ACT Government	18/10/2022	18/10/2022	Annually	0	0	0
Groundwater Dependent Ecosystems Atlas	Bureau of Meteorology	28/10/2022	26/10/2022	Annually	0	0	0
NSW BioNet Species Sightings	NSW Office of Environment & Heritage	23/06/2021	23/06/2021	Weekly	-	-	-

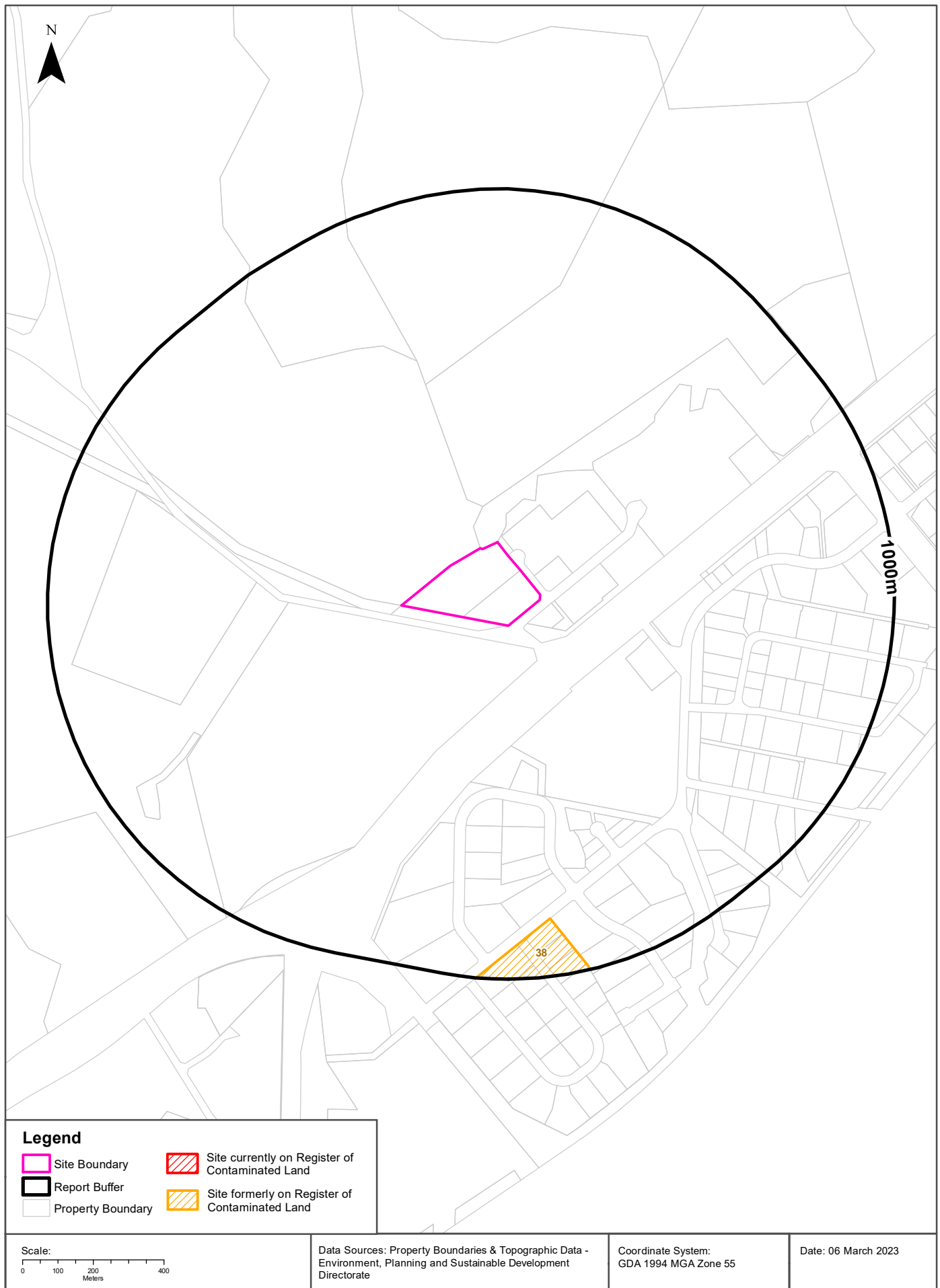
Aerial Imagery 2022

1 John Cory Circuit, Hume, ACT 2620



Contaminated Sites Register

1 John Cory Circuit, Hume, ACT 2620



Contaminated Land

1 John Cory Circuit, Hume, ACT 2620

Register of Contaminated Sites

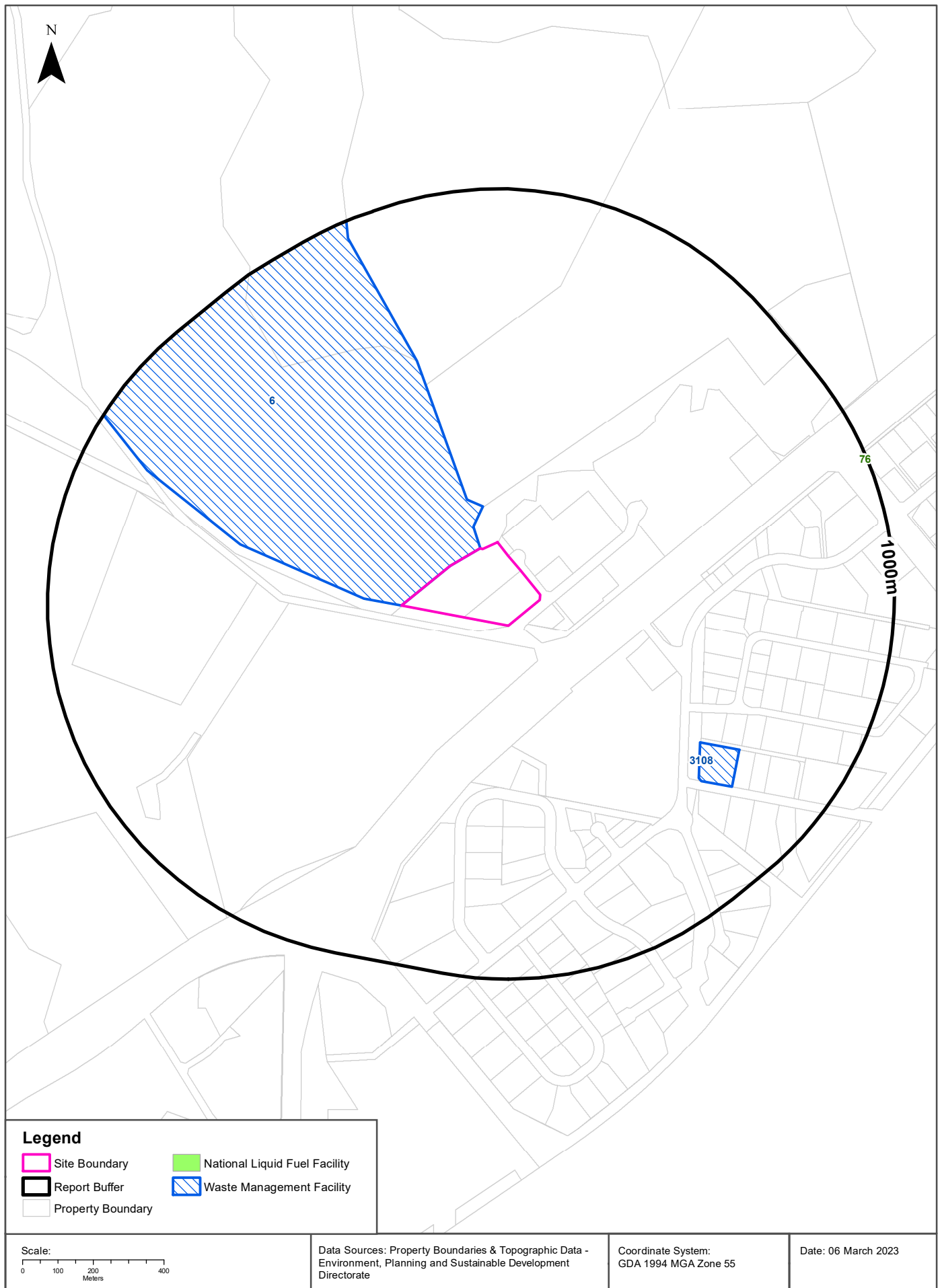
Records from the ACT Register of Contaminated Sites within the report buffer:

Map Id	Site Description	Notification	District	Division	Section	Block	Status	Loc Conf	Dist	Direction
38	Former Koppers Timber Treatment plant	76A(1)	Tuggeranong		0	1210	Site formerly on EPA Register	Premise Match	835m	South

ACT Register of Contaminated Sites Data Source: ACT Government Environment Protection Authority
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Waste Management & Liquid Fuel Facilities

1 John Cory Circuit, Hume, ACT 2620



Waste Management and Liquid Fuel Facilities

1 John Cory Circuit, Hume, ACT 2620

National Waste Management Site Database

Sites on the National Waste Management Site Database within the report buffer:

Site Id	Owner	Name	Address	Suburb	Postcode	Landfill	Reprocess	Transfer	Loc Conf	Distance	Direction
6	ACT Government	Mugga Lane Landfill	499 Mugga Lane	Symonston	2611	Operational			Premise Match	0m	North West
3108	Transpacific Industries Group Ltd	Cleanaway Hume	11 Alderson Place	Hume				Operational	Premise Match	607m	South East

Waste Management Facilities Data Source: Australian Government Geoscience Australia

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National Liquid Fuel Facilities

National Liquid Fuel Facilities within the dataset buffer:

Map Id	Owner	Name	Address	Suburb	Class	Operational Status	Operator	Revision Date	Loc Conf	Dist (m)	Direction
76	Caltex	Woolworths Caltex Hume	96 Sheppard Street	Hume	Petrol Station	Operational		25/07/2011	Premise Match	987m	East

National Liquid Fuel Facilities Data Source: Geoscience Australia

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PFAS Investigation and Management Programs

1 John Cory Circuit, Hume, ACT 2620

Defence PFAS Investigation and Management Program Investigation Sites

Sites being investigated by the Department of Defence for PFAS contamination within the dataset buffer:

Map ID	Base Name	Address	Location Confidence	Distance	Direction
N/A	No records in buffer				

Defence PFAS Investigation and Management Program Data Source: Department of Defence, Australian Government

Defence PFAS Investigation and Management Program Management Sites

Sites being managed by the Department of Defence for PFAS contamination within the dataset buffer:

Map ID	Base Name	Address	Location Confidence	Distance	Direction
N/A	No records in buffer				

Defence PFAS Investigation and Management Program Data Source: Department of Defence, Australian Government

Airservices Australia National PFAS Management Program

Sites being investigated or managed by Airservices Australia for PFAS contamination within the dataset buffer:

Map ID	Site Name	Impacts	Location Confidence	Distance	Direction
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Airservices Australia National PFAS Management Program Data Custodian: Airservices Australia

Defence Sites

1 John Cory Circuit, Hume, ACT 2620

Defence 3 Year Regional Contamination Investigation Program

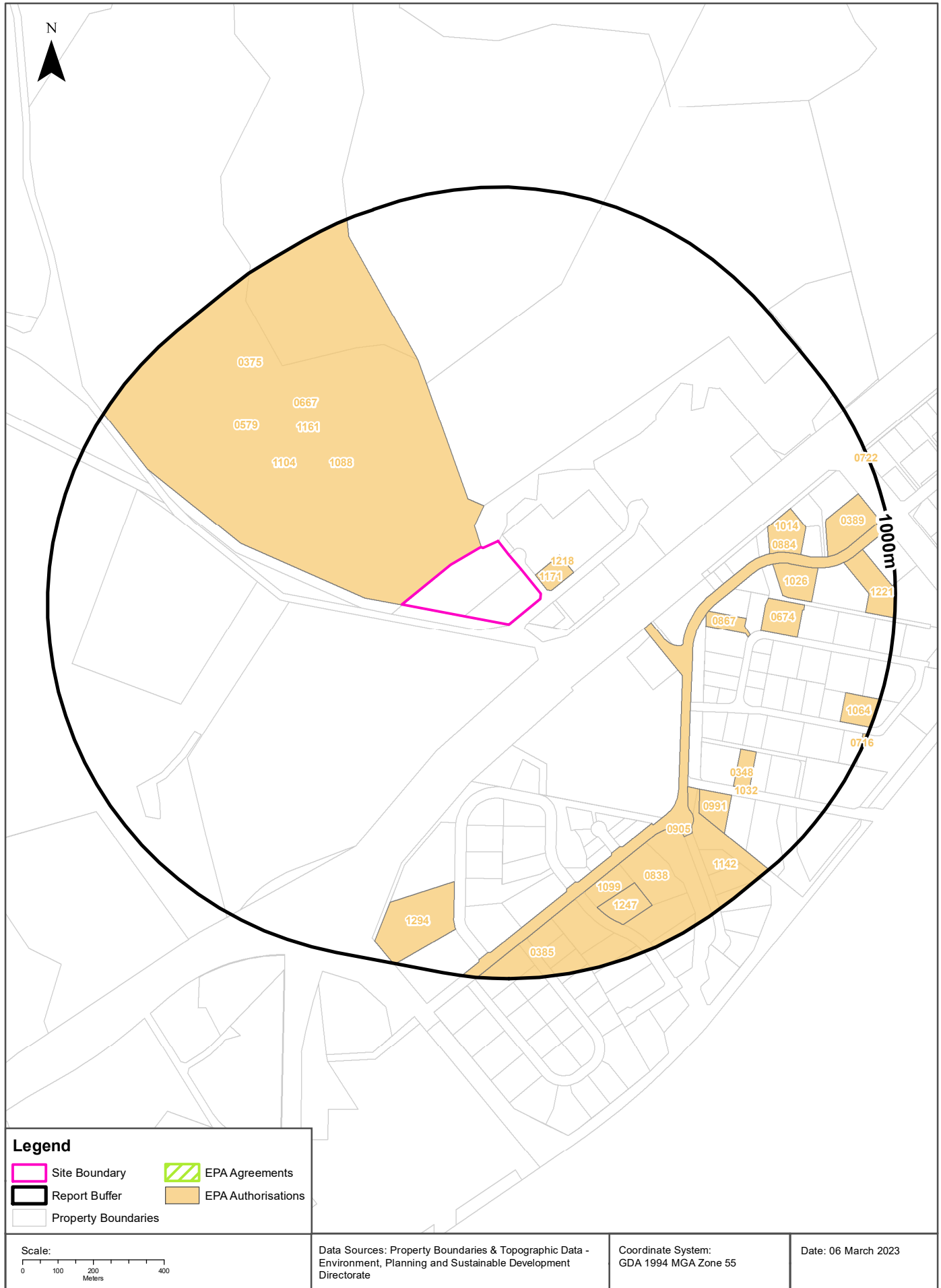
Sites which have been assessed as part of the Defence 3 Year Regional Contamination Investigation Program within the dataset buffer:

Property ID	Base Name	Address	Known Contamination	Loc Conf	Dist	Dir
N/A	No records in buffer					

Defence 3 Year Regional Contamination Investigation Program, Data Custodian: Department of Defence, Australian Government

EPA Authorisations and Agreements

1 John Cory Circuit, Hume, ACT 2620



EPA Authorisations & Agreements

1 John Cory Circuit, Hume, ACT 2620

EPA Authorisations

EPA Authorisations within the report buffer:

Note. Please click on ID Number to activate a hyperlink to online documentation. If link does not work, no documentation is accessible via the EPA.

ID Number	Activity	Business / Individual Name	Grant Date	Expiry Date	Status	Loc Conf	Distance	Direction
0579	Placement of soil on land (Activity 7)	ACT NOWaste	9/11/2007	9/11/2008	Expired	Premise Match	0m	North West
0667	Placement of soil on land (Activity 7)	ACT NOWaste	4/6/2009		Current	Premise Match	0m	North West
1088	Extraction of Material from waterways; Greater than 100m3 (Activity 1)	Huon Contractors Pty Ltd	6/21/2016	6/21/2017	Expired	Premise Match	0m	North West
1104	Operation of crushing, grinding and separation (Activity 43)	Dale and Hitchcock Civil Engineering and Landscaping	11/11/2016	11/15/2017	Ceased	Premise Match	0m	North West
1161	Operation of crushing, grinding and separation (Activity 43)	Dale and Hitchcock Civil Engineering and Landscaping	5/23/2018	7/8/2020	Ceased	Premise Match	0m	North West
1171	Operation of waste transfer (Activity 48)	Re-Cycle Operations (Canberra) Pty Ltd	11/30/2018		Cancelled	Premise Match	19m	East
1218	Operation of waste transfer (Activity 48)	Re.Cycle Operations (Canberra) Pty Ltd	11/6/2019		Current	Premise Match	19m	East
0838	Extraction of Material from waterways; Greater than 100m3 (Activity 1)	BMD Constructions	5/16/2011	5/16/2012	Expired	Premise Match	301m	South
0905	Extraction of Material from waterways; Greater than 100m3 (Activity 1)	BMD Constructions	6/21/2012	5/21/2013	Expired	Road Match	301m	South East
0867	Petroleum storage (Activity 30)	Ampol Australia Petroleum Pty Ltd - HUME Diesel Stop	12/20/2011		Current	Premise Match	467m	East
0674	Regulated Waste (Activity 9)	Cleanaway Pty Ltd	8/26/2009		Current	Premise Match	624m	East
0884	Petroleum storage (Activity 30)	Mini-Tankers Australia Pty Ltd	1/18/2012	1/18/2015	Expired	Premise Match	652m	East
1014	Petroleum storage (Activity 30)	Mini-Tankers Australia Pty Ltd	2/19/2015		Current	Premise Match	652m	East
1026	Regulated Waste (Activity 9)	Dale & Hitchcock Civil Pty Ltd	5/7/2015		Current	Premise Match	656m	East
1142	Extraction of Material from waterways; Greater than 100m3 (Activity 1)	Chincivil Pty Ltd	11/20/2017	11/20/2018	Expired	Premise Match	693m	South East
0991	Regulated Waste (Activity 9)	Irwin & Hartshorn Pty Ltd	7/14/2014	8/18/2022	Ceased	Premise Match	698m	South East
1032	Regulated Waste (Activity 9)	Remondis Australia Pty Ltd	8/12/2015		Current	Premise Match	698m	South East
0375	Commercial Landfill (Activity 6)	Remondis Australia Pty Ltd	5/21/2002		Current	Premise Match	702m	North West
0348	Production of concrete (Activity 41)	Elvin Group Pty Ltd trading as Tuggeranong Premix Concrete	8/9/2001		Current	Premise Match	704m	South East
1294	Operation of waste transfer (Activity 48)	Carmody & Sons Pty Ltd - T/as Tiger Waste Collection	8/18/2022		Current	Premise Match	740m	South
1099	Operation of crushing, grinding and separation (Activity 43)	Southern State Waste Recycling	3/23/2017	5/16/2018	Ceased	Premise Match	741m	South East
1247	Production of road building materials (Activity 42)	Southern Asphalt Production Pty Ltd	12/15/2020		Current	Premise Match	809m	South East
0389	Timber (Activity 38)	Integrated Forest Products Pty Ltd	10/18/2002	12/12/2007	Ceased	Premise Match	813m	East
0385	Preservation of wood designed to process 10 000m3 or more of wood per year (Activity 40)	Koppers Timber Preservation	7/25/2002	12/14/2005	Ceased	Premise Match	835m	South

ID Number	Activity	Business / Individual Name	Grant Date	Expiry Date	Status	Loc Conf	Distance	Direction
1221	Petroleum storage (Activity 30)	Canberra Data Centres Pty Ltd	11/18/2019		Current	Premise Match	856m	East
1064	Transport of Controlled Waste (Activity 8)	J.J. Richards & Sons Pty Ltd	12/22/2015		Current	Premise Match	898m	East
1064	Transport of Controlled Waste (Activity 8)	J.J. Richards & Sons Pty Ltd	12/22/2015		Current	Premise Match	898m	East
0716	Production of road building materials (Activity 42)	Downer EDI Works Pty Ltd	12/2/2010		Current	Premise Match	983m	East
0722	Petroleum storage (Activity 30)	EG Fuelco (Australia) Limited - HUME	1/14/2010		Current	Premise Match	986m	East

EPA Authorisations Data Source: ACT Government Environment Protection Authority
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EPA Agreements

Note. Due to the lack of premise details within the documentation, this list does not include the following agreement:

Land development

EPA Agreements within the report buffer:

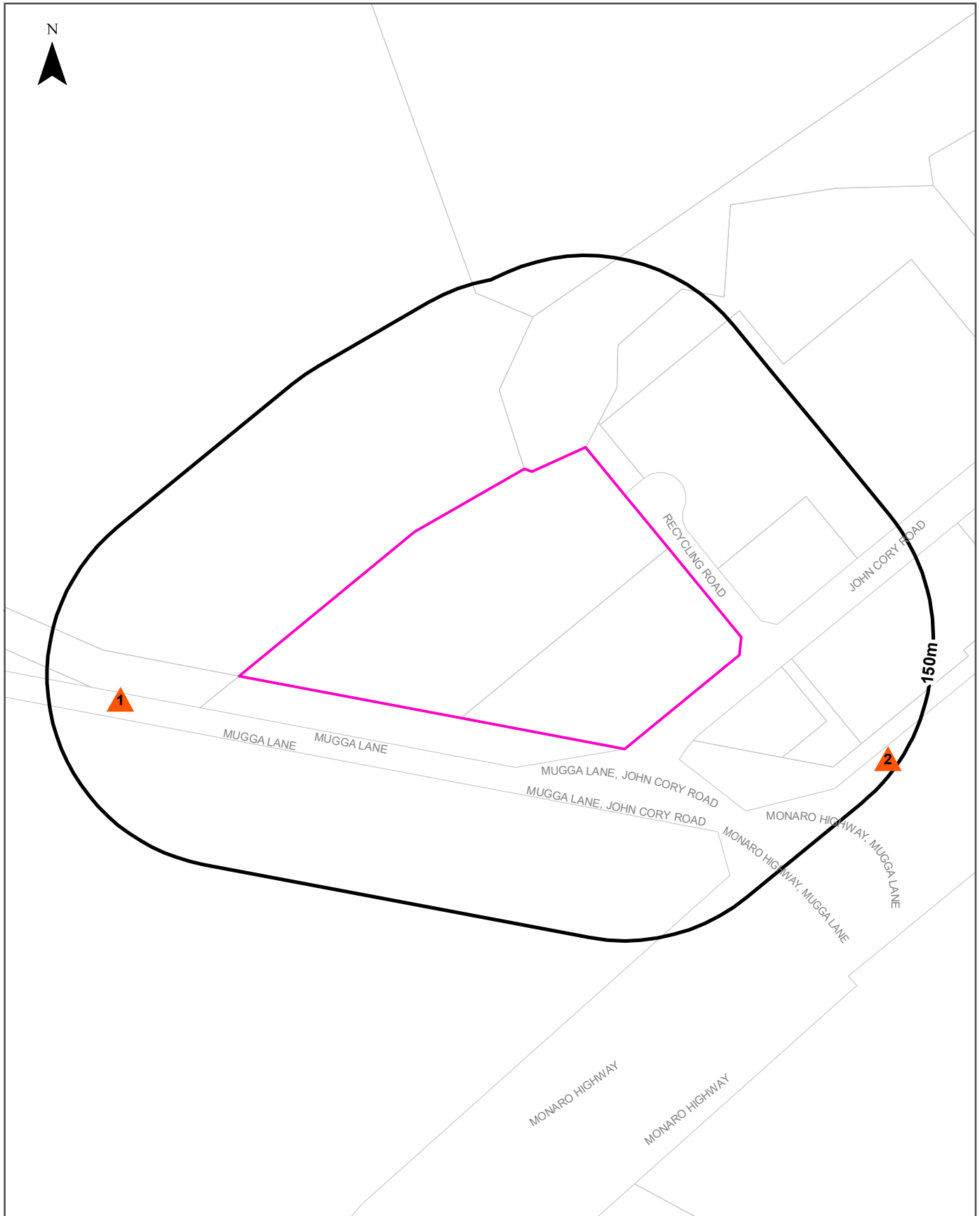
Note. Please click on ID Number to activate a hyperlink to online documentation. If link does not work, no documentation is accessible via the EPA.

ID Number	Agreement Type	Business / Individual Name	Grant Date	Expiry Date	Status	Loc Conf	Distance	Direction
N/A	No records in buffer							

EPA Agreements Data Source: ACT Government Environment Protection Authority
Creative Commons 4.0 © <https://creativecommons.org/licenses/by/4.0/>

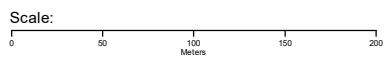
Historical Business Directories

1 John Cory Circuit, Hume, ACT 2620



Legend

- Site Boundary
- Buffer 150m
- Property Boundary
- Business directory records mapped to a specific premise
- Business directory records mapped to a road intersection
- Business directory records mapped to a road corridor
- Business directory records mapped to a general area



Coordinate System:
GDA 1994 MGA Zone 55

Date: 06 March 2023

Data Sources: Reproduced with permission of UBD and Hardie Grant Media Pty Ltd DD 01/08/2018
Property Boundaries © Environment, Planning and Sustainable Development Directorate 2023

Historical Business Directories

1 John Cory Circuit, Hume, ACT 2620

Business Directory Records 1950-1991 Premise or Road Intersection Matches

Universal Business Directory records from years 1950, 1961, 1970, 1982 and 1991, mapped to a premise or road intersection, within the dataset buffer:

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
	No records in buffer						

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Business Directory Records 1950-1991 Road or Area Matches

Universal Business Directory records from years 1950, 1961, 1970, 1982 and 1991, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published.

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
1	BLUE METAL SUPPLIES	Blue Metal & Gravel Pty. Ltd., Mugga Lane, Woden	932	1970	Road Match	39m
	GRAVEL, SAND & SOIL SUPPLIES	Blue Metal & Gravel Pty. Ltd., Mugga Lane, Woden	3584	1970	Road Match	39m
	QUARRY PROPRIETORS	Blue Metal & Gravel Pty. Ltd., Mugga Lane, Woden	5978	1970	Road Match	39m
	GRAVEL, SAND & SOIL SUPPLIES	Quarries Pty. Ltd., Mugga Lane, Woden	3595	1970	Road Match	39m
	QUARRY PROPRIETORS	Quarries Pty. Ltd., Mugga Lane, Woden	5979	1970	Road Match	39m
2	TIMBER MERCHANTS &/OR SAWMILLERS	Integrated Forest Products Pty. Ltd., Monaro H'way., Canberra .(A.C.T.)	7060	1982	Road Match	129m

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Historical Business Directories

1 John Cory Circuit, Hume, ACT 2620

Dry Cleaners, Motor Garages & Service Stations 1950-1991 Premise or Road Intersection Matches

Dry Cleaners, Motor Garages & Service Stations from UBD Business Directories for years 1950, 1961, 1970, 1982 and 1991, mapped to a premise or road intersection, within the dataset buffer:

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
	No records in buffer						

Reproduced with permission of UBD and Hardie Grant Media Pty Ltd DD 01/08/2018

Dry Cleaners, Motor Garages & Service Stations 1950-1991 Road or Area Matches

Dry Cleaners, Motor Garages & Service Stations from UBD Business Directories for years 1950, 1961, 1970, 1982 and 1991, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published.

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
	No records in buffer					



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Aerial Imagery 2019

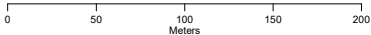
1 John Cory Circuit, Hume, ACT 2620



Legend

-  Site Boundary
-  Buffer 150m

Scale:



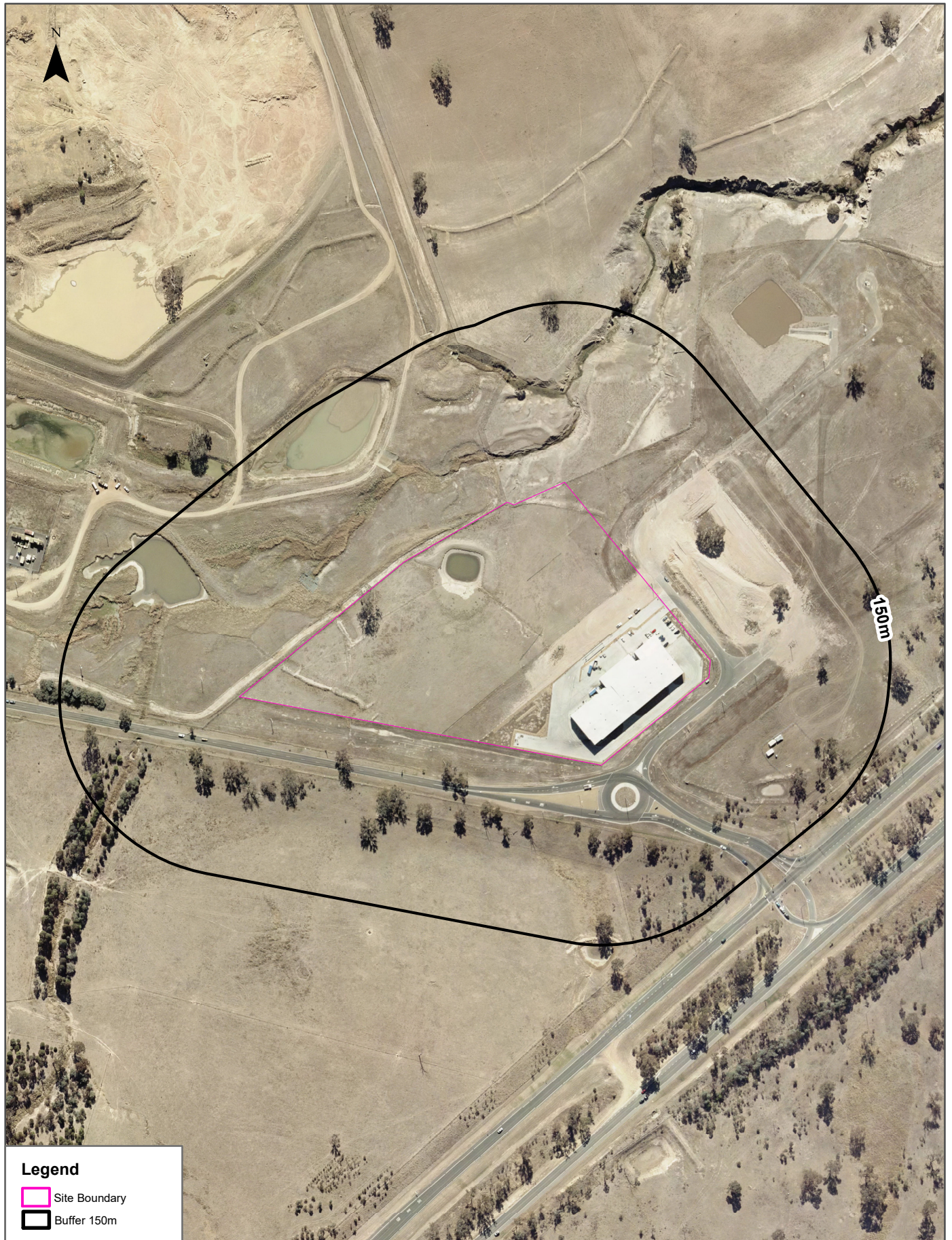
Data Sources: Aerial Imagery © Aerometrex Pty Ltd

Coordinate System:
GDA 1994 MGA Zone 55



Date: 06 March 2023

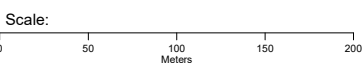
Aerial Imagery 2004

1 John Cory Circuit, Hume, ACT 2620



Legend

-  Site Boundary
-  Buffer 150m



Data Sources: Aerial Imagery © Aerometrex Pty Ltd

Coordinate System:
GDA 1994 MGA Zone 55

Date: 06 March 2023

Aerial Imagery 1997

1 John Cory Circuit, Hume, ACT 2620



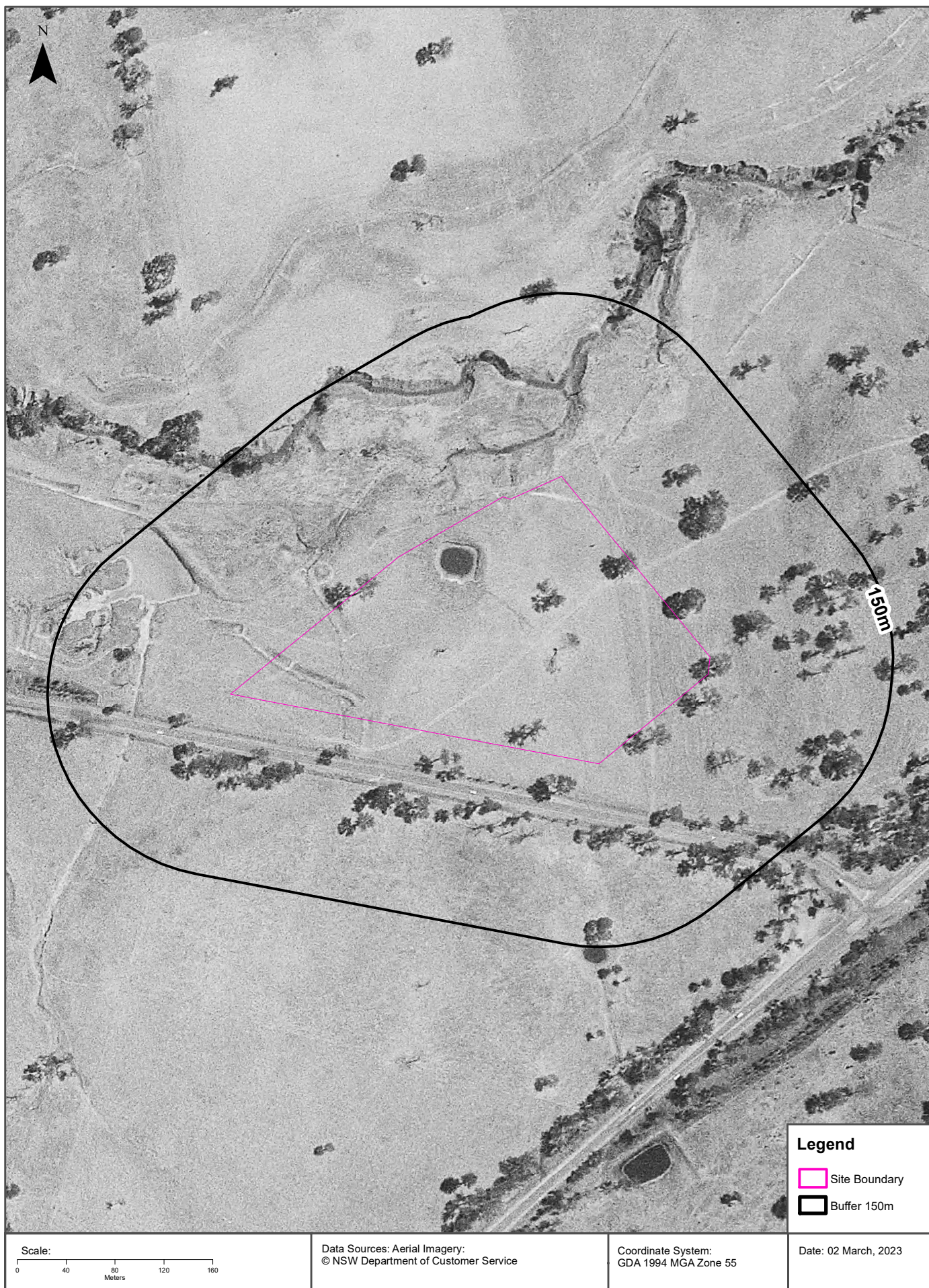
Aerial Imagery 1992

1 John Cory Circuit, Hume, ACT 2620



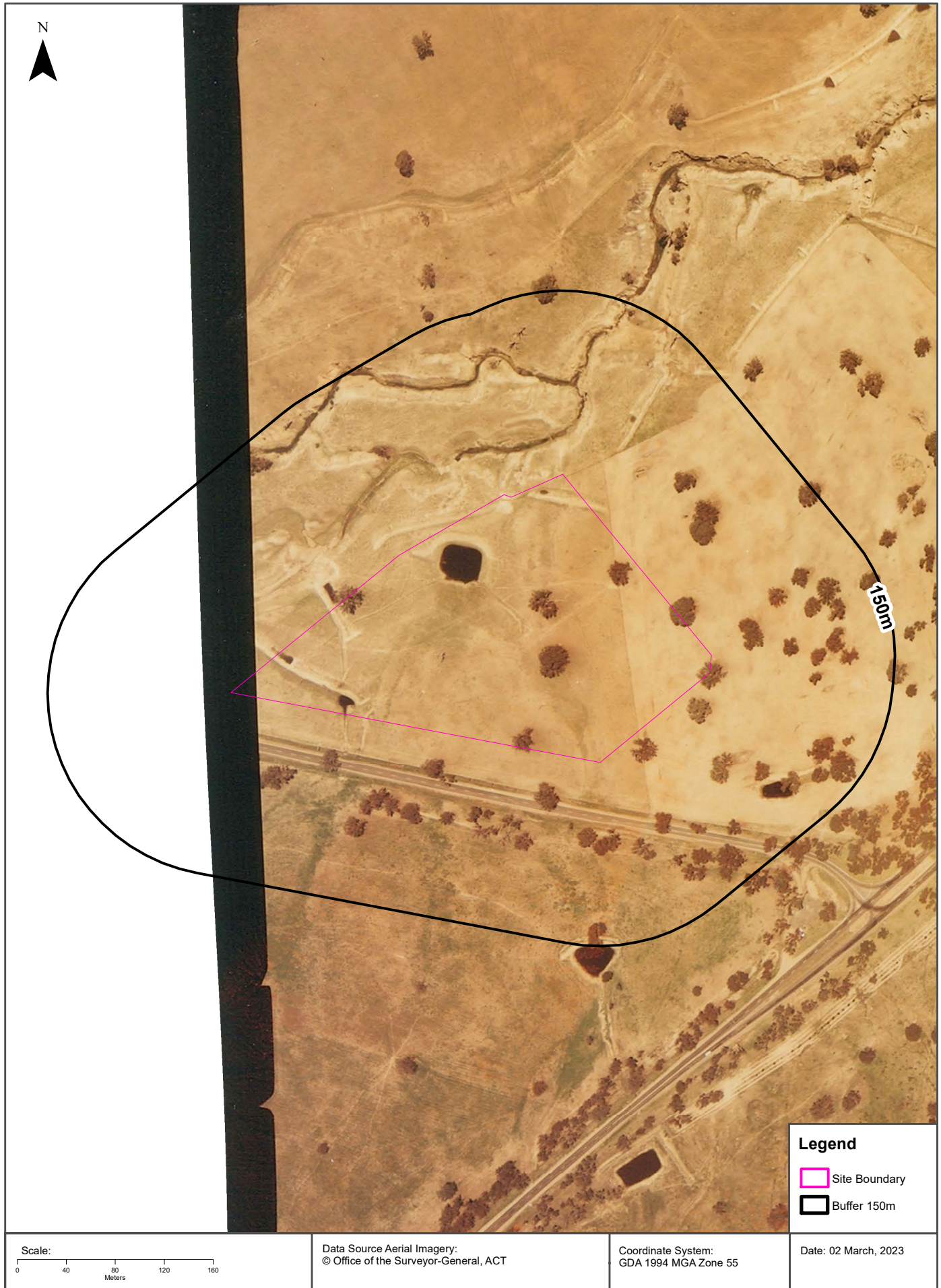
Aerial Imagery 1985

1 John Cory Circuit, Hume, ACT 2620



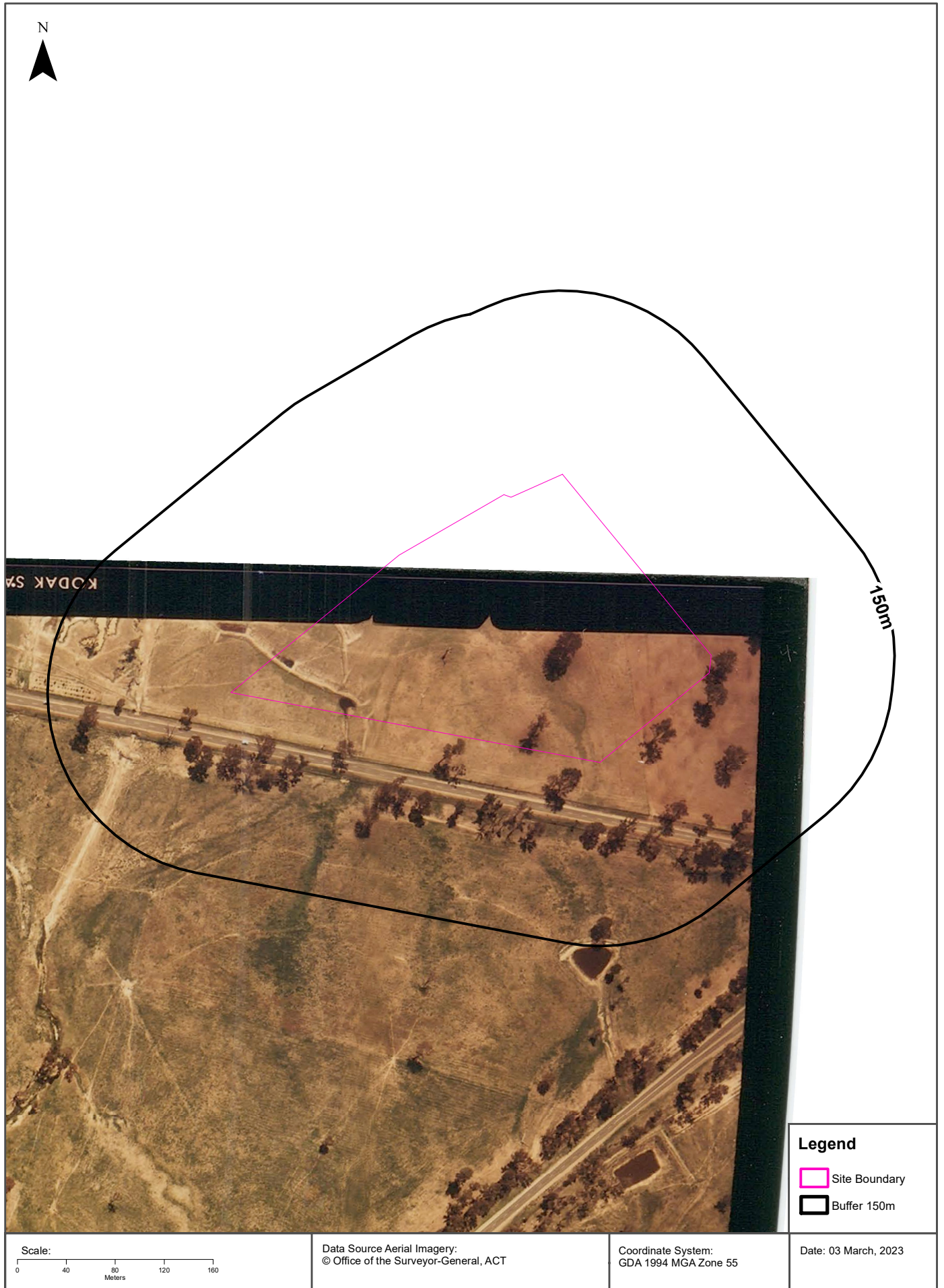
Aerial Imagery 1981

1 John Cory Circuit, Hume, ACT 2620



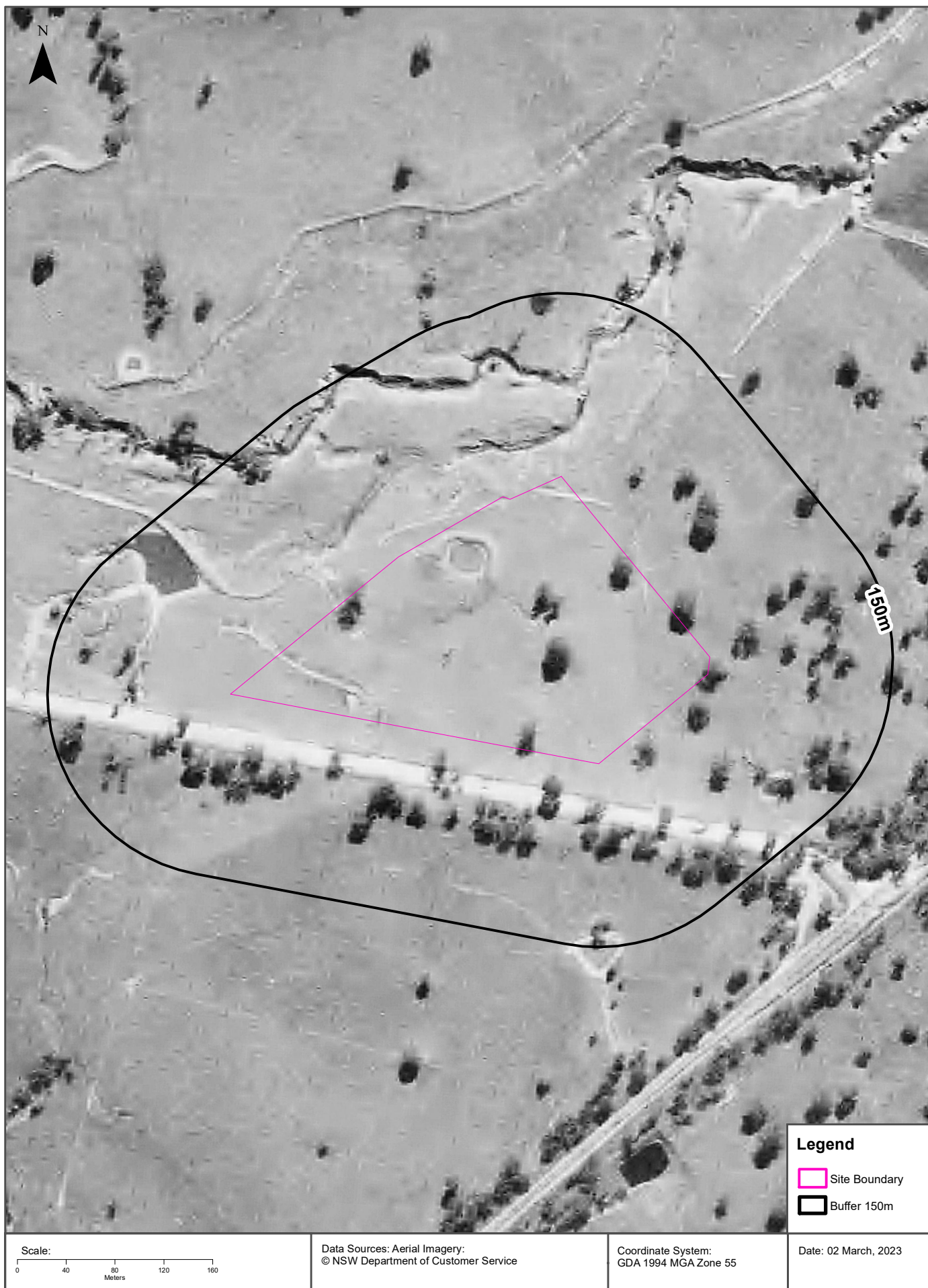
Aerial Imagery 1981

1 John Cory Circuit, Hume, ACT 2620



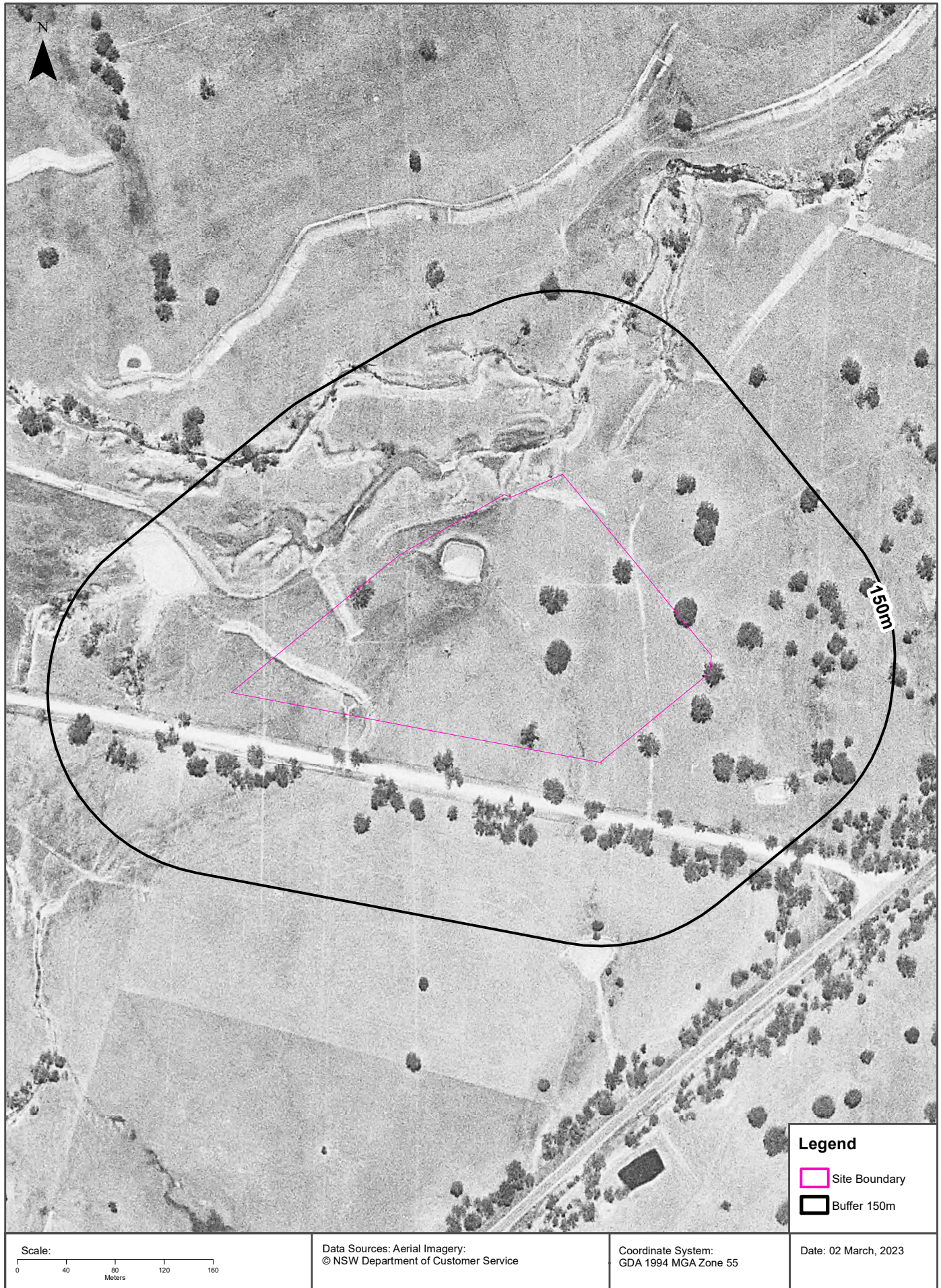
Aerial Imagery 1976

1 John Cory Circuit, Hume, ACT 2620



Aerial Imagery 1967

1 John Cory Circuit, Hume, ACT 2620



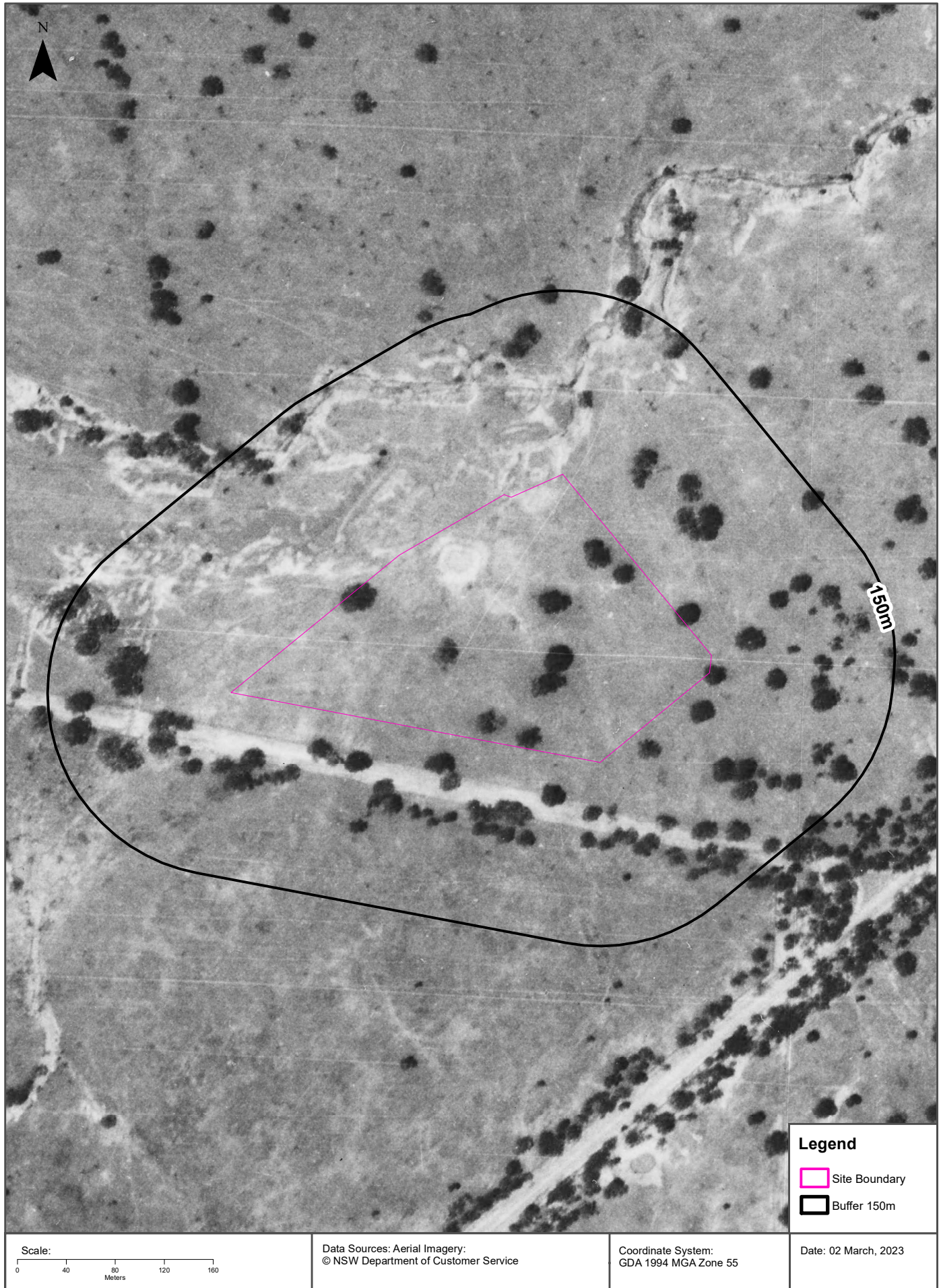
Aerial Imagery 1961

1 John Cory Circuit, Hume, ACT 2620



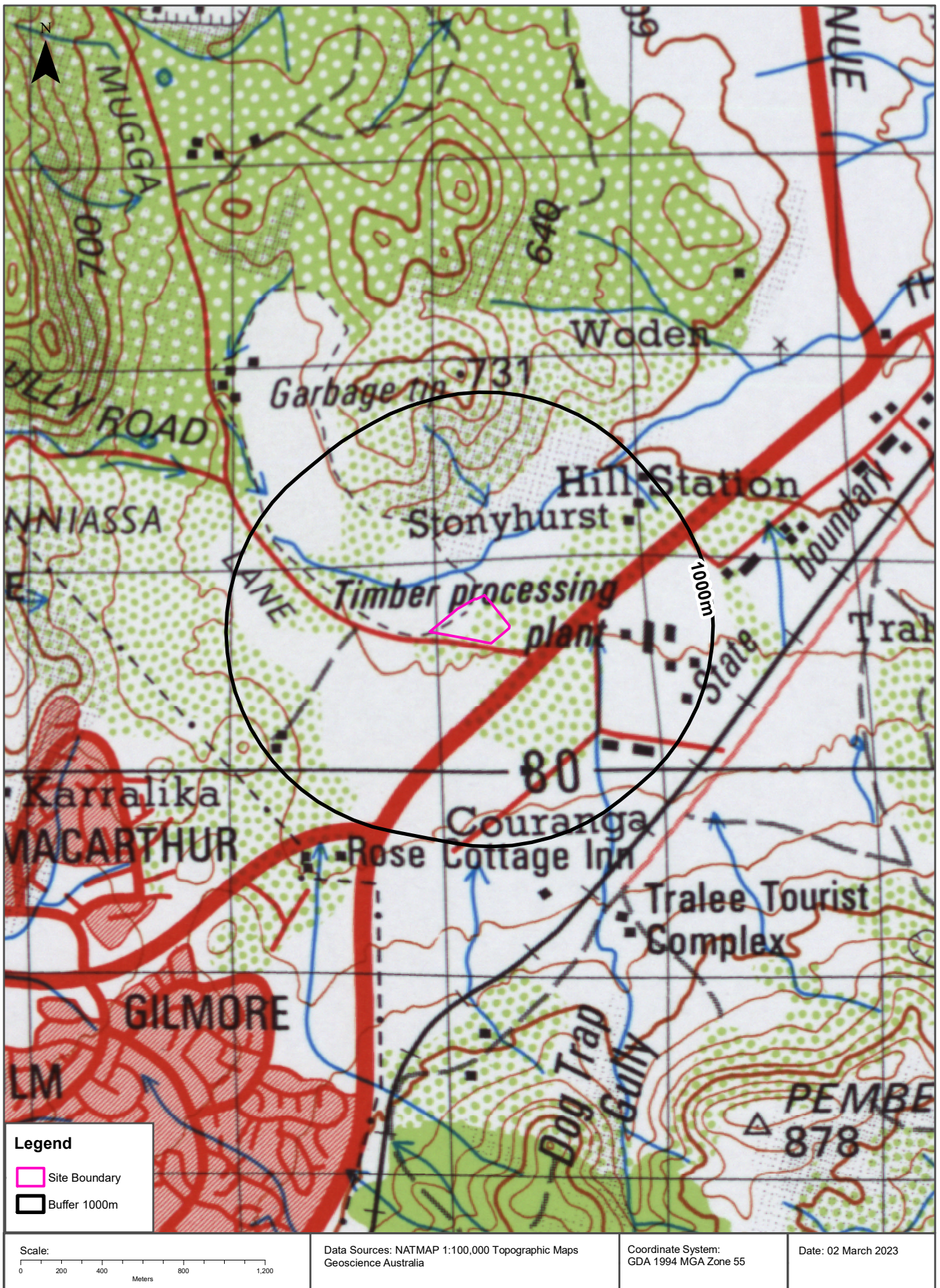
Aerial Imagery 1944

1 John Cory Circuit, Hume, ACT 2620



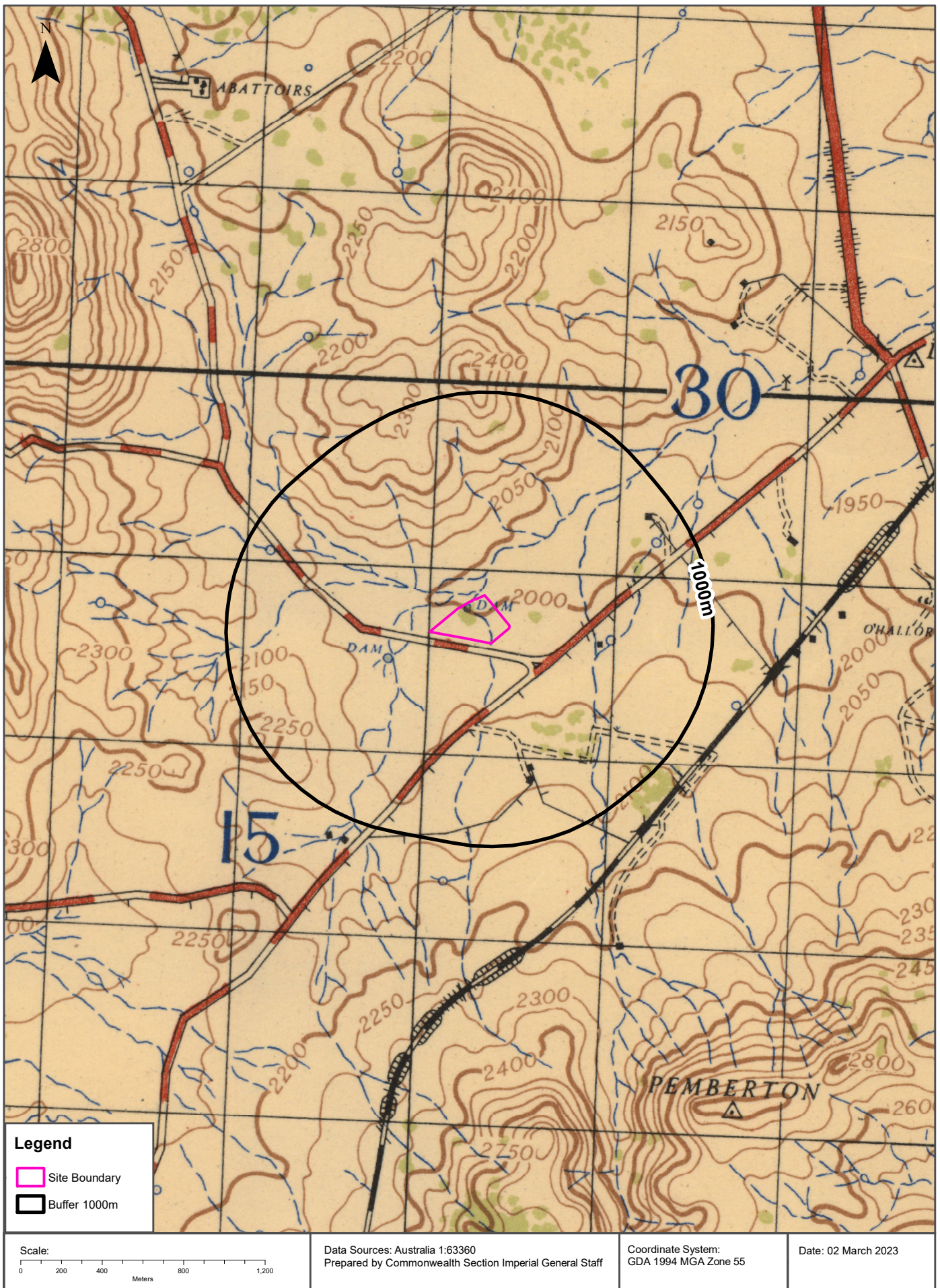
Historical Map 1987

1 John Cory Circuit, Hume, ACT 2620



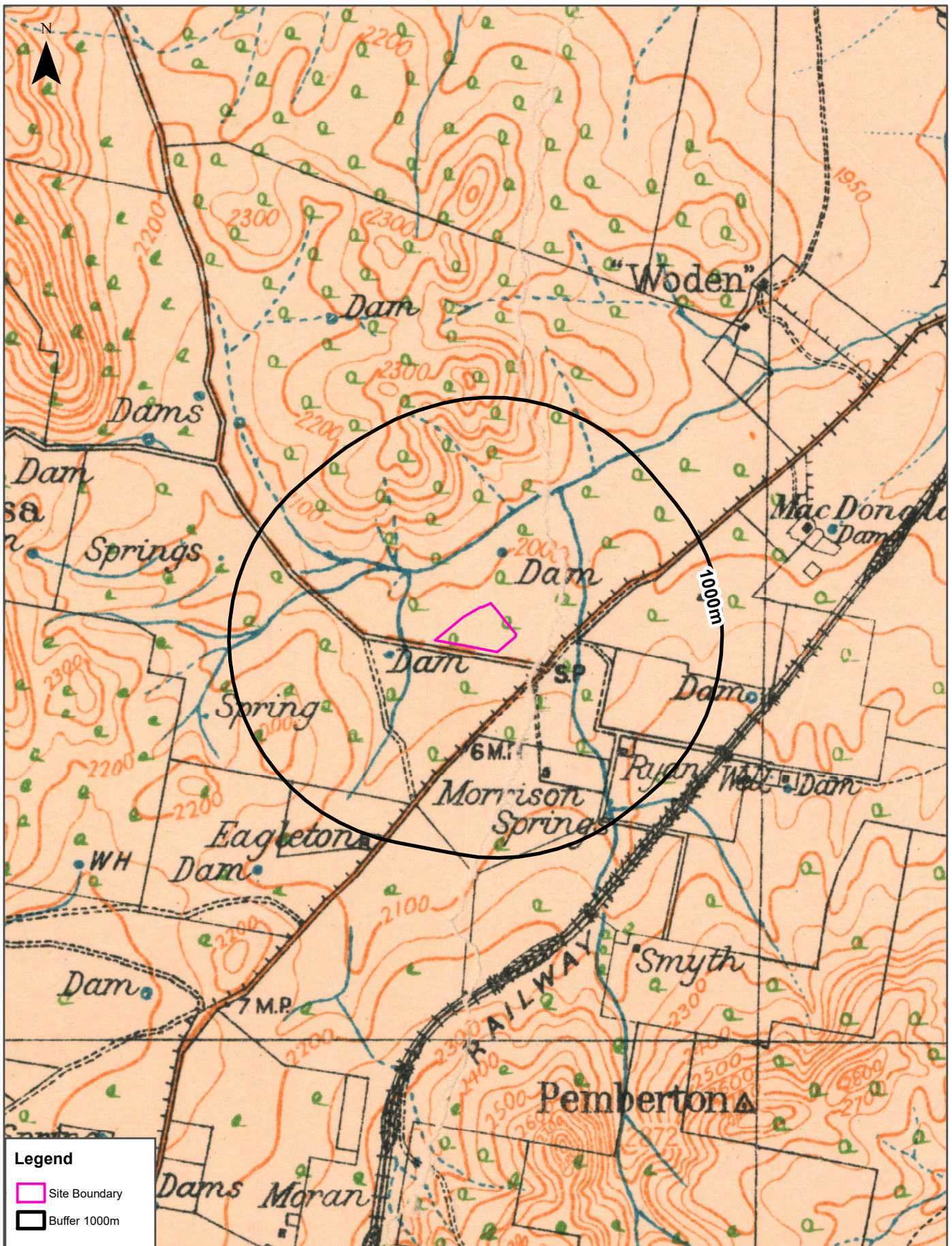
Historical Map 1942

1 John Cory Circuit, Hume, ACT 2620



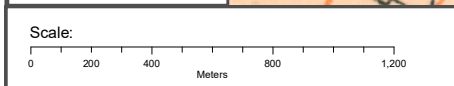
Historical Map 1914

1 John Cory Circuit, Hume, ACT 2620



Legend

- Site Boundary
- Buffer 1000m



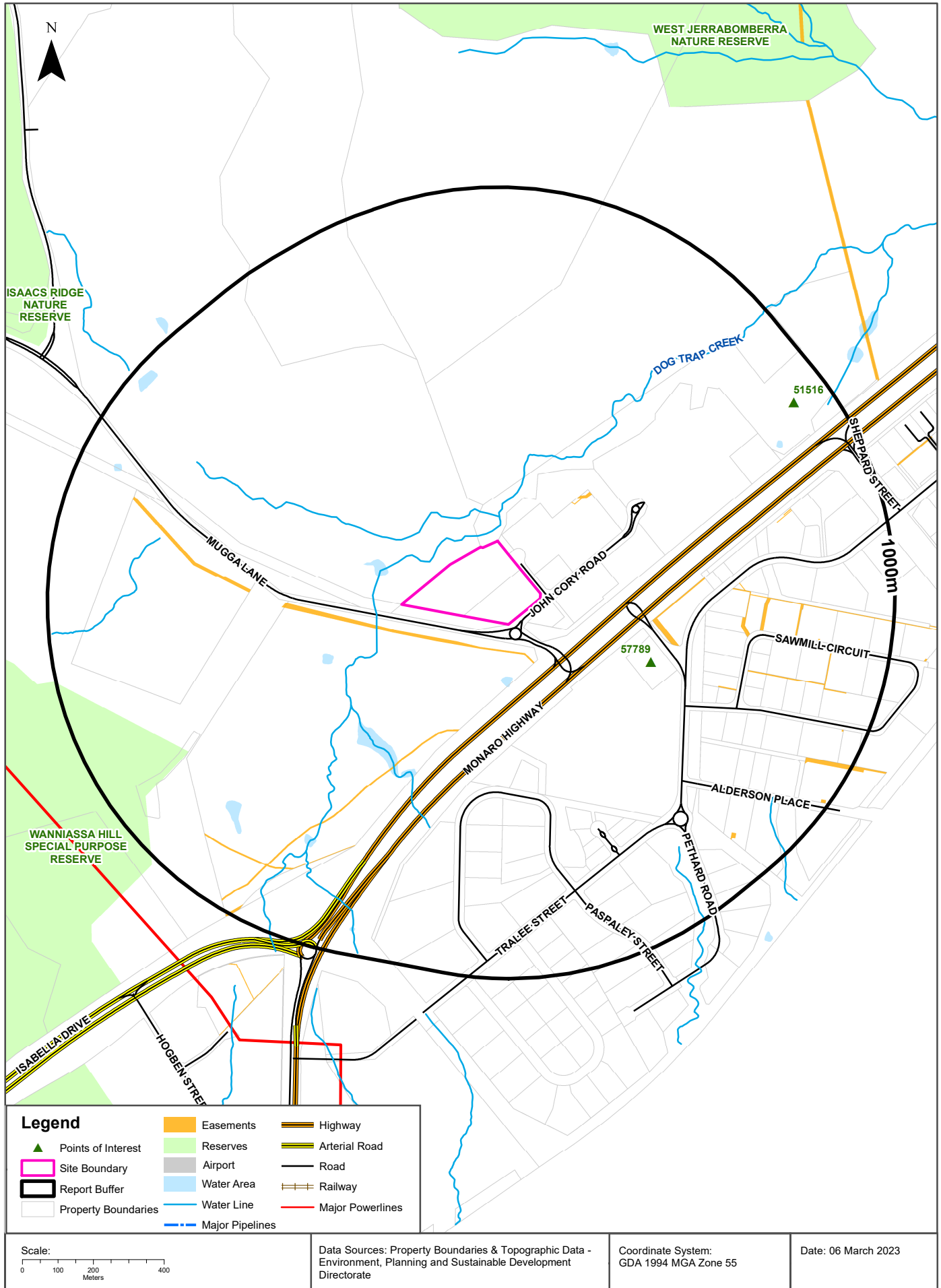
Data Sources: Australia 1:63360
Prepared by Commonwealth Section Imperial General Staff

Coordinate System:
GDA 1994 MGA Zone 55

Date: 02 March 2023

Topographic Features

1 John Cory Circuit, Hume, ACT 2620



Topographic Features

1 John Cory Circuit, Hume, ACT 2620

Features of Interest

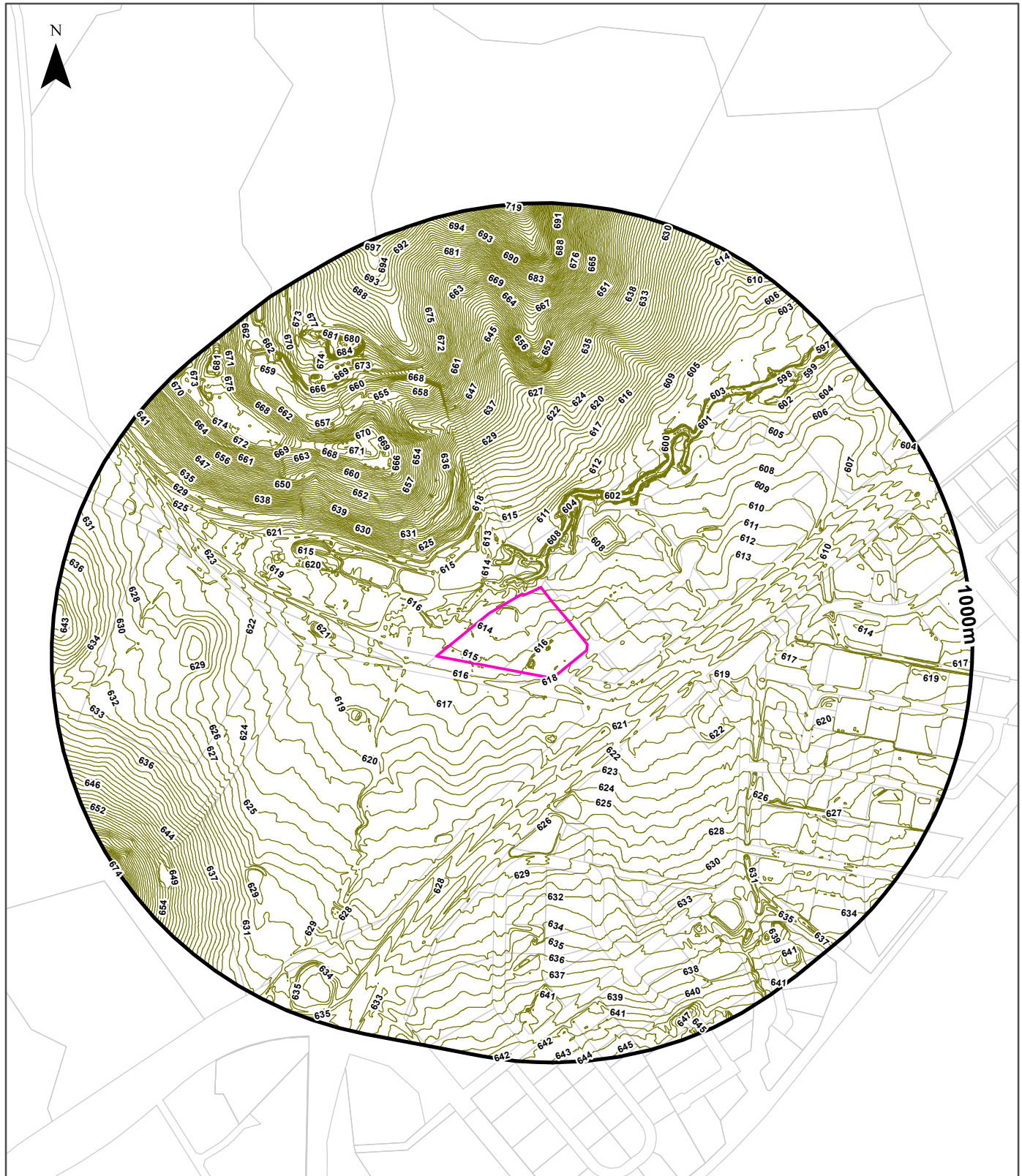
What Features of Interest exist within the report buffer?

Map Id	Feature Type	Name	Description	Distance	Direction
57789		ACT Forests Public Weigh Bridge	UNCATEGORIZED	359m	South East
51516	HOMESTEAD, OUTSTATION, OUTCAMP, WOOLSHED	Stonyhurst	AGRICULTURE - HORSE AGISTMENT, LIVESTOCK GRAZING	894m	North East

Features of Interest Data Source: ACT Government Creative Commons 4.0 © <https://creativecommons.org/licenses/by/4.0/>

Elevation Contours (2015 - 1m)

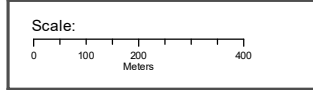
1 John Cory Circuit, Hume, ACT 2620



Legend

- Site Boundary
- Report Buffer
- Property Boundaries
- Elevation Contour (m)

Automatically generated 1m contours of the ACT derived from 1m hydro-flattened DEM. Major lakes and dams within the ACT were assigned an elevation to produce a hydro-flattened DEM. 1m DEMs derived from 4ppm and 8ppm LiDAR were used as the input DEMs and polygons of major water bodies were used to determine the extent of lakes within the DEM extent. The input DEM defines the classified Australian Height Datum (AHD) LiDAR point cloud data as a 1 meter Digital Elevation Model (DEM). The Water Features data were digitised in 1995 from the following map sources - 1:10,000 Plan Series, 1:2,500 Cadastre, 1:2,500 Detail, 1:1,000 Detail and traced from Topobase. The mean elevation of each of these polygons was used to hydro-flatten the corresponding water bodies in the DEM. Contours were generated from the DEM using ESRI ArcGIS Contour tool.



Data Sources: Property Boundaries & Topographic Data - Environment, Planning and Sustainable Development Directorate

Coordinate System: GDA 1994 MGA Zone 55

Date: 06 March 2023

Hydrogeology & Groundwater

1 John Cory Circuit, Hume, ACT 2620

Hydrogeology

Description of aquifers on-site:

Description
Fractured or fissured, extensive aquifers of low to moderate productivity

Description of aquifers within the report buffer:

Description
Fractured or fissured, extensive aquifers of low to moderate productivity

Hydrogeology Map of Australia : Commonwealth of Australia (Geoscience Australia)
Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

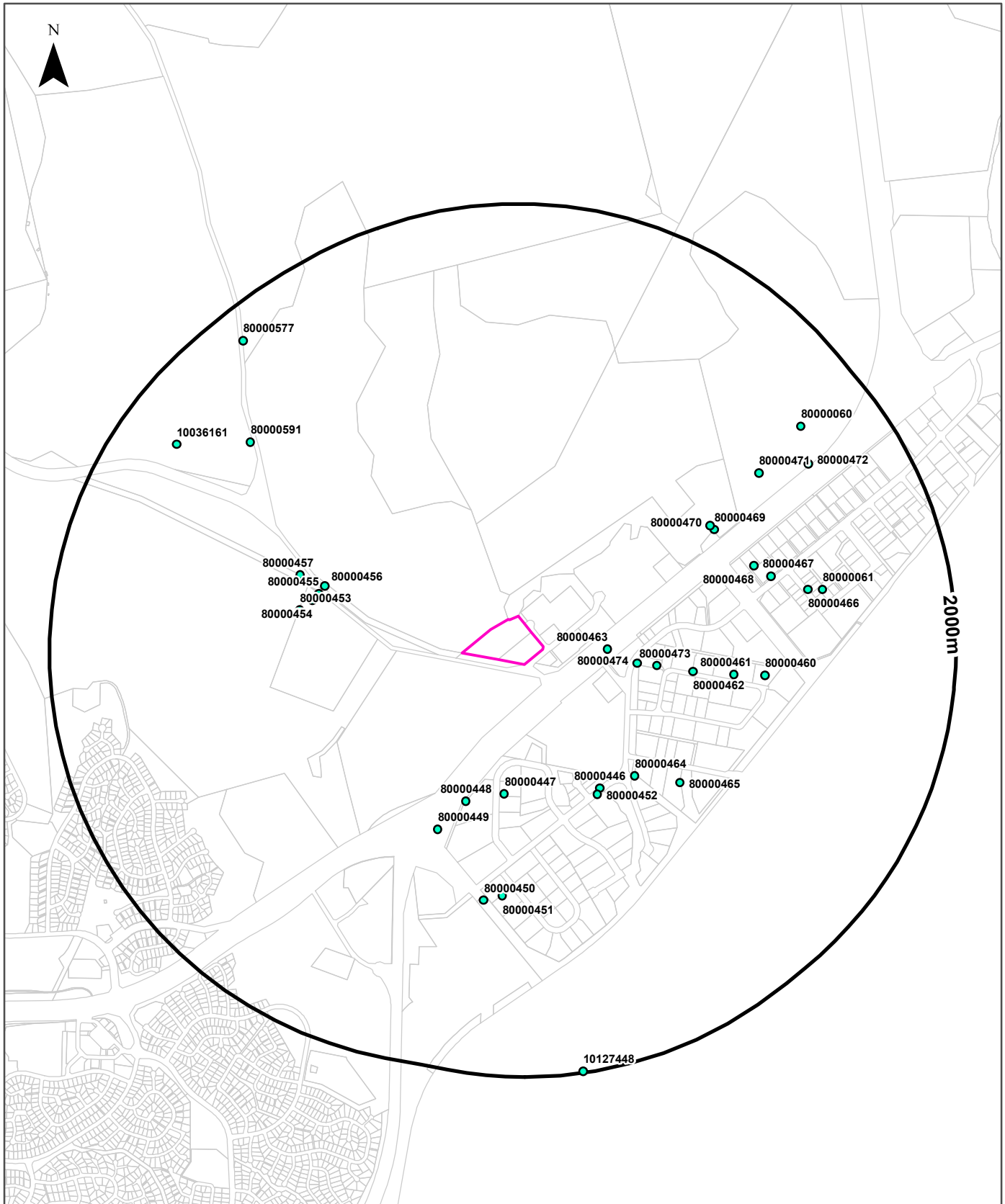
Hydrogeological Landscapes Units

Unit No	Landscape Name	Land Salinity	Stream Salinity	Stream EC	Salt Store	Salt Availability	Salt Mobility	Hazard Impact	Hazard Likelihood	Hazard Overall	Distance	Direction
24	Symonston	Low	Low	Low	Moderate	Moderate	Moderate	Limited	Moderate	Low	0m	Onsite

Hydrogeological Landscapes Units Data Source: ACT Government Creative Commons 4.0 ©
<https://creativecommons.org/licenses/by/4.0/>

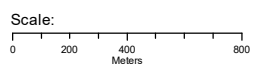
Groundwater Boreholes

1 John Cory Circuit, Hume, ACT 2620



Legend

- Site Boundary
- Report Buffer
- Property Boundary
- ▲ Borehole (ACT)
- Borehole (Bureau of Meteorology)



Data Sources: Property Boundaries & Topographic Data - Environment, Planning and Sustainable Development Directorate

Coordinate System: GDA 1994 MGA Zone 55

Date: 06 March 2023

Hydrogeology & Groundwater

1 John Cory Circuit, Hume, ACT 2620

Groundwater Boreholes (ACT)

Please note that this dataset does not include investigation and/or monitoring bores associated with possible contaminated sites in the search area. If you require more information please contact the Environmental Quality team via email environment.protection@act.gov.au or phone via Access Canberra 13 22 81.

Boreholes from an ACT Government Data Source within 2km of the site:

Bore Id	Bore Type	Method	Date	Bore Depth To	Bit Diameter	1st Water Intersection Depth From	1st Water Intersection Depth To	Final Static GW Level IM	1st Est Yield	Final Yield	Dist	Direction
N/A	No records in buffer											

Boreholes (ACT) Data Source: ACT Government Creative Commons 4.0 © <https://creativecommons.org/licenses/by/4.0/>

Hydrogeology & Groundwater

1 John Cory Circuit, Hume, ACT 2620

Groundwater Boreholes (Bureau of Meteorology)

Boreholes (Bureau of Meteorology) within 2km of the site:

Hydro ID	State Bore ID	Drilled Date	Final Depth	Drilled Depth	Elevation	Distance	Direction
80000463	620		5.67	5.67	619.37	313m	East
80000474	631		4.58	4.58	620.39	463m	East
80000473	630		5.17	5.17	620.60	558m	East
80000447	604	11/06/1981	5.94	5.94	632.42	634m	South
80000446	603	11/06/1981	4.40	4.40	634.30	703m	South East
80000448	605	12/06/1981	9.20	9.20	633.47	704m	South
80000452	609	22/06/1981	15.55	15.55	634.13	724m	South East
80000462	619		6.84	6.84	620.40	735m	East
80000456	613	19/06/1981	9.60	9.60	628.64	739m	West
80000455	612	18/06/1981	9.80	9.80	629.41	751m	West
80000464	621				634.30	757m	South East
80000454	611	18/06/1981	7.50	7.50	629.68	769m	West
80000453	610	17/06/1981	8.10	8.10	630.37	813m	West
80000449	606	16/06/1981	9.50	9.50	635.21	864m	South
80000457	614	23/06/1981	15.55	15.55	631.35	869m	West
80000465	622		4.30	4.30	635.27	929m	South East
80000461	618		4.06	4.06	618.17	935m	East
80000470	627		5.85	5.85	606.13	1000m	North East
80000469	626		5.87	5.87	605.35	1004m	North East
80000460	617		6.83	6.83	621.77	1084m	East
80000468	625		5.75	5.75	607.25	1093m	East
80000451	608	17/06/1981	9.60	9.60	648.11	1127m	South
80000467	624		5.71	5.71	607.56	1156m	East
80000450	607	16/06/1981	6.24	6.24	649.39	1162m	South
80000466	623		5.41	5.41	608.41	1313m	East
80000471	628		4.52	4.52	594.88	1341m	North East
80000061	48	14/08/1954	39.62	39.62	608.17	1381m	East
80000591	780	02/12/1983	68.90	68.90	644.86	1447m	North West
80000472	629		4.50	4.50	592.43	1562m	North East
80000060	47	01/01/1952	24.69	24.69	591.14	1643m	North East

Hydro ID	State Bore ID	Drilled Date	Final Depth	Drilled Depth	Elevation	Distance	Direction
10036161	GW020907	01/09/1952	25.90	25.90	657.17	1711m	North West
80000577	740	18/01/1983	22.86	22.86	651.72	1841m	North West
10127448	GW414716	05/05/2011	132.00		729.01	1993m	South

Borehole Data Source : © Commonwealth of Australia (Bureau of Meteorology) . Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

Driller's Logs (Bureau of Meteorology)

Drill log data relevant to the Boreholes (Bureau of Meteorology) within 2km of the site:

Hydro ID	State Bore ID	Drillers Log	Distance	Direction
80000447	604	0.00m-0.01m Dark brown organic silt 0.01m-0.06m Bleached gravelly silt 0.06m-0.08m Yellow-grey mottled clay and feldspars 0.08m-0.13m Light brown gravelly silt 0.13m-0.13m Red and grey mottled clay 0.13m-0.15m Purple volcanic (dacite)	634m	South
80000446	603	0.00m-0.07m Brown coarse sandy gravel 0.07m-0.09m Light brown coarse sandy silt 0.09m-0.11m Light brown silty sand	703m	South East
80000448	605	0.00m-0.01m Dark brown organic silt 0.01m-0.03m Poorly sorted clayey gravel 0.03m-0.04m Silty gravel 0.04m-0.08m Bleached silty clayey gravel 0.08m-0.15m Loose poorly sorted brown silty gravel 0.15m-0.18m Loose poorly sorted brown silty gravel 0.18m-0.22m Grey-brown mottled gravelly clay 0.22m-0.23m Bedrock - purple dacite	704m	South
80000452	609	0.00m-0.12m No core 0.12m-0.16m Coarse clayey gravel 0.16m-0.18m Pale grey heavy clay 0.18m-0.26m Moderately weathered purple dacite 0.26m-0.39m Slightly weathered purple dacite	724m	South East
80000454	611	0.00m-0.01m Light grey silt 0.01m-0.04m Light grey clay with sequioxides and feldspars 0.04m-0.05m Poorly sorted gravelly clay 0.05m-0.13m Light brown clayey sand with sequioxide and quartz 0.13m-0.15m Olive clay 0.15m-0.16m Poorly sorted coarse sand 0.16m-0.19m Olive clay and yellow mottles	769m	West
80000453	610	0.00m-0.01m Light grey fine sand and sediment rock fragments 0.01m-0.05m Light brown yellow fine sand and rock fragments 0.05m-0.10m Grey clay and some sequioxide stains and angular quartz 0.10m-0.14m Light grey clay and abundant carbonate nodules 0.14m-0.16m Grey yellow mottled gravelly clay 0.16m-0.18m Yellow brown fine sand 0.18m-0.19m Olive gravelly silt 0.19m-0.21m Extremely weathered dacite	813m	West
80000449	606	0.00m-0.01m Dark brown silt 0.01m-0.03m Light brown silty gravel 0.03m-0.08m Grey-brown mottled clayey silty gravel 0.08m-0.18m Light brown silt 0.18m-0.24m Pinky tan gravelly silt	864m	South
80000457	614	0.00m-0.27m No core 0.27m-0.39m Moderately weathered grey dacite	869m	West
80000451	608	0.00m-0.02m Red brown poorly sort sand 0.02m-0.09m Light brown poorly sort gravelly silt 0.09m-0.15m Light brown (more gravelly) silt 0.15m-0.21m Yellow brown clay and feldspars 0.21m-0.24m Pale red brown gravelly clay	1127m	South

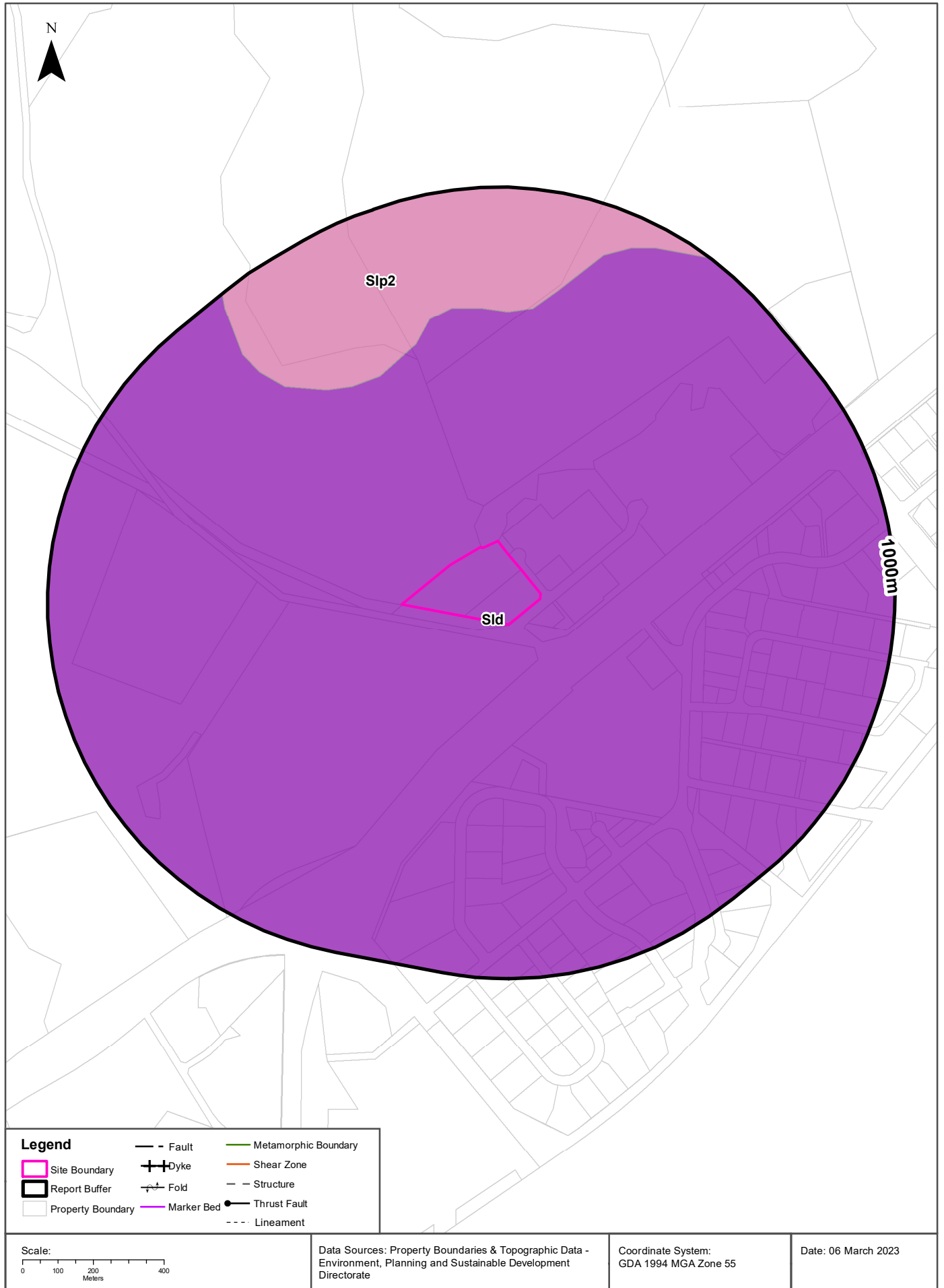
Hydro ID	State Bore ID	Drillers Log	Distance	Direction
80000450	607	0.00m-0.04m Light brown silt 0.04m-0.05m Yellow brown clay with feldspars 0.05m-0.11m Tan silty gravel 0.11m-0.13m Porous silty sandy fine gravel 0.13m-0.16m Pink gravelly silt	1162m	South
80000060	47	0.00m-13.41m Clay or mud 13.41m-16.15m Sands on sandy clay 16.15m-16.46m Bedrock	1643m	North East
10036161	GW020907	0.00m-1.52m Humus clay yellow 1.52m-9.45m Quartz 9.45m-25.91m Water supply	1711m	North West
80000577	740	0.00m-0.05m Silt - grey 0.05m-0.39m Clayey silty sand - some extremely weathered rock fragments 0.39m-0.58m Coarse sand. Black-brown 0.58m-0.58m EOH bedrock	1841m	North West

Drill Log Data Source: © Commonwealth of Australia (Bureau of Meteorology) .

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Geology 1:250,000

1 John Cory Circuit, Hume, ACT 2620



Geology

1 John Cory Circuit, Hume, ACT 2620

Geological Units (1:250,000 scale)

What are the Geological Units onsite?

Symbol	Description	Unit Name	Group	Sub Group	Member	Era	Period	Dataset
Sld	Rhyodacitic ignimbrite and minor volcaniclastic and argillaceous sediments	Deakin Volcanics	Laidlaw Volcanic Suite			Palaeozoic	Silurian	1:250,000

What are the Geological Units within the report buffer?

Symbol	Description	Unit Name	Group	Sub Group	Member	Era	Period	Dataset
Sld	Rhyodacitic ignimbrite and minor volcaniclastic and argillaceous sediments	Deakin Volcanics	Laidlaw Volcanic Suite			Palaeozoic	Silurian	1:250,000
Slp2	Coarse grey rhyodacite porphyry, massive and foliated (associated with Laidlaw volcanic Suite)	Laidlaw Volcanics	Laidlaw Volcanic Suite			Palaeozoic	Silurian	1:250,000

Geological Structures (1:250,000 scale)

What are the Geological Structures onsite?

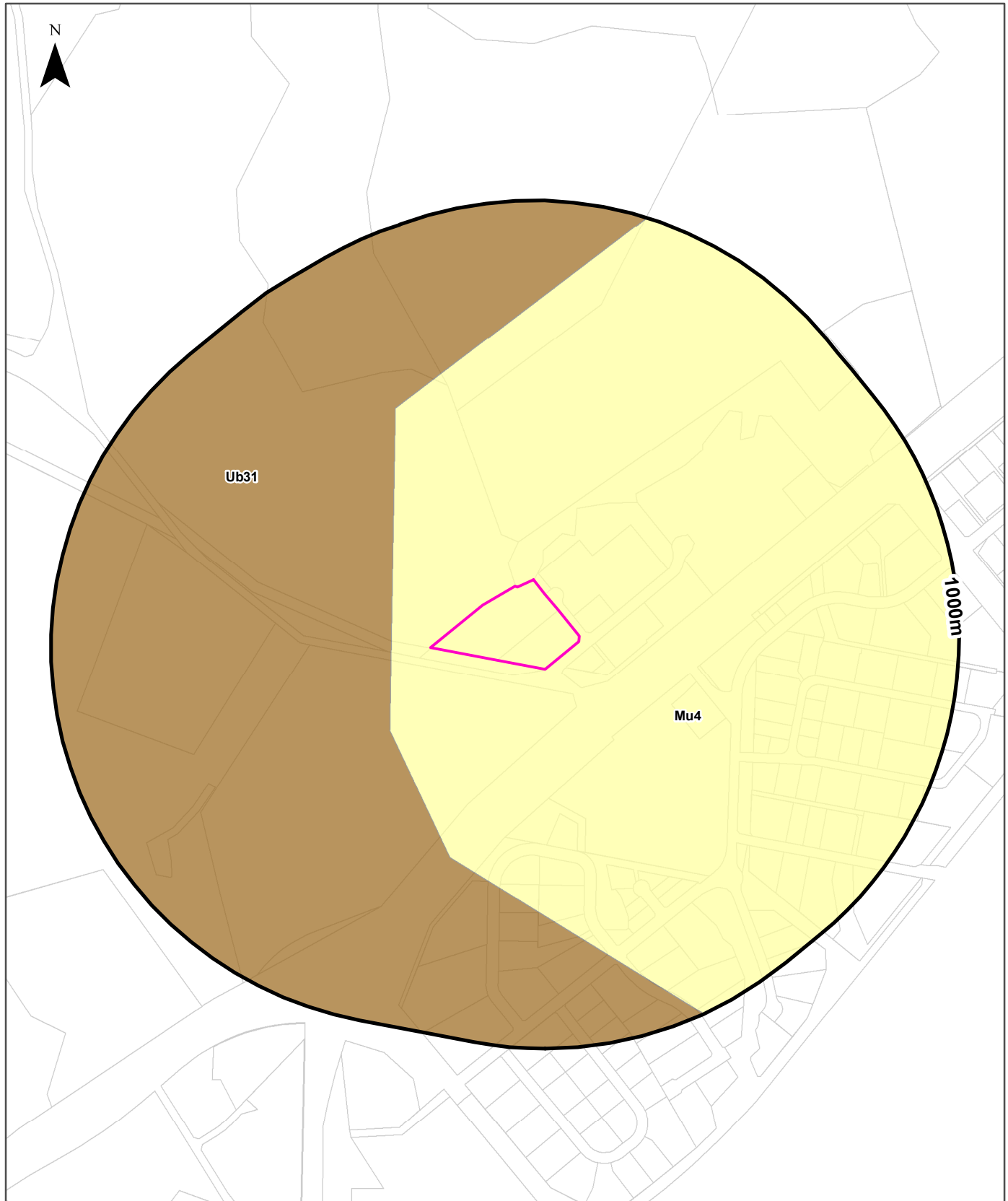
Feature	Name	Description	Map Sheet	Dataset
No features				1:250,000

What are the Geological Structures within the report buffer?

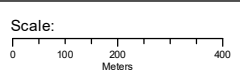
Feature	Name	Description	Map Sheet	Dataset
No features				1:250,000

Geological Data Source : NSW Department of Industry, Resources & Energy

© State of New South Wales through the NSW Department of Industry, Resources & Energy



Legend		Australian Soil Classification Orders					
Site Boundary	Anthrosol	Dermosol	Kandosol	Podosol	Tenosol	No Data	
Report Buffer	Calcarosol	Ferrosol	Kurosol	Rudosol	Vertosol		
Property Boundary	Chromosol	Hydrosol	Organosol	Sodosol	Lake		



Data Sources: Property Boundaries & Topographic Data - Environment, Planning and Sustainable Development Directorate

Coordinate System: GDA 1994 MGA Zone 55

Date: 06 March 2023

Soils

1 John Cory Circuit, Hume, ACT 2620

Atlas of Australian Soils

Australian soil types within the dataset buffer:

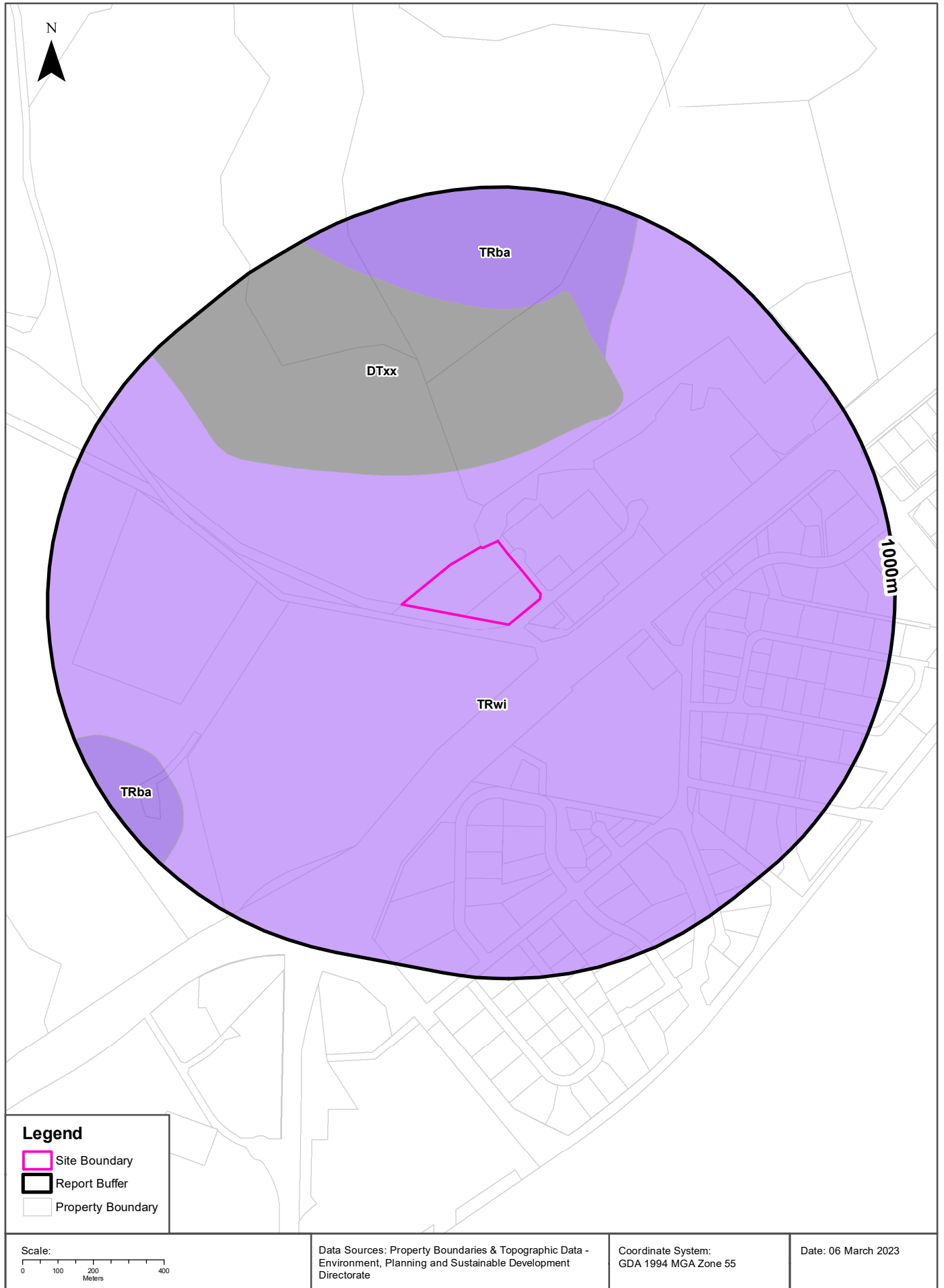
Symbol	Soil Order	Map Unit Description	Distance
Mu4	Kandosol	Gently to strongly undulating plains at moderate to low elevations (<2000 ft) with basins, stream terraces, and low residual hills and ridges; buried, layered soil materials are present: undulating plains of neutral leached red earths (Gn2.15) in the better-drained sites and yellow earths (Gn2.25) in intermediate drainage situations, with yellow leached earths (Gn2.75) often associated with hard neutral and/or alkaline yellow mottled soils (Dy3.42 and Dy3.43) in poorly drained areas, swampy sites, and seepage situations--all often with heavy clay D horizons below the solum. Associated are: low residual hills and ridges of (Dr2.22 and Dr2.42) or (Dy3.22 and Dy3.42) soils, with small areas of (Um4.2) soils and rock outcrops; basins of (Gn2.15 and Gn2.25) or (Dy3.42) soils; and stream terraces of variable width and development with (Um1) soils on present flood-plains, (Um6.11) soils on the youngest terraces, (Gn2.15, Gn2.25, and Gn2.75) in drainage sequence from well-drained to poorly drained sites on the next, and most extensive, terrace, adjacent to which sand sheets of (Uc1.2) soils may occur; (Dr2.42), (Dy3.42), and (Dy3.43) soils on remnants of the highest terrace, above which gravel fills and ironstone slabs may occur.	0m
Ub31	Sodosol	Low step-like range country--stepped rolling country with scarps, hills, and valleys: chief soils are hard neutral yellow and yellow mottled soils (Dy3.42), (Dy2.42), (Dy2.22), and (Dy3.22) with a variety of other (D) soils and some (Gn2) and (Um4) soils, generally associated as follows: irregularly spaced cuesta-like ranges with (i) moderate to steep scarps of rock outcrops, (Um4.1), (Dr3.42), (Dr2.22), and other (D) soils passing to (iia) long rolling back slopes of (Dy3.42), (Dy2.42), (Dy3.22) with (Dr2.22 and Dr2.42) and sometimes (Gn2.1 and Gn2.2) soils through the mid and upper slope positions, which in turn merge with (iib) undulating basins of (Dy3.42 and Dy3.43) soils sometimes with (Gn2.7) soils, and gullies of (Dy3.42) and/or (Gn2.7) and (Gn2.9) soils; this sequence may be broken by (iii) hills and mountains with slopes and/or scarps of (Um4.1), (Um4.2), (Dr2.21), (Dy3.41), and other (D) soils, also sometimes with belts of partially dissected upland basins of (Dy3.42) soils along the crests--i.e. with areas similar to (iib) but at a relatively higher elevation (compare unit Ub38); the whole area is traversed by (iv) narrow stream valleys of (Um1) soils on flood-plains, (Um6.11) and (Gn2) soils respectively on the next two terraces; and finally there are (v) minor occurrences of other soils, such as (Dr4.12) (e.g. Red Hill) and (Db3.12) on some basaltic areas. Saline patches are fairly common in low-lying situations, especially the (iib) areas.	105m

Atlas of Australian Soils: CSIRO

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Soil Landscapes

1 John Cory Circuit, Hume, ACT 2620



Soils

1 John Cory Circuit, Hume, ACT 2620

Soil Landscapes

What are the onsite Soil Landscapes?

Soil Code	Name	Group	Process	Map Sheet	Scale
TRwi	WILLIAMSDALE		TRANSFERRAL	Canberra	1:100,000

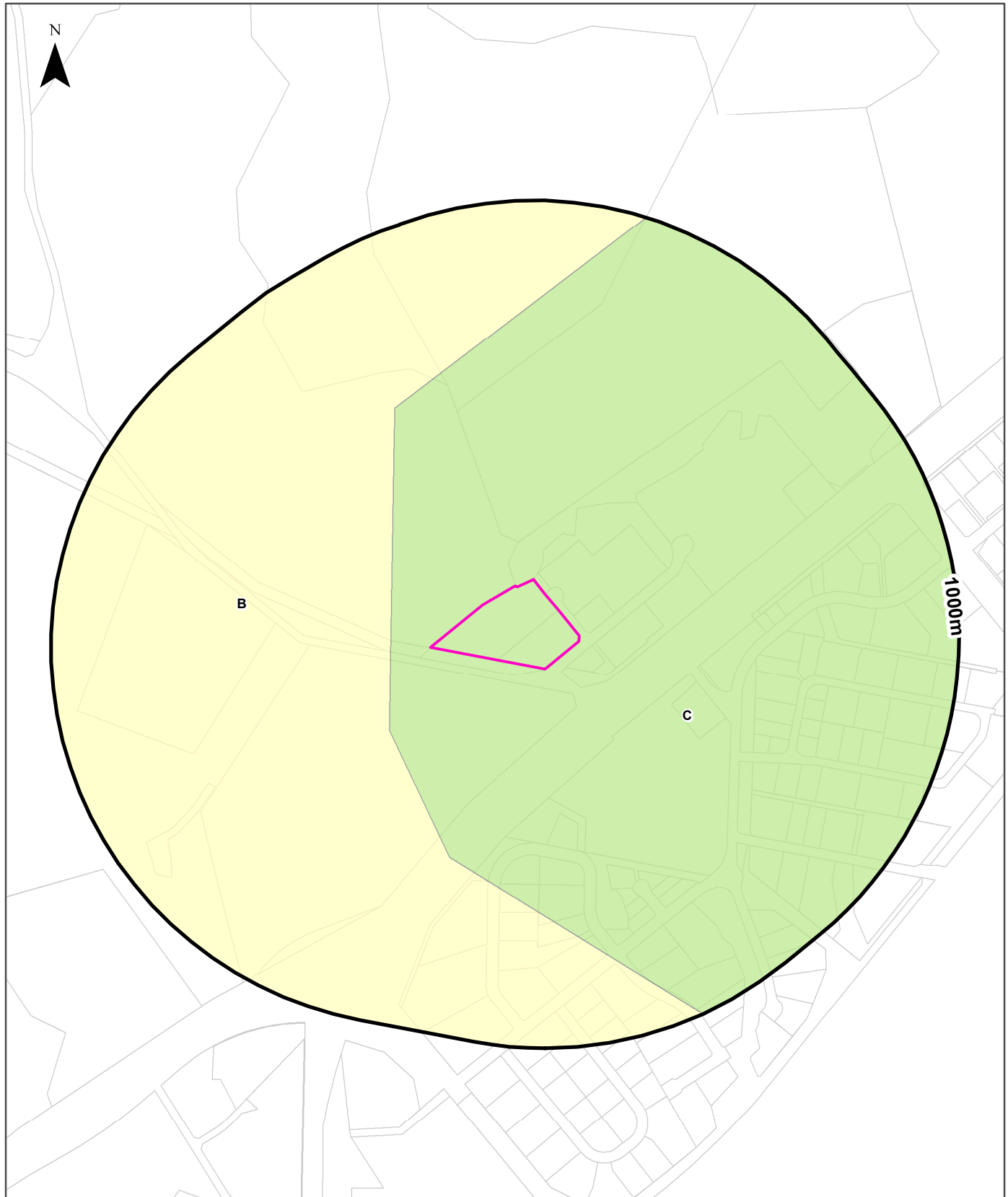
What are the Soil Landscapes within the report buffer?

Soil Code	Name	Group	Process	Map Sheet	Scale
DTxx	DISTURBED TERRAIN		DISTURBED TERRAIN	Canberra	1:100,000
TRba	BURRA		TRANSFERRAL	Canberra	1:100,000
TRwi	WILLIAMSDALE		TRANSFERRAL	Canberra	1:100,000

Soils Landscapes Data Source : NSW Office of Environment and Heritage
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Atlas of Australian Acid Sulfate Soils

1 John Cory Circuit, Hume, ACT 2620



Legend			
Site Boundary	Probability of occurrence of Acid Sulfate Soils		
Report Buffer	A. High (>70%)	C. Extremely Low (1-5%)	No Data
Property Boundary	B. Low (6-70%)	D. No Chance (0%)	
Scale: 0 100 200 400 600 Meters	Data Sources: Property Boundaries & Topographic Data - Environment, Planning and Sustainable Development Directorate	Coordinate System: GDA 1994 MGA Zone 55	Date: 06 March 2023

Acid Sulfate Soils

1 John Cory Circuit, Hume, ACT 2620

Atlas of Australian Acid Sulfate Soils

Atlas of Australian Acid Sulfate Soil categories within the dataset buffer:

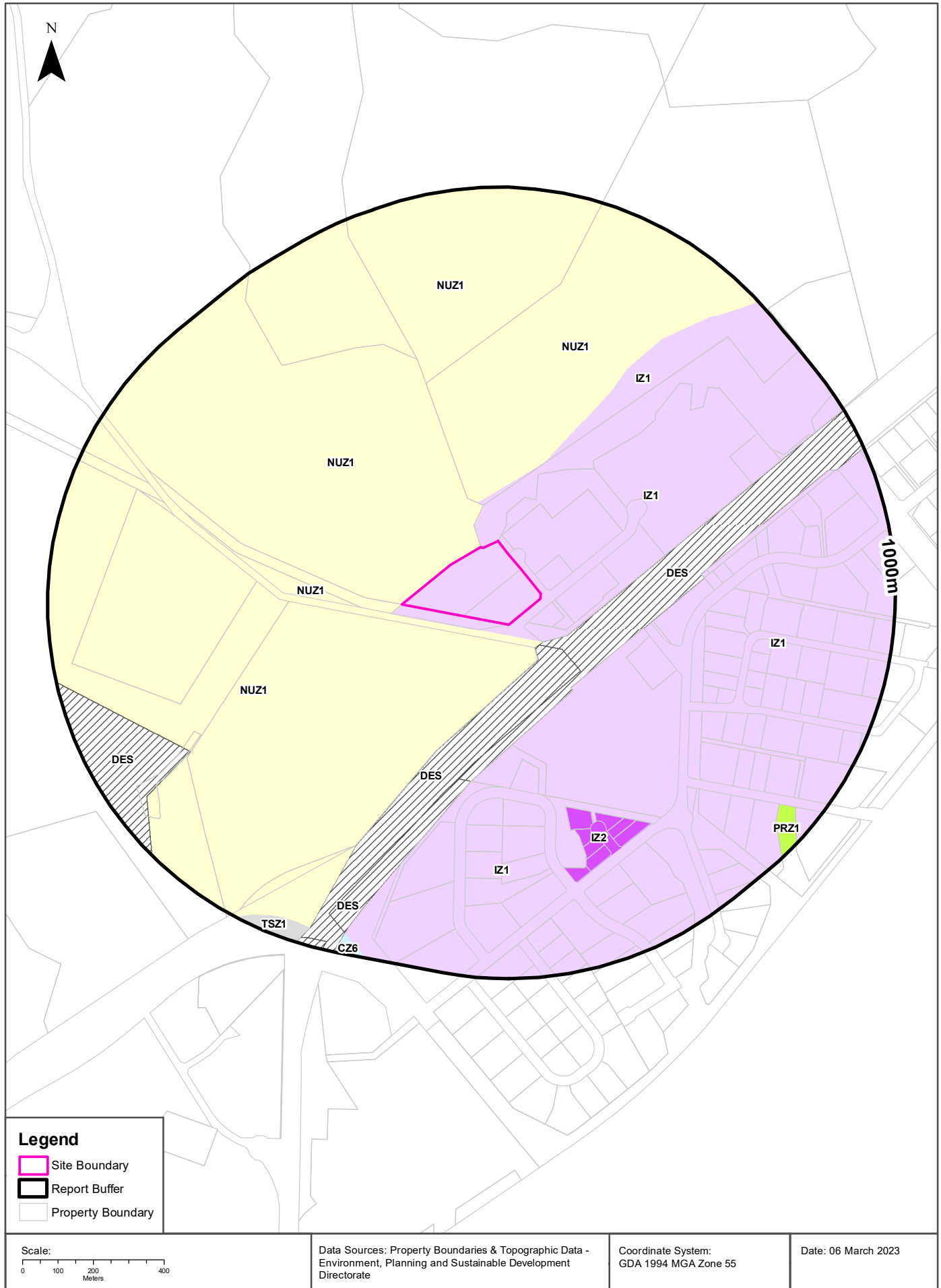
Class	Description	Distance
C	Extremely low probability of occurrence. 1-5% chance of occurrence with occurrences in small localised areas.	0m
B	Low Probability of occurrence. 6-70% chance of occurrence.	106m

Atlas of Australian Acid Sulfate Soils Data Source: CSIRO

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Territory Plan Zones

1 John Cory Circuit, Hume, ACT 2620



Planning

1 John Cory Circuit, Hume, ACT 2620

Territory Plan Zones

What Plan Zones exist within the report buffer?

Zone Code	Zone Name	Description	Variation	Gazettal Name	Gazettal Date	Distance	Direction
IZ1	GENERAL INDUSTRY		TP 2008	NI2008-27	31/03/2008	0m	Onsite
NUZ1	BROADACRE		TP 2008	NI2008-27	31/03/2008	0m	North
NUZ1	BROADACRE		TP 2008	NI2008-27	31/03/2008	0m	North West
IZ1	GENERAL INDUSTRY		TP 2008	NI2008-27	31/03/2008	0m	North East
NUZ1	BROADACRE		TP 2008	NI2008-27	31/03/2008	39m	West
DES	DESIGNATED		TP 2008	NI2008-27	31/03/2008	95m	South
DES	DESIGNATED		TP 2008	NI2008-27	31/03/2008	96m	North East
NUZ1	BROADACRE		TP 2008	NI2008-27	31/03/2008	125m	North East
IZ1	GENERAL INDUSTRY		TA2009-37	NI2009-570	22/01/2010	247m	East
DES	DESIGNATED		TP 2008	NI2008-27	31/03/2008	453m	South
IZ1	GENERAL INDUSTRY		TA2009-37	NI2009-570	13/11/2009	453m	South
IZ2	INDUSTRIAL MIXED USE		312	CN2012-16	06/12/2012	537m	South East
DES	DESIGNATED		TP 2008	NI2008-27	31/03/2008	728m	West
PRZ1	URBAN OPEN SPACE		TA2009-37	NI2009-570	13/11/2009	888m	South East
CZ6	LEISURE AND ACCOMMODATION		TP 2008	NI2008-27	31/03/2008	940m	South
TSZ1	TRANSPORT		TP 2008	NI2008-27	31/03/2008	942m	South West
DES	DESIGNATED		TP 2008	NI2008-27	31/03/2008	974m	South
TSZ1	TRANSPORT		TP 2008	NI2008-27	31/03/2008	980m	South West

Territory Plan Zones Data Source: ACT Government Creative Commons 4.0 © <https://creativecommons.org/licenses/by/4.0/>

Territory Plan Overlays

1 John Cory Circuit, Hume, ACT 2620



Legend			
Site Boundary	Inter-town Public Transport	National Land	National Park
Report Buffer	Main Avenues & Approach Routes	Kingston Foreshore	Nature Reserve
Property Boundary	Future Urban Areas	Public Land	Special Purpose Reserve
Special Requirements	Wilderness Area	Urban Open Space	Protection of Water Supply
	Cemetery or Burial Ground	Lake	Sport and Recreation Reserve
		National Land Proposed for Urban Development	

<p>Scale:</p>	<p>Data Sources: Property Boundaries & Topographic Data - Environment, Planning and Sustainable Development Directorate</p>	<p>Coordinate System: GDA 1994 MGA Zone 55</p>	<p>Date: 06 March 2023</p>
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Planning

1 John Cory Circuit, Hume, ACT 2620

Territory Plan Overlays (areas)

What Plan Overlays (areas) exist within the report buffer?

Id	Overlay Code	Overlay Name	Variation	Gazettal Name	Distance	Direction
599	Pe	Urban Open Space.	TP 2008	NI2008-27	888m	South East

Territory Plan Overlays (lines)

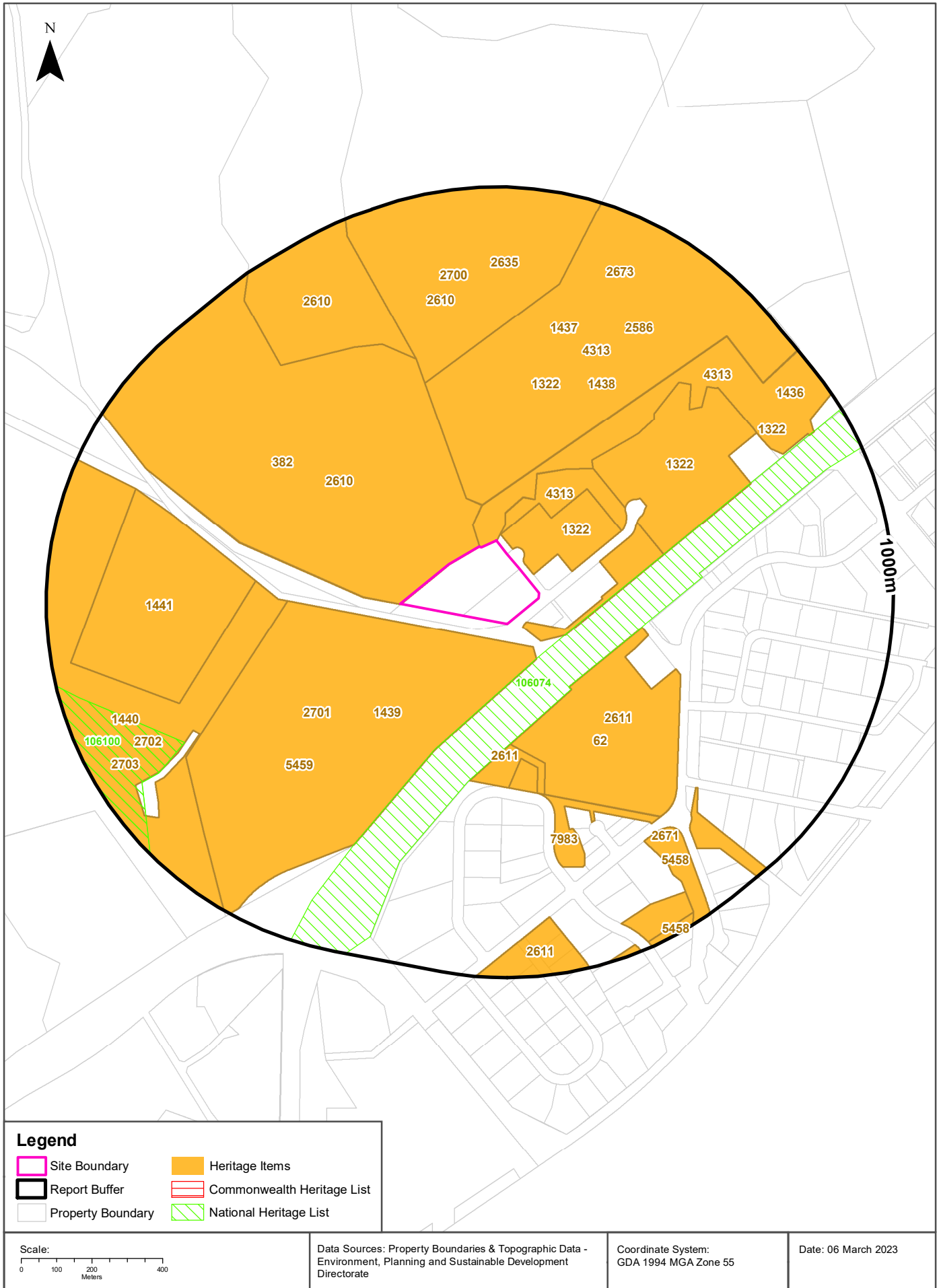
What Plan Overlays (lines) exist within the report buffer?

Id	Overlay Code	Overlay Name	Variation	Gazettal Name	Distance	Direction
1906	MAAR	Main Avenues and Approach Routes	TP 2008	NI2008-27	75m	South
1918	MAAR	Main Avenues and Approach Routes	TP 2008	NI2008-27	75m	North East
1883	MAAR	Main Avenues and Approach Routes	TP 2008	NI2008-27	267m	North East
1884	MAAR	Main Avenues and Approach Routes	TP 2008	NI2008-27	453m	South
3744	PUBLAN	Public Land	TA2017-17	NI2017-488	728m	West
1900	MAAR	Main Avenues and Approach Routes	TP 2008	NI2008-27	947m	South
1877	MAAR	Main Avenues and Approach Routes	TP 2008	NI2008-27	985m	South

Territory Plan Overlay Data Source: ACT Government Creative Commons 4.0 © <https://creativecommons.org/licenses/by/4.0/>

Heritage Items

1 John Cory Circuit, Hume, ACT 2620



Heritage

1 John Cory Circuit, Hume, ACT 2620

Commonwealth Heritage List

What are the Commonwealth Heritage List Items located within the dataset buffer?

Place Id	Name	Address	Place File No	Class	Status	Register Date	Distance	Direction
N/A	No records in buffer							

Heritage Data Source: Australian Government Department of the Environment and Energy - Heritage Branch
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National Heritage List

What are the National Heritage List Items located within the dataset buffer?

Note. Please click on Place Id to activate a hyperlink to online website.

Place Id	Name	Address	Place File No	Class	Status	Register Date	Distance	Direction
106074	Canberra and Surrounding Areas	Northbourne Av, Canberra ACT	8/01/000/0134	Historic	Nominated place		128m	South West
106100	Canberra - Central National Area and Inner Hills/ Canberra the Planned	Northbourne Ave, Canberra ACT	8/01/000/0134	Historic	Nominated place		725m	North

Heritage Data Source: Australian Government Department of the Environment and Energy - Heritage Branch
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Heritage Sites

What Heritage Sites exist within the report buffer?

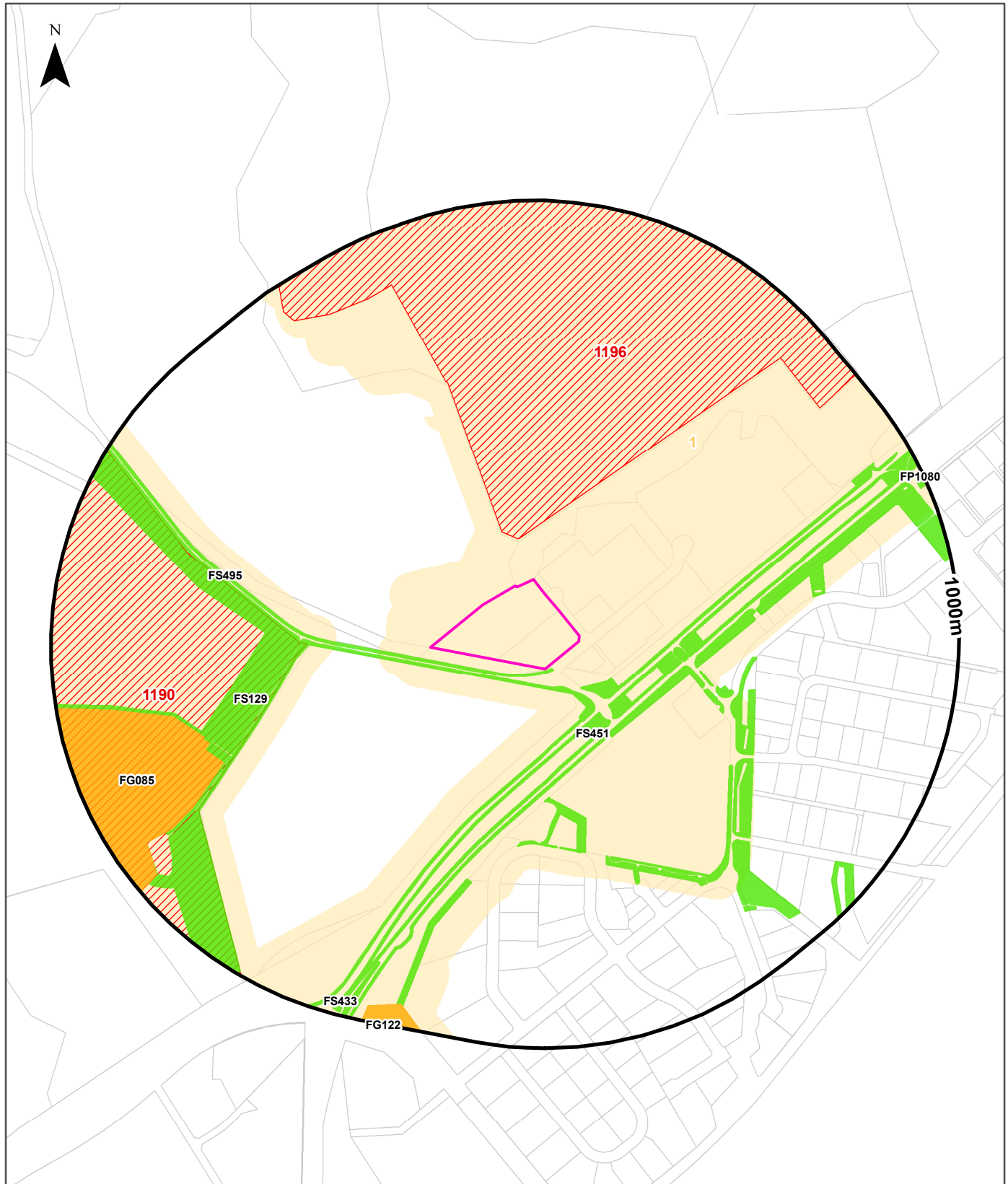
Map Id	Heritage Id	Name	Description	Status	Status Date	Location Type	Block Key	District	Division	Dist	Dir
382	278	Savannah Woodland		Nominated for Provisional Registration		Restricted	80000002114	JERRABOMBERRA		0m	North West
4313	1020	Hume Paleontological Site		Final Registration		Restricted	88020230029	JERRABOMBERRA	HUME	0m	North East
2610	1166	HA13		Final Registration	09/03/2005	Restricted	80000002114	JERRABOMBERRA		0m	North West
1322	1166	HUME PAD 4		Final Registration	09/03/2005	Restricted	88020230029	JERRABOMBERRA	HUME	0m	North East
1436	2029	HA PAD 4		Final Registration	08/03/2005	Restricted	88020230029	JERRABOMBERRA	HUME	0m	North East
1322	1166	HUME PAD 4		Final Registration	09/03/2005	Restricted	88020260005	JERRABOMBERRA	HUME	19m	North East
1322	1166	HUME PAD 4		Final Registration	09/03/2005	Restricted	88020260007	JERRABOMBERRA	HUME	20m	North East
4313	1020	Hume Paleontological Site		Final Registration		Restricted	88020260007	JERRABOMBERRA	HUME	20m	North East
1322	1166	HUME PAD 4		Final Registration	09/03/2005	Restricted	88020270007	JERRABOMBERRA	HUME	27m	East

Map Id	Heritage Id	Name	Description	Status	Status Date	Location Type	Block Key	District	Division	Dist	Dir
2701	2029	HA14		Final Registration	08/03/2005	Restricted	60000001694	TUGGERANO NG		49m	South West
1439	2029	HA15		Final Registration	08/03/2005	Restricted	60000001694	TUGGERANO NG		49m	South West
5459	2029	Hume PAD 6		Final Registration	08/03/2005	Restricted	60000001694	TUGGERANO NG		49m	South West
4313	1020	Hume Paleontological Site		Final Registration		Restricted	88020230024	JERRABOMBERRA	HUME	109m	North East
1437	1166	HA4		Final Registration	09/03/2005	Restricted	88020230024	JERRABOMBERRA	HUME	109m	North East
2673	1166	HA5		Final Registration	09/03/2005	Restricted	88020230024	JERRABOMBERRA	HUME	109m	North East
1438	1166	HA6		Final Registration	09/03/2005	Restricted	88020230024	JERRABOMBERRA	HUME	109m	North East
2586	1166	HA7		Final Registration	09/03/2005	Restricted	88020230024	JERRABOMBERRA	HUME	109m	North East
1322	1166	HUME PAD 4		Final Registration	09/03/2005	Restricted	88020230024	JERRABOMBERRA	HUME	109m	North East
2611	1166	HUME PAD 1		Final Registration	09/03/2005	Restricted	88020080006	JERRABOMBERRA	HUME	247m	South East
62	250	Travelling Stock Route	Section 8 Block 3	Nominated for Provisional Registration		Historic		Various	HUME	247m	South East
2702	2029	HA18		Final Registration	08/03/2005	Restricted	60000001695	TUGGERANO NG		318m	West
2703	2029	HA19		Final Registration	08/03/2005	Restricted	60000001695	TUGGERANO NG		318m	West
1440	2029	HA16		Final Registration	08/03/2005	Restricted	60000001695	TUGGERANO NG		318m	West
2611	1166	HUME PAD 1		Final Registration	09/03/2005	Restricted	88020080005	JERRABOMBERRA	HUME	338m	South
1322	1166	HUME PAD 4		Final Registration	09/03/2005	Restricted	88020230028	JERRABOMBERRA	HUME	339m	North East
1441	2029	HA17		Final Registration	08/03/2005	Restricted	60000001676	TUGGERANO NG		414m	West
7983	2701	Tralee and Couranga Homesteads	Section 21 Block 3, 4 and 6	Final Registration		Historic		TUGGERANO NG	HUME	483m	South East
2635	1166	HUME PAD 2		Final Registration	09/03/2005	Restricted	80000002248	JERRABOMBERRA		487m	North
2610	1166	HA13		Final Registration	09/03/2005	Restricted	80000002248	JERRABOMBERRA		487m	North
2700	1166	HA10		Final Registration	09/03/2005	Restricted	80000002248	JERRABOMBERRA		487m	North
2610	1166	HA13		Final Registration	09/03/2005	Restricted	80000002247	JERRABOMBERRA		559m	North West
5458	2029	Hume PAD 5		Final Registration	08/03/2005	Restricted	68020220088	TUGGERANO NG	HUME	693m	South East
2671	2029	HA2		Final Registration	08/03/2005	Restricted	68020220088	TUGGERANO NG	HUME	693m	South East
2611	1166	HUME PAD 1		Final Registration	09/03/2005	Restricted	60000001210	TUGGERANO NG		835m	South
5458	2029	Hume PAD 5		Final Registration	08/03/2005	Restricted	68020220068	TUGGERANO NG	HUME	887m	South East
5458	2029	Hume PAD 5		Final Registration	08/03/2005	Restricted	68020220069	TUGGERANO NG	HUME	967m	South East
5458	2029	Hume PAD 5		Final Registration	08/03/2005	Restricted	68020220074	TUGGERANO NG	HUME	974m	South

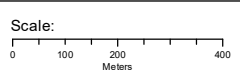
Heritage Data Source: ACT Government Creative Commons 4.0 © <https://creativecommons.org/licenses/by/4.0/>

Natural Hazards - Bushfire & Flood

1 John Cory Circuit, Hume, ACT 2620



Legend		Access Management		Fuel Management	
Site Boundary	Bushfire Prone Area	Construction	Chemical	Physical Removal	
Report Buffer	Bushfire Abatement Zone	Maintenance	Cultural Burn	Prescribed Burn	Prescribed Burn (RFS)
Property Boundaries	Flood 1% AEP	Upgrade	Ecological Burn	Slashing	
		Vegetation Management	Grazing		



Data Sources: Property Boundaries & Topographic Data - Environment, Planning and Sustainable Development Directorate

Coordinate System: GDA 1994 MGA Zone 55

Date: 06 March 2023

Natural Hazards

1 John Cory Circuit, Hume, ACT 2620

Bushfire Prone Areas

What Bushfire Prone Areas exist within the report buffer?

Feature Id	Description	Distance	Direction
1	Bushfire Prone Areas ACT	0m	Onsite

Bushfire Prone Area Data Source: ACT Government Creative Commons 4.0 © <https://creativecommons.org/licenses/by/4.0/>

Bushfire Abatement Zones

What Bushfire Abatement Zones exist within the report buffer?

Feature Id	Feature	Distance	Direction
1196	Bushfire Abatement Zone	115m	North
1190	Bushfire Abatement Zone	326m	West

Bushfire Abatement Zone Data Source: ACT Government Creative Commons 4.0 © <https://creativecommons.org/licenses/by/4.0/>

Bushfire Operational Plan - Access Management

What Bushfire Operational Plan - Access Management exist within the report buffer?

Map Id	Treatment	Distance	Direction
N/A	No records within buffer		

Bushfire Operational Plan Data Source: ACT Government Creative Commons 4.0 © <https://creativecommons.org/licenses/by/4.0/>

Bushfire Operational Plan - Fuel Management

What Bushfire Operational Plan - Fuel Management exist within the report buffer?

Unique Id	Treatment	Hectares	Distance	Direction
FS451	Slashing	36.13	2m	North East
FS495	Slashing	51.67	42m	North
FS129	Slashing	23.18	321m	West
FG085	Grazing	71.76	625m	West
FS433	Slashing	14.76	902m	South West

Unique Id	Treatment	Hectares	Distance	Direction
FG122	Grazing	47.59	939m	South
FP1080	Physical Removal	5.10	986m	North East

Bushfire Operational Plan Data Source: ACT Government Creative Commons 4.0 © <https://creativecommons.org/licenses/by/4.0/>

Flood (1 Percent Annual Exceedance Probability)

What Flood zone (1% AEP) exists within the report buffer?

Feature Id	Description	Distance	Direction
N/A	No records within buffer		

Flood Data Source: ACT Government Creative Commons 4.0 © <https://creativecommons.org/licenses/by/4.0/>

Ecological Constraints - Vegetation Communities

1 John Cory Circuit, Hume, ACT 2620



Legend			
Site Boundary	Alpine Complex	u53 Mountain Gum	NG Native grassland
Report Buffer	Dry Sclerophyll Forests	u239 Alpine Ash	URB Urban and developed areas
Property Boundaries	Freshwater Wetlands	Grassy Woodlands	UOS Urban Open Space
	Forested Wetlands	Grasslands	Sand
	u52 Ribbon Gum	APN, APE, ARB, EPN	Rock
		EXG Exotic grassland	Water
		DNF, DNS, DNW	
		EXF, EXS, EXW	
		PLE Plantation exotic	
		PWR Power easement	
		EXG Exotic grassland	

<p>Scale:</p>	<p>Data Sources: Property Boundaries & Topographic Data - Environment, Planning and Sustainable Development Directorate</p>	<p>Coordinate System: GDA 1994 MGA Zone 55</p>	<p>Date: 06 March 2023</p>
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Ecological Constraints

1 John Cory Circuit, Hume, ACT 2620

Vegetation Communities

What Vegetation Communities exist within the report buffer?

UMC Id	Community	Formation	"Keith" Vegetation Class	Mean Height	Canopy Cover	Distance	Direction
NG	Native grassland_NG			8.48	1.24	0m	Onsite
URB	Urban and developed areas_URB			9.25	3.80	0m	Onsite
NG	Native grassland_NG			9.27	2.80	17m	East
NG	Native grassland_NG			8.89	1.06	48m	West
URB	Urban and developed areas_URB			7.30	0.96	59m	North West
APN	Amenity planting native_APN			7.39	18.78	72m	South East
APN	Amenity planting native_APN			8.47	49.63	75m	South West
u19	Blakely's Red Gum – Yellow Box tall grassy woodland_u19	GRASSY WOODLANDS	Southern Tableland Grassy Woodlands	7.74	16.23	78m	East
u19	Blakely's Red Gum – Yellow Box tall grassy woodland_u19	GRASSY WOODLANDS	Southern Tableland Grassy Woodlands	8.92	11.58	102m	South
u19	Blakely's Red Gum – Yellow Box tall grassy woodland_u19	GRASSY WOODLANDS	Southern Tableland Grassy Woodlands	8.00	25.73	114m	West
u19	Blakely's Red Gum – Yellow Box tall grassy woodland_u19	GRASSY WOODLANDS	Southern Tableland Grassy Woodlands	10.01	11.92	139m	East
URB	Urban and developed areas_URB			7.21	0.66	156m	South West
u19	Blakely's Red Gum – Yellow Box tall grassy woodland_u19	GRASSY WOODLANDS	Southern Tableland Grassy Woodlands	8.33	40.31	179m	South
APN	Amenity planting native_APN			6.33	13.66	190m	South
APN	Amenity planting native_APN			7.34	17.88	221m	North East
APN	Amenity planting native_APN			7.19	24.67	232m	South East
URB	Urban and developed areas_URB			6.78	0.38	278m	South
NG	Native grassland_NG			5.16	0.53	282m	South East
u19	Blakely's Red Gum – Yellow Box tall grassy woodland_u19	GRASSY WOODLANDS	Southern Tableland Grassy Woodlands	8.91	24.34	284m	South East
NG	Native grassland_NG			4.90	0.31	302m	South East
Water	Water			4.05	0.83	307m	South
APE	Amenity planting exotic_APE			8.70	28.91	313m	South East
APN	Amenity planting native_APN			7.20	39.44	314m	South West
EXG	Exotic grassland_EXG			8.15	21.72	319m	West
NG	Native grassland_NG			6.93	0.70	329m	South East
APN	Amenity planting native_APN			6.63	35.05	335m	South
URB	Urban and developed areas_URB			8.07	3.22	353m	East
u19	Blakely's Red Gum – Yellow Box tall grassy woodland_u19	GRASSY WOODLANDS	Southern Tableland Grassy Woodlands	7.97	11.02	357m	West
u178	Yellow Box ± Apple Box tall grassy woodland_u178	GRASSY WOODLANDS	Southern Tableland Grassy Woodlands	9.67	15.96	399m	North
u19	Blakely's Red Gum – Yellow Box tall grassy woodland_u19	GRASSY WOODLANDS	Southern Tableland Grassy Woodlands	8.14	15.18	420m	South West

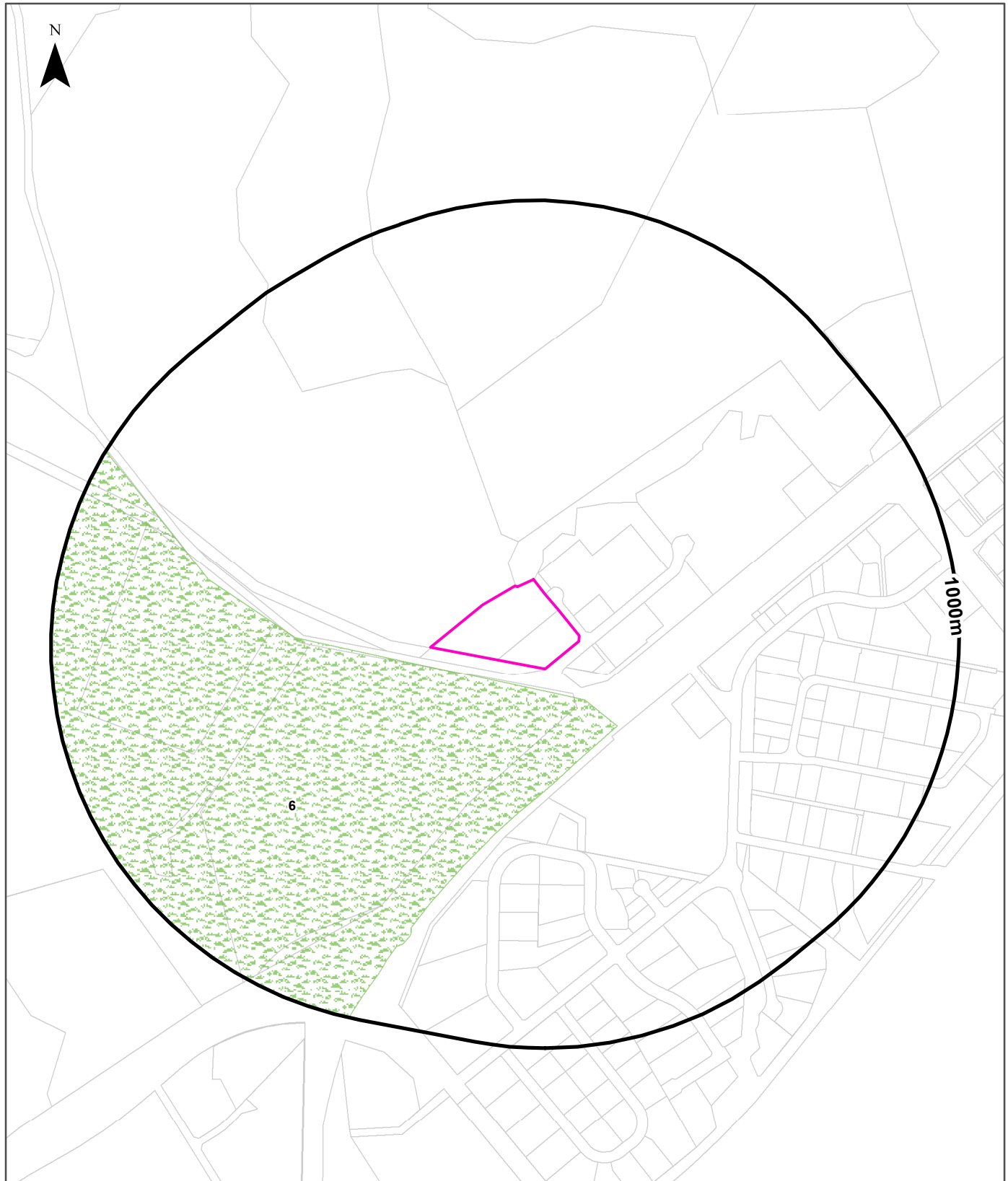
UMC Id	Community	Formation	"Keith" Vegetation Class	Mean Height	Canopy Cover	Distance	Direction
APN	Amenity planting native_APN			3.89	13.46	479m	South
EXG	Exotic grassland_EXG			7.83	0.55	482m	South
APE	Amenity planting exotic_APE			7.17	30.85	498m	South
NG	Native grassland_NG			3.93	0.51	555m	South East
q6	Red Box tall grass-shrub woodlands primarily on hillslopes and footslopes in the Australian Capital Territory_q6	GRASSY WOODLANDS	Southern Tableland Grassy Woodlands	8.80	10.17	608m	West
APN	Amenity planting native_APN			4.30	17.79	617m	South
NG	Native grassland_NG			8.96	0.73	627m	North
NG	Native grassland_NG			9.22	0.60	634m	North West
u19	Blakely's Red Gum – Yellow Box tall grassy woodland_u19	GRASSY WOODLANDS	Southern Tableland Grassy Woodlands	8.69	14.99	645m	South West
EXG	Exotic grassland_EXG			9.71	4.29	655m	North East
APN	Amenity planting native_APN			4.47	17.86	677m	South
NG	Native grassland_NG			5.20	5.67	729m	South East
URB	Urban and developed areas_URB			6.43	15.91	731m	South West
APN	Amenity planting native_APN			7.64	37.52	753m	South West
NG	Native grassland_NG			6.58	1.73	790m	South West
q6	Red Box tall grass-shrub woodlands primarily on hillslopes and footslopes in the Australian Capital Territory_q6	GRASSY WOODLANDS	Southern Tableland Grassy Woodlands	8.17	7.18	790m	South West
EXG	Exotic grassland_EXG			5.82	0.19	804m	South East
APE	Amenity planting exotic_APE			7.93	29.90	804m	North East
NG	Native grassland_NG			5.05	0.31	808m	South West
APN	Amenity planting native_APN			7.47	38.99	809m	South
u19	Blakely's Red Gum – Yellow Box tall grassy woodland_u19	GRASSY WOODLANDS	Southern Tableland Grassy Woodlands	8.44	19.91	825m	South West
APN	Amenity planting native_APN			6.79	24.24	829m	South
q6	Red Box tall grass-shrub woodlands primarily on hillslopes and footslopes in the Australian Capital Territory_q6	GRASSY WOODLANDS	Southern Tableland Grassy Woodlands	8.54	13.79	867m	West
u178	Yellow Box ± Apple Box tall grassy woodland_u178	GRASSY WOODLANDS	Southern Tableland Grassy Woodlands	10.15	24.73	869m	South East
EXG	Exotic grassland_EXG			3.31	0.04	885m	South
u19	Blakely's Red Gum – Yellow Box tall grassy woodland_u19	GRASSY WOODLANDS	Southern Tableland Grassy Woodlands	9.75	36.52	891m	South East
u19	Blakely's Red Gum – Yellow Box tall grassy woodland_u19	GRASSY WOODLANDS	Southern Tableland Grassy Woodlands	9.84	21.09	903m	South East
NG	Native grassland_NG			7.74	4.16	903m	North East
u178	Yellow Box ± Apple Box tall grassy woodland_u178	GRASSY WOODLANDS	Southern Tableland Grassy Woodlands	9.02	29.15	908m	North
p14	Red Stringybark – Scribbly Gum – Red-anthered Wallaby Grass tall grass-shrub dry sclerophyll open forest on loamy ridges_p14	DRY SCLEROPHYLL FORESTS	Southern Tableland Dry Sclerophyll Forests	7.79	19.86	911m	South West
NG	Native grassland_NG			0.00	0.00	917m	South
DNS	Derived native shrubland_DNS			4.60	6.77	927m	South
URB	Urban and developed areas_URB			4.42	0.12	941m	South
APN	Amenity planting native_APN			7.46	43.54	960m	South

UMC Id	Community	Formation	"Keith" Vegetation Class	Mean Height	Canopy Cover	Distance	Direction
EXW	Exotic woodland_EXW			8.20	32.99	994m	South

Vegetation Data Source: ACT Government Creative Commons 4.0 © <https://creativecommons.org/licenses/by/4.0/>

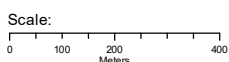
Ecological Constraints - Vegetation Subformation

1 John Cory Circuit, Hume, ACT 2620



Legend

Site Boundary	Dry Forest	Modified grassland / Urban vegetation complex	Upland Montane Forest
Report Buffer	Dry heath shrubland complex	Montane Woodland	Urban
Property Boundary	Former Pine Plantation Post 2003	Plantation / Arboretum	Wet Forest
	Grassland	Riparian Woodland	Wetlands
	Lakes / Water	Subalpine Woodland	Woodland



Data Sources: Property Boundaries & Topographic Data - Environment, Planning and Sustainable Development Directorate

Coordinate System: GDA 1994 MGA Zone 55

Date: 06 March 2023

Ecological Constraints

1 John Cory Circuit, Hume, ACT 2620

Vegetation Subformation

What Vegetation Subformations exist within the report buffer?

Object Id	Subformation	Distance	Direction
6	Modified grassland / Urban vegetation complex	48m	North

Vegetation Data Source: ACT Government Creative Commons 4.0 © <https://creativecommons.org/licenses/by/4.0/>

Ecological Constraints - Threatened Woodland, Wetlands & Tree Register

1 John Cory Circuit, Hume, ACT 2620



Ecological Constraints

1 John Cory Circuit, Hume, ACT 2620

Threatened Woodland

What ACT Listed Threatened Woodland exists within the report buffer?

Feature Id	Community	EPBCStatus	ACT Status	Distance	Direction
9163	Potential Yellow Box Blakely's Red Gum Grassy Woodland	Potentially threatened, field	Potentially threatened, field inspection required	0m	North East
9233	Potential Yellow Box Blakely's Red Gum Grassy Woodland	Potentially threatened, field	Potentially threatened, field inspection required	0m	North East
9160	Potential Yellow Box Blakely's Red Gum Grassy Woodland	Potentially threatened, field	Potentially threatened, field inspection required	17m	East
9150	Potential Yellow Box Blakely's Red Gum Grassy Woodland	Potentially threatened, field	Potentially threatened, field inspection required	29m	South
9156	Potential Yellow Box Blakely's Red Gum Grassy Woodland	Potentially threatened, field	Potentially threatened, field inspection required	48m	South West
11416	Potential Yellow Box Blakely's Red Gum Grassy Woodland	Potentially threatened, field	Potentially threatened, field inspection required	78m	East
11370	Potential Yellow Box Blakely's Red Gum Grassy Woodland	Potentially threatened, field	Potentially threatened, field inspection required	102m	South
11418	Potential Yellow Box Blakely's Red Gum Grassy Woodland	Potentially threatened, field	Potentially threatened, field inspection required	114m	West
9154	Potential Yellow Box Blakely's Red Gum Grassy Woodland	Potentially threatened, field	Potentially threatened, field inspection required	123m	South East
11369	Potential Yellow Box Blakely's Red Gum Grassy Woodland	Potentially threatened, field	Potentially threatened, field inspection required	179m	South
9169	Potential Yellow Box Blakely's Red Gum Grassy Woodland	Potentially threatened, field	Potentially threatened, field inspection required	264m	North East
11372	Potential Yellow Box Blakely's Red Gum Grassy Woodland	Potentially threatened, field	Potentially threatened, field inspection required	284m	South East
10696	Potential Yellow Box Blakely's Red Gum Grassy Woodland	Potentially threatened, field	Potentially threatened, field inspection required	399m	North
11361	Potential Yellow Box Blakely's Red Gum Grassy Woodland	Potentially threatened, field	Potentially threatened, field inspection required	420m	South West
9184	Potential Yellow Box Blakely's Red Gum Grassy Woodland	Potentially threatened, field	Potentially threatened, field inspection required	487m	West
9142	Potential Yellow Box Blakely's Red Gum Grassy Woodland	Potentially threatened, field	Potentially threatened, field inspection required	635m	South West
11357	Potential Yellow Box Blakely's Red Gum Grassy Woodland	Potentially threatened, field	Potentially threatened, field inspection required	645m	South West
9130	Potential Yellow Box Blakely's Red Gum Grassy Woodland	Potentially threatened, field	Potentially threatened, field inspection required	790m	South West
9139	Potential Yellow Box Blakely's Red Gum Grassy Woodland	Potentially threatened, field	Potentially threatened, field inspection required	808m	South West
11351	Potential Yellow Box Blakely's Red Gum Grassy Woodland	Potentially threatened, field	Potentially threatened, field inspection required	825m	South West

Feature Id	Community	EPBCStatus	ACT Status	Distance	Direction
9151	Potential Yellow Box Blakely's Red Gum Grassy Woodland	Potentially threatened, field	Potentially threatened, field inspection required	868m	West
10667	Potential Yellow Box Blakely's Red Gum Grassy Woodland	Potentially threatened, field	Potentially threatened, field inspection required	869m	South East
11355	Potential Yellow Box Blakely's Red Gum Grassy Woodland	Potentially threatened, field	Potentially threatened, field inspection required	891m	South East
11348	Potential Yellow Box Blakely's Red Gum Grassy Woodland	Potentially threatened, field	Potentially threatened, field inspection required	903m	South East
9186	Potential Yellow Box Blakely's Red Gum Grassy Woodland	Potentially threatened, field	Potentially threatened, field inspection required	903m	North East
10732	Potential Yellow Box Blakely's Red Gum Grassy Woodland	Potentially threatened, field	Potentially threatened, field inspection required	908m	North
9126	Potential Yellow Box Blakely's Red Gum Grassy Woodland	Potentially threatened, field	Potentially threatened, field inspection required	917m	South
9192	Potential Yellow Box Blakely's Red Gum Grassy Woodland	Potentially threatened, field	Potentially threatened, field inspection required	935m	North East

Threatened Woodland Data Source: ACT Government Creative Commons 4.0 © <https://creativecommons.org/licenses/by/4.0/>

Tree Register

What Trees on the ACT register exists within the report buffer?

Feature Id	Genus	Species	Tree Ref	Tree Height	Status	Date Edit	Distance	Direction
N/A	No records within buffer							

Tree Register Data Source: ACT Government Creative Commons 4.0 © <https://creativecommons.org/licenses/by/4.0/>

Important Wetlands

What Wetlands exist within the report buffer?

Feature Id	Name	Distance	Direction
N/A	No records within buffer		

Important Wetlands Data Source: ACT Government Creative Commons 4.0 © <https://creativecommons.org/licenses/by/4.0/>

Ecological Constraints

1 John Cory Circuit, Hume, ACT 2620

Groundwater Dependent Ecosystems Atlas

GDEs within the dataset buffer:

Type	Name	GDE Potential	IDE Likelihood	Geomorphology	Ecosystem Type	Aquifer Geology	Distance	Direction
No records within buffer								

Groundwater Dependent Ecosystems Atlas Data Source: The Bureau of Meteorology
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Ecological Constraints

1 John Cory Circuit, Hume, ACT 2620

NSW BioNet Atlas

Species on the NSW BioNet Atlas that have a NSW or federal conservation status, a NSW sensitivity status, or are listed under a migratory species agreement, and are within 10km of the site?

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status
Fauna	Amphibia	Litoria aurea	Green and Golden Bell Frog	Endangered, Protected		Vulnerable
Fauna	Amphibia	Litoria castanea	Yellow-spotted Tree Frog	Critically Endangered Species, Protected		Endangered
Fauna	Amphibia	Litoria raniformis	Southern Bell Frog	Endangered, Protected		Vulnerable
Fauna	Aves	Chthonicola sagittata	Speckled Warbler	Vulnerable, Protected		
Fauna	Aves	Circus assimilis	Spotted Harrier	Vulnerable, Protected		
Fauna	Aves	Haliaeetus leucogaster	White-bellied Sea-Eagle	Vulnerable, Protected		
Fauna	Aves	Hieraaetus morphnoides	Little Eagle	Vulnerable, Protected		
Fauna	Aves	Botaurus poiciloptilus	Australasian Bittern	Endangered, Protected		Endangered
Fauna	Aves	Artamus cyanopterus cyanopterus	Dusky Woodswallow	Vulnerable, Protected		
Fauna	Aves	Callocephalon fimbriatum	Gang-gang Cockatoo	Vulnerable, Protected, Category 3 Sensitive Species	Category 3	
Fauna	Aves	Calyptorhynchus lathami	Glossy Black-Cockatoo	Vulnerable, Protected, Category 2 Sensitive Species	Category 2	
Fauna	Aves	Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	Vulnerable, Protected		
Fauna	Aves	Stagonopleura guttata	Diamond Firetail	Vulnerable, Protected		
Fauna	Aves	Anthochaera phrygia	Regent Honeyeater	Critically Endangered Species, Protected		Critically Endangered
Fauna	Aves	Epthianura albifrons	White-fronted Chat	Vulnerable, Protected		
Fauna	Aves	Grantiella picta	Painted Honeyeater	Vulnerable, Protected		Vulnerable
Fauna	Aves	Melithreptus gularis gularis	Black-chinned Honeyeater (eastern subspecies)	Vulnerable, Protected		
Fauna	Aves	Daphoenositta chrysoptera	Varied Sittella	Vulnerable, Protected		
Fauna	Aves	Pachycephala olivacea	Olive Whistler	Vulnerable, Protected		
Fauna	Aves	Melanodryas cucullata cucullata	Hooded Robin (south-eastern form)	Vulnerable, Protected		
Fauna	Aves	Petroica boodang	Scarlet Robin	Vulnerable, Protected		
Fauna	Aves	Petroica phoenicea	Flame Robin	Vulnerable, Protected		
Fauna	Aves	Glossopsitta pusilla	Little Lorikeet	Vulnerable, Protected		
Fauna	Aves	Lathamus discolor	Swift Parrot	Endangered, Protected, Category 3 Sensitive Species	Category 3	Critically Endangered
Fauna	Aves	Polytelis swainsonii	Superb Parrot	Vulnerable, Protected, Category 3 Sensitive Species	Category 3	Vulnerable
Fauna	Insecta	Synemon plana	Golden Sun Moth	Endangered		Critically Endangered
Fauna	Mammalia	Dasyurus maculatus	Spotted-tailed Quoll	Vulnerable, Protected		Endangered

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status
Fauna	Mammalia	<i>Miniopterus orianae oceanensis</i>	Large Bent-winged Bat	Vulnerable, Protected		
Fauna	Mammalia	<i>Phascolarctos cinereus</i>	Koala	Vulnerable, Protected		Vulnerable
Fauna	Mammalia	<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	Vulnerable, Protected		Vulnerable
Fauna	Mammalia	<i>Falsistrellus tasmaniensis</i>	Eastern False Pipistrelle	Vulnerable, Protected		
Fauna	Mammalia	<i>Myotis macropus</i>	Southern Myotis	Vulnerable, Protected		
Fauna	Reptilia	<i>Tympanocryptis pinguicollis</i>	Grassland Earless Dragon	Endangered, Protected		Endangered
Fauna	Reptilia	<i>Aprasia parapulchella</i>	Pink-tailed Legless Lizard	Vulnerable, Protected		Vulnerable
Fauna	Reptilia	<i>Varanus rosenbergi</i>	Rosenberg's Goanna	Vulnerable, Protected		
Flora	Flora	<i>Rutidosis leptorrhynchoides</i>	Button Wrinklewort	Endangered		Endangered
Flora	Flora	<i>Swainsona recta</i>	Small Purple-pea	Endangered		Endangered
Flora	Flora	<i>Caladenia tessellata</i>	Thick Lip Spider Orchid	Endangered, Protected, Category 2 Sensitive Species	Category 2	Vulnerable

Data does not include NSW category 1 sensitive species.

NSW BioNet: © State of NSW and Office of Environment and Heritage

Location Confidences

Where Lotsearch has had to georeference features from supplied addresses, a location confidence has been assigned to the data record. This indicates a confidence to the positional accuracy of the feature. Where applicable, a code is given under the field heading “LC” or “LocConf”. These codes lookup to the following location confidences:

LC Code	Location Confidence
Premise match	Georeferenced to the site location / premise or part of site
General area or suburb match	Georeferenced with the confidence of the general/approximate area
Road match	Georeferenced to the road or rail
Road intersection	Georeferenced to the road intersection
Feature is a buffered point	Feature is a buffered point
Land adjacent to geocoded site	Land adjacent to Georeferenced Site
Network of features	Georeferenced to a network of features

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Appendix C

EPA Letter

Lotsearch Support

From: Zhang, Jianmin <Jianmin.Zhang@act.gov.au> on behalf of Contaminated Sites <ContaminatedSites@act.gov.au>
Sent: Friday, 17 March 2023 1:12 PM
To: Lotsearch Support
Subject: Contaminated Land search result - Block 12 Section 25 Hume Jerrabomberra

Follow Up Flag: Follow up
Flag Status: Flagged

Categories: Harley

OFFICIAL

Dear Ms Munday

RE: CONTAMINATED LAND SEARCH

Thank you for your search form request of 03/03/2023 enquiring about:

Block 12 Section 25 Hume Jerrabomberra

Records held by the Environment Protection Authority (EPA) for the above block(s) indicate the following:

The block is recorded on the EPA's contaminated sites management database and geographic information system.

The site is currently used as a materials recycling Facility with a recycled material storage depot. In December 2022, a fire occurred at the site. There is no record of an assesment of the site.

EPA records also indicate that the site is adjacent to the Mugga Lane Landfill located at Block 2114 Jerrabomberra.

The EPA Contaminated Sites Environment Protection Policy 2017 lists waste storage, treatment or disposal and landfill as activities associated with land contamination which may present a risk to human health or the environment.

Under the precautionary principal, all blocks adjacent to sites which contain potential land contamination activities are identified and persons making enquiries are made aware of potential for impacts from adjacent sites due to the ability of hydrocarbons and other contaminants to migrate through the environment.

Other potentially contaminating activities may have also been undertaken at the site associated with past and current uses

The EPA has not issued any orders of assessment or remediation under sections 91C (1) or 91D (1) respectively, environment protection orders under sections 125 (2) or (3), requested an audit under section 76 (2) or received an audit notification under section 76A (1) of the *Environment Protection Act 1997* (the Act) over the site and as a result the site is not recorded on the Register of contaminated sites under section 21A of the Act.

The information detailed above only relates to records held by the EPA and may not represent the actual condition of the site.

At present the EPA has no information on contamination of the above block(s) other than as detailed above. However, this does not absolutely rule out the possibility of contamination and should not be interpreted as a warranty that there is no contamination.

I appreciate that this does not absolutely rule out the existence of contamination of the soils. If you or your clients wish to be completely sure you, or they, should arrange to conduct independent tests.

Yours sincerely

Jianmin Zhang | Environment Protection Officer | Office of the Environment Protection Authority

Phone: 02 6207 2157 | Email: jianmin.zhang@act.gov.au

Access Canberra | Chief Minister, Treasury and Economic Development Directorate | ACT Government

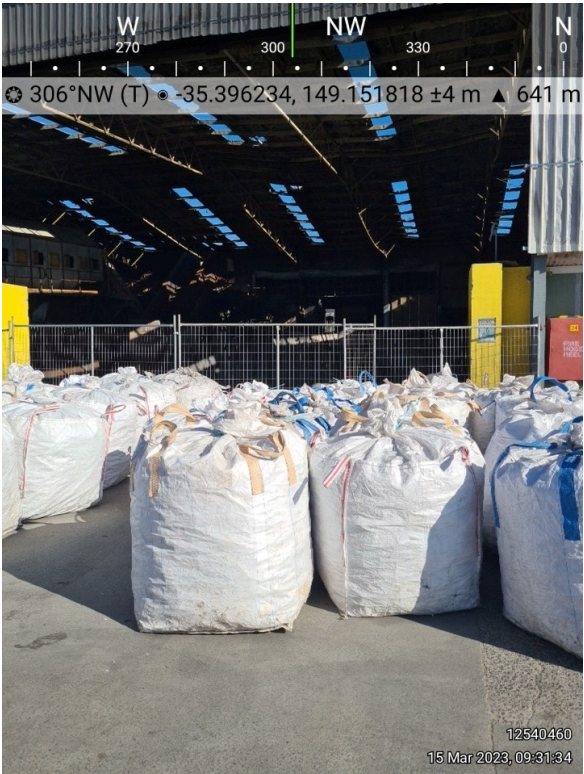

GPO Box 158, Canberra City, ACT 2601 | www.act.gov.au/accessCBR

We acknowledge the Traditional custodians of the ACT, the Ngunnawal people. We acknowledge and respect their continuing culture and the contribution they make to the life of this city and this region.

Appendix D

Site photographs

Description	Photograph
<p>Photograph 1 – 15 March 2023</p> <p>Initial dumping area for incoming material prior to initial sorting process.</p>	
<p>Photograph 2 - 15 March 2023</p> <p>The view of the existing MRF building from the site entry.</p>	

Description	Photograph
<p>Photograph 3 - 15 March 2023</p> <p>Bale storage of containers from the container deposit scheme.</p>	
<p>Photograph 4 - 15 March 2023</p> <p>Storage area for glass bottles.</p>	

Description	Photograph
<p>Photograph 5 – 15 March 2023</p> <p>Western boundary of the site near hardstand bale storage area.</p>	
<p>Photograph 6 - 15 March 2023</p> <p>Drain at the existing MRF entry.</p>	

Description **Photograph**

**Photograph 7 -
15 March 2023**



Drain located on the eastern hardstand area.

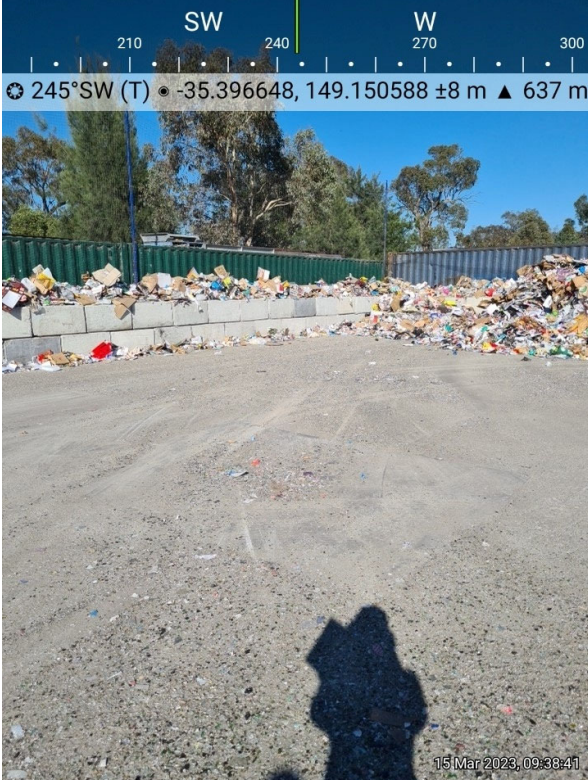
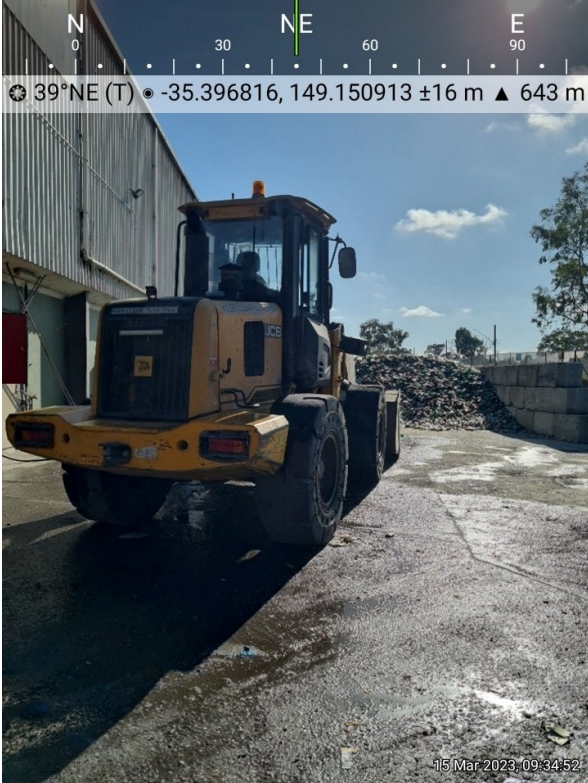


**Photograph 8 -
15 March 2023**

Drain located in the south-east corner of the site, near the bale storage.



Description	Photograph
<p>Photograph 9 - 15 March 2023</p> <p>Drain located in the southern hardstand area.</p>	
<p>Photograph 10 - 15 March 2023</p> <p>Blocked drain located in the hardstand area just north of the existing MRF.</p>	

Description	Photograph
<p>Photograph 11 - 15 March 2023</p> <p>Blocked drain located in the hardstand area just north of the existing MRF.</p>	
<p>Photograph 12 - 15 March 2023</p> <p>Dirt bale storage area.</p>	

Description

**Photograph 13 -
15 March 2023**
Oil and battery
storage area.

Photograph





**Photograph 14 -
15 March 2023**
Workshop area
showing oils on
bunds.





Description	Photograph
<p>Photograph 15 - 15 March 2023 Workshop area.</p>	
<p>Photograph 16 - 15 March 2023 Adjacent to workshop area, storage of oils.</p>	

Description	Photograph
<p>Photograph 17 - 15 March 2023</p> <p>Oil and battery storage area.</p>	
<p>Photograph 18 - 15 March 2023</p> <p>Oil and battery storage area with spill kit.</p>	

Description	Photograph
<p>Photograph 19 – 15 March 2023</p> <p>Inside the existing MRF (currently non-operational).</p>	
<p>Photograph 20 - 15 March 2023</p> <p>Storage of old machinery, scrap metal and tyres on the grassy area of the existing MRF boundary.</p>	

Description	Photograph
<p>Photograph 21 - 15 March 2023</p> <p>Cobbled area that transitions from hardstand to dirt bale storage area.</p>	 <p>15 Mar 2023, 09:40:14</p>
<p>Photograph 22 - 15 March 2023</p> <p>Cobbled area in bale storage area for truck movement.</p>	 <p>15 Mar 2023, 09:41:24</p>

Description	Photograph
<p>Photograph 23 - 15 March 2023 Dirt bale storage area.</p>	
<p>Photograph 24 - 15 March 2023 Dam located in the northern portion of the proposal area.</p>	

Description	Photograph
<p>Photograph 25 - 15 March 2023</p> <p>Grassy area in the northern portion of the proposal area.</p>	
<p>Photograph 26 - 15 March 2023</p> <p>Blackberry thickets in the northern portion of the proposal area.</p>	

Description	Photograph
<p>Photograph 27 – 15 March 2023</p> <p>Grassy area adjacent west of the existing MRF site.</p>	
<p>Photograph 28 – 15 March 2023</p> <p>Grassy area with only tree stump and waste material adjacent east of the dirt bale storage area.</p>	

Description	Photograph
<p>Photograph 29 – 15 March 2023</p> <p>Swampy area just outside the northern portion of the existing MRF dirt bale storage area..</p>	 <p>203°S (T) • -35.395636, 149.150136 ±8 m ▲ 639 m</p> <p>15 Mar 2023, 10:07:24</p>
<p>Photograph 30 – 15 March 2023</p> <p>Weighbridge area.</p>	 <p>31°N (T) • -35.396168, 149.15085 ±12 m ▲ 642 m</p> <p>15 Mar 2023, 09:48:02</p>

Appendix E

**Environmental Authorisation for existing
MRF**



ACT
Government

Chief Minister, Treasury and
Economic Development

Authorisation No. 1218

AUSTRALIAN CAPITAL TERRITORY

ENVIRONMENTAL AUTHORISATION UNDER THE ENVIRONMENT PROTECTION ACT 1997

The Environment Protection Authority (the Authority), pursuant to section 49(1) (a) of the *Environment Protection Act 1997* (the Act), hereby authorises:

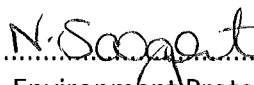
Name: **Re.Cycle Operations (Canberra) Pty Ltd**
ACN: **610 379 078**
ABN: **29 610 379 078**
Street: **1 Recycling Road**
Suburb: **HUME ACT**
Postcode: **2620**

to conduct: the operation of a waste transfer station receiving 30 000t or more of waste each year

on: Block: 6
Section: 25
District: Jerrabomberra

This environmental authorisation is valid for an unlimited period or until surrendered by Re.Cycle Operations (Canberra) Pty Ltd or cancelled or suspended by the Authority.

This is a **standard** environmental authorisation.


.....
Environment Protection Authority

Dated: 6 November 2019

GENERAL CONDITIONS

Definitions

Act: means the Environment Protection Act 1997.

Authority: means the ACT Environment Protection Authority.

Authorisation Holder: means Re.Cycle Operations (Canberra) Pty Ltd.

Authorisation Fee Payment Date: means the anniversary of the grant of this authorisation.

Controlled Waste: as defined in the *National Environment Protection Measure (Movement of Controlled Waste between States and Territories) Measure*.

Recyclable Material: means dry recyclable materials including beverage containers, paper, cardboard, plastics, glass and metals from a domestic or commercial source.

Materials Recovery Facility: means a waste recycling depot (waste for resource recovery or transfer).

Plant and Equipment: includes drainage systems, infrastructure and pollution control equipment associated with the delivery, storage and dispensing of petroleum products.

Site: means Block: 6 Section: 25 District: Jerrabomberra ACT

Stormwater System: as defined in Schedule 1, Section 1.1 of the *Environment Protection Act 1997*.

Waste: as defined in Part 3 Section 10 of the *Waste Management and Resource Recovery Act 2016*.

Waterway: as defined in Schedule 1, Section 1.1 of the *Environment Protection Act 1997*.

Working day: a day other than a Saturday, or Sunday, a public holiday or a day that is a holiday for public servants.

1. Compliance with Environmental Authorisation

1.1 The Authorisation holder must:

- (a) comply with any authorisation condition immediately where no time for compliance is stated;
- (b) notify the Authority in writing within two (2) working days of becoming aware of:
 - i. any event that causes, or is likely to cause, any authorisation condition to be exceeded; or
 - ii. any monitoring data that shows that an authorisation condition has been exceeded.

2. Activities must be carried out to protect the environment

- 2.1 All activities carried out on the site must be carried out in such a manner that minimise adverse impacts on the environment.

3. Maintenance of plant and equipment

3.1 All plant and equipment installed at the premises or used in connection with the licenced activity:

- (a) must be maintained in a proper and efficient condition; and
- (b) must be operated in a proper and efficient manner.

3.2 Records of all maintenance and repairs performed on pollution control equipment including drainage systems, interceptors, separators and infrastructure must be kept for a period of 2 years and made available to the Authority on request.

4. Petroleum Product Storage

4.1 Where there are petroleum product storage tanks on the site the Authorisation holder must ensure the tanks and associated pipe work are maintained in good condition. The proposed method of demonstrating the integrity of the tanks and associated pipe should be incorporated into the Authorisation holders Environment Management Plan (EMP) required under section 15.

4.2 Further to the provisions of clause 4.1, special requirements are applied to the abandonment of any aboveground or underground tanks and should the need arise, the Authorisation holder agrees to contact the Authority and Access Canberra Dangerous Substances Licencing by:

Telephone: 13 22 81

Email: dangeroussubstances@act.gov.au

Postal address: GPO Box 158, Canberra ACT 2601

5. Reporting of environmental harm

5.1 In the event that an incident has caused, is causing, or is likely to cause material or serious environmental harm, whether the harm occurs on or off the site, the Authorisation holder, their employee or agent must report the incident to the

Authority immediately after it becomes known to the Authorisation holder, or to their employee or agent in accordance with clause 5.2.

- 5.2 The incident must be reported to the Authority by telephoning Access Canberra on 13 22 81.
- 5.3 The Authorisation holder must notify the Authority in accordance with clause 5.2 immediately after becoming aware that land is contaminated in such a way as to present, or to be likely to present:
 - a) a significant risk of harm to human health; or
 - b) a risk of material environmental harm or serious environmental harm.
- 5.4 The Authorisation holder, their employee or agent shall also report an incident referred to in clause 5.1 and/or clause 5.3 in writing to the Authority within two (2) working days of the incident occurring, or becoming aware of contamination of land. The report must include:
 - (a) incident or activity that has caused contamination or environmental harm;
 - (b) nature of contamination and chemicals of concern;
 - (c) area affected (on or off site);
 - (d) aspects of the environment affected;
 - (e) actions taken to address the incident;
 - (f) details of any measure taken or proposed to prevent or mitigate against recurrence of such an incident; and
 - (g) any other relevant information.

The report may be provided by email to environment.protection@act.gov.au

- 5.5 The Authorisation holder must keep a record of all other matters in relation to pollution from, or on, the site. These records are to be provided, on request, to the Authority.

6. Record of pollution complaints

- 6.1 The Authorisation holder must keep a record of all complaints received by its employees or its agents, in relation to pollution from, or on the site.
- 6.2 This record is to be kept for a period of two (2) years and provided on request to an Authorised Officer.

7. Record of activity levels

- 7.1 The Authorisation holder shall maintain a record of the amount of material received or processed at the site in tonnes (t) and provide a copy of the record on request of an Authorised Officer.
- 7.2 The Authorisation holder shall maintain a record of the amount of residual waste generated and disposed from the site in tonnes (t) and provide a copy of the record on request of an Authorised Officer.

8. Records to be maintained

8.1 The following records will be maintained and kept by the Authorisation holder for a period of five (5) years:

- a) field sampling record sheets and chain-of-custody forms;
- b) results of monitoring of soils and groundwater; and
- c) reconciliation records for all fuels, oils and hazardous materials and wastes utilised and stored on site.

8.2 The following records will be maintained and kept by the Authorisation holder for a period of two (2) years:

- a) waste disposal dockets for any regulated or controlled wastes disposed off-site;
- b) waste disposal dockets for any hazardous wastes disposed off-site; and
- c) records of each load of waste transported interstate for disposal or recycling.

8.3 The Authorisation holder must provide any records required to be maintained under this Authorisation to the Authority upon request.

9. Responsible employees

9.1 The Authorisation holder must authorise at least two (2) senior employees or agents:

- a) to speak on behalf of the Authorisation holder; and
- b) to provide any information or document required under this Authorisation.

9.2 The Authorisation holder must inform the Authority of the names and telephone numbers (including after hours numbers) of those persons within five (5) working days of this Authorisation coming into force. The details may be provided by email to environment.protection@act.gov.au.

9.3 The Authorisation holder must inform the Authority of any change in the information provided under clause 9.2 within five (5) working days of the change. The details may be provided by email to environment.protection@act.gov.au.

9.4 Any person nominated by the Authorisation holder to meet the requirements of clause 9.2 must be readily contactable on the person's nominated telephone numbers.

10. Authorisation must be kept on site

10.1 A copy of this Authorisation must be kept at the site and must be available for inspection by any employee or agent of the Authorisation holder working at the site.

11. Waste

11.1 No material is to be incinerated on site.

- 11.2 Waste material shall be stored in a way which ensures adequate spacing to allow for vehicle access, vehicle manoeuvrability and materials handling, and for attending and reducing the impact of emergency situations including fire.

12. Hazardous Materials

- 12.1 The Authorisation holder must store and manage hazardous materials in a manner that prevents adverse impacts on the environment. The handling and storage of hazardous materials should be addressed in the EMP required in section 15.

13. Discharge of stormwater

- 13.1 The Authorisation holder shall ensure that all stormwater from hardstand areas in which waste is received, processed and stored at the site is directed through an appropriately sized storm water quality improvement device (SQID) to remove potential pollutants and debris as part of the infrastructure improvement plans or within 12 months of the grant date, whichever occurs first.
- 13.2 The Authorisation holder shall ensure all stormwater run-off from non-hardstand areas is diverted via pollution control measures prior to discharging off site. The Authorisation holder must take all reasonable and practicable measures to prevent contamination of stormwater at the site in accordance with condition 13.1 and the endorsed EMP.
- 13.3 Stockpiles must be stored in a manner that prevent discharges of pollutants to any stormwater infrastructure and watercourses in accordance with the endorsed EMP.

14. Operational Requirements

- 14.1 Only recyclable material as defined may be accepted at the site.
- 14.2 The Authorisation holder shall ensure that all material at the site is received, processed and stockpiled in an enclosed undercover structure, or unless otherwise endorsed by the Authority through the site's EMP.
- 14.3 The Authorisation holder is permitted to temporarily receive and store recyclable material pressed into bales only outside of an enclosed undercover area in accordance with the endorsed EMP.
- 14.4 The Authorisation holder shall take all reasonable and practicable measures to prevent pollution (including dust and odour) from leaving the site in accordance with an endorsed EMP.
- 14.5 Where dust is leaving the site, dust generating activities are to cease.
- 14.6 Visual monitoring of dust generation at the site must be undertaken routinely during operating hours in accordance with the endorsed EMP.

15. Environment Management Plan (EMP)

- 15.1 The Authorisation holder shall prepare and submit an EMP acceptable to the Authority within three (3) months of the grant date.
- 15.2 The EMP should identify all activities that may have an adverse impact on the environment or the potential to cause environmental harm, and detail the mechanisms employed to prevent or minimise the impact of these activities.
- 15.3 The EMP, once accepted by the Authority, is to be implemented immediately. The EMP will also form the basis for future authorisation conditions and environmental improvements.
- 15.4 Where a variation to the mechanisms employed in conducting the Authorised activity, major improvements or changes to the site/ activity or process, the Authorisation holder must seek endorsement from the Authority. A revised EMP acceptable to the Authority must be submitted within one month of the endorsement of the variation.
- 15.5 The Authorisation holder shall review the approved EMP every two (2) years from the date of this Authorisation to ensure that the document remains current/ relevant to activities undertaken on the site. The reviewed EMP shall be submitted to the Authority within one month of the review date.
- 15.6 A copy of the EMP must be kept on the site at all times.

16. Monitoring Requirements

- 16.1 Prior to the installation of the SQID, the Authorisation holder shall monitor stormwater discharges from the site for the parameters listed in Table 1 during each rain event >5mm from the existing IAD Pit as specified on the approved drainage plan for DA200301381 (Attachment A). Results and comparison to the criteria set in Table 1 are to be provided to the Authority within one (1) month of sampling including an explanation of any exceedance of the criteria specified in Table 1.

Table 1: Discharge Criteria

Parameter	Criteria	Units
pH	6 – 9 ¹	pH
Turbidity	<10 ¹	NTU
Suspended Solids	<25 ¹	mg/L
Dissolved Oxygen	>6 ¹	mg/L
Aluminium	5 ¹	µg/L
Arsenic	50 ¹	µg/L
Cadmium	0.2 ¹	µg/L
Chromium VI	2 ¹	µg/L
Copper	2 ¹	µg/L
Lead	1 ¹	µg/L

Manganese	50 ¹	µg/L
Mercury	0.1 ¹	µg/L
Nickel	25 ¹	µg/L
Zinc	5 ¹	µg/L
TPH C ₁₀ -C ₄₀	600 ²	µg/L
Benzene	300 ²	µg/L
Toluene	300 ²	µg/L
Ethylbenzene	140 ²	µg/L
o-xylene	350 ²	µg/L
m & p-xylene	200 ²	µg/L

¹ Environment Protection Regulation 2005

² Environmental Guidelines for Service Station Sites and Hydrocarbon Storage, Environment Protection Authority, 2014

17. Reporting Requirements

17.1 The Authorisation holder shall prepare and submit to the Authority an annual report no later than four (4) weeks after the first anniversary of the grant date of this authorisation and each year thereafter.

17.2 The annual report shall include:

- the Authorisation number, Authorisation holder and site details;
- types of material received and processed at the site in tonnes;
- inventory of material and weights dispatched from the site for further treatment in tonnes to nominated receiving facilities;
- nominated receiving facility details;
- materials flow and mass balances;
- the amount and type of material disposed to landfill in tonnes;
- details of any non-compliance with authorisation conditions;
- occurrences of any incidents in connection with the activity;
- details of any complaints received by the Authorisation holder and what remedial actions were undertaken broken down into category e.g. odour, dust, noise, other etcetera; and
- the number of loads which contained material not permitted and what actions have been undertaken to prevent repeat occurrences.

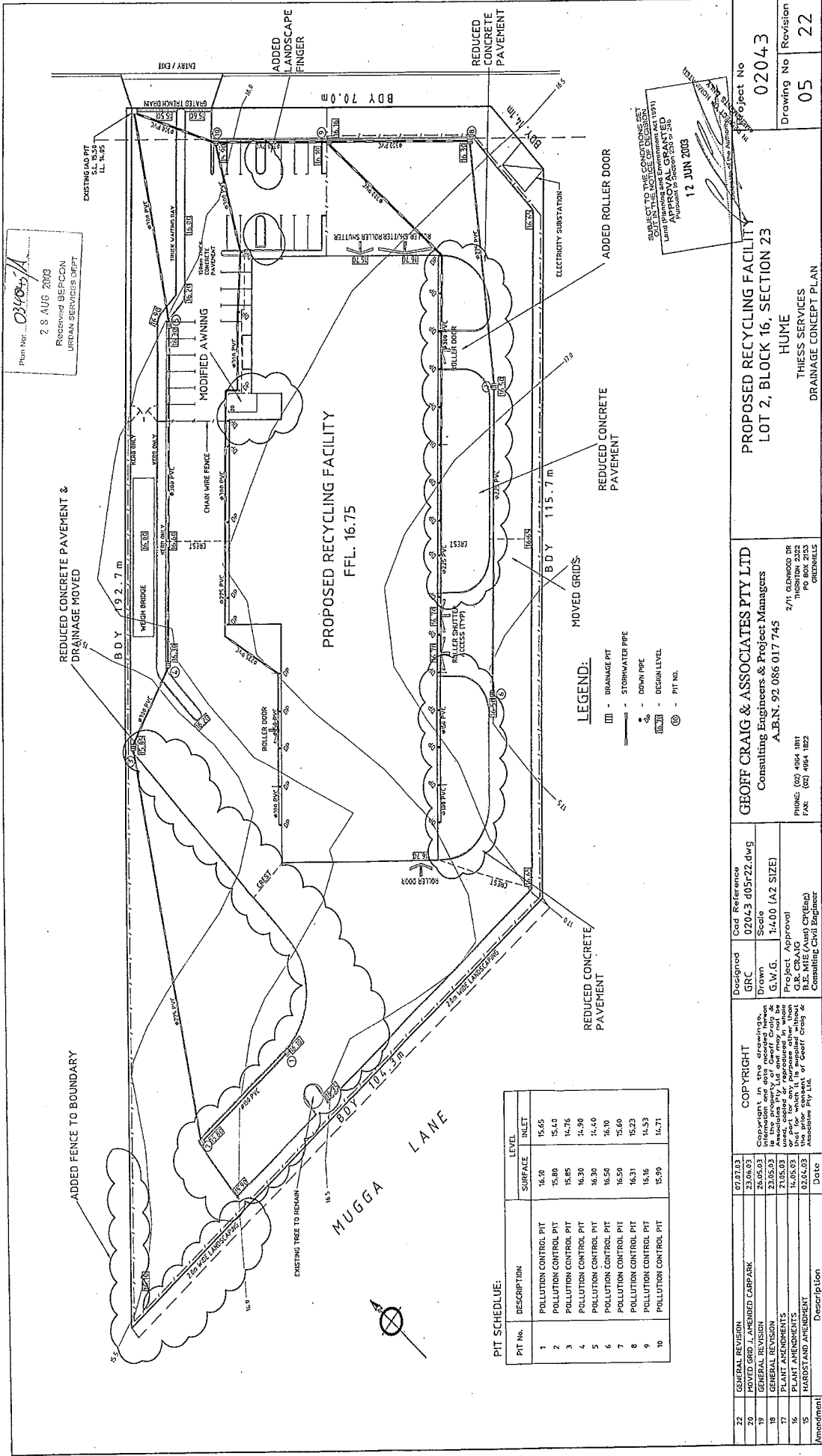
18. Provision of records

18.1 The Authorisation holder must provide any records required to be maintained under this authorisation to the Authority on request.

Attachment A

Application No. 2003/1518

Plan No. 03/1518/A
 28 AUG 2003
 Received BEPCON
 URBAN SERVICES DEPT



BE SUBJECT TO THE CONDITIONS SET OUT IN THE NOTICE OF INTENT TO GRANT A Planning Approval (CPA) No. 12 JUN 2003

Subject No 02043		Drawing No 05		Revision 22	
PROPOSED RECYCLING FACILITY LOT 2, BLOCK 16, SECTION 23 HUME THIESS SERVICES DRAINAGE CONCEPT PLAN					
GEORF CRAIG & ASSOCIATES PTY LTD Consulting Engineers & Project Managers A.B.N. 92 086 017 745 PHONE (02) 4084 1827 FAX: (02) 4084 1822 2/11 GLENWOOD DR HORTON 2322 PO BOX 2153 GERRINILLS			Cod Reference 02043 d05222.dwg Drawn G.W.G. Scale 1:4.00 (A2 SIZE) Project Approval G.R. CRAIG B.E. MIE (Aust) (CPEng) Consulting Civil Engineer		
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Amendment Description Date					
22	GENERAL REVISION	07/07/03			
20	MOVED GRID J, AMENDED CARRPARK	23/06/03			
19	GENERAL REVISION	26/05/03			
18	GENERAL REVISION	23/05/03			
17	PLANT APPOINTMENTS	21/05/03			
16	PLANT APPOINTMENTS	14/05/03			
15	HARDSTAND APPOINTMENT	02/04/03			

PIT SCHEDULE:

PIT No.	DESCRIPTION	SURFACE LEVEL	INLET LEVEL
1	POLLUTION CONTROL PIT	16.10	15.65
2	POLLUTION CONTROL PIT	15.80	15.40
3	POLLUTION CONTROL PIT	15.85	14.76
4	POLLUTION CONTROL PIT	16.30	14.90
5	POLLUTION CONTROL PIT	16.30	14.40
6	POLLUTION CONTROL PIT	16.50	16.10
7	POLLUTION CONTROL PIT	16.50	15.60
8	POLLUTION CONTROL PIT	16.31	15.23
9	POLLUTION CONTROL PIT	16.16	14.53
10	POLLUTION CONTROL PIT	15.90	14.71

Appendix F

Hazardous Materials Survey and Management Plan

Hazardous Materials Survey & Management Plan

**Material Resource Facility
1 Recycling Road
Hume
Block 6 Section 25
ACT 2620
May 2021**



This report MUST NOT be used as a removal specification

Client: ACT NoWaste,
96 Northbourne Avenue, Dickson, 2602



**Accredited for compliance
with ISO/IEC 17020**

Robson Environmental Pty Ltd ~ ABN: 55 008 660 900 ~ www.robsonenviro.com.au
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PO Box 112 Fyshwick ACT 2609 ~ 140 Gladstone Street Fyshwick ACT 2609




CERTIFICATE OF APPROVAL FOR ISSUE OF DOCUMENTS

Document No: T-11223
Title: Hazardous Materials Survey
 Material Resource Facility
 1 Recycling Road
 Hume
 Block 6 Section 25
 ACT 2620

Revision Status: 1
Date of Issue: 24/05/2021

Client: ACT No Waste

Copy No: One

	Assessor	Position	Signature
Surveyed by:	Nathan Cruickshank – Licensed Asbestos Assessor #AA0050	Hazardous Materials Consultant	
Approved by:	Anne Robson - Licensed Asbestos Assessor #AA00022	Director	
Released by:	Anne Robson - Licensed Asbestos Assessor #AA00022	Director	

RELEASE STATUS:

Confidential

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Enquiries should be addressed to Robson Environmental Pty. Ltd.

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Robson Environmental Pty Ltd	John Robson	2	24/05/2021

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1 PREFACE

This Hazardous Materials Survey and Management Plan (HMSMP) was commissioned by ACT NoWaste in order to assure the occupants of the site the highest standards of occupational health and safety in relation to hazardous materials. The safe removal of hazardous materials must be undertaken by appropriately licensed and skilled personnel prior to the demolition of the premises.

The HMSMP contains sections covering the identification, evaluation and control of hazardous materials including asbestos containing materials (ACM), Lead Paint, Polychlorinated Biphenyls (PCB), Synthetic Mineral Fibre (SMF), Ozone Depleting Substances (ODS) and fuel storage above and underground storage tanks (AUST).

Robson Environmental Pty Ltd undertook the hazardous material survey on 14 May 2021. The information contained in this document will assist the PMCW (person with control or management of a workplace) in fulfilling their obligations under the latest editions of the following regulations/Acts:

- *How To Manage and Control Asbestos In The Workplace Code of Practice*
- *How To Safely Remove Asbestos Code of Practice*
- *Dangerous Substances (General) Regulation 2004*
- *Dangerous Substances Act 2004*
- *Work Health and Safety Act 2011*
- *Work Health and Safety Regulations 2011*
- *National Code of Practice for the Safe Use of Synthetic Mineral Fibre [NOHSC:2006(1990)]*
- *National Standard for Synthetic Mineral Fibres [NOHSC:1004(1990)]*
- *Guide to Hazardous Paint Management Part 2: Lead paint in residential, public and commercial buildings Standards Australia, AS 4361.2 – 2017*
- *Identification of PCB-Containing Capacitors; An information Booklet for Electricians and Electrical Contractors ANZECC 1997 and*
- *The Australian Refrigeration and Air-conditioning Code of Good Practice Standards Australia, HB 40.1 – 2001*

2 EXECUTIVE SUMMARY

2.1 Purpose

This report presents the findings of a Hazardous Materials survey conducted at the site on 14 May 2021 at the request of the client. The survey was undertaken to assess the extent and condition of hazardous materials and document safe management procedures in accordance with current legislation. The safe removal of hazardous materials must be undertaken by appropriately licensed and skilled personnel prior to refurbishment or demolition of the premises or where the risk assessment recommends removal. This report includes information which must be known and acted upon prior to the commencement of any demolition, refurbishment, or hazardous material removal or remediation. It also details responsibilities that the PMCW (person with management or control of a workplace) and occupier must address to ensure safe occupation of the premises.

2.2 Scope

The Hazardous Materials survey was non-destructive and non-intrusive in nature with the extent limited to the following areas:

- Interior and exterior of the building
- Roof, amenities and immediate surrounding land
- A/UST filler points and breather vents

The survey did not include the inspection or assessment of the following areas:

- Subterranean areas (e.g. infill/soil)
- Concealed cavities
- Formwork and subterranean electrical cable ducts and water pipe ducts

2.3 Survey Methodology

The survey involved the visual inspection of accessible, representative, construction materials and the collection and analysis of sampled materials suspected of being potentially hazardous to human health.

Hazardous materials assessed included ACM, SMF, PCBs, lead containing paint, ODS and A/UST.

The site inspection included the sampling of representative materials suspected of being hazardous, was undertaken in accordance with Robson's NATA ISO/IEC 17020 accreditation, ISO9001, ISO14001, AS4801 and current legislation. The particular sampling methodology used for each hazardous materials type is provided below:

Asbestos: The asbestos materials survey was conducted in accordance with the current legislation. It involved a visual inspection of accessible representative construction materials suspected of containing asbestos. Materials were not sampled from all areas due to the uniformity of the materials used throughout the building(s). Samples were analysed in Robson Environmental's National Association of Testing Authorities (NATA) accredited laboratory for the presence of asbestos by polarising light microscopy and dispersion staining.

Note that electrical switchboards and other similar areas were only inspected where they were isolated by a qualified electrician. Live switchboards were not inspected, and accordingly are presumed to be ACM until conclusively proven otherwise.

Lead (Pb) Based Paints: Representative paint samples were collected in accordance with AS4361.2-2017 and analysed for lead content. The sampling criterion provided below is taken from AS4361.2-2017 Section A4 Sampling Strategy clauses (a, b, c);

- (a) An adequate number of sample sites should be analysed to properly characterise the paint systems present on site.
- (b) For small surfaces such as architraves, windows and doors and cupboards, a **single** sample may suffice.
- (c) For large, uniformly painted surface areas such as the exterior facade of high rise buildings, or for interior walls and ceilings of large rooms, and where laboratory testing is employed, **composite** samples should be taken from three separate locations in 10m² sections.

Collected paint samples were analysed for their lead (Pb) content by Envirolab Services Pty Ltd – NATA accreditation number: 2901 using ICP/AES techniques and in-house Method No.4.

Within the same building, wherever a paint coating had a similar surface texture, colour, etc. to a paint coating that had already been sampled because of its suspected lead content, it was presumed that these paint coatings were identical. However, results can only be guaranteed valid for directly tested/sampled paints (especially due to deliberate attempts to match new paint to existing coatings in some applications).

SMF: Synthetic Mineral Fibre (SMF) materials were visually identified and a determination made as to whether they were bonded or un-bonded.

PCBs: The information (make, type, capacitance etc.) recorded for each representative fluorescent light fitting capacitor suspected of containing PCB was cross-referenced against *ANZECC Identification of PCB Containing Capacitors – Information Booklet for Electricians and Electrical Contractors - 1997*.

This identification booklet provides a list of electrical equipment that is known to contain PCBs, and a list of electrical equipment known not to contain PCBs. Where the information recorded from the capacitor case(s) correlated exactly with the information listed in the ANZECC Information Booklet for known PCB-containing capacitors it was determined that PCBs were present in the capacitor under analysis.

Wherever a capacitor could not be identified in either list, this was noted in the PCB register as being a capacitor suspected to contain PCBs.

Note that light fittings were only inspected where they were isolated by a qualified electrician. Live light fittings were not inspected, and accordingly no determination about whether or not they contain PCB is included in this report.

Ozone Depleting Substances: A visual examination was made of refrigerant gas labels affixed to representative air-conditioning and refrigeration units. Information concerning the ASHRAE/ARI refrigerant designated R number was noted for later cross-reference to relevant

air-conditioning and refrigeration industry Codes of Practice and Guidelines. In addition, the condition of the plant was noted and comment made as to possible refrigerant or lubricant leaks.

Where refrigerant gas labels were absent from representative air-conditioning and refrigeration plant, an assessment was made as to the likelihood of the plant using an ozone depleting substance based on its age and condition.

Fuel Storage Facilities: The survey included a visual inspection for above ground storage tanks (AST) and underground storage tank (UST) filler points and breather vents.

2.4 Key Findings

Asbestos

Table 1A: ACM locations and required actions

ACM	Locations	Action to be taken
No Asbestos Containing Materials or materials presumed to contain asbestos were located		

Refer to Section 2.4 - Table 1B for presumed ACM and Section 3.2 for exclusions

Table 1B: Presumed ACM, concealed locations and required actions

Type	ACM	Locations	Action to be taken
The materials listed below while not identified on site, should be presumed to be present until a destructive survey confirms otherwise			
Presumed ACM	Insulation/pipe lagging	Inaccessible ducts, risers and ceiling and wall space cavities	<p>Destructive survey under controlled conditions prior to any refurbishment which is likely to disturb possible ACM in these areas.</p> <p>Until these areas are surveyed they should be presumed to contain asbestos.</p> <p>No access to unauthorised personnel should be given</p>
	Asbestos millboard lining	Interior of air conditioning ductwork adjacent to heater elements	
	Asbestos insulation and gaskets/joints	Within mechanical equipment concealed by outer metal cladding, structure or housing	
	Asbestos vinyl floor tiles, covering, cushioning underlay and adhesive	Found beneath carpets and vinyl flooring	
	Asbestos sheeting	Backing material to ceramic tiles (roofs, floors and walls) and packers to building construction joints, such as gable end verge undercloaking	
	Asbestos cement sheet formwork and electrical cable duct / water pipe	Subterranean areas	

Prior to any planned demolition, refurbishment or maintenance, its effect upon any in situ asbestos must be established by reference to this document including amendments.

Lead Paint

It should be assumed that all similar paints throughout the building contain comparable percentages of lead.

Lead Paint (>0.1%) - Material Resource Facility
No lead paint located

Lead Free Paint (<0.1%) - Material Resource Facility		
Location	Paint Colour	Required action
Ground floor throughout MCC - handrails	Yellow	No action required
Ground floor throughout - to steel structures	Blue	No action required

Synthetic Mineral Fibre (SMF)

It should be presumed that SMF materials may be present to inaccessible areas.

Material Resource Facility		
Material	Location & Material	Required action
Sisalation	Ground floor – throughout to underside of roof	Maintain
SMF	1st floor - Learning Centre ceiling tiles	Maintain

Polychlorinated Biphenyls (PCB)

Make - Type	Location	Total	Required action
No PCBs located			

* Note that light fittings were only inspected where they were isolated by a qualified electrician. Live light fittings were not inspected, and accordingly no determination about whether or not they contain PCB is included in this report.

Ozone Depleting Substances (ODS)

ODS - Material Resource Facility			
R Number	Location	Total	Required action
No ODS located			

Non – Ozone Depleting Substances

Material Resource Facility			
R Number	Location	Total	Required action
R-407C	Ground floor - air compressor room, IDFA75E air dryer	1 no	No action required
R-410A	Exterior - office roof, Daikin inverter	3 no	No action required
R-410A	Exterior - shipping container lunch rooms and site office, Teco	4 no	No action required
R-32	Exterior - rear of Administration building, Fujitsu	1 no	No action required

Above Ground Storage Tanks (AST) & Underground Storage Tanks (UST)

Material Resource Facility			
A/UST	Location	Total	Required action
Above ground hydraulic oil tank	Exterior - packer area		Maintain
Above ground diesel storage tank 5000 litre capacity	Exterior - adjacent roller door 4		Maintain

2.5 Key Recommendations

Asbestos

- No asbestos located

Asbestos Removal

Removal of ACM must be undertaken by a licensed Asbestos Removalist in accordance with current legislation. The removal/remediation of friable ACM must be undertaken by a licensed Class A Asbestos Removalist. Removal or remediation of non friable asbestos may be undertaken by either an A or B Class Asbestos Removalist.

Prior to the commencement of any removal or remediation works associated with any amount of friable or non friable asbestos a building certifier must be engaged and building approval granted. An application must be submitted to WorkSafe ACT and ComCare (where applicable) at least 5 days prior to removal works commencing. An asbestos removal contractor must supply an Asbestos Removal Control Plan (ARCP) and a Safe Work Method Statement (SWMS). An independent licensed Asbestos Assessor should be engaged to ensure that the ARCP addresses all safety issues relating to the planned asbestos works.

Air monitoring is mandatory during the removal or remediation of friable asbestos and should be considered during the removal or remediation of non friable asbestos. Air sampling is to be undertaken in accordance with the *Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres*, 2nd Edition and test certificates should be NATA endorsed.

An independent Asbestos Assessor must also be employed to undertake a Clearance Inspection of both friable and non friable asbestos removal or remediation works. A satisfactory clearance certificate for the remediated areas must ensure that no visible asbestos or presumed asbestos remains. Additionally no asbestos fibres should be detected by laboratory analysis if any validation samples are taken. All surfaces within the remediated area must be free of general dust and debris.

Lead Paint

- No lead was identified in any internal or external painted surface. It should be assumed that all similar paint applications throughout the building would contain similar percentages of lead.
- Refer to Appendix D for further general information on lead paint.

SMF

- SMF was located throughout the facility as Sisalation the underside of the roof sheets and as ceiling tiles to the suspended ceiling within the Learning Centre.
- If these materials are to be disturbed during refurbishment appropriate PPE should be worn. SMF materials being removed should be done so using effective dust control procedures.
- Refer to Appendix D for further general information on SMF.

PCBs

- No PCB capacitors located.
- Refer to Appendix D for further general information on PCB.

ODS

- No ODS located
- Refer to Appendix D for further general information on ODS.

A/UST

- Two (2) above ground storage tanks were identified to the exterior of the building to the packer area and adjacent roller door 4. The tanks need to be maintained and should be managed in accordance with the legislation. An up to date spill clean-up kit should be present as part of the spill management of the tank.
- Refer to Appendix D for further general information on A/UST.

Legislation and Guidelines (UST): Section 3.2 of AS4976 (2008) *The Removal and Disposal of Underground Petroleum Storage Tanks*, states that the out-of-service period for a A/UST should not exceed that laid down in any applicable regulation and should not normally be greater than twelve (12) months. Also, Section 6 (Decommissioning) of the ACT EPA (2009) *Environmental Guidelines for Service Station Sites and Hydrocarbon Storage* indicates that all decommissioned tanks must be removed unless there are specific operational or structural reasons as to why they must remain. These reasons must be outlined or substantiated by an experienced and competent person.

Demolition and Refurbishment

Robson Environmental Pty Ltd recommends that prior to any demolition our office be contacted. Our licensed Asbestos Assessors can attend the site to observe the demolition process, advise as necessary and in the event of previously inaccessible hazardous materials being located, assist with assessing the extent, type and removal or abatement of materials as required.

Robson Environmental Pty Ltd provides a range of occupational hygiene services in relation to the safe remediation or abatement of hazardous materials as well as contaminated land advice in relation to hydrocarbon contamination.

To assist with the tendering process Robson Environmental could be engaged to attend the walkthrough to show the extent of ACM and to respond to questions of clarification.

INTRODUCTION

The following Hazardous Materials Survey and Management Plan (HMSMP) has been designed to address the safe control of hazardous materials. It covers current requirements for hazardous material management as at delete 14/05/2021 only and must therefore be updated to comply with any future changes to legislative requirements. The safe removal of hazardous materials must be undertaken by appropriately licensed and skilled personnel prior to any renovation or demolition of the premises.

This HMSMP includes the following:

- a register of all identified hazardous materials
- extent, form, condition and risks associated with nominated hazardous materials
- labelling requirements for identified hazardous materials
- a timetable for managing risks including priorities for removal or control of ACM and for reviewing risk assessments
- responsibilities of all persons involved in hazardous materials management
- procedures to address incidents or spillage involving ACM
- safe work and removal methods
- guidelines on reviewing and updating the HMSMP and hazardous materials register

2.6 Requirements for the HMSMP

This HMSMP must be held on site for ready access. All personnel undertaking any repair or maintenance work must be provided with a copy of the HMSMP before commencement of work.

Maintenance, trade and other personnel must be instructed not to remove or damage identified hazardous materials if hazardous material is identified in the area where work will be undertaken it must be removed or remediated before work begins.

Removal of hazardous material must be undertaken by suitably qualified persons in accordance with relevant Regulations and Codes of Practice.

2.7 Exclusions

The HMSMP commissioned by the client was to be non-destructive and non-intrusive in nature. This type of commission limits or restricts access to the building structure, some surfaces and materials.

The survey undertaken was limited to those areas available for access at the time of building inspection. Only the areas accessible to the surveyors at the time of the building inspection are included in this HMSMP.

Unless specifically noted, the survey did not cover exterior ground surfaces and sub-surfaces (e.g. infill/soil) or materials other than normal building fabric such as materials in laboratories or special purpose facilities.

At the time of survey no access was gained to materials and / or void areas located behind, above, or attached to any sampled or assumed hazardous materials.

The HMSMP does not include the areas, locations and equipment items to which the surveyors could not gain access at the time of inspection.

Some other areas which *may* conceal asbestos include:

Material	Location
Asbestos millboard lining	Air conditioning duct work adjacent to heater elements
Asbestos insulation and gaskets/joints	Within mechanical equipment concealed by outer metal cladding
Asbestos insulation	Walls and cavities (e.g. as lagging to hot water pipes set into and sealed within masonry walls)
Vinyl floor tiles and floor covering	Beneath carpets
Sheeting	Backing material to ceramic tiles and as packers to building construction joints
Asbestos cement sheet formwork and electrical cable/water pipe duct	Sub-ground floor slab

No absolute determination can be made regarding the possibility of concealed or inaccessible hazardous materials or items in the areas, locations and equipment listed in the table above until access is gained to allow for inspection.

Materials and equipment in any non-accessed area should therefore be assumed to contain ACM, SMF, lead paint, PCB, ODS and A/UST (the nominated hazardous materials) and be treated appropriately until assessment and sample analysis confirm otherwise.

Samples were not taken where the act of sampling would endanger the surveyor or affect the structural integrity of the item concerned.

This HMSMP, although extensive, is not intended for and must not be used as a specification or method statement for any future hazardous material removal project. In this instance detailed plans, quantities etc. would be required.

Before any refurbishment or hazardous material removal projects, the contractor(s) carrying out the work must fully acquaint themselves with the extent of the hazardous materials, particularly in those areas which may need full or partial demolition in order to determine the exact extent and location of such materials.

Care should be taken when demolishing or excavating to determine the existence or otherwise of hazardous materials. For example subsurface pipes and drains, revealed through excavation may be constructed of asbestos cement. Wherever a material is uncovered or revealed and it is suspected to be hazardous, it should be assumed to be hazardous and treated appropriately until such time as assessment and sample analysis of the material confirms otherwise.

Until this confirmation occurs the building work must cease in the immediate vicinity of the suspect material and a suitably qualified person must issue a clearance certificate or report before the building work can recommence in the affected area.

To ensure contextual integrity, this HMSMP must always be read in its entirety and should never be referred to in part only.

2.8 Limitations

This report is based on the information obtained by Robson Environmental Pty Ltd at the time of inspection. Robson Environmental Pty Ltd will not update this report; nor take into account any event(s) occurring after the time that its assessment was conducted.

As both the range and use of manufactured products containing hazardous materials was extremely widespread, Robson Environmental Pty Ltd cannot accept responsibility for any consequential loss or damage that results from non-recognition of a material that may later be established to contain hazardous material. For example, certain textured wall and ceiling finishes may contain small traces of asbestos fibre. In situ, textured finishes are often composed of assorted batches of product, or may have been repaired/patched at various times. It is therefore always a possibility that the samples collected may not always be representative of the entire material.

While Robson Environmental Pty Ltd has taken all care and attention to ensure that this report includes the most accurate information available, it has been unable to examine any inaccessible materials or materials hidden from view.

Under normal construction practices some materials are "built in" or "randomly applied". These materials are therefore not readily accessible and can only be exposed through demolition or damage to the structure or finishes. Access to a material may also be prevented or restricted by "in service" or operational equipment, or where to obtain access contravenes a relevant statutory requirement or code of practice. (e.g. electrical switchboards) Consequently, while all reasonable care and attention was taken in compiling this report no guarantee to its completeness can be given.

Robson Environmental Pty Ltd has taken all care to ensure that this report includes the most accurate information available, where it uses test results prepared by other persons it relies on the accuracy of the test results in preparing this report. In providing this report Robson Environmental Pty Ltd does not warrant the accuracy of such third party test results.

3 ASBESTOS SURVEY RESULTS

3.1 Survey Details

The survey of the site included all accessible areas of the building(s) except where stated otherwise. For further asbestos management information, refer to Appendix D.

3.2 Survey Methodology

The survey involved a visual inspection of the premises and a condition assessment of identified ACM. Samples were analysed in Robson Environmental's National Association of Testing Authorities (NATA) laboratory using polarising light microscopy (PLM) and dispersion staining. Samples were a representative selection of materials suspected of containing asbestos. Samples were not taken from all areas due to the uniformity of the materials used throughout the building. Laboratory analysis certificates are presented in Appendix A.

3.3 Sample Analysis

Table 2: Mineralogical Analysis of Samples for Asbestos using PLM

Material Resource Facility			
Sample reference	Sample location	Sample type	Composition Asbestos type
G3535	Exterior throughout - to concrete expansion joints	Mastic	No Asbestos Detected
G3536	Exterior north west side of the building - eave soffits	Sheet	No Asbestos Detected
G3537	Ground floor shipping container lunch room - to underside of sink	Bituminous product	No Asbestos Detected
G3538	Ground floor shipping container lunch room 2 - to underside of sink	Bituminous product	No Asbestos Detected
G3540	Ground floor air compressor room - to pipe work	Gaskets (rope/wove)	No Asbestos Detected

NATA accredited laboratory:

Robson Environmental Pty Ltd

Accreditation number: 3181

Chrysotile	=	white asbestos
Amosite	=	grey or brown asbestos
Crocidolite	=	blue asbestos

It should be noted that the above samples were a representative selection of materials suspected of containing asbestos.

On-site inspections and an examination of the Asbestos Register within this report should be undertaken prior to the commencement of any asbestos removal programme.

3.4 Risk Assessment

The purpose of the risk assessment is to enable informed decisions to be made concerning the control of ACM.

The risk assessment should take account of the identification information in the Asbestos Register, including:

- type of ACM (non-friable or friable)
- condition and location of ACM
- whether the ACM is likely to be disturbed due to its condition and location
- the likelihood of exposure

Types of ACM

Non-friable ACM	<p>Non-friable ACM is any material that contains asbestos bound into a stable matrix. It may consist of cement or various resins/binders and cannot be reduced to a dust by hand pressure. As such it does not present an exposure hazard unless cut, abraded, sanded or otherwise disturbed. Therefore, the exposure risk from non-friable ACM is negligible during normal building occupation.</p> <p><i>Note: If non-friable ACM is damaged or otherwise deteriorated, the risk assessment may be reviewed to reflect a higher potential for exposure to asbestos fibres. A licensed Asbestos Assessor should perform the risk assessment.</i></p>
Friable ACM	<p>Friable ACM can be crumbled or reduced to a dust by hand pressure when dry and can represent a significant exposure hazard. Examples of friable asbestos are hot water pipe lagging, severely damaged asbestos cement sheet, limpet spray to structural beams and electrical duct heater millboard.</p>

ACM CONDITION RATING

1	Severe	Deteriorated surface in extremely poor condition
2	Poor	Deteriorated material
3	Normal	Stable asbestos with little damage
4	Good	Well sealed stable surfaces in accessible locations

ACM RISK RATING

A	Very High	Exposure to airborne asbestos as a consequence of extremely minor disturbance
B	High	Exposure to airborne asbestos likely as a consequence of significant disturbance
C	Medium	Exposure to airborne asbestos unlikely during normal building use
D	Low	No exposure to airborne asbestos during normal building use

3.5 Asbestos Register

The Asbestos Register details the type, location, risk assessment and action required for all identified ACM. The Register should be accessed to inform all decisions made concerning control of ACM. Action taken to control ACM must be recorded in this Register in order to comply with current legislation.

Table 3A: Asbestos Register

Sample No.	Material Description & Location	Condition Rating	Risk Rating	Approx Quantity	Recommended Management Action	Action Undertaken	Assessor/ Date assessed
No Asbestos Containing Materials or materials presumed to contain asbestos were located							

Refer to Section 2.4 Table 1B for presumed ACM and Section 3.2 for exclusions

Table 3B: Register of sampled materials which have been confirmed as non ACM

Material Resource Facility		
Sample number	Type	Locations
G3535	Mastic	Exterior throughout - to concrete expansion joints
G3536	Sheet	Exterior north west side of the building - eave soffits
G3537	Bituminous product	Ground floor shipping container lunch room - to underside of sink
G3538	Bituminous product	Ground floor shipping container lunch room 2 - to underside of sink
G3540	Gaskets (rope/woven)	Ground floor air compressor room - to pipe work

4 LEAD PAINT SURVEY RESULTS

4.1 Introduction

Lead paint is defined by the Australian Standard (AS 4361.2 – 2017 Guide to hazardous paint management Part 2: Lead paint in residential, public and commercial buildings) as a paint or component coat of a paint system containing lead or lead compounds, in which the lead content (calculated as lead metal) is in excess of 0.1% by weight of the dry film as determined by laboratory testing.

Analytical values of $\leq 0.1\%$ Pb allow the sample to be categorised as being lead free paint.

4.2 Results

Representative paint samples were collected in accordance with AS4361.2-2017 and analysed for lead content. The sampling criterion provided below is taken from AS4361.2-2017 Section A4 Sampling Strategy clauses (a, b, c);

- (a) An adequate number of sample sites should be analysed to properly characterise the paint systems present on site.
- (b) For small surfaces such as architraves, windows and doors and cupboards, a **single** sample may suffice.
- (c) For large, uniformly painted surface areas such as the exterior facade of high rise buildings, or for interior walls and ceilings of large rooms, and where laboratory testing is employed, **composite** samples should be taken from three separate locations in 10m² sections.

Collected paint samples were analysed for their lead (Pb) content by Envirolab Services Pty Ltd – NATA accreditation number: 2901 using ICP/AES techniques and in-house Method No.4.

Within the same building, wherever a paint coating had a similar surface texture, colour, etc. to a paint coating that had already been sampled because of its suspected lead content, it was presumed that these paint coatings were identical. However, results can only be guaranteed valid for directly tested/sampled paints (especially due to deliberate attempts to match new paint to existing coatings in some applications).

Table 4: Lead Composition in Paint by Inductively-Coupled Plasma Spectroscopy

Material Resource Facility				
Sample No.	Item No.	Sample location	Colour	Lead in Paint %
G3539	PB2727	Ground floor throughout MCC - handrails	Yellow	<0.005
G354	PB2728	Ground floor throughout - to steel structures	Blue	<0.005

Notes:

Lead Paint (> 0.1% Pb)

Lead-free Paint (≤ 0.1% Pb)

4.3 Discussion and Conclusion

The analytical result(s) of paint sampling revealed that no lead was identified in any internal or external painted surface during the hazardous materials survey.

It should be assumed that all similar paint(s) throughout the premises contains comparable percentages of lead.

5 Synthetic Mineral Fibre (SMF) Survey Results

5.1 Introduction

SMF is a generic term used to collectively describe a number of amorphous (non-crystalline) fibrous materials including glass fibre, mineral wool (Rockwool and Slagwool) and ceramic fibre. Generally referred to as SMF, these materials are also known as 'Man-Made Mineral Fibres' (MMMMF).

SMF products are used extensively in commercial and residential buildings for thermal and acoustic insulation, and as a reinforcing agent in cement, plaster and plastic materials. In some specialised instances, SMF materials have also been used as alternatives to asbestos, especially where high temperature insulation properties are required.

There are two basic forms of SMF insulation **bonded** and **unbonded**.

The **bonded form** is where adhesives, binding agents, facing/cladding, cement or other sealants have been applied to the SMF before delivery and the SMF product has a specific shape (e.g. a binding or sealing agents hold the SMF in a batt or blanket form). Some bonded SMF materials may also be clad in various coverings on one or more sides (e.g. a silver foil backing).

The **unbonded form** has no adhesives, binding agents, facing/cladding or sealants applied, and the SMF is a loose material (e.g. wet spray and loose fill).

5.2 Results

Table 5: Visual Assessment of Samples

Material Resource Facility			
Item No	Location	Sample Type	Form
SMF2251	Ground floor – throughout to underside of roof	Sisalation	Bonded
SMF2252	1st floor - Learning Centre ceiling tiles	SMF	Bonded

5.3 Conclusion

It should be presumed that SMF materials may be present to inaccessible areas including the ceiling space of areas which are inaccessible. If building work is likely to significantly disturb the insulation, the SMF materials should be removed using effective dust control procedures.

Refer to Appendix D for safe SMF handling.

6 POLYCHLORINATED BIPHENYLS (PCB) SURVEY RESULTS

6.1 Introduction

PCB is the common name for polychlorinated biphenyls. PCBs range in appearance from colourless, oily liquids to more viscous and increasingly darker liquids, to yellow then black resins, depending on the chlorine content of the PCB.

PCBs are chemically stable synthetic compounds that do not degrade appreciably over time or with exposure to high temperatures. The major use of PCBs was as an insulating fluid inside transformers and capacitors. Capacitors containing PCBs were installed in various types of equipment including domestic appliances, motors and fluorescent light fittings during the 1950s, 60s and 70s.

These applications generally do not present an immediate risk to human health or the environment as the equipment is sealed and contains relatively small amounts of PCB. The equipment can continue to be used safely provided that the capacitors do not leak.

The Australian and New Zealand Environment and Conservation Council (ANZECC) in its *PCB Management Plan* of 2003 stipulate cessation dates for the generation of PCB scheduled waste, the use of articles containing PCB scheduled waste, and the disposal of PCB scheduled waste*.

- * PCB scheduled waste means any PCB material that has no further use that contains PCBs at levels at, or in excess of 50mg/kg and is of a quantity of 50g or more.

Small equipment items and capacitors found in households and commercial buildings that contain scheduled PCBs (i.e. at or in excess of 50mg/kg) are to be disposed of as scheduled PCB waste. Where the aggregate weight of the items or capacitors exceeds 10kg, they must be notified to the relevant Commonwealth, State or Territory Government agency prior to their disposal.

6.2 Results

Table 6: PCB and non PCB Containing Capacitors Identified on fluorescent light fittings

Item No.	Location	Make - Type	Capacitance (µF)
No PCB capacitors located			

Item No.	Location	Make - Type	Capacitance (µF)
No Non-PCB capacitors were located			

* Note that light fittings were only inspected where they were isolated by a qualified electrician. Live light fittings were not inspected, and accordingly no determination about whether or not they contain PCB is included in this report.

For further PCB management information refer to Appendix D.

7 OZONE DEPLETING SUBSTANCES SURVEY RESULTS

The site was surveyed for the presence of air conditioning and refrigeration units that contain ozone depleting substances.

ODS are used for heat transfer in refrigeration and air conditioning systems, absorbing or releasing heat according to vapour pressure. Release of these substances to the atmosphere has the ability to cause long term atmospheric pollution that can lead to ozone depletion, global warming, petrochemical smog and acid rain.

The ozone depletion potential (ODP) of a fluorocarbon refrigerant gas, its global warming potential (GWP) and estimated atmospheric life (EAL) all contribute to its potential to deplete the stratospheric ozone layer and enhance the greenhouse effect leading to global warming.

Chlorofluorocarbons (CFCs) contain chlorine and possess a large ODP, high GWP and long EAL. They are generally found in refrigeration and air-conditioning systems e.g. centrifugal chillers.

Hydrochlorofluorocarbons (HCFCs) are less saturated with chlorine than are CFCs and the hydrogen within these compounds give the HCFCs a much shorter EAL and lower ODP. They are generally found in refrigeration systems that are used for food display, cold stores and self contained, split, multi-split and central plant chillers used for building air-conditioning.

Hydrofluorocarbons (HFCs) are a class of replacement gases for CFCs. They do not contain chlorine or bromine and therefore do not deplete the ozone layer. While all HFCs have an ODP of zero, some do have a high GWP (e.g. R-404A, R-407B, R-125 etc).

Halons are synthetic chemical compounds that contain one or two carbon atoms, bromine and other halogens. They have a long atmospheric lifetime and cause very aggressive ozone depletion when breaking down in the stratosphere. Halons were introduced into Australia as fire-extinguishing agents in the early 1970s and quickly replaced many previously accepted fire-fighting products because of their superior fire-extinguishing characteristics and ease of use.

Halon 1211 was commonly used in portable fire extinguishers, while fixed fire protection systems, such as those that protect computer rooms and ship engine rooms, commonly contained Halon 1301.

Halon 1301 has an ODP that is 10 times greater that of CFCs, while Halon 1211 has an ODP 3 times greater than that of CFCs.

7.1 Results

Table 7:

Chemical properties of non ODS located during survey

Material Resource Facility						
Non ODS	Location	R Number	Chemical name	ODP	GWP	EAL
ODS1257	Ground floor air compressor room - IDFA75E air dryer	R-407C	HFC-32 (23%), HFC-125 (25%), HFC-134a (52%)	0	1774	0
ODS1258	Exterior office roof - Daikin Inverter	R-410A	HFC-32 (50%), HFC-125 (50%)	0	1370	36
ODS1255	Exterior - shipping container lunch rooms and site office - Teco	R-410A	HFC-32 (50%), HFC-125 (50%)	0	1370	36
ODS1256	Exterior - rear of Administration building - Fujitsu	R-32	CH2F2	0	675	4.9

For further refrigerant management information refer to Appendix D.

8 FUEL STORAGE FACILITIES

It is important to note that prior to the introduction of natural gas in the ACT in the 1980s commercial premises generally utilised heating systems where boilers were fuelled by diesel or heating oils which were stored in A/USTs.

8.1 Results

Material Resource Facility			
A/UST Type	Item No	Location	Recommendations
Above ground diesel storage tank 5000 litre capacity	ST151	Exterior - adjacent roller door 4	Maintain
Above ground hydraulic oil tank	ST150	Exterior - packer area	Maintain

9 ASBESTOS MANAGEMENT

9.1 Management of ACM

General requirements

- ACM identified as representing an exposure risk (see [Table 3A Asbestos Register](#)) should be removed or otherwise controlled.
- Any ACM that is not scheduled for immediate removal should be labelled with appropriate warnings and maintained in good condition.
- The location of ACM must be entered into the Asbestos Register.
- Maintenance and other personnel must be made aware of the location of ACM.
- The Asbestos Register must be freely available.
- Unless they have valid ACT Asbestos Removal licence, maintenance workers, trades or occupants shall not remove or knowingly damage identified ACM.
- Before any planned demolition, refurbishment or maintenance, its effect upon any in situ asbestos must be established by reference to this document, including amendments.

9.2 Management of Contractors

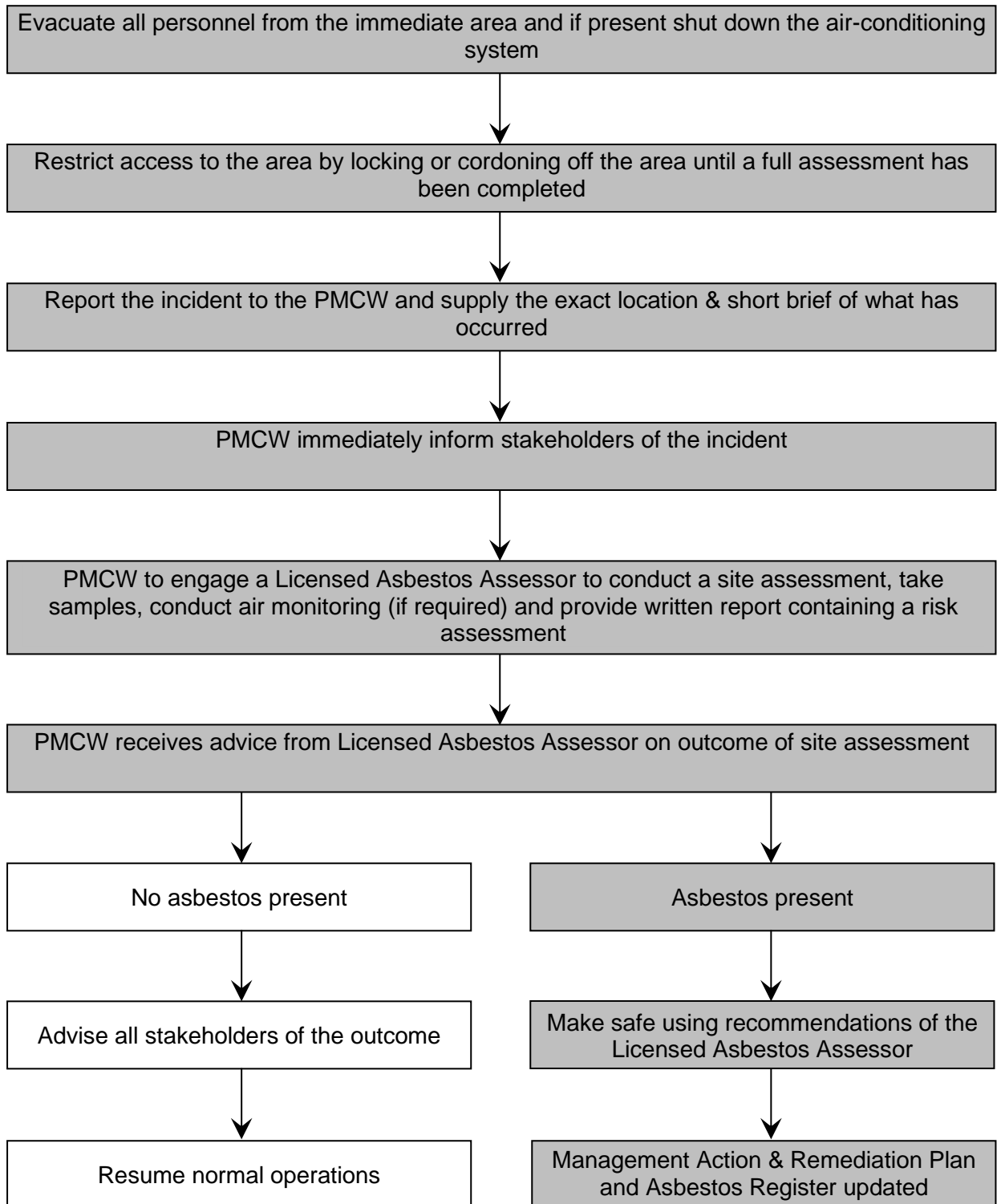
Before any contractor is engaged to carry out work on a site, the Asbestos Register, site plan and photographs should be checked to ensure the work will not interfere with, or disturb asbestos containing materials (ACM).

The chart below should be used by the PMCW to induct contractors onto sites:

Contractor arrives on site	Check Safe Work Method Statement (SWMS) and Trade Licenses (including Asbestos Awareness training) of all personnel involved in the work
Induct contractor	Conduct contractor's induction for the personnel involved in the work and ensure they are aware of any special requirements for ACM, security, no smoking, etc.
Check the Asbestos Register	The Asbestos Register and plan should be readily accessible (i.e. front office/reception) and in colour. Check the Asbestos Register with the contractor for ACM in the proposed work area.
Is asbestos present in the work area?	
No	Yes
Contractor may proceed with work	
Will the asbestos be disturbed?	
No	Yes
Contractor may proceed with work	No work to be conducted – contact the PMCW immediately informing them of the problem.

9.3 Asbestos Emergency Procedures

The following course of action should be taken **immediately** if ACM or suspected ACM is disturbed, or is accidentally damaged.



9.4 PMCW Decision Record

Option 1: Defer action

Item no.	ACM and Location	Reason	Authorisation	Date

Option 2: Encapsulate or seal

Item no.	ACM and Location	Reason	Authorisation	Date

Option 3: Removal

Item no.	ACM and Location	Reason	Authorisation	Date

9.5 Timetable for Action

The timetable for action should be administered to ensure the PMCW has a clear plan for all works which may affect ACM in the workplace. This includes maintenance work, scheduled removal work and risk assessment reviews, which may impact ACM.

Table 8: Timetable for action

ACM removal/ work	Date of scheduled works	Details	Authorisation	Date
Asbestos review/audit	Date of scheduled review	Details	Authorisation	Date

10 RESPONSIBILITIES

10.1 Asbestos - Provision of Information

The PMCW must:

- ensure the ACM register and all relevant information pertaining to asbestos in the workplace is freely available upon request
- provide occupants with up-to-date information relating to the condition and relative risk of ACM in the workplace
- provide information on the control measures in place to contain ACM-related risk and
- provide information to staff and contractors on measures to be taken to ensure that they are not exposed to asbestos in the workplace, either through accident or negligence

PMCW Action Record

Record all communication activities undertaken to inform staff/occupants of ACM in the workplace.

Action	Authorisation	Date

10.2 Updating the Risk Assessment

The register of ACM, including any risk assessments, should be reviewed every 12 months or earlier where:

- a risk assessment indicates the need for reassessment; or
- any ACM has been disturbed or moved

A visual inspection of identified ACM should be undertaken as part of any review.

Each review should critically assess all asbestos management procedures and their effectiveness in:

- preventing exposure to asbestos fibres
- controlling access to asbestos
- highlighting the need for action to maintain or remove ACM
- maintaining the accuracy of the ASMP

Details of any mitigating actions must be recorded in the Asbestos Register (refer Table 3A).

10.3 Key Personnel

This section outlines the responsibilities of all persons involved in the safe management of ACM.

1. PMCW

Name:	
Contact details:	
Responsibilities:	<i>e.g. provision of information</i>

2. Occupational Health and Safety Representative

Name:	
Contact details:	
Responsibilities:	<i>e.g. keeping occupants informed of any changes to the status of ACM in the workplace</i>

3. Facilities Management (if applicable)

Name:	
Contact details:	
Responsibilities:	<i>e.g. arrange removal and repair works as required; maintaining the HMSMP</i>

4. Other

Name:	
Contact details:	
Responsibilities:	

11 ASBESTOS REMOVAL WORKS

11.1 PMCW Responsibilities

Where it has been determined that ACM is to be removed, the PMCW must ensure that a risk assessment is performed before the removal work commences and that the removalist takes this risk assessment into account. The risk assessment must include the possibility of uncovering previously concealed ACM, and that concealed ACM is subsequently identified by a licensed Asbestos Assessor.

The PMCW should provide a detailed scope of works prepared by a licensed Asbestos Assessor for the removalist, including potential hazards, details on areas, which contain asbestos and arrangements for clearance inspections and airborne fibre monitoring.

11.2 Removalist Responsibilities

Before the commencement of removal work, the licensed removal contractor must:

- Provide a site-specific Asbestos Removal Control Plan(ARCP)
- Ensure the removal is adequately supervised and carried out in a safe manner
- Ensure that the equipment used in the project is appropriate for the task
- Ensure all persons carrying out the removal are competent and trained for the type of work being carried out
- Demonstrate that they have a health surveillance program in accordance with the requirements of Code Of Practice: How To Safely Remove Asbestos

11.3 Licensing Requirements

All Asbestos Removalists in the ACT are licensed by WorkSafe ACT

As a minimum the holder of an ACT Asbestos Removal Licence is required to demonstrate practical experience in the industry for at least three years and possess a full and complete understanding of the requirements of:

- *How to Manage and Control Asbestos in the Workplace Code of Practice*
- *How to Safely Remove Asbestos Code of Practice*
- *Work Health and Safety Act 2011*
- *Work Health and Safety Regulations 2011*

Environment and Planning Directorate (EPD) specify requirements for authorising certifiers and WorkSafe ACT and ACT NOWaste for the removal and transport of ACM.

11.4 Approval to Begin Asbestos Removal Works

- All removal methods and procedures are required to be undertaken in accordance with current legislation.
- The PMCW in conjunction with a licensed Asbestos Assessor where required, will inform the asbestos removalist of the 'Scope of Works'.
- The licensed Asbestos Assessor will be required to provide a clearance certificate on satisfactory completion of the works.

11.5 Emergency Work in Areas Containing Asbestos

- If emergency access is required contact the PMCW.
- If the PMCW determines that asbestos is likely to be disturbed, all works must be undertaken in accordance with current legislation - that is, a licensed Asbestos Removalist must be contracted to undertake any asbestos removal works.
- A licensed Asbestos Assessor will be required to provide a clearance certificate on satisfactory completion of the works.

11.6 Monitoring Arrangements

Control air monitoring should be performed when indicated by a Risk Assessment to ensure the control measures are effective.

All air monitoring must be performed by a licensed Asbestos Assessor accredited to perform air sampling for asbestos. Sampling should be performed in accordance with the *Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres* [NOHSC: 3003 (2005)].

It is the Asbestos Removalist's responsibility to ensure that the maximum fibre levels throughout asbestos removal and associated works does not equal or exceed the minimum practical detection limit of 0.01 fibres per millilitre of air (F/ml). If the airborne fibre levels are observed at or exceeding those specified below, the licensed Asbestos Assessor will instruct the contractor to take the appropriate control /action as per current legislation.

Table 9: Control levels and required actions

Control Level (airborne asbestos fibres/ml)	Control/Action
< 0.01	Continue with control measures
≥ 0.01	Review control measures
≥ 0.02	Stop removal work and find the cause

11.7 Clearance Inspections

Following removal work, a licensed Asbestos Assessor must undertake a clearance inspection before re-occupation of an asbestos work area.

All barriers and warning signs should remain in place until the area has been cleared.

11.8 ACM removal/maintenance record

The Asbestos Register, Section 4.5, Table 3A is to be completed by the PMCW after receiving appropriate clearance certification from a licensed Asbestos Assessor.

The 'Work Performed' and 'Asbestos Control Measure' Tables are required to be completed by the PMCW.

1. Work Performed

Company name	Contact details	Date of work + job no.	Scope of work

2. Asbestos Control Measures

Work performed	Air monitoring/ decontamination	Clearance certificate issued	Other

3. Additional Information

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12 FURTHER INFORMATION

12.1 Useful Contacts

Additional information on asbestos can be obtained from the following organisations and agencies.

**Environment and Planning Directorate
(EPD)**

Dame Pattie Menzies House
16 Challis Street
Dickson ACT 2602
Phone: 02 6207 1923
Internet: www.environment.act.gov.au

ACT Government

Phone: 13 22 81
Internet: www.asbestos.act.gov.au

WorkSafe ACT

480 Northbourne Avenue,
Dickson ACT 2602
Phone: 02 6205 0200
Email: worksafe@act.gov.au
Internet: www.WorkSafe.act.gov.au

13 APPENDICES

13.1 APPENDIX A – Laboratory Reports



Envirolab Services Pty Ltd
 ABN 37 112 535 645
 12 Ashley St Chatswood NSW 2067
 ph 02 9910 6200 fax 02 9910 6201
 customerservice@envirolab.com.au
 www.envirolab.com.au

CERTIFICATE OF ANALYSIS 269139

Client Details	
Client	Robson Environmental Pty Ltd
Attention	Joshua Low
Address	PO Box 112, Fyshwick, ACT, 2609

Sample Details	
Your Reference	<u>T11223</u>
Number of Samples	2 Paint
Date samples received	17/05/2021
Date completed instructions received	17/05/2021

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.


Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details	
Date results requested by	20/05/2021
Date of Issue	20/05/2021
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Results Approved By
 Ken Nguyen, Senior Customer Service

Authorised By



Nancy Zhang, Laboratory Manager

Envirolab Reference: 269139
 Revision No: R00



Client Reference: T11223

Lead in Paint			
Our Reference		269139-1	269139-2
Your Reference	UNITS	G3539	G3541
Date Sampled		04/05/2021	14/05/2021
Type of sample		Paint	Paint
Date prepared	-	19/05/2021	19/05/2021
Date analysed	-	19/05/2021	19/05/2021
Lead in paint	%w/w	<0.005	<0.005

Envirolab Reference: 269139
 Revision No: R00

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Client Reference: T11223

Method ID	Methodology Summary
Metals-020/021/022	Digestion of Paint chips/scrapings/liquids for Metals determination by ICP-AES/MS and or CV/AAS.

Envirolab Reference: 269139
Revision No: R00

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Client Reference: T11223

QUALITY CONTROL: Lead in Paint				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			19/05/2021	[NT]	[NT]	[NT]	[NT]	19/05/2021	[NT]
Date analysed	-			19/05/2021	[NT]	[NT]	[NT]	[NT]	19/05/2021	[NT]
Lead in paint	%w/w	0.005	Metals-020/021/022	<0.005	[NT]	[NT]	[NT]	[NT]	96	[NT]

Client Reference: T11223

Result Definitions	
NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Client Reference: T11223

Quality Control Definitions	
Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMCO 2011.	
The recommended maximums for analytes in urine are taken from "2018 TLVs and BEIs", as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.	
Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2	

Laboratory Acceptance Criteria
<p>Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.</p> <p>Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.</p> <p>Spikes for Physical and Aggregate Tests are not applicable.</p> <p>For VOCs in water samples, three vials are required for duplicate or spike analysis.</p> <p>Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.</p> <p>Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.</p> <p>In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.</p> <p>When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.</p> <p>Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.</p> <p>Measurement Uncertainty estimates are available for most tests upon request.</p> <p>Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.</p> <p>Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.</p>

Fibre Identification Certificate of Analysis

Report Number: T-11223 **Date of Report:** 18/05/2021 **Samples Taken by:** Robson Environmental **Page 1 of 2**

Client Details

Client: ACT No Waste
Attention: Harry Korres
Date of Testing: 18/05/2021
Client Reference: Material Resource Facility
Email: harry.korres@act.gov.au

Material Resource Facility					
Sample Number	Client Reference	Location	Physical Structure	Sample Weight	Analysis of Fibrous Content
G3535		throughout - to concrete expansion joints	Mastic	1g	No Asbestos Detected*
G3536		north west side of the building - eave soffits	Sheet	1g	No Asbestos Detected*
G3537		shipping container lunch room - to underside of sink	Bituminous product	1g	No Asbestos Detected*
G3538		shipping container lunch room 2 - to underside of sink	Bituminous product	1g	No Asbestos Detected*
G3540		air compressor room - to pipe work	Gaskets (rope/woven)	<1g	No Asbestos Detected*

Non Asbestos Fibre Table

- * G3535 - Organic Fibres Detected
- * G3536 - Organic Fibres Detected
- * G3537 - Organic Fibres Detected
- * G3538 - Organic Fibres Detected
- * G3540 - Organic Fibres Detected

Robson Environmental Pty Ltd ~ ABN: 55 008 660 900 ~ www.robsonenviro.com.au
 p: 02 6239 5656 ~ f: 02 6239 5669 ~ Hazmat@robsonenviro.com.au
 PO Box 112 Fyshwick ACT 2609 ~ 140 Gladstone Street Fyshwick ACT 2609

Client: ACT No Waste T-11223_Material Resource Facility-Fibre Identification Certificate of Analysis_20210518

Fibre Identification Certificate of Analysis

Laboratory Report Number: T-11223

Analyst: Natasha Pearson

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LABORATORY METHODOLOGY

Samples of material are examined to determine the presence of asbestos fibres using AS4964 (2004) & In-House Procedure HMP002 – Fibre Identification. Unequivocal identification of asbestos minerals present is made by assessing fibre properties to determine if the values are consistent with published data. Careful application of the test procedure provides sufficient diagnostic evidence to allow unequivocal identification of the common asbestos types to determine whether a sample contains asbestos or not. If diagnostic evidence is insufficient or fibres are not able to be unequivocally identified by Polarising Light Microscopy (PLM), further testing may be required.

CLIENT SUPPLIED SAMPLES

Samples are analysed as received and as such Robson Environmental accepts no responsibility for the accuracy or completeness of third party sampling. Insufficient sample volume may lead to inaccurate results. Large samples may be sub-sampled.

REPORTING OF RESULTS

Asbestos Detected: Asbestos detected by PLM, including Dispersion Staining (DS).

No Asbestos Detected: No Asbestos detected by PLM, including DS. Non asbestos fibres such as organic and Synthetic Mineral Fibres detected in samples will be marked with an *. Please refer to non asbestos table beneath main table.

UMF Detected: Mineral fibres of unknown type detected by PLM, including DS. Confirmation by further independent testing may be necessary, usually scanning electron microscopy (SEM).

Contaminated: Small discrete amounts of asbestos unevenly distributed in a large body of non asbestos material.

- Reported results relate only to the sample(s) submitted for testing.
- Test report must not be reproduced except in full.
- Accredited for compliance with ISO/IEC 17025 – Testing.
- The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

LIMIT OF DETECTION & REPORTING LIMIT

Known limitations of the test procedure using PLM are:

- PLM is a qualitative technique only.
- This method is not sufficient for the identification of airborne or water-borne asbestos.
- The less encountered asbestos mineral fibres actinolite, anthophyllite and tremolite exhibit a wide range of optical properties that preclude unequivocal identification by PLM and DS. Thus, the method is used to positively identify only the three major asbestos minerals: amosite (brown), chrysotile (white) and crocidolite (blue).
- Valid identification requires that the sample material contains a sufficient quantity of the unknown fibres in excess of the practical detection limit used (in this case, PLM and DS, which has a calculated practical detection limit of 0.01-0.1% equivalent to 0.1-1g/kg (AS4946-2004:App. A4).



Robson Approved Identifier
Natasha Pearson



Robson Approved Signatory
Patrick Cerone

Accredited for compliance with ISO/IEC 17025 – Testing





No. 3181



13.2 APPENDIX B – Plans

No Plans Required

13.3 APPENDIX C – HAZMAT Item locations & representative photographs

SAMPLE NO	LOCATION	MATERIAL DESCRIPTION	PHOTOGRAPH
No asbestos items were located			

SMF - Material Resource Facility			
ITEM NO	LOCATION	MATERIAL TYPE	PHOTOGRAPH
SMF225 1	Ground floor – throughout to underside of roof	Sisalation	
SMF225 2	1st floor - Learning Centre ceiling tiles	SMF	

STORAGE TANKS - Material Resource Facility			
ITEM NO	LOCATION	MATERIAL TYPE	PHOTOGRAPH
ST151	Exterior - adjacent roller door 4	Above ground diesel storage tank 5000 litre capacity	
ST150	Exterior - packer area	Above ground hydraulic oil tank	

13.4 APPENDIX D – Hazardous Material Management Information

ASBESTOS

Some 3000 products have been manufactured using asbestos, of which cement sheeting, pipe insulation, textiles, gaskets, vinyl floor tiles and fire door cores are the most commonly encountered. The mineral asbestos (i.e. Crocidolite, Chrysotile and Amosite and other forms) is classified by the National Occupational Health and Safety Commission as a Category 1 carcinogen. If respirable asbestos fibres are inhaled they may cause an inflammatory response, which in turn may lead to asbestosis (scarring of the lung), mesothelioma (cancer of the pleura or peritoneum) or lung cancer.

It is illegal under Commonwealth, State and Territory legislation to manufacture asbestos building materials or to reuse asbestos products.

Asbestos sheeting or 'fibro' is bonded into a stable matrix and as such does not present an exposure hazard unless it is cut, abraded, sanded or otherwise disturbed. This material is referred to as non friable ACM. Friable ACM has the potential to release fibre with only minor disturbance.

The health risks associated with asbestos exposure increase with the fibre type, level and frequency of exposure. Crocidolite (blue asbestos) is the most hazardous type. Amosite (brown asbestos) is not as hazardous as crocidolite but is significantly more hazardous than chrysotile (white asbestos). Exposure to all types of asbestos can result in diseases including asbestosis, lung cancer and mesothelioma. Smoking increases the risk of disease 50 fold. The often heard adage 'one fibre can kill you' is overly simplistic. Evidence indicates that risk increases with the level, type and frequency of exposure. Some individuals may be predisposed to disease at low and infrequent exposure, while others suffer no ill effect even after prolonged industrial exposure. We do not know what level can be considered safe nor what level may be considered hazardous. Asbestos may also be naturally present in the environment at very low levels. Therefore controls should be implemented to avoid exposure as far as practicable.

Asbestos is only hazardous if it becomes airborne and inhaled. When it is fully encapsulated within the structure it cannot become airborne. Simple engineering controls can ensure it remains encapsulated. These controls are detailed in the Required Actions and Recommendations detailed in this report.

Provided the site has been inspected by a licensed Asbestos Assessor and their recommendations adopted, normal occupation would not be hazardous. It is vital that any maintenance or renovation be in strict accordance with the Assessor's recommendations.

Any person employed to undertake any maintenance or refurbishment must be informed of the presence of friable and/or non friable asbestos in the premises. The PMCW must ensure that if planned work may impact on any asbestos materials, the asbestos is removed or remediated by the appropriate class of removalist prior to commencement.

LEAD PAINT

Introduction

Lead in paint (as lead carbonate) is found extensively in homes and commercial and industrial buildings built pre-1970. Although Australian industry has generally phased out lead content in paint, levels of below 1 percent are still permitted and industrial application of high-lead paint to residential/commercial dwellings may still continue.

Lead-based paint may be a health issue if it becomes mobile in the environment or if ingested. For this reason, sealing or safe removal of paint is strongly recommended particularly where it is flaking or exposed to the elements.

Assessment Criteria

Lead paint is defined by the Australian Standard (AS 4361.2 – 2017 Guide to hazardous paint management Part 2: Lead paint in residential, public and commercial buildings) as a paint or component coat of a paint system containing lead or lead compounds, in which the lead content (calculated as lead metal) is in excess of 0.1% by weight of the dry film as determined by laboratory testing.

Lead Paint Management and Recommendations

The following information uses Australian Standard (AS 4361.2 – 2017) as the primary reference. Lead paint in residential and commercial premises may be managed in one of four ways:

- Leave undisturbed
- Stabilised (i.e. over painting or encapsulation)
- Abated (i.e. removed)
- A combination of the three management options may be required

Should removal be chosen, a high degree of skill, preparation and risk minimisation is required to avoid lead exposure, as dry sanding of lead levels as low as 0.1% can generate high lead dust. Therefore, the Wet Scraping and Wet Sanding methods are amongst the safest methods available.

Strict adherence to the guidelines described in AS 4361.2 – 2017 will best ensure minimisation of risk. During this process personal protective equipment and waste containment equipment is essential and children, pregnant women and persons not directly engaged in the process should not be present. General workers may undertake this process providing they adhere strictly to the guidelines, however, a specialist lead paint removal contractor is recommended for extensive paint removal works.

Where remediation is required it is important to minimise ongoing maintenance costs by ensuring that the works are undertaken by a professional who is able to give a significant time guarantee of the painted surfaces at the completion of the works. The following website lists contactors by postcodes that have been included based on their indicated skills and training in working safely with lead paint. <http://www.lead.org.au/paintersall.html>. These contractors should however be assessed by current performance prior to engagement.

Responsibilities of Owners and Contractors

According to AS 4361.2 – 2017 owners of residences or commercial buildings that may contain lead should:

- Manage the property in such a manner as to effectively control any health risk to occupants, contractors or others
- Ensure occupants are sufficiently informed about and protected from the hazards associated with lead paint
- If management work is to be undertaken, inform immediate neighbours about the nature of the work

Contractors should:

- Obtain appropriate accreditation to undertake the proposed level of remedial work involving lead paint and have the required level of specialized training
- Undertake the contracted work in such a way as to protect the health and safety of employees, tenants and the general public

SYNTHETIC MINERAL FIBRE

SMF refers to man-made mineral fibrous materials commonly used for their insulating and reinforcing properties. The amorphous (non-crystalline) materials include glass fibre, mineral wool and ceramic fibre products.

Discussion

Although glass fibre is classified as an irritant, levels of airborne fibreglass during routine occupation of the premises would be insignificant. During any large-scale installation or removal of fibreglass insulation, providing SMF fibre suppression measures as defined below are employed, exposure standards for SMF fibre would not normally be exceeded.

The following Risk Assessment is based on the requirements of Worksafe Australia, WorkSafe Australia, Sydney 1990, *Synthetic Mineral Fibres: National Standard and National Code of Practice*.

SMF Risk Assessment

According to Worksafe Australia 1990 (p 9) health risks associated with SMF are "significantly less potent ... than white asbestos (Chrysotile) fibres" and that "...the possibility of lung cancer is eliminated at an exposure standard (time weighted average) of 0.5 respirable fibres per millilitre of air for all types of synthetic mineral fibres...." (p V).

To reduce the possibility of skin, eye and upper respiratory tract irritation a maximum exposure standard of 2 milligrams per cubic metre of inspirable dust is recommended. These two standards are designed principally for the manufacture and end user industries in which significant dust clouds would be generated.

The same document also states: "The overall conclusion based on available animal experiments and epidemiology is that provided work is carried out in accordance with (NOHSC 1990), and compliance is maintained with the exposure standards, then there is a negligible health risk associated with exposure to SMF under present-day manufacturing and usage patterns."

PCB

PCB is the common name for Polychlorinated Biphenyls. PCBs range in appearance from colourless, oily liquids to more viscous and increasingly darker liquids, to yellow then black resins, depending on chlorine content of the PCB.

Discussion

The major use of PCBs in the electrical industry has been as an insulating fluid inside transformers and capacitors. These transformers and capacitors have ranged in size from the very large transformers typically used by electrical supply companies, to the small capacitors used in commercial products. Capacitors containing PCBs were installed in various types of equipment including fluorescent light fittings during the 1950s, 60s and 70s.

Risk Assessment

Small quantities of PCBs are usually found in sealed containers known as capacitors. PCB-containing capacitors are unlikely to pose a health risk, unless they become damaged and leak.

PCBs can enter the body in three ways:

- absorption through the skin
- inhalation of PCB vapour
- ingestion by contamination of food or drink

The most commonly observed symptom in people exposed to high levels of PCBs is a condition known as chloracne. This is a severe, persistent acne-like rash due to repeated and prolonged contact of PCBs with skin. This condition has also occurred in people who have accidentally ingested PCBs.

Very high exposure to PCBs may also cause liver damage and damage to the nervous system.

There is the possibility that PCBs may cause cancers.

The likelihood of becoming sick from PCB exposure increases with the length of time and the amount of material that a person might come in contact with.

OZONE DEPLETING SUBSTANCES

Introduction

Ozone depleting substances (ODS) are compounds that contribute to stratospheric ozone depletion. They are widely used in refrigerators, air-conditioners, fire extinguishers, in dry cleaning, as solvents for cleaning, electronic equipment and as agricultural fumigants.

Ozone depleting substances (ODS) include:

- Bromochloromethane (BCM)
- Carbontetrachloride (CCl₄)
- Chlorofluorocarbons (CFCs)
- Halons
- Hydrobromofluorocarbons (HBFCs)
- Hydrochlorofluorocarbons (HCFCs)
- Methylbromide (CH₃Br)
- Methylchloroform (CH₃CCl₃)

ODS are generally very stable in the troposphere and only degrade under intense ultraviolet light in the stratosphere. When they break down they release chlorine or bromine atoms which then deplete the ozone.

Ozone Protection Strategy

The Australian Strategy for Ozone Protection calls for personnel who handle, install, service, commission and decommission and maintain commercial and industrial refrigeration and air-conditioning equipment to be accredited, licensed, registered to work with ozone depleting substances.

Best Management Practices

In Australia a 'Code of Good Practice' has been drawn up with the objective of assisting the reduction of emissions into the atmosphere of substances that deplete the ozone layer and contribute to global warming.

The Australian Refrigeration and Air-conditioning Code of Good Practice (HB 40.1 – 2001) recommends best practice for the maintenance, design, servicing, labelling and manufacture of refrigeration and air conditioning systems towards this objective.

Legislation

Under the Federal Government's *Ozone Protection and Synthetic Gas Management Act 1989* and its *Ozone Protection and Synthetic Gas Legislation Amendment Bill 2003* it is illegal to vent an ODS (Scheduled Substances) to the atmosphere.

General Maintenance

- All refrigeration and air-conditioning plant should be regularly inspected for traces of leaking refrigerant and/or oil, and for signs of leak-indicating dye
- Whenever a system is charged with refrigerant and/or lubricant, the service person must clearly label the system with the refrigerant/lubrication type; name of service organization; and date of service. In addition, the ASHRAE/ARI refrigerant designated R number shall be clearly displayed
- A service person should be aware of the possibility that a refrigeration or air-conditioning system may have been incorrectly charged or incorrectly labelled. The type of refrigerant contained in the system must therefore be first established by checking the temperature/pressure relationship or by using other tests to verify that the labelling is correct

Advice to Equipment Users

- Users are advised that persons who service refrigeration and air-conditioning equipment are required by legislation to observe the Code of Good Practice and not to 'top-up' or 'charge' systems known to be leaking refrigerant, or to service equipment unless it can be returned into service in a leak-free condition
- If a user does not have trained staff to undertake service or maintenance work, then it is recommended that a routine maintenance agreement for their plant be undertaken with a reputable service organization
- All users should monitor the operation of their installation weekly and call the service person immediately if any abnormal condition is found
- When a refrigeration system contains in excess of 50 kg of refrigerant, that system should be leak tested on a quarterly basis

Leak Testing

- Various methods may be used for leak-testing, e.g. electronic leak detectors, halide lamp and or ultraviolet lamp
- Only a non-controlled refrigerant mixed with a pressurising substance such as dry nitrogen should be used to leak test refrigeration and air-conditioning systems
- Where an air-conditioning or refrigeration system is found to be leaking and needs to be repaired, the vapour and/or liquid must first be recovered from the leaking system
- Where pressurisation testing has determined that an air-conditioning or refrigeration system is not leaking, moisture and non-condensables must be evacuated from the system using dry nitrogen as the moisture absorber and either the deep or triple evacuation methods
- All refrigerants shall be recovered and either recycled, reclaimed or held for disposal in an approved manner
- It is highly recommended that a refrigerant charge monitor or leak detector be installed to alert equipment owners/operators of a refrigerant leak

Recovery, Recycling and Disposal of Refrigerants

- It is highly recommended, and in some cases mandatory, for recovery and/or recycling equipment to be used for the removal and recovery of refrigerant during service
- To avoid the danger of mixing different refrigerant types, the receiving containers shall be identified by the correct colour coding and labelling and shall only be used for the refrigerant type that is being transferred. The recovery containers shall conform to AS 4484-2004, '*Gas Cylinders for Industrial, Scientific and Refrigerant use – labelling and colour coding*'
- As chillers have large internal volume, it is important that all refrigerant vapour be recovered. A chiller at atmospheric pressure can still hold many kilograms of refrigerant vapour after the liquid has been removed
- When recovering refrigerant from a chiller the refrigerant should be recovered until the internal system pressure is reduced to 3 kPa absolute for low-pressure systems (e.g., R-11) and 70 kPa absolute for positive pressure systems (e.g., R-12 and R-22). The internal pressure should then be taken up to atmospheric pressure with dry nitrogen if the chiller is to be opened. This will prevent moisture-laden air entering the system, which could lead to contamination and corrosion

Disposal of Refrigerants

- Unusable or surplus fluorocarbon refrigerant shall not be discharged to the atmosphere, but shall be returned to a supplier
- Empty residual refrigerant in a disposable container shall be recovered and the container disposed of at a recycling centre
- The utmost care must be taken to avoid mixing different types of refrigerants, as separation may be impossible and large quantities of refrigerant may be rendered unusable

Handling and Storage

Losses of refrigerant to the atmosphere can occur during the handling and storage of refrigerant containers. Service persons have a duty of care to avoid such losses.

- There are numerous hazards associated with the storage of refrigerant. These include asphyxiation in confined space due to leakage from refrigerant containers; and fire, which may overheat and explode refrigerant containers or decompose refrigerant into toxic substances

Alternative Refrigerants and Lubricants

- With the introduction of HFC alternative refrigerants, alternative lubricants need to be considered to ensure system reliability. Some of these alternative lubricants tend to exhibit greater hygroscopicity than mineral oils, so care must be taken to ensure they are kept in sealed containers at all times
- Care must be taken to ensure that all components used in the refrigeration/air-conditioning system are compatible with the new refrigerant and lubricant

Recovery of Fluorocarbons Mixed with other Refrigerants

A number of different refrigerants and refrigeration mixtures have been used to replace or to 'top up' fluorocarbon based refrigerants in refrigeration and air-conditioning systems.

In many cases the equipment in question may not be labelled to indicate that hydrocarbon or hydrocarbon mixtures have been used and as the operating pressures of these replacement refrigerants are usually similar to those of the original refrigerant, their identification in the field is extremely difficult.

- It is not safe therefore to recover flammable refrigerant (hydrocarbon) using equipment designed only for non-flammable refrigerants such as R-12 and R-134a
- Should it be suspected that refrigeration or air-conditioning system contains an unidentified mixture or, if on asking the owner, examining the labels, and/or detecting instruments indicate that a hydrocarbon/fluorocarbon mixture or any other non-standard mixture of refrigerant may be present; the following procedure should be followed:
 - If a hydrocarbon or flammable mixture that contains hydrocarbon is suspected, use only equipment designed for the recovery of flammable gasses and recover the refrigerant into a specially marked container
 - In the case of refrigerant mixtures, it is not advisable to use recovery equipment as many mixtures have very high condensing pressures, which could result in equipment failure and/or injury to persons operating, or near the equipment
 - The safest method of recovery is to use an evacuated and preferably chilled container to depressurise the system
 - Label the container to show that it contains a mixture or the suspected composition, if known, and deliver it to a supplier for recycling
 - Purge the residual gas from the system with dry nitrogen before proceeding with any repairs

Health Effects

In addition to causing environmental degradation certain ozone depleting substances may present a risk to human health when they are improperly handled or released in to a poorly ventilated area.

Inhalation

The most significant exposure route for humans is through inhalation. Refrigerant gases displace oxygen in the air making breathing difficult.

Overexposure can cause central nervous system depression and oxygen deficiency. Effects of overexposure may include light-headedness, giddiness, shortness-of-breath, headaches, and in extreme cases, irregular heartbeats, cardiac arrest, asphyxiation and death.

Symptoms of overexposure at lower concentrations may include transient eye, nose and throat irritation.

Skin Contact

Contact with rapidly released refrigerant gas may cause frostbite. Symptoms of frostbite may include changes in skin colour to white or greyish yellow.

Other direct dermal contact may result in skin de-fatting, dryness, irritation or contact dermatitis.

Standard work clothes provide adequate protection of the skin but it is recommended that lined butyl gloves and goggles be used whenever handling liquid refrigerants.

Eye Contact

Eye contact with rapidly released refrigerant or air-conditioning gas may cause severe frostbite damage to eyes and eyelids. Eye irritation may occur if exposure occurs at lower concentrations.

FUEL STORAGE FACILITIES

In the ACT the management of fuel storage tanks is regulated by ACT WorkSafe who administers the *Dangerous Substances Act 2004* and the *Dangerous Substances (General) Regulation 2004*.

Heating oil and other petroleum products are classified as a Dangerous Substance under the ACT Dangerous Substances Act 2004.

The Dangerous Substances (General) Regulation 2004 – Division 2.4.2-233 *Decommissioning* (applies to a container used to store a dangerous substance) states the following:

'The container is thoroughly cleaned so that the container is in the condition it would be in if it had never contained the substance';

This would be difficult to achieve therefore it is advantageous to remove the tank.

In the ACT, Environment Protection and Heritage prefers underground fuel storage tanks be removed once they are no longer in use, unless there are extenuating circumstances i.e. their removal undermines permanent infrastructure. This is also emphasized in the Australian Standard *The Removal and Disposal of Underground Petroleum Storage Tanks (AS 4976-2008)*.

Further, the ACT Environment Protection Authority (Environment Protection and Heritage) which administers the Environment Protection Act 1997 which contains contaminated land provisions responsible for the development of policy and guidelines to facilitate best practice when it comes to the management of contaminated land.

Environment Protection and Heritage deems all sites known to have had fuel storage facilities as potentially contaminated until investigated and assessed and shown to be free of contamination.

Based on this information and for the long-term management of the sites with fuel storage tanks, Robson Environmental Pty Ltd recommends that the USTs be removed in accordance with the requirements of ACT WorkSafe and Environment Protection and Heritage.

Removal of the UST does require approvals from relevant ACT Government agencies which include:

- ACT Planning and Land Authority (ACTPLA)
- ACT WorkSafe - Dangerous Goods Unit.

14 GLOSSARY

ACM	<i>See asbestos containing material</i>
Air monitoring	Air Monitoring means airborne asbestos fibre sampling to assist in assessing exposures and the effectiveness of control measures. Air monitoring includes exposure monitoring, control monitoring and clearance monitoring. <i>Note: Air monitoring should be undertaken in accordance with the Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres [NOHSC:3003 (2005)]</i>
Airborne asbestos fibres	Any fibres of asbestos small enough to be made airborne. For the purposes of monitoring airborne asbestos fibres, only respirable asbestos fibres (those less than 3µm wide, more than 5µm long and with a length to width ratio of more than 3 to 1) are counted.
Amosite	Grey or brown asbestos
AR	<i>See Asbestos Register</i>
Asbestos Containing Material	Any material, object, product or debris that contains asbestos.
Asbestos Register	Inventory of ACM by type, form, location, risk and required action.
Asbestos Removalist	A competent person who performs asbestos removal work. <i>Note: an asbestos removal licence is required in all State and Territory jurisdictions.</i>
Asbestos Survey and Management Plan	Document covering the identification, risk evaluation, control and management of identified asbestos hazards, developed in accordance with current legislation.
Asbestos ²	The fibrous form of mineral silicates belonging to the serpentine and amphibole groups of rock-forming minerals, including actinolite, amosite, anthophyllite, chrysotile, crocidolite, tremolite or any mixture containing one or more of the mineral silicates belonging to the serpentine and amphibole groups.
Asbestos–cement (AC)	Products consisting of sand aggregate and cement reinforced with asbestos fibres (e.g. asbestos cement pipes and flat or corrugated asbestos cement sheets).
ASCC	<i>See Safe Work Australia Council</i>
Non-friable asbestos	ACM that is bonded into a stable matrix and cannot be reduced to a dust by hand pressure.
Chrysotile	White asbestos
Clearance inspection	An inspection, carried out by a licensed Asbestos Assessor, to verify that an asbestos work area is safe to be returned to normal use after work involving the disturbance of ACM has taken place. A clearance inspection must include a visual inspection, and may also include clearance monitoring and/or settled dust sampling.

Clearance monitoring	Air monitoring using static or positional samples to measure the level of airborne asbestos fibres in an area following work on ACM. An area is 'cleared' when the level of airborne asbestos fibres is measured as being below 0.01 fibres/mL.
Control monitoring	Air monitoring, using static or positional sampling devices to measure the level of airborne asbestos fibres in an area during work on ACM. Control monitoring is designed to assist in assessing the effectiveness of control measures. Its results are not representative of actual occupational exposures, and should not be used for that purpose.
Crocidolite	Blue asbestos
Exposure monitoring	Air monitoring in the breathing zone to determine a person's likely exposure to a hazardous substance. Exposure monitoring is designed to reliably estimate the person's exposure, so that it may be compared with the National Exposure Standard.
HMSMP	<i>See hazardous material survey re-inspection and management plan</i>
In situ ²	Fixed or installed in its original position, not having been removed.
Inaccessible areas	Areas which are difficult to access, such as wall cavities and the interiors of plant and equipment.
Licensed Asbestos Assessor	Person who is qualified to undertake the identification and assessment of asbestos and provide recommendations on its safe management.
Membrane	A flexible or semi-flexible material, which functions as the waterproofing component in a roofing or waterproofing assembly.
NATA	National Association of Testing Authorities
NOHSC (<i>now SWA</i>)	National Occupational Health and Safety Commission (<i>now known as Safe Work Australia</i>)
PMCW	Person with management or control of a workplace
Safe Work Australia Council (SWAC)	A council that provides a national forum for State and Territory governments, employers and employees to consult and participate in the development of policies relating to OHS and workers' compensation matters, and promote national consistency in the OHS and workers' compensation regulatory framework.
SWMS	Safe Work Method Statement

15 REFERENCES

- *How To Manage and Control Asbestos In The Workplace Code of Practice*
- *How To Safely Remove Asbestos Code of Practice*
- *Work Health and Safety Act 2011*
- *Work Health and Safety Regulations 2011*
- *Australian Capital Territory Parliamentary Counsel (2006), Asbestos Legislation Amendment Act 2006 [A2006-16], Canberra, Australia*
- *ANZECC 1997, Identification of PCB-Containing Capacitors; An information Booklet for Electricians and Electrical Contractors*
- *Guide to Hazardous Paint Management Part 2: Lead paint in residential, public and commercial buildings Standards Australia, AS 4361.2 – 2017*
- *Standards Australia, HB 40.1 – 2001 The Australian Refrigeration and Air-conditioning Code of Good Practice*
- *WorkSafe Australia, Sydney 1990, Synthetic Mineral Fibres: National Standard and National Code of Practice*



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