

Preliminary Site Investigation

Block 45, Section 54, Belconnen

Environment, Planning and Sustainable
Development Directorate

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Executive Summary

The Environment, Planning and Sustainable Development Directorate (EPSDD) engaged Lanterra Consulting Pty Ltd (Lanterra) to complete a Preliminary Site Investigation (PSI) for Block 45 Section 54, Belconnen, ACT (herein referred to as the site).

Based on the ACT Territory Plan, the site is currently zoned as CZ2: Business Zone and has an area of 2,712 square metres (m²).

Based on the project brief by EPSDD, it is understood that the building on the site is to be demolished and the site prepared for sale. The eastern portion of the block was previously used as a carpark and is currently vacant. The western portion of the block is used for commercial office spaces, and is occupied by a Health Centre.

The purpose of the PSI was to assess the risk of contamination to the site and whether it is suitable for the land uses permitted under the zone.

Based on the results of the investigation, two (2) areas of environmental concern were identified:

AEC 1: The portion of the site adjacent to the western site boundary. This area previously contained a creekline which was filled in between 1967 and 1973. Given that the source of the fill is unknown it may have originated from a contaminated site.

AEC 2: During preliminary soil sampling there was fill identified to a typical depth of 2.2 m. Given that the source of the fill is unknown it may have originated from a contaminated site.

The western portion of the site was inaccessible as the building was still present, however the carpark in the eastern section was accessible. The area of the carpark was approximately 865 m². To characterize the fill in this area, six (6) borehole locations were placed in a grid pattern over the carpark area. Samples were collected at the surface (0.0-0.0-0.2 m), 0.5-0.6 m and at 1.0-1.1 m below ground level (bgl), at changes in lithology or if there were indications of gross contamination.

Based on the results of the drilling, fill was encountered, typically to a depth of around 2.2 m bgl. A total of nine (9) primary samples were analysed for total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene, xylenes (BTEX), polycyclic aromatic hydrocarbons (PAH), organochlorine and organophosphate pesticides (OCP/OPP), polychlorinated biphenyls (PCB) and heavy metals. All contaminants of potential concern (COPCs) were below the adopted assessment criteria, with the exception of total PCB concentration in sample BH3 1.0-1.1. This location contained a total PCB concentration of 6 mg/kg, which exceeded the HIL A criteria of 1 mg/kg by more than 250%, meaning it is classified as a contamination hotspot. The sample was reanalyzed to ascertain whether the results could be duplicated. The second analysis returned a total PCB concentration of 8 mg/kg, supporting the original reported data.

Lanterra considers that there is currently not enough information to determine whether the site is suitable for the uses permitted under the CZ2: Business Zone. Lanterra recommends that:

- The soil around BH3 should be removed in a 2 m by 2m excavation to a depth of 1.5 m. Validation sampling should be completed to ascertain if there is residual contamination.
- A detailed site investigation should be undertaken after the demolition of the building on the western portion of the site, to assess whether contamination may be present in the fill used in the historic creek line, and across the site, in light of the depth of fill found in the carpark.

1. Introduction

The Environment, Planning and Sustainable Development Directorate (EPSDD) engaged Lanterra Consulting Pty Ltd (Lanterra) to complete a Preliminary Site Investigation (PSI) for Block 45 Section 54, Belconnen, ACT (herein referred to as the site).

Based on the ACT Territory Plan, the site is currently zoned as CZ2: Business Zone and has an area of 2,712 square metres (m²).

The location and layout of the site is illustrated on **Figure 1** and **Figure 2, Appendix A**.

1.1 Background

It is understood that the building on the site is to be demolished and the site prepared for sale. Currently the eastern portion of the block is vacant and the western portion of the block is used for commercial office spaces, and is occupied by a Health Centre and a bakery. The purpose of this report is to assess the current contamination state of the site.

1.2 Objectives

The purpose of the PSI is to assess the risk of contamination to the site and whether it is suitable for the land uses permitted under the zone.

1.3 Scope of Work

The following scope of work has been completed to meet the project objectives:

- Perform a site visit to characterise the property setting, including inspection of the site surface for obvious and visible signs of potential contamination and / or contaminant sources.
- A visual evaluation of surrounding land uses to identify any neighbouring activities which may have affected or present a potential risk to the environmental quality of the site.
- An evaluation of aerial photographs to assist in assessing historical land uses and conditions on and adjacent to the site.
- Review the results of an ACT EPA contaminated sites register and database search to assess whether there are any known contaminating activities either on the site or on neighbouring properties.
- Drill six (6) boreholes across the car park located in the eastern section of the site to a target depth of approximately 2.5m below ground level.
- Submit nine (9) primary soil samples to a National Association of Testing Authorities (NATA) accredited laboratory for the analysis of the following contaminants of potential concern:
 - Total recoverable hydrocarbons (TRH);
 - Benzene, toluene, ethylbenzene, xylenes (BTEX);
 - Polycyclic Aromatic Hydrocarbons (PAH);
 - Organochlorine and Organophosphate Pesticides (OCP/OPP);
 - Polychlorinated Biphenyls (PCB);
 - Heavy Metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc);
 - Asbestos.
- A review of the environmental setting with regards to geology, topography, hydrology, and hydrogeology.

- Preparation of a PSI report in general accordance with the requirements of ACT EPA endorsed guidelines.

1.4 Limitations

The findings of the report will be based on the Scope of Work outlined above. Lanterra will perform services in a manner consistent with the normal level of care and expertise exercised by members of the environmental assessment profession. No warranties express or implied, are made.

Subject to the Scope of Work, the assessment will be limited strictly to identifying typical environmental conditions associated with the subject property area and does not include evaluation of any other issues.

The absence of any identified hazardous or toxic materials on the subject property should not be interpreted as a guarantee that such materials do not exist on the site. Lanterra will not investigate any waste materials from the property that may have been disposed of off the site, nor related waste management practices.

The results of this assessment will be based upon the site inspection and the sampling specified above conducted by Lanterra personnel and information from the Client or regulatory agencies. All conclusions and recommendations regarding the property area will be the professional opinions of the Lanterra personnel involved with the project, subject to the qualifications made above.

While normal assessments of data reliability will be made, Lanterra will not assume responsibility or liability for errors in any data obtained from regulatory agencies, statements from sources outside of Lanterra, or developments resulting from situations outside the scope of this project.

2. Site Characteristics

2.1 Site Location

The site location and a detailed site plan are presented as **Figure 1** and **Figure 2, Appendix A**.

Table 1: Summary of Site Details

Site Characteristics	Detail
Street Addresses	1 Swanson Court, Belconnen, ACT and 35 Benjamin Way, Belconnen, ACT
Approximate MGA GDA 94 coordinates (centre of site)	X: 688185.74864 Y: 6098498.66571
Approximate Elevation (m AHD)	582-584 m
Block, Section, Division	Block 45, Section 54 Belconnen
Land Zoning	CZ2: Business Zone
Current Land Use	The eastern block portion is vacant and the western portion of the block is used for commercial office spaces.
Block Area	2,712 m ²

2.2 Site Description

The following description is based on observations made during a site visit conducted on Friday 1 November 2019 during the drilling of boreholes by a suitably qualified environmental scientist from Lanterra.

- At the time of the investigation the demolition contractor was establishing the site in preparation for demolition works to begin.
- The site was secured by a 1.8 m high temporary fence with access via a lockable gate along Swanson Court.
- The vacated building was still present on site and occupied approximately 50 % of the total site area. The building had a single level basement that appeared to have been used for car parking.
- The former car park which occupied the eastern section of the site was unsealed.

A detailed site plan is presented in **Figure 2, Appendix A** while photographs of the site are provided in **Appendix C**.

2.3 Surrounding Land Uses

A summary of the land uses that surround the site are as follows:

- **North:** Parkland, Chandler Street further north with businesses on the opposite side of the road;
- **South:** Swanson Court, high density, mixed use buildings including restaurants and other businesses, a sealed car park and Cohen Street bus interchange on the opposite side of the road;
- **East:** Businesses including cafes and office space;
- **West:** Benjamin Way with Westfield Belconnen on the opposite side of the road.

2.4 Sensitive Environments

The nearest sensitive environment is Lake Gininderra which is approximately 345 m to the north east.

2.5 Proposed Land Use

Based on the project brief by EPSDD, it is understood that the building on the site is to be demolished and the site prepared for sale.

3. Site History

3.1 Previous Investigations

Lanterra was unaware of any previous investigations for the site.

3.2 Zoning

According to the ACT Territory Plan, the site is zoned CZ2: Business Zone.

Based on a link to the ACT Territory Plan, the objectives of the CZ2: Business Zone are as follows:

- Provide for office and business sites that are accessible to public transport and convenience retailing and services
- Provide a diverse range of accommodation sizes and locations for offices close to the retail core
- Encourage provision of convenient outlets for goods, services and facilities to meet the needs of the workforce
- Create vibrant lively pedestrian routes and public spaces
- Ensure a high quality urban environment through use of sustainable design and materials and maintain a high level of amenity for employees and the public
- Promote active living and active travel
- Provide a high quality public realm by facilitating active uses on ground floor level that connects with the wider open space, pedestrian and cycle networks to promote active travel and active living.
- Encourage an attractive, safe, well-lit and connected pedestrian environment with convenient access to public transport

The CZ2: Business Zone also allows for residential use and community use, which permits sensitive uses including childcare facilities. As sites must be assessed in accordance with the most sensitive use permitted, the site must be assessed using residential criteria.

3.3 Land Title Search

A land title search lodged with the ACT Land Information System indicated that the site was an administrative parcel, and no title had been issued. A copy of the historical land title search is presented in **Appendix C**.

3.4 Aerial and Historical Photograph Review

A Lotsearch (Environmental Risk Report) was requested from the ACT government, which included historical aerial photographs of the site. These were reviewed to assist with assessing the history of the site. A summary of each photograph examined as a part of the investigation is provided in Table 2 below.

Table 2: Details of the Review of Aerial Photographs

Date	Description of the Subject Site	Description of Surrounding Land
1950	The site is cleared and appears to be part of the surrounding farmland. A creek line transects the site north-south on the western boundary.	The surrounding land is cleared agricultural land with a creek line running north-south. There is a farmhouse, surrounding buildings and unsealed roads to the north east of the site.
1958	The water level in the creek appears to be higher.	There has been a dam wall installed to the north of the site on the creek line.
1961	No discernible differences to the site are apparent.	There has been a track constructed across the creek line to the south of the site.
1967	There is an unsealed track across the site running south west to north east. There is some evidence of disturbance and infilling along the creek line.	New unsealed roads have been constructed on the western side of the creek.
1973	The creek has been completely filled in.	Partially sealed roads have been constructed immediately to the west, to the north and east of the site. New buildings have been constructed to the south of the site
1978	The site appears highly disturbed, there is what appears to be a build-up of soil on the eastern and central area of the site. The storage yard to the north of the site extends onto the north west portion of the site and there appears to be some building materials and storage containers stored in this area.	The original farm buildings have been demolished and Benjamin Way and Chandler Street have been sealed. To the west of the site Westfield Belconnen is under construction. The new buildings to the south have been replaced with the construction of a fly-over bridge. To the south of this is a large building complex and an adjoining carpark. There are a number of unsealed tracks in the area directly surrounding the site.
1981	A number of stockpiles are present in the south east corner of the site.	Westfield appears to be in use. There are two new buildings to the north east of the site. The area directly to the north is being used as a car park. To the south of the site the fly-over has been constructed. It has a large cut section which appears to function as a bus depot.
1985	No discernible differences to the site are apparent.	No discernible differences to the surrounding area are apparent.
1992	The present day building has been constructed on the western portion of the site. The eastern portion is used as a car park.	The parkland to the north of the site has been constructed. To the east three new buildings have been constructed.
1997	No discernible differences to the site are apparent.	To the far north east a high rise complex has been constructed.

Date	Description of the Subject Site	Description of Surrounding Land
2004	No discernible differences to the site are apparent.	No discernible differences to the surrounding area are apparent.
2014	No discernible differences to the site are apparent.	No discernible differences to the surrounding area are apparent.

Prior to development of the site, a creek line ran through the western side of the site. This was filled between 1967 and 1973. The eastern portion of the site was later used for storage of stockpiles in 1981. The building that is currently present (and about to be demolished) was constructed between 1985 and 1992.

A copy of the Lotsearch Report is presented in **Appendix D**.

3.5 ACT EPA Contaminated Site Search

Lanterra requested a contaminated land search under Section 21 (A) of the Environment Protection Act (1997) from the ACT EPA.

Records held by the EPA indicated that the block was not recorded on the EPA's contaminated sites management database or geographic information system.

The EPA noted that the site is currently occupied by a commercial complex. Commercial complexes, prior to the introduction of natural gas to the ACT in the 1980's, utilised boiler heating or similar systems. These systems were generally fuelled by diesel or heating oil which was mainly stored in underground fuel storage tanks.

Records held by the EPA indicate that there was a historic spray sheep dip site located on adjacent Block 11 Section 54 Belconnen, which is located approximately 69 metres north east of Block 45. The dip has been identified but not investigated, with no records to indicate that an environmental assessment has been undertaken to determine the extent of any impacts from the sheep dip activities. The dip is believed to be located beneath the existing Belconnen Library on Block 11 Section 54 Belconnen

AMG Coordinates:

- X: 688178.1
- Y: 6098355.0

The ANZECC 1992, Guidelines for the Assessment and Management of Contaminated Sites and the ACT EPA 2017, Contaminated Sites Environment Protection Policy (EPP) list fuel storage and sheep dips as activities associated with land contamination which may pose a risk to human health or the environment.

Although there are no records of known contamination recorded for Block 37, under the precautionary principal, all blocks within 100 m of sheep dip sites which have not been investigated are identified and persons making enquiries are made aware of potential for impacts from adjacent sites due to the ability for these activities to have impacted surrounding land.

The EPA has not issued any environment protection orders under sections 91C (1), 91D (1) or 125 (4), requested an audit under section 76(2) or received a 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 21(A) of the Act.

A copy of the contaminated land search is presented in **Appendix E**.

3.6 Worksafe ACT Dangerous Goods Search

A search of the Worksafe ACT Dangerous Substances Register, Dangerous Goods database and Manifest Quality Notification was not submitted.

3.7 Storage Tanks

There was no evidence of storage tanks during the site walkover.

3.8 Building File Search

A building file search was not conducted.

3.9 Hazardous Materials

No hazardous materials survey reports were made available to Lanterra.

3.10 Chemical Storage

There was no evidence of chemical storage on the site, based on the site visit on 1 November 2019.

3.11 Manufacturing Processes

There are no known manufacturing processes that currently occur or have previously occurred on the site.

3.12 Discharges to Land, Water and Air

No information regarding discharges to land, water and air was available for review at the time of writing this report. As no manufacturing operations are known to have occurred at the site, it is unlikely that there may have been previous discharges to land, water or air in the past.

4. Site Condition and Environmental Setting

4.1 Topography

The digital topographic map presented in ACTMAPi (available at <http://www.actmap.i.act.gov.au/>) indicates the site has an elevation of approximately 582-584 m above Australian Height Datum (m AHD).

The general topography of the block is relatively flat and the surrounding area tends to slope gently from east to west.

4.2 Indications of Contamination

No visual or olfactory indicators of contamination were noted during the site visit or sampling of boreholes drilled across the site.

4.3 Fill Material

Fill material was encountered during a preliminary soil investigation on the eastern section of the property which houses the car park. Natural material was typically encountered at around 2.2m bgl. Furthermore, fill may also be present beneath the existing building to fill the former creek.

5. Geology and Hydrogeology

5.1 Geology

The 1:100,000 Geological Series, Canberra, New South Wales and Australian Capital Territory, Sheet 8727 (Bureau of Mineral Resources, 1992) shows that the site is part of the Deakin Volcanics, which are comprised of rhyodacitic ignimbrite, and minor volcanoclastic and argillaceous sediments.

5.2 Hydrogeology

A groundwater bore search was provided within the Lotsearch report (**Appendix D**). The purpose of the bore search was to document the location and depth of any nearby registered groundwater bores, and the associated quality of the groundwater so that potential impacts of contaminants from the site or surrounding land uses (if any) on local users of groundwater may be assessed. A copy of the groundwater bore search results is presented in **Appendix D**.

This search indicated that there were four (4) abstraction groundwater boreholes according to the ACT Government data source within 2,000 m of the site and ten (10) groundwater boreholes were registered with the Bureau of Mineralogy within 2,000 m of the site. The nearest of these boreholes is located approximately 451 m to the north east of the site.

A review of the Bureau of Mineral Resources (1984) Hydrogeology of the Australian Capital Territory and Environs indicates that groundwater is hosted in fractured aquifers with high yielding zones associated with the upper and lower portions of the individual ash flow tuffs, and interbedded sediments. The quality of groundwater is expected to be variable, and the general total dissolved solids (TDS) is anticipated to be between 500 – 1000 milligrams per litre (mg/l) and the yield is estimated to be less than 0.5 litres per second (l/sec).

Based on the topography of the site and the nearest water body, which is Lake Ginninderra, the groundwater flow direction is inferred to be from east to west. Based on the elevation difference between the site and the retention basin, the depth to groundwater is estimated to be approximately 10-20 m below ground level.

5.3 Hydrology

The nearest surface water receptor is Lake Gininderra located approximately 345 m to the north east of the site. Surface water on the site is expected to follow the topographic contours of the site and flow towards the west.

5.4 Acid Sulfate Soil Risk

A review of the Australian Soil Resource Information System (ASRIS) map shows the subject site to be situated in an area of 'low' probability for acid sulfate soil.

6. Preliminary Conceptual Site Model

Conceptual site models (CSM) are a method of presenting site contamination information and the relationships between sources of contamination, how it may have been introduced to the site, possible pathways for contaminant migration and exposure and the receptors that may be affected by contaminants.

The following conceptual site model has been prepared based on the information presented in the Lotsearch Report and document searches.

6.1 Areas of Environmental Concern

Based on the information presented in the Lotsearch report, and contaminated land search, there are two (2) areas of environmental concern (AECs). These are shown in **Figure 3**.

AEC 1

The portion of the site adjacent to the western site boundary. This area previously contained a creek line which was filled in between 1967 and 1973. Given that the source of the fill is unknown it may have originated from a contaminated site.

AEC 2

During preliminary soil sampling there was fill identified to a typical depth of 2.2 m. Given that the source of the fill is unknown it may have originated from a contaminated site.

6.2 Contaminants of Potential Concern

AEC 1 and AEC 2

As the activities that may have been undertaken on the source site are unknown, the following contaminants can be associated with imported fill:

- Total recoverable hydrocarbons (TRH);
- Benzene, toluene, ethylbenzene, xylene (BTEX);
- Polycyclic aromatic hydrocarbons (PAH);
- Polychlorinated biphenyls (PCBs);
- Phenols;
- Organochlorine pesticides/organophosphorus pesticides (OCP/OPPs);
- Heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc);
- Asbestos.

6.3 Exposure Pathways and Receptors

For a contaminant to pose a risk to either human health and/or the environment, there must be a potentially complete or complete pathway between the contaminant and the receptor.

Common pathways for contaminants to migrate through the environment and result in exposure to receptors are summarised in **Table 3** below.

Table 3: Summary of Exposure Pathways

Pathway	Contaminants of Concern	Exposure Pathway Complete or Potentially Complete (Yes/No)	Comments
Direct Contact with Soil including dermal contact and ingestion	TRH, BTEX, PCB, PAH, OCP/OPP, Heavy metals.	Potentially Complete	If these contaminants are present at the surface, then there is a potentially complete exposure pathway.
Direct Contact with Groundwater including dermal contact and ingestion	TRH, BTEX, PCB, PAH, Heavy metals.	Incomplete	With the exception of the presence of fill on the site, no contaminating activities have been identified. Furthermore, the risk of exposure to groundwater is considered negligible as there are no groundwater monitoring within 400 m of the site.
Inhalation of Asbestos Fibres	Asbestos	Potentially Complete	The site's current condition means that respirable fibres are unlikely to become airborne. However, if asbestos is present in the fill at the surface, and the site is disturbed then this could create a complete exposure pathway for asbestos inhalation.
Inhalation of gasses and vapour	TRH, BTEX	Potentially Complete	If these contaminants are present at the surface, then there is a potentially complete exposure pathway.

In its current condition, there are potentially complete contaminant exposure pathways which are contingent on whether COPCs are present.

7. Data Quality Objectives

This section outlines the data quality objectives (DQOs) applied to the investigation.

The DQO process is planning tool that relies on scientific methods for establishing criteria for data quality and for designing data collection programs. The DQO defines the experimental process required to test a hypothesis. The DQO process aims to ensure that efforts relating to data collection are cost effective, by eliminating unnecessary, duplicative or overly precise data whilst at the same time, ensuring the data collected is of sufficient quality and quantity to support defensible decision making.

The DQO process consists of seven steps, which are designed to clarify the study objectives, define the appropriate type of data and specify tolerable levels of potential decision errors. The seven-step DQO process adopted for this DSI is as follows:

Step 1: State the Problem – concisely describe the problem to be studied. Review prior studies and existing information to gain a sufficient understanding to define the problem;

Step 2: Identify the Decision – identify what questions the study will attempt to resolve, and what actions may result;

Step 3: Identify the Inputs to the Decision – identify the information that needs to be obtained and the measurements that need to be taken to resolve the decision statement;

Step 4: Define the Study Boundaries – specify the time periods and spatial area to which decisions will apply. Determine when and where data should be collected;

Step 5: Develop a Decision Rule – define the statistical parameter of interest, specify the action level, and integrate the previous DQO outputs into a single statement that describes the logical basis for choosing among alternative actions;

Step 6: Specify Tolerable Limits on Decision Errors – define the decision maker's tolerable decision error rates based on a consideration of the consequences of making an incorrect decision; and

Step 7: Optimise the Design –evaluate information from the previous steps and generate alternative data collection designs. Choose the most resource-effective design that meets all DQOs.

The DQOs derived for the investigation are presented in **Table 4**.

Table 4: DQOs derived for DSI

Step	Details
Step 1: State the Problem	The site has been used for activities that have the potential to introduce contaminants into the environment. The purpose of the investigation was to assess whether the site is suitable for land uses permitted under the current zone which include residential use.
Step 2: Identify the Decision	The purpose of the investigation is to assess whether the site is suitable for land uses permitted under the current zone which include residential use. Should COPCs be identified at concentrations that exceeded the adopted assessment criteria, then management and /or options for remediation to make the site suitable for residential land use may be necessary.
Step 3: Identify the Inputs into the Decision	The COPCs selected are based on the previous site activities. As the site's zoning permits residential land use, the following assessment criteria from the National Environment Protection Council (NEPC) ' <i>National Environment Protection</i>

Step	Details
	<p>(Assessment of Site Contamination) Measure 1999' (revised in 2013; ASC NEPM 2013) has been selected:</p> <ul style="list-style-type: none"> • Health Based Investigation Levels for Residential Sites (HIL A) • Health Based Screening Levels for Residential Sites (HSL A) • Ecological Investigation Levels (EIL) for Urban Residential and Public Open Space • Ecological Screening Levels (ESL) for Urban Residential and Public Open Space <p>Values for each criteria are presented in Section 9 below.</p>
<p>Step 4: Define the Site Boundaries</p>	<p>The site boundary was restricted to the boundary of Block 45 Section 54, Belconnen as shown on Figure 2, Appendix A. The vertical boundary of the site was 2.5 m below ground level which was the maximum sampling depth. It is also noted that the results of the assessment are limited to the condition of the site as of 1 November 2019 when sampling was completed.</p>
<p>Step 5: Develop a Decision Rule</p>	<p>If analytical results for COPCs are below the adopted criteria for residential sites, then the site would be considered suitable for the land uses permitted under the current zone and no further management or remediation would be required. However, should the concentration of one or more COPC exceed the adopted criteria value then further investigation may be required to delineate the lateral and vertical extent of the impact and/or recommendations for the remediation/management of contamination may be required.</p>
<p>Step 6: Specify Tolerable Limits</p>	<p>The tolerable limits for the investigation adopted for quality assurance/quality control (QA/QC) purposes are as follows:</p> <ul style="list-style-type: none"> • The relative percentage difference (RPD) for laboratory duplicates for TRH and BTEX analysis is less than 60%; and • Recovery of matrix spikes and surrogate spikes is as per the laboratory's Quality Assurance targets accepted under their NATA accreditation. <p>The tolerable limits for field QA/QC data are as follows:</p> <ul style="list-style-type: none"> • RPD criteria of 50% or less, for concentrations > or = 10 times practical quantitation limits (PQL); • RPD criteria of 75% or less, for concentrations between 5 and 10 times the EQL; and • RPD criteria of 100% or less, for concentrations < 5 times PQL. <p>Replicate data for field duplicates for inorganics, including metals is expected to be as follows:</p> <ul style="list-style-type: none"> • RPD criteria of 30% or less, for concentrations > or = 10 times PQL; • RPD criteria of 75% or less, for concentrations between 5 and 10 times the PQL; and • RPD criteria of 100% or less, for concentrations < 5 times PQL.
<p>Step 7: Optimise the Design</p>	<p>Samples were collected at relevant intervals, changes in geology or within zones which exhibit gross contamination. Laterally, samples were placed in a grid pattern across the site, approximately 13 m apart, which can detect a contaminant hotspot with a diameter of 15 m.</p>

8. Sampling and Analysis Quality

Details of the sampling and analytical plan adopted to meet the project objectives are presented in the following sections.

8.1 Sampling Plan

Six (6) sample locations were placed in a grid pattern over the car park area on the eastern portion of the site. The western portion of the site was inaccessible because it still had an operational building on it. The car park had an area of approximately 865 m². The NSW EPA (1995) 'Sampling Design Guidelines' recommend 6 samples for a site of 1,000 m² and this was considered to be a sufficient number of samples to characterise the area.

The locations of boreholes drilled across the site are shown on **Figure 4**.

8.2 Analytical Plan

From the samples collected across the site, the analytical plan presented in Table 5 was executed to assess the identified COPCs.

Table 5: Analytical Plan Completed for the DSI

Sample Type	TRH	BTEX	PAH	OCP/OPP	PCB	Heavy Metals	Asbestos
Primary	9	9	9	9	9	9	9
Duplicate	1	1	1	1	1	1	0
Triplicate	1	1	1	1	1	1	0

9. Assessment Criteria

The assessment criteria that was adopted for the investigation was based on the proposed use of the site as medium density residential land. Therefore, the following criteria have been adopted from the ASC NEPM 2013:

- Health Based Investigation Levels for Residential Sites (HIL A)
- Health Based Screening Levels for Residential Sites (HSL A) for a silt lithology and a depth of 0 m to <1 m below ground level. This assumption is considered appropriate as the soil is located at the surface and the based on the field observations, the soil was predominantly silt.
- Ecological Investigation Levels (EIL) for Urban Residential and Public Open Space;
- Ecological Screening Levels (ESL) for Urban Residential and Public Open Space for fine soil based on the silt content of the soil.

EIL criteria was derived based on site specific physicochemical properties (pH, cation exchange capacity (CEC) and percent clay.). These properties were estimated based on measured conditions at similar sites. The values used for the determining EILs are summarised in Table 8 below.

Table 6: *Assumed Physicochemical Properties*

Physicochemical Property	Unit	Value
pH	pH Unit	5.5
CEC	meq / 100g	5
% Clay	%w / w	5

The EIL criteria was calculated using the ASC NEPM 2013 EIL Interactive (Excel) Calculation Spreadsheet using values for aged contaminants. Results of the EIL calculations are presented in **Appendix F**.

The criteria values adopted for the assessment of the site are presented in **Table 1, Appendix B**.

10. Methods

Boreholes were drilled using a 300 mm auger driven by a 4 ton excavator. Samples were collected at the surface (0.0-0.2 m), 0.5m bgl, 1.0 m bgl and at every metre thereafter or at changes in lithology or from lenses of gross contamination if detected, until refusal or natural material was encountered. Each sample was collected directly from the auger with care taken not to collect soil that was in contact with the auger flights. A new, clean pair of nitrile gloves was used for each sample to minimise the possibility of cross contamination between samples.

Samples were placed in a laboratory prepared 250 millilitre (mL) glass jar with a Teflon lined screw top lid. Details of the sample, including project number, sample number, sample depth and date of sample were written on each sample container. Sample jars were then placed into an ice cooled esky prior to being sent to SGS Australia, which is a NATA accredited laboratory with accompanying chain of custody (COC) documentation for analysis.

11. Results

Visual and laboratory results of the investigation are presented in the following sections.

11.1 Observations

The car park was covered in a gravel concrete and brick surface. The fill material encountered was largely a brown gravelly silty clay – gravelly sandy silt. At two (2) borehole locations the presence of large rocks in the fill material caused refusal. The natural material was a brown sandy silty clay, and was typically encountered at a depth of 2.2 m bgl.

Traces of grass were encountered at a depth of approximately 2.0 m in BH1 and BH2 which indicated the original ground surface before development.

11.2 Analytical Results

A total of nine (9) primary soil samples were selected for analysis. A summary of the analytical results is presented in **Table 1, Appendix G**, while copies of the laboratory reports, sample receipt and COCs is presented in **Appendix H**.

BTEX, Phenols, OCP/OPP, PAH and Asbestos

Concentrations of BTEX, Phenols, OCP/OPP, PAH and Asbestos were below the laboratory limit of reporting (LOR) and therefore below the adopted assessment criteria.

No materials suspected of containing asbestos were encountered during sampling.

TRH

Concentrations of TRH were detected above the laboratory limit of reporting (LOR). One (1) sample BH3 1.0-1.1 contained 52 mg/kg of TRH C15-C28. The adopted criteria had no threshold for this analyte, therefore the adopted criteria was not exceeded.

PCB

Concentrations of PCBs were detected above the laboratory limit of reporting (LOR). One (1) sample BH3 1.0-1.1 contained 6.2 mg/kg of Arochlor 1242,. As a result the total PCB concentration (Arochlors) exceeded the HIL A criteria of 1 mg/kg.

The sample was reanalyzed to ascertain whether the results could be duplicated. The second analysis completed on 15 November 2019, returned a total PCB concentration of 8 mg/kg, supporting the original reported data. This value still exceeded the HIL A criteria by more than 250% meaning that the area surrounding BH3 1.0-1.1 is classified as a contamination hotspot.

Heavy Metals

Heavy metals were detected in each sample analysed, however these were all below the adopted assessment criteria.

12. Quality Assurance / Quality Control

12.1 Field QA/QC

One (1) duplicate and one (1) triplicate field duplicate samples were collected for calculating the relative percent difference (RPD) and assess the precision and accuracy of the laboratory. An RPD of less than 50% is considered acceptable where the analyte concentration is greater than five (5) times the laboratory LOR. Should the RPD be greater than 50%, then further investigation as to the reason for high RPD would occur.

The duplicate and triplicate samples were collected with the following primary samples:

- QC1 and QC2 were collected with primary sample BH3 0.0-0.1 on 1 November 2019

The calculated RPDs (where applicable) for detectable concentrations of COPCs was less than 50% and therefore the analytical data is considered suitable for the purpose of the assessment.

12.2 Laboratory Quality Assurance/Quality Control

A review of the laboratory QA/QC data is summarised below.

Holding Times

All holding times were reported within their tolerable ranges.

Laboratory Accreditation

SGS Services was the primary laboratory used for the analysis of each sample. SGS is NATA accredited for the performed analysis under accreditation number 2562.

Surrogate and Spike Recoveries

All surrogate and matrix spike recoveries were within the tolerable limits.

Laboratory Control Sample Results

All laboratory control sample results were within the tolerable limits.

Laboratory Duplicate Results

The duplicate sample RPDs were within the tolerable range for each sample with the exception of the samples listed in Table 3 below.

Table 3: Laboratory Duplicate Samples that Exceed the Laboratory QA/QC criteria.

Primary	Duplicate	Analyte	RPD (%)
SE199625.007	LB187082.014	Zinc	35

The laboratory advised that the above RPD exceedance was attributed to sample heterogeneity. Based on the analytical results of primary sample, the above RPD exceedance does not alter the outcome of the investigation.

Laboratory Blank Results

All method laboratory blanks were below the laboratory LOR and therefore within tolerable limits.

13. Revised Conceptual Site Model

Based on the results of the intrusive investigation, the CSM was revised to reflect information obtained from drilling.

13.1 Summary of Site Condition

The area under the car park contained approximately 2.2 m of fill. Analysis of the fill showed that no COPCs were exceeded the adopted residential criteria, with the exception of the PCB Arochlor 1242 at BH3 1.0-1.1m. As a result the total PCB concentration was 6 mg/kg which exceeded the HIL A criteria of 1 mg/kg by more than 250%. The sample was reanalyzed to ascertain whether the results could be duplicated. The second analysis completed on 15 November 2019, returned a total PCB concentration of 8 mg/kg, supporting the original reported data. This value still exceeded the HIL A criteria by more than 250% meaning that the area surrounding BH3 1.0-1.1 is classified as a contamination hotspot. This area is highlighted on **Figure 5**, and remediation activities are recommended in Section 14.1

13.2 Potential Receptors and Exposure Pathways

Based on the results of the investigation, the revised CSM is presented in Table 13.

Table 7: Revised Conceptual Site Model

Pathway	Potential Receptor			
	Site Users	Construction Workers	Ecological Receptors	Groundwater
Direct Dermal Contact with Soil and Ingestion	<p>Incomplete</p> <p>Given that PCBs are not present near the surface, these are not considered to pose a risk to site users via direct contact. Given that the eastern portion of the site is sealed, COPCs do not pose a risk to site users in the site's current state.</p>	<p>Complete</p> <p>PCBs are present at a depth of 1.0-1.1 m at one location. This poses a risk to on-site workers, who may be exposed to COPCs, particularly during any required earthworks. Other COPCs may be present in AEC 1 beneath the building.</p>	<p>Incomplete</p> <p>Given that PCBs are not present near the surface, these are not considered to pose a risk to ecological receptors via direct contact. Given that the eastern portion of the site is sealed, COPCs do not pose a risk to ecological receptors in the site's current state.</p>	NA
Direct Dermal Contact with Groundwater	<p>Incomplete</p> <p>It is considered unlikely that the presence of PCBs at a depth of 1.0-1.1 m would migrate into the underlying groundwater. Furthermore, as there are no extraction bores within at least 400 m of the site, the exposure pathway is incomplete.</p>			
Exposure to respirable Asbestos	<p>Incomplete</p> <p>Exposure pathway is incomplete as no asbestos was detected on the site</p>			
Inhalation of Vapour or Gas	<p>Potentially Complete</p> <p>While no volatile compounds were identified in the eastern portion of the site, the infilled creekline under the western portion of the site has the potential to contain</p>			

Pathway	Potential Receptor			
	Site Users	Construction Workers	Ecological Receptors	Groundwater
	contaminated fill. It is unknown whether volatile compounds are present in this AEC, and therefore the exposure pathway is potentially complete.			

14. Summary and Conclusions

The Environment, Planning and Sustainable Development Directorate (EPSDD) engaged Lanterra Consulting Pty Ltd (Lanterra) to complete a Preliminary Site Investigation (PSI) for Block 45 Section 54, Belconnen, ACT (herein referred to as the site).

Based on the ACT Territory Plan, the site is currently zoned as C22: Business Zone and has an area of 2,712 square metres (m²).

Based on the project brief by EPSDD, it is understood that the building on the site is to be demolished and the site prepared for sale. The eastern portion of the block was previously used as a carpark and is currently vacant. The western portion of the block is used for commercial office spaces, and is occupied by a Health Centre.

The purpose of the PSI was to assess the risk of contamination to the site and whether it is suitable for the land uses permitted under the zone.

Based on the results of the investigation, two (2) areas of environmental concern were identified:

AEC 1: The portion of the site adjacent to the western site boundary. This area previously contained a creekline which was filled in between 1967 and 1973. Given that the source of the fill is unknown it may have originated from a contaminated site.

AEC 2: During preliminary soil sampling there was fill identified to a typical depth of 2.2 m. Given that the source of the fill is unknown it may have originated from a contaminated site.

The western portion of the site was inaccessible as the building was still present, however the carpark in the eastern section was accessible. The area of the carpark was approximately 865 m². To characterize the fill in this area, six (6) borehole locations were placed in a grid pattern over the car park area. Samples were collected at the surface (0.0-0.0-0.2 m), 0.5-0.6 m and at 1.0-1.1 m below ground level (bgl), at changes in lithology or if there were indications of gross contamination.

Based on the results of the drilling, fill was encountered, typically to a depth of around 2.2 m bgl. A total of nine (9) primary samples were analysed for total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene, xylenes (BTEX), polycyclic aromatic hydrocarbons (PAH), organochlorine and organophosphate pesticides (OCP/OPP), polychlorinated biphenyls (PCB) and heavy metals. All contaminants of potential concern (COPCs) were below the adopted assessment criteria, with the exception of total PCB concentration in sample BH3 1.0-1.1. This location contained a total PCB concentration of 6 mg/kg, which exceeded the HIL A criteria of 1 mg/kg by more than 250%, meaning it is classified as a contamination hotspot. The sample was reanalyzed to ascertain whether the results could be duplicated. The second analysis returned a total PCB concentration of 8 mg/kg, supporting the original reported data.

Based on these results, the concentration of total PCB in the vicinity of BH3 is considered unsuitable from a human health risk perspective. Therefore, prior to the site being considered suitable for future uses permitted under the C22: Business Zone, the impacted soil must be removed. Furthermore, the former creek that was filled beneath the existing building may still contain residual fill. As traces of PCB impacted soil have been identified on the site, further assessment of the soil beneath the building is recommended.

14.1 Recommendations

Lanterra considers that there is currently not enough information to determine whether the site is suitable for the uses permitted under the C22: Business Zone. Lanterra recommends that:

- The soil around the BH3 hotspot should be removed in a 2 m by 2m excavation to a depth of 1.5 m. Validation sampling should be completed to ascertain if there is residual PCB contamination.
- A detailed site investigation should be undertaken after the demolition of the building on the western portion of the site, to assess whether contamination may be present in the fill used in the historic creekline, and across the site, in light of the depth of fill found in the carpark.

15. References

ACT EPA (2009) '*Contaminated Sites Environment Protection Policy*'

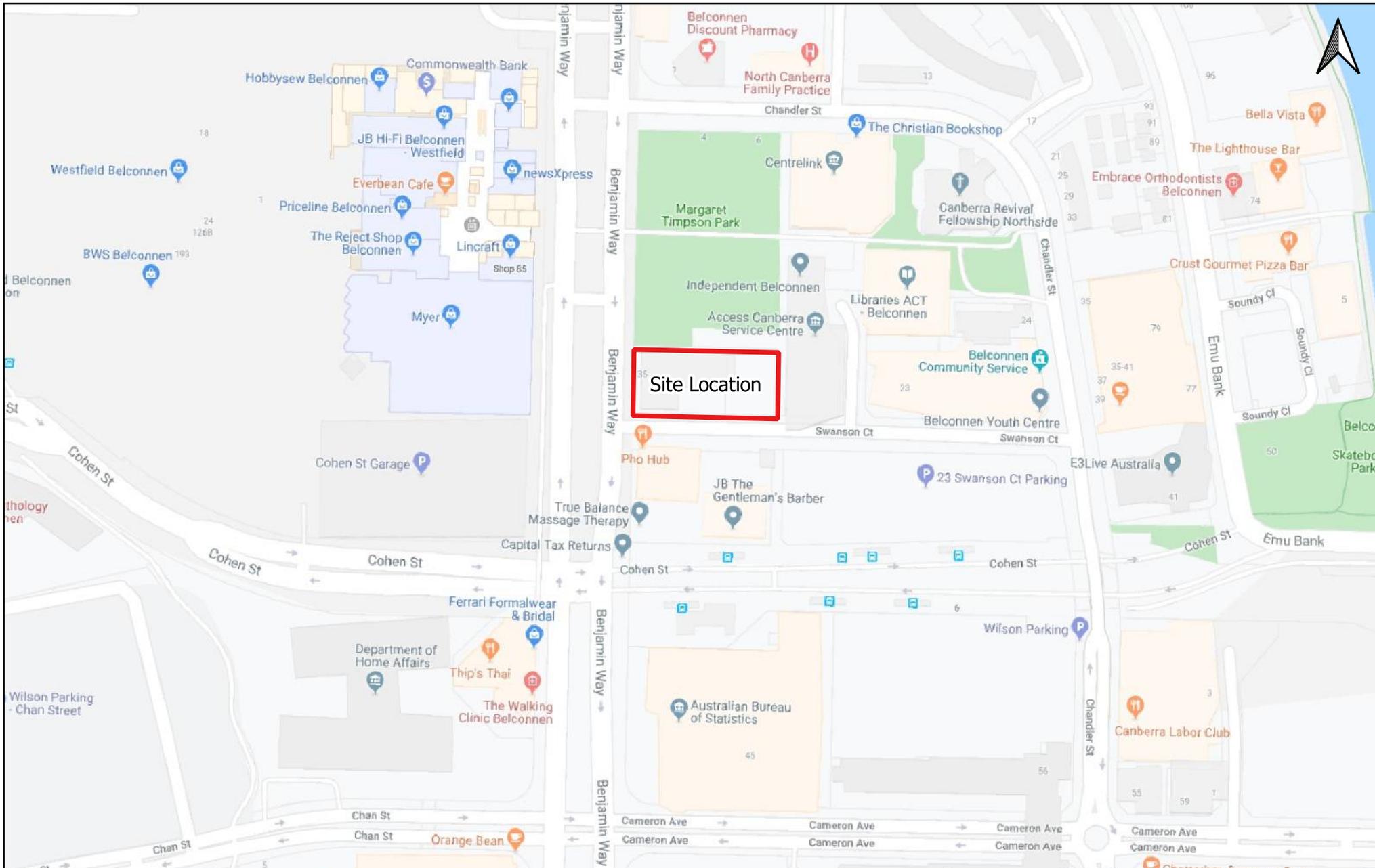
ACT EPA (2018) '*Information Sheet 4 - Requirements for the Reuse and Disposal of Contaminated Soil in the ACT*'

Bureau of Mineral Resources, Geology and Geophysics (1984) '*1:100,000 Hydrogeology of the Australian Capital Territory and Environs*'

Bureau of Mineral Resources, Geology and Geophysics (1992) '*1:100,000 Geological Series, Canberra, New South Wales and Australian Capital Territory, Sheet 8727*'

National Environment Protection Council (1999) '*National Environment Protection (Assessment of Site Contamination) Measure 1999*' (amended 2013).

Figures



0 50 100 m



Project: P19089
 Location: Block 45 Section 54, Belconnen
 Figure 1: Site Location Plan





Project: P19089
Location: Block 45 Section 54, Belconnen, ACT
Figure 2: Detailed Site Location



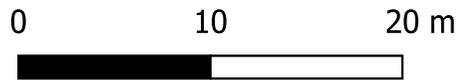


Legend

AECs

 AEC 1

 AEC 2



Project: P19089
Location: Block 45 Section 54, Belconnen, ACT
Figure 3: Areas of Environmental Concern



0 10 20 m

Project: P19089
Location: Block 45 Section 54, Belconnen, ACT

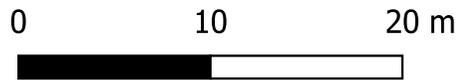


Figure 4: Sample Locations



Legend

-  Proposed hotspot excavation
-  Sample locations



Project: P19089
Location: Block 45 Section 54, Belconnen, ACT
Figure 5: Proposed PCB Hotspot Excavation



Site Photographs

Client Name Environment Planning and Sustainable Development Directorate	Site Location Block 45 Section 54, Belconnen, ACT	Project No. P19089
--	---	------------------------------

Photo No. 1	Date 1/11/2019	
Description Eastern portion of the site facing north.		
Photo No. 2	Date 1/11/2019	
Description Central portion of the site looking west.		

Client Name
Environment Planning and Sustainable
Development Directorate

Site Location
Block 45 Section 54, Belconnen, ACT

Project No.
P19089

<p>Photo No. 3</p>	<p>Date 1/11/2019</p>	
<p>Description Site building from the western boundary.</p>		
<p>Photo No. 4</p>	<p>Date 1/11/2019</p>	
<p>Description Single level basement carpark.</p>		

Client Name
Environment Planning and Sustainable
Development Directorate

Site Location
Block 45 Section 54, Belconnen, ACT

Project No.
P19089

<p>Photo No. 5</p>	<p>Date 1/11/2019</p>	
<p>Description Basement carpark.</p>		
<p>Photo No. 6</p>	<p>Date 1/11/2019</p>	
<p>Description Basement carpark.</p>		

Client Name
Environment Planning and Sustainable
Development Directorate

Site Location
Block 45 Section 54, Belconnen, ACT

Project No.
P19089

Photo No.	Date
7	1/11/2019

Description
Western site boundary.



Photo No.	Date
8	1/11/2019

Description
Inside the small carpark to
the south of the building
looking east





Product	Title
Date/Time	08/11/2019 02:11PM
Customer Reference	P19089
Order ID	20191108000975
Cost	\$0.00

Volume N/A Folio N/A Edition N/A

AUSTRALIAN CAPITAL TERRITORY
ADMINISTRATIVE PARCEL - NO TITLE ISSUED

LAND

Belconnen Section 54 Block 45 on Deposited Plan 11595

End of interests



LOTSEARCH

LOTSEARCH ENVIRO PROFESSIONAL

Address: 1 Swanson Court, Belconnen, ACT 2617

Date: 05 Nov 2019 13:25:30

Reference: LS009409 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.

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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 confidence is given under the field heading “LocConf” or “Location Confidence”.

Location Confidence	Description
Premise Match	Georeferenced to the site location / premise or part of site
Area 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
Buffered Point	Feature is a buffered point
Network of Features	Georeferenced to a network of features

Dataset Listing

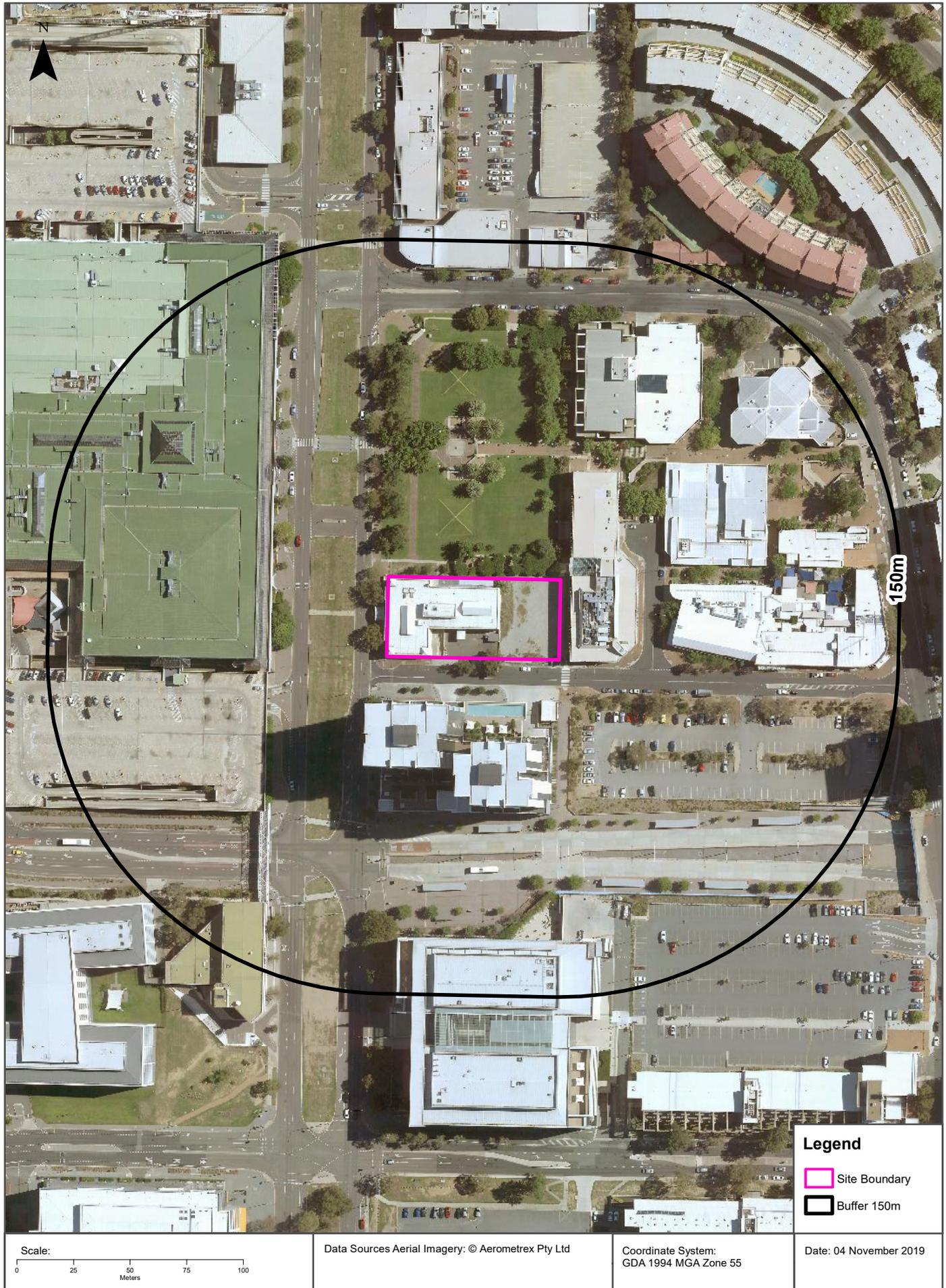
Datasets contained within this report, detailing their source and data currency:

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	28/10/2019	28/10/2019	Quarterly	-	-	-
Register of Contaminated Sites	ACT Government - Environment Protection Authority	24/10/2019	24/10/2019	Monthly	0	0	2
National Waste Management Facilities Database	Geoscience Australia	05/11/2019	07/03/2017	Quarterly	0	0	1
Defence PFAS Investigation & Management Program	Department of Defence	04/11/2019	04/11/2019	Monthly	0	0	0
Airservices Australia National PFAS Management Program	Airservices Australia	04/11/2019	04/11/2019	Monthly	0	0	0
Defence 3 Year Regional Contamination Investigation Program	Department of Defence	04/11/2019	04/11/2019	Monthly	0	0	0
EPA Authorisations	Environment Protection Authority	14/10/2019	14/10/2019	Monthly	0	0	27
EPA Agreements	Environment Protection Authority	14/10/2019	14/10/2019	Monthly	0	0	1
UBD Business Directory 1982 (Premise & Intersection Matches)	Hardie Grant			Not required	0	65	65
UBD Business Directory 1982 (Road & Area Matches)	Hardie Grant			Not required	-	8	8
UBD Business Directory 1970 (Premise & Intersection Matches)	Hardie Grant			Not required	0	0	0
UBD Business Directory 1970 (Road & Area Matches)	Hardie Grant			Not required	-	0	0
UBD Business Directory 1961 (Premise & Intersection Matches)	Hardie Grant			Not required	0	0	0
UBD Business Directory 1961 (Road & Area Matches)	Hardie Grant			Not required	-	0	0
UBD Business Directory 1950 (Premise & Intersection Matches)	Hardie Grant			Not required	0	0	0
UBD Business Directory 1950 (Road & Area Matches)	Hardie Grant			Not required	-	0	0
UBD Business Directory Drycleaners & Motor Garages/Service Stations (Premise & Intersection Matches)	Hardie Grant			Not required	0	1	3
UBD Business Directory Drycleaners & Motor Garages/Service Stations (Road & Area Matches)	Hardie Grant			Not required	-	0	0
Features of Interest	ACT Government	19/09/2019	19/09/2019	Quarterly	1	7	117
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	2
Groundwater Boreholes (ACT)	ACT Government	19/09/2019	19/09/2019	Quarterly	0	0	4
Groundwater Boreholes (Bureau of Meteorology)	Commonwealth of Australia (Bureau of Meteorology)	20/11/2017	25/08/2017	Annually	0	0	10
Geological Units 1:250,000	NSW Department of Industry, Resources & Energy	20/08/2014		None planned	1	-	9
Geological Structures 1:250,000	NSW Department of Industry, Resources & Energy	20/08/2014		None planned	0	-	4
Soil Landscapes	NSW Office of Environment & Heritage	12/08/2014		None planned	1	-	5
Atlas of Australian Soils	ABARES	19/05/2017	17/02/2011	As required	1	1	1
Atlas of Australian Acid Sulfate Soils	CSIRO	19/01/2017	21/02/2013	As required	1	1	2

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	No. Features Onsite	No. Features within 100m	No. Features within Buffer
Territory Plan Zones	ACT Government - Environment, Planning and Sustainable Development Directorate	19/09/2019	19/09/2019	Quarterly	2	11	120
Territory Plan Overlays (Areas)	ACT Government - Environment, Planning and Sustainable Development Directorate	19/09/2019	19/09/2019	Quarterly	0	1	33
Territory Plan Overlays (Lines)	ACT Government - Environment, Planning and Sustainable Development Directorate	18/03/2019	18/03/2019	Quarterly	0	1	10
Commonwealth Heritage List	Australian Government Department of the Environment and Energy - Heritage Branch	16/01/2019	31/07/2018	Unknown	0	0	1
National Heritage List	Australian Government Department of the Environment and Energy - Heritage Branch	16/01/2019	28/09/2018	Unknown	0	1	1
Heritage Sites	ACT Government - Environment, Planning and Sustainable Development Directorate	19/09/2019	19/09/2019	Quarterly	0	0	10
Bushfire Prone Areas	ACT Government - Environment, Planning and Sustainable Development Directorate	19/09/2019	19/09/2019	Quarterly	0	0	1
Bushfire Abatement Zones	ACT Government - Environment, Planning and Sustainable Development Directorate	19/09/2019	19/09/2019	Quarterly	0	0	1
Bushfire Operational Plan - Access Management	ACT Government - Environment, Planning and Sustainable Development Directorate	19/09/2019	19/09/2019	Quarterly	0	0	0
Bushfire Operational Plan - Fuel Management	ACT Government - Environment, Planning and Sustainable Development Directorate	19/09/2019	19/09/2019	Quarterly	0	0	2
Flood 1 percent Annual Exceedance Probability	ACT Government - Environment, Planning and Sustainable Development Directorate	09/03/2018	18/01/2017	As required	0	0	0
Vegetation Communities	ACT Government	08/01/2019	04/01/2019	Annually	1	2	23
Vegetation Subformation	ACT Government	14/01/2019	14/01/2019	Annually	1	2	4
Threatened Woodland	ACT Government	08/01/2019	29/11/2018	Annually	0	0	0
Tree Register	ACT Government	19/09/2019	19/09/2019	Quarterly	0	0	2
Important Wetlands	ACT Government	19/09/2019	19/09/2019	Quarterly	0	0	0
Groundwater Dependent Ecosystems Atlas	Bureau of Meteorology	14/08/2017	15/05/2017	Unknown	0	0	1
NSW BioNet Species Sightings	NSW Office of Environment & Heritage	04/11/2019	04/11/2019	Daily	-	-	-

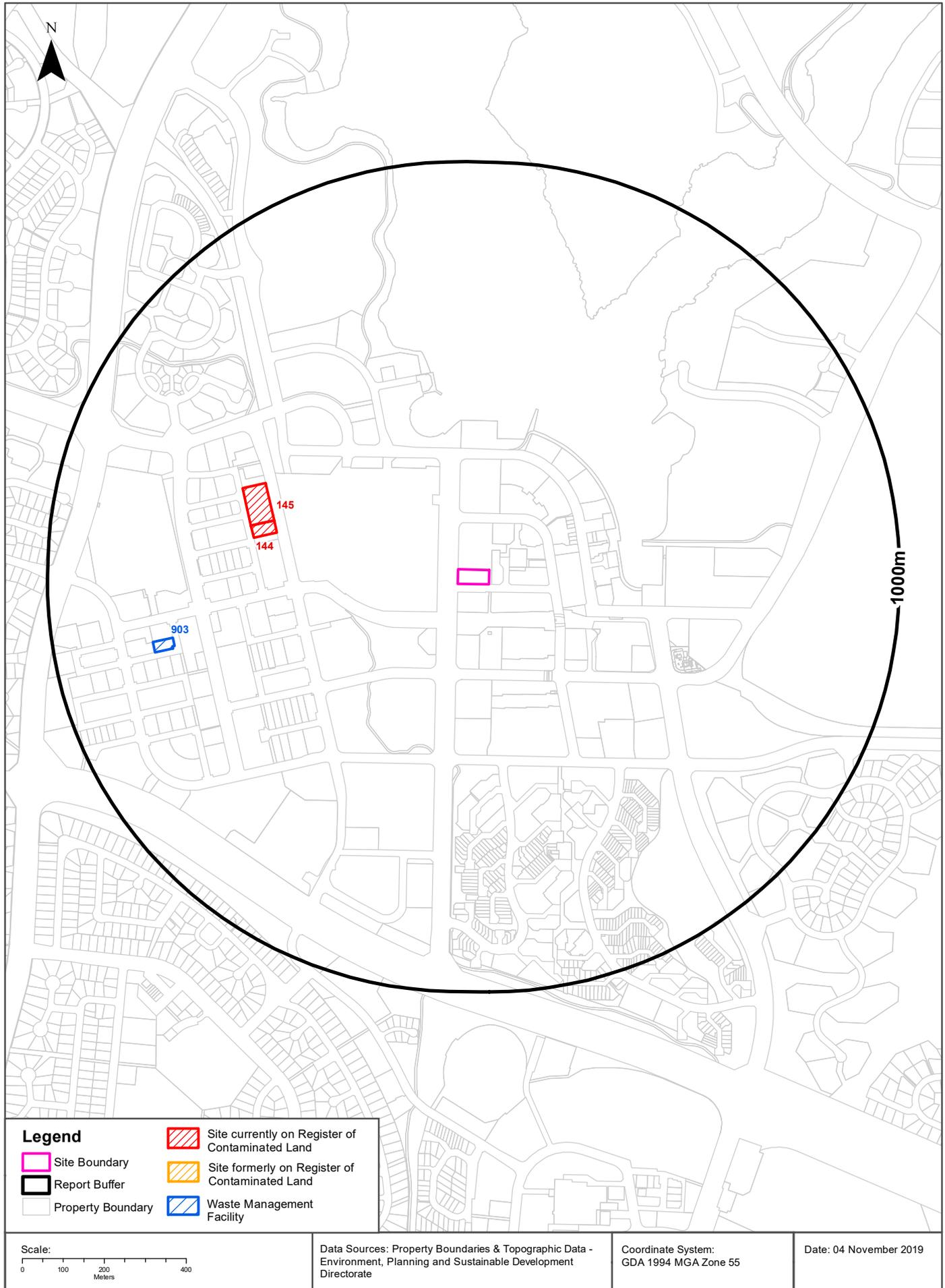
Aerial Imagery 2019

1 Swanson Court, Belconnen, ACT 2617



Contaminated Sites Register & National Waste Facilities

1 Swanson Court, Belconnen, ACT 2617



Contaminated Land & Waste Management Facilities

1 Swanson Court, Belconnen, ACT 2617

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
144	Former Belconnen Ambulance Station	76A(1)	Belconnen	Belconnen	21	1	Site currently on EPA Register	Premise Match	450m	West
145	Former Belconnen Fire Station	76A(1)	Belconnen	Belconnen	21	24	Site currently on EPA Register	Premise Match	463m	West

ACT Register of Contaminated Sites Data Source: ACT Government Environment Protection Authority
Creative Commons 4.0 © <https://creativecommons.org/licenses/by/4.0/>

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
903	ACT Government	Belconnen Recycling Drop Off Centre	Jolly Street	Belconnen	2617		Operational		Premise Match	707m	West

Waste Management Facilities Data Source: Australian Government Geoscience Australia
Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

PFAS Investigation Sites

1 Swanson Court, Belconnen, ACT 2617

Defence PFAS Investigation & Management Program

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

Map ID	Base Name	Address	Loc Conf	Dist	Dir
N/A	No records in buffer				

Defence PFAS Investigation & Management Program Data Custodian: 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	Loc Conf	Dist	Dir
N/A	No records in buffer				

Airservices Australia National PFAS Management Program Data Custodian: Airservices Australia

Defence Sites

1 Swanson Court, Belconnen, ACT 2617

Defence 3 Year Regional Contamination Investigation Program

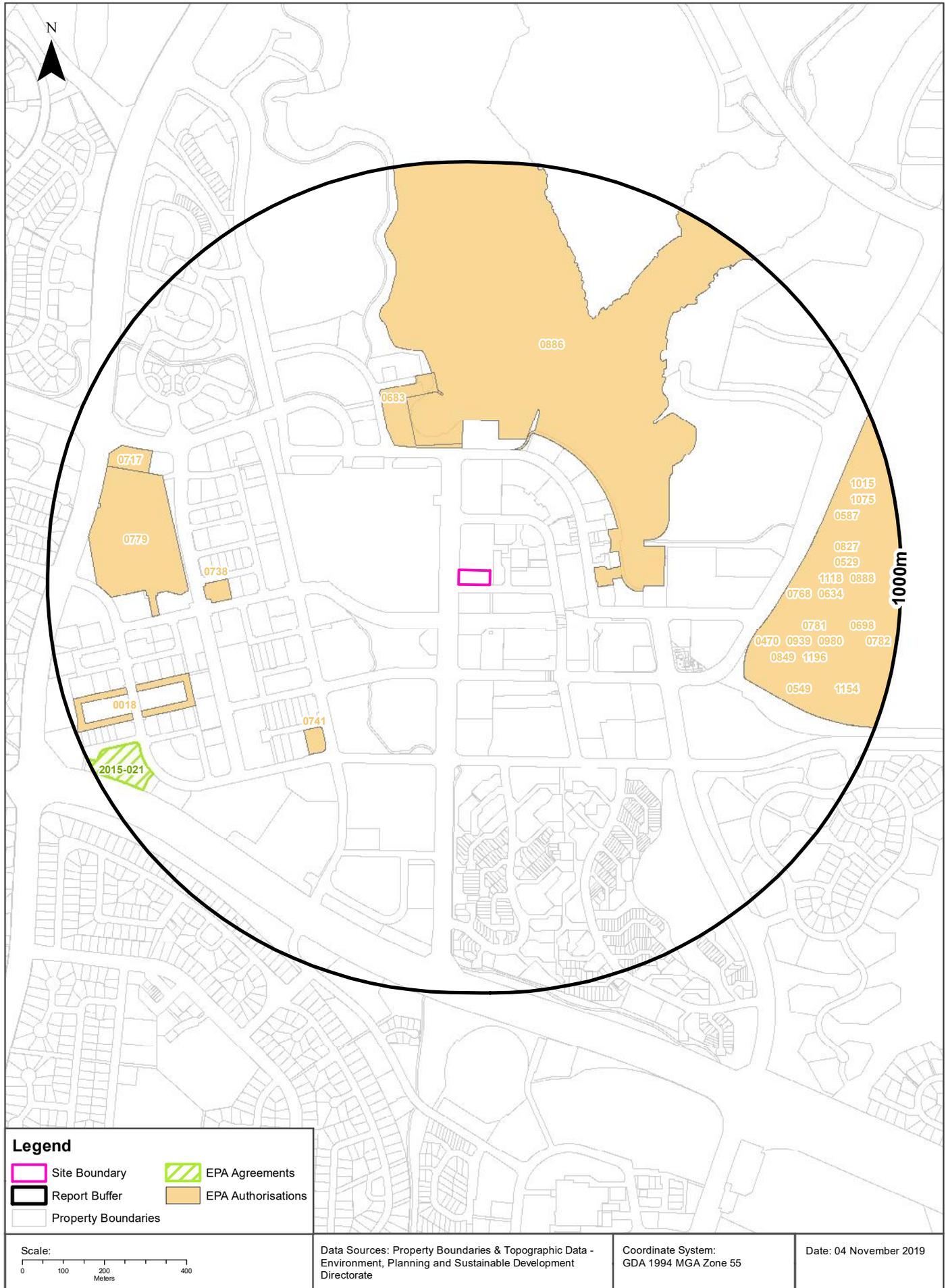
Sites which have been assessed as part of the Defence 3 Year Regional Contamination Investigation Program within the dataset buffer:

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 Swanson Court, Belconnen, ACT 2617



EPA Authorisations & Agreements

1 Swanson Court, Belconnen, ACT 2617

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
0886	Extraction of Material from waterways; Greater than 100m3 (Activity 1)	Manteena Pty Ltd	3/6/2012	3/6/2014	Expired	Premise Match	250m	North
0683	Extraction of Material from waterways; Greater than 100m3 (Activity 1)	GHD Pty Ltd	6/8/2010	6/8/2011	Expired	Premise Match	296m	North
0741	Petroleum storage (Activity 30)	Eureka Operations Pty Ltd t/as Coles Express - BELCONNEN	2/19/2010		Current	Premise Match	484m	South West
0738	Petroleum storage (Activity 30)	Eureka Operations Pty Ltd t/as Coles Express - Belconnen Town Centre	2/19/2010		Current	Premise Match	553m	West
0470	Outdoor concerts (Activity 23)	University of Canberra Union Inc	9/16/2004	10/30/2004	Expired	Premise Match	643m	East
0529	Outdoor concerts (Activity 23)	University of Canberra Union Inc.	10/22/2005		Expired	Premise Match	643m	East
0549	Outdoor concerts (Activity 23)	University Of Canberra	8/11/2006	12/10/2007	Ceased	Premise Match	643m	East
0587	Outdoor concerts (Activity 23)	UCU LTD	10/5/2007	10/27/2007	Expired	Premise Match	643m	East
0634	Outdoor concerts (Activity 23)	University of Canberra Union Inc.	7/28/2008	6/3/2009	Ceased	Premise Match	643m	East
0698	Outdoor concerts (Activity 23)	UCU LTD	10/30/2009	10/31/2009	Expired	Premise Match	643m	East
0768	Outdoor concerts (Activity 23)	UCU LTD	3/3/2010	5/10/2010	Expired	Premise Match	643m	East
0781	Outdoor concerts (Activity 23)	UCU LTD	6/2/2010	11/2/2010	Ceased	Premise Match	643m	East
0782	Outdoor concerts (Activity 23)	UCU LTD	6/2/2010	10/13/2010	Ceased	Premise Match	643m	East
0827	Outdoor concerts (Activity 23)	UCU LTD	3/1/2011		Expired	Premise Match	643m	East
0849	Outdoor concerts (Activity 23)	UCU LTD	10/6/2011		Expired	Premise Match	643m	East
0888	Outdoor concerts (Activity 23)	UCU LTD	4/3/2012	5/14/2012	Expired	Premise Match	643m	East
0939	Outdoor concerts (Activity 23)	University Of Canberra Union	4/24/2012	4/30/2013	Expired	Premise Match	643m	East
0980	Outdoor concerts (Activity 23)	University Of Canberra Union	3/21/2014	4/28/2014	Expired	Premise Match	643m	East
1015	Outdoor concerts (Activity 23)	University Of Canberra Union	2/19/2015	5/4/2015	Expired	Premise Match	643m	East
1075	Outdoor concerts (Activity 23)	Cattleyard Promotions Pty Ltd	3/22/2016	4/25/2016	Expired	Premise Match	643m	East
1118	Outdoor concerts (Activity 23)	Cattleyard Promotions Pty Ltd	3/28/2017	5/8/2017	Expired	Premise Match	643m	East
1154	Outdoor concerts (Activity 23)	Cattleyard Promotions Pty Ltd	3/29/2018	4/29/2018	Expired	Premise Match	643m	East
1196	Outdoor concerts (Activity 23)	Peking Duk Touring Pty Ltd	5/8/2019	5/11/2019	Expired	Premise Match	643m	East
0779	Petroleum storage (Activity 30)	ACTION Bus Services, Transport Canberra and City Services, ACT Government	5/20/2010		Current	Premise Match	658m	West
0018	Commercial use of chemicals (Activity 29)	CBS Pest Holdings Pty Ltd T/A Check Pest Control	6/12/1998	10/10/2007	Ceased	Road Match	693m	West

ID Number	Activity	Business / Individual Name	Grant Date	Expiry Date	Status	Loc Conf	Distance	Direction
0717	Petroleum storage (Activity 30)	EG Fuelco (Australia) Limited - BELCONNEN	1/14/2010		Current	Premise Match	792m	West
0204	Commercial use of chemicals (Activity 29)	A Target Pest Control	5/14/1999	8/18/2000	Ceased	Suburb/Area Match	-	-

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
2015-021	Management of Contaminated Land	ACT Property Group	4/15/2015		Current	Premise Match	871m	South

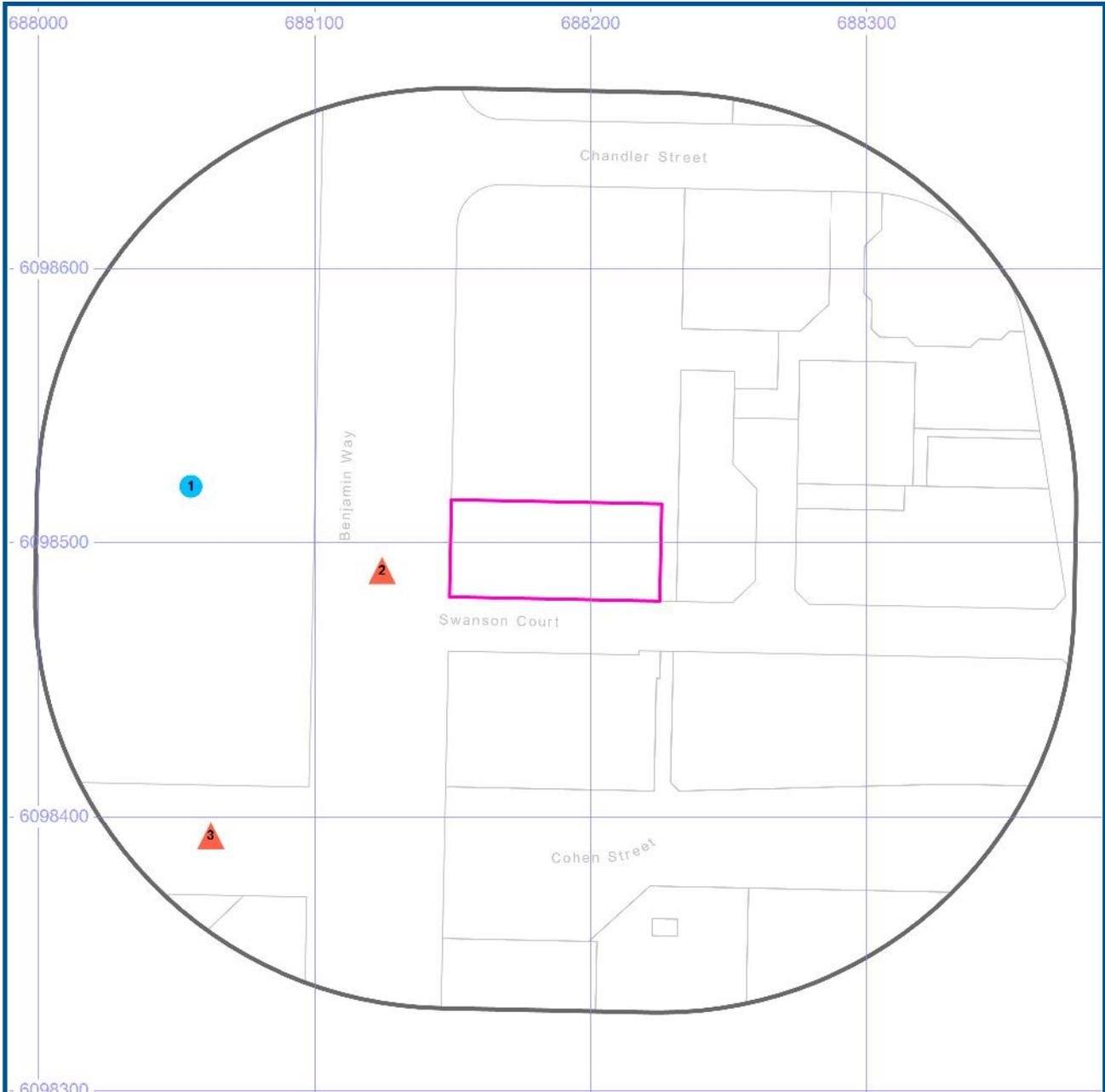
EPA Agreements Data Source: ACT Government Environment Protection Authority
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Historical Business Directories

1 Swanson Court, Belconnen, ACT 2617



1982 Business Directory Records



-  Site Boundary
-  Buffer 150m
-  Property Boundaries

-  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



Projected Coordinate System:
GDA94 MGA Zone 55

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 2019

Historical Business Directories

1 Swanson Court, Belconnen, ACT 2617

1982 Business Directory Records Premise or Road Intersection Matches

Records from the 1982 UBD Business Directory, mapped to a premise or road intersection, within the dataset buffer:

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
1	JEWELLERS &/OR WATCHMAKERS - RETAIL	Angus & Coote Pty. Ltd., Shop 17, Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	4050	Premise Match	49m	West
	JEWELLERY - COSTUME - RETAIL	Azure Jewellery, Shop 21, Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	4082	Premise Match	49m	West
	FRUITERERS &/OR GREENGROCERS	Belconnen Fruit Bowl, Shop 47, Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	2901	Premise Match	49m	West
	NEWSAGENTS	Belconnen Mall Newsagency, Shop 113. Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	5104	Premise Match	49m	West
	CHEMISTS - PHARMACEUTICAL	Belconnen Mall Pharmacy, Shop 14, Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	1460	Premise Match	49m	West
	BOOT &/OR SHOE RETAILERS	Belconnen Shoes & Repairs, Shop 14. Shopping Arc., Belconnen Town Centre., Canberra .(A.C.T.)	788	Premise Match	49m	West
	TOBACCONISTS - RETAIL	Boomerang Kiosk, Shop 5, Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	7077	Premise Match	49m	West
	LOTTERY KIOSKS	Boomerang Kiosk, Shop 5. Belconnen Mall. Belconnen Town Centre., Canberra .(A.C.T.)	4247	Premise Match	49m	West
	DAIRY PRODUCTS - RETAIL	Cheese Board, Shop 7, Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	1897	Premise Match	49m	West
	POULTRY DEALERS - RETAIL	Chicken Coop, Shop 40, Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	5718	Premise Match	49m	West
	GROCERS &/OR SELF SERVICE STORES	Coles New World Supermarket, Shop 4, Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	3413	Premise Match	49m	West
	WINE &/OR SPIRIT MERCHANTS - RETAIL	Coles New World Supermarket, Shop 4. Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	7492	Premise Match	49m	West
	ARTISTS SUPPLIES - RETAIL	Collins Booksellers, Shop 29, Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	321	Premise Match	49m	West
	BOOKSELLERS &/OR STATIONERS - RETAIL	Collins Booksellers, Shop 29, Belconnen Mall. Belconnen Town Centre., Canberra .(A.C.T.)	761	Premise Match	49m	West
	CLOTHING - RETAIL - BABY &/OR CHILDRENS WEAR	Countdown, Shop 23, Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	1582	Premise Match	49m	West
	MANCHESTER - RETAIL	Countdown, Shop 23, Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	4264	Premise Match	49m	West
	CLOTHING - RETAIL - LADIES &/OR GIRLS WEAR	Countdown, Shop 23, Belconnen Mall. Belconnen Town Centre., Canberra .(A.C.T.)	1607	Premise Match	49m	West
	CONFECTIONERS - RETAIL	Darrell Lea, Shop 1, Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	1764	Premise Match	49m	West
	CLOTHING - RETAIL - MENS &/OR BOYS WEAR	Davis' John Mans Centre, Shop 88, Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	1668	Premise Match	49m	West
	RECORD BARS	Easy Beat, Shop 65, Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	5971	Premise Match	49m	West
	HAIRDRESSERS - LADIES &/OR BEAUTY SALONS	Facial Centre, The, Shop 104A Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	3532	Premise Match	49m	West
	MILK BARS	Fruit Salad Spot, Shop 45, Belconnen Mall Belconnen Town Centre., Canberra .(A.C.T.)	4464	Premise Match	49m	West
	CONFECTIONERS - RETAIL	Hansel & Gretel, Shop 12. Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	1767	Premise Match	49m	West
	BUTCHERS - RETAIL	Hawes, Ray, Meat World, Shop 31, Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	1145	Premise Match	49m	West

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
1	HEALTH FOODS - RETAIL	Healthy Life Health Foods, Shop 9, Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	3688	Premise Match	49m	West
	DRAPERS - RETAIL	Hendersons of A.C.T., Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	2183	Premise Match	49m	West
	FURNISHINGS - SOFT - RETAIL	Hendersons of A.C.T., Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	2951	Premise Match	49m	West
	BAKERS - BREAD	Hot Bake, Shop 35, Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	523	Premise Match	49m	West
	DELICATESSENS	Jims Gourmet Deli, Shop 49, Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	1987	Premise Match	49m	West
	ICE CREAM PARLOURS	Jolly Roger, Shop 39, Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	3882	Premise Match	49m	West
	DEPARTMENTAL STORES	K Mart, Shop 13, Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	2078	Premise Match	49m	West
	AUCTIONEERS - REAL ESTATE	L.J. Hooker Limited (Licensed Agents) Belconnen Office: Shop 121, Upper Level, Belconnen Mall, Canberra .(A.C.T.)	477	Premise Match	49m	West
	PASTRYCOOKS &/OR CAKE SHOPS	Le Croissant. Shop 32, Belconnen Mall- Belconnen Town Centre., Canberra .(A.C.T.)	5406	Premise Match	49m	West
	MUSICAL INSTRUMENTS &/OR SHEET MUSIC - RETAIL	Lowrey Organ Centre, Shop 15, Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	5088	Premise Match	49m	West
	HARDWARE - RETAIL	Mackays BBC Hardware, Belconnen Mall, Belconnen., Canberra .(A.C.T.)	3669	Premise Match	49m	West
	ACCOUNTANTS & AUDITORS	Marshall, M., Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	63	Premise Match	49m	West
	BOOT &/OR SHOE REPAIRERS	Mr. Mink, Shop 44, Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	780	Premise Match	49m	West
	ENGRAVERS - JEWELLER	Mr. Mink, Shop 44, Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	2680	Premise Match	49m	West
	CLOTHING - RETAIL - BABY &/OR CHILDRENS WEAR	Mum 'n' Bub, Shop 18, Belconnen Mall, Belconnen Town Centre. 2517, Canberra .(A.C.T.)	1590	Premise Match	49m	West
	CLOTHING - RETAIL - MATERNITY WEAR	Mum 'n' Bub, Shop 18, Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	1657	Premise Match	49m	West
	MOTOR CYCLE DEALERS &/OR REPAIRERS &/OR ACCESSORIES	Outdoor Revolution, Shop 67, Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	4728	Premise Match	49m	West
	CAMPING & HIKING EQUIPMENT - SUPPLIERS, HIRERS &/OR REPAIRERS	Outdoor Revolution, Shop 67, Belconnen Mall. Belconnen Town Centre., Canberra .(A.C.T.)	1302	Premise Match	49m	West
	PHOTOGRAPHIC DEVELOPING, PRINTING &/OR COLOURING' SERVICES	Pacific Films, Shop 46, Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	5497	Premise Match	49m	West
	PASTRYCOOKS &/OR CAKE SHOPS	Pampered Pavlova, The, Shop 1, Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	5408	Premise Match	49m	West
	MILK BARS	Pete's Donuts, Shop 38, Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	4477	Premise Match	49m	West
	TAKE-AWAY FOODS	Pie Fair, Shop 43, Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	6894	Premise Match	49m	West
	GARDEN SUPPIIES	Plant Spot, The, Shop 22. Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	3095	Premise Match	49m	West
	FISH SHOPS	Poseidon Sea Foods, Shop 48, Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	2799	Premise Match	49m	West
	PASTRYCOOKS &/OR CAKE SHOPS	Puffin Donut Machine, Shop 11, Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	5412	Premise Match	49m	West
	SPORTING &/OR TRAVEL GOODS RETAIL	Purnell, John, Shop 25, Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	6645	Premise Match	49m	West
	TOY DEALERS - RETAIL	Purnell, John, Shop 25, Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	7160	Premise Match	49m	West
	DRY CLEANERS & PRESSERS	R. & R. Dry Cleaners, Shop 2, Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	2234	Premise Match	49m	West

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
1	CAFES, TEA ROOMS &/OR COFFEE LOUNGES	Raffles Coffee Lounge, Shop 34, Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	1278	Premise Match	49m	West
	DELICATESSENS	Snow Deli, Shop 33, Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	1994	Premise Match	49m	West
	WINE &/OR SPIRIT MERCHANTS -RETAIL	Snow Deli, Shop 33, Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	7567	Premise Match	49m	West
	CLOTHING - RETAIL - JEANS & DENIMS	Stock Jeans, Shop 20, Bekonnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	1603	Premise Match	49m	West
	SPORTSWEAR RETAILERS	Sussan, Shop 27, Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	6671	Premise Match	49m	West
	MUSICAL INSTRUMENTS &/OR SHEET MUSIC - RETAIL	Tuffins Music House, Shop 65, Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	5094	Premise Match	49m	West
	ORGAN DEALERS	Tuffins Music House, Shop 65, Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	5275	Premise Match	49m	West
	MUSIC TEACHERS	Tuffins Music House. Shop 65, Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	5079	Premise Match	49m	West
	PIANO DEALERS	Tuffins Music House. Shop 65, Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	5539	Premise Match	49m	West
	BUTCHERS - RETAIL	Wallace Master Cut Meats, Shop 36, Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	1199	Premise Match	49m	West
	BOOT &/OR SHOE RETAILERS	Williams The Shoemen, Shop 19, Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	825	Premise Match	49m	West
	GROCERS &/OR SELF SERVICE STORES	Woolworths Supermarket, Shop 37, Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	3493	Premise Match	49m	West
	WINE &/OR SPIRIT MERCHANTS -RETAIL	Woolworths Supermarket, Shop 37, Belconnen Mall, Belconnen Town Centre., Canberra .(A.C.T.)	7582	Premise Match	49m	West

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1982 Business Directory Records Road or Area Matches

Records from the 1982 UBD Business Directory, 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.	Location Confidence	Distance to Road Corridor or Area
2	GOVERNMENT DEPARTMENTS - COMMONWEALTH	Tertiary Education Commission, Benjamin Offices, Benjamin Way, Belconnen Town Centre., Canberra .(A.C.T.)	3322	Road Match	0m
	BUILDERS &/OR BUILDING CONTRACTORS	Whittle, T. C. Pty. Ltd., Benjamin Way, Belconnen., Canberra .(A.C.T.)	988	Road Match	0m
3	BUILDERS SUPPIERS	Graingers Hardware, Cohen St., Belconnen Town Centre., Canberra .(A.C.T.)	1031	Road Match	86m
	HARDWARE - RETAIL	Graingers Hardware, Cohen St., Belconnen Town Centre., Canberra .(A.C.T.)	3661	Road Match	86m
	TIMBER MERCHANTS &/OR SAWMILLERS	Graingers Hardware, Cohen St., Belconnen Town Centre., Canberra .(A.C.T.)	7059	Road Match	86m
	HI-FI EQUIPMENT	Millar Audio, Cohen St., Belconnen Town Centre., Canberra .(A.C.T.)	3736	Road Match	86m
	RECORD BARS	Millar Audio, Cohen St., Belconnen Town Centre., Canberra .(A.C.T.)	5976	Road Match	86m
	FURNITURE &/OR FURNISHINGS RETAIL	Whitewood Warehouse, Cohen St., Belconnen Town Centre., Canberra .(A.C.T.)	2989	Road Match	86m

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Historical Business Directories

1 Swanson Court, Belconnen, ACT 2617

1970 Business Directory Records Premise or Road Intersection Matches

Records from the 1970 UBD Business Directory, mapped to a premise or road intersection, within the dataset buffer:

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

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1970 Business Directory Records Road or Area Matches

Records from the 1970 UBD Business Directory, 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.	Location Confidence	Distance to Road Corridor or Area
	No records in buffer				

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Historical Business Directories

1 Swanson Court, Belconnen, ACT 2617

1961 Business Directory Records Premise or Road Intersection Matches

Records from the 1961 UBD Business Directory, mapped to a premise or road intersection, within the dataset buffer:

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

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1961 Business Directory Records Road or Area Matches

Records from the 1961 UBD Business Directory, 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.	Location Confidence	Distance to Road Corridor or Area
	No records in buffer				

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Historical Business Directories

1 Swanson Court, Belconnen, ACT 2617

1950 Business Directory Records Premise or Road Intersection Matches

Records from the 1950 UBD Business Directory, mapped to a premise or road intersection, within the dataset buffer:

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

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1950 Business Directory Records Road or Area Matches

Records from the 1950 UBD Business Directory, 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.	Location Confidence	Distance to Road Corridor or Area
	No records in buffer				

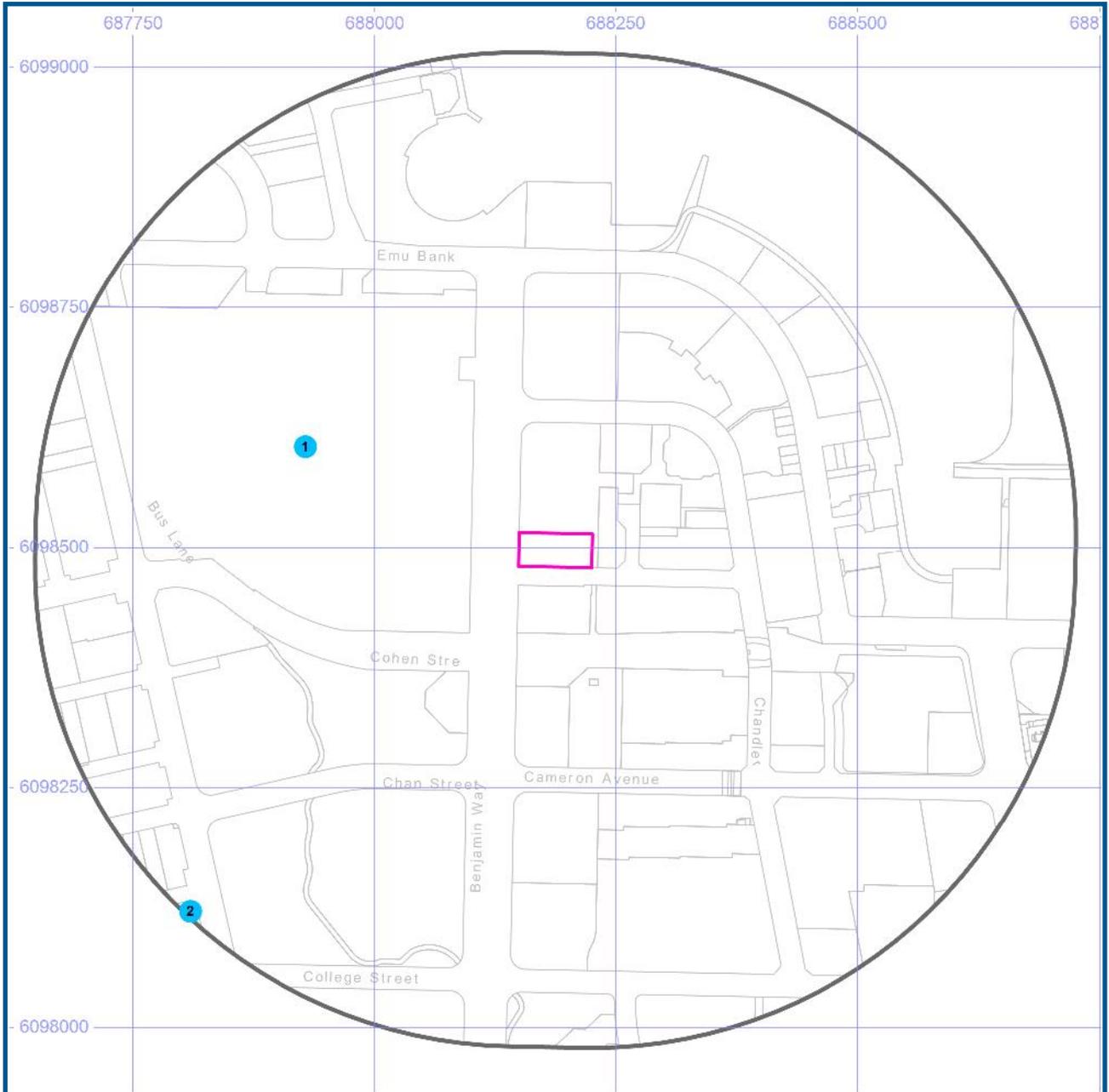
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Historical Business Directories

1 Swanson Court, Belconnen, ACT 2617



Dry Cleaners, Motor Garages & Service Stations



-  Site Boundary
-  Buffer 500m
-  Property Boundaries

-  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



Projected Coordinate System:
GDA94 MGA Zone 55

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Property Boundaries © Environment, Planning and Sustainable Development Directorate 2019

Historical Business Directories

1 Swanson Court, Belconnen, ACT 2617

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

Dry Cleaners, Motor Garages & Service Stations from UBD Business Directories, 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
1	DRY CLEANERS & PRESSERS	R. & R. Dry Cleaners, Shop 2, Belconnen Mall, Belconnen Town Centre., Canberra . (A.C.T.)	2234	1982	Premise Match	49m	North West
2	MOTOR GARAGES &/OR. ENGINEERS &/OR SERVICE STATIONS	Belconnen Self Serve, 1 Lathlain St., Belconnen Town Centre., Canberra .(A.C.T.)	4796	1982	Premise Match	485m	South West
	MOTOR GARAGES &/OR. ENGINEERS &/OR SERVICE STATIONS	MacDonalds Auto Engineering, 1 Lathlain St., Belconnen Town Centre., Canberra .(A.C.T.)	4878	1982	Premise Match	485m	South West

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

Dry Cleaners, Motor Garages & Service Stations from UBD Business Directories, 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 2014

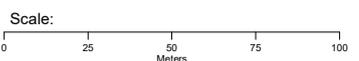
1 Swanson Court, Belconnen, ACT 2617



150m

Legend

-  Site Boundary
-  Buffer 150m



Data Sources Aerial Imagery: © Aerometrex Pty Ltd

Coordinate System:
GDA 1994 MGA Zone 55

Date: 04 November 2019

Aerial Imagery 2004

1 Swanson Court, Belconnen, ACT 2617



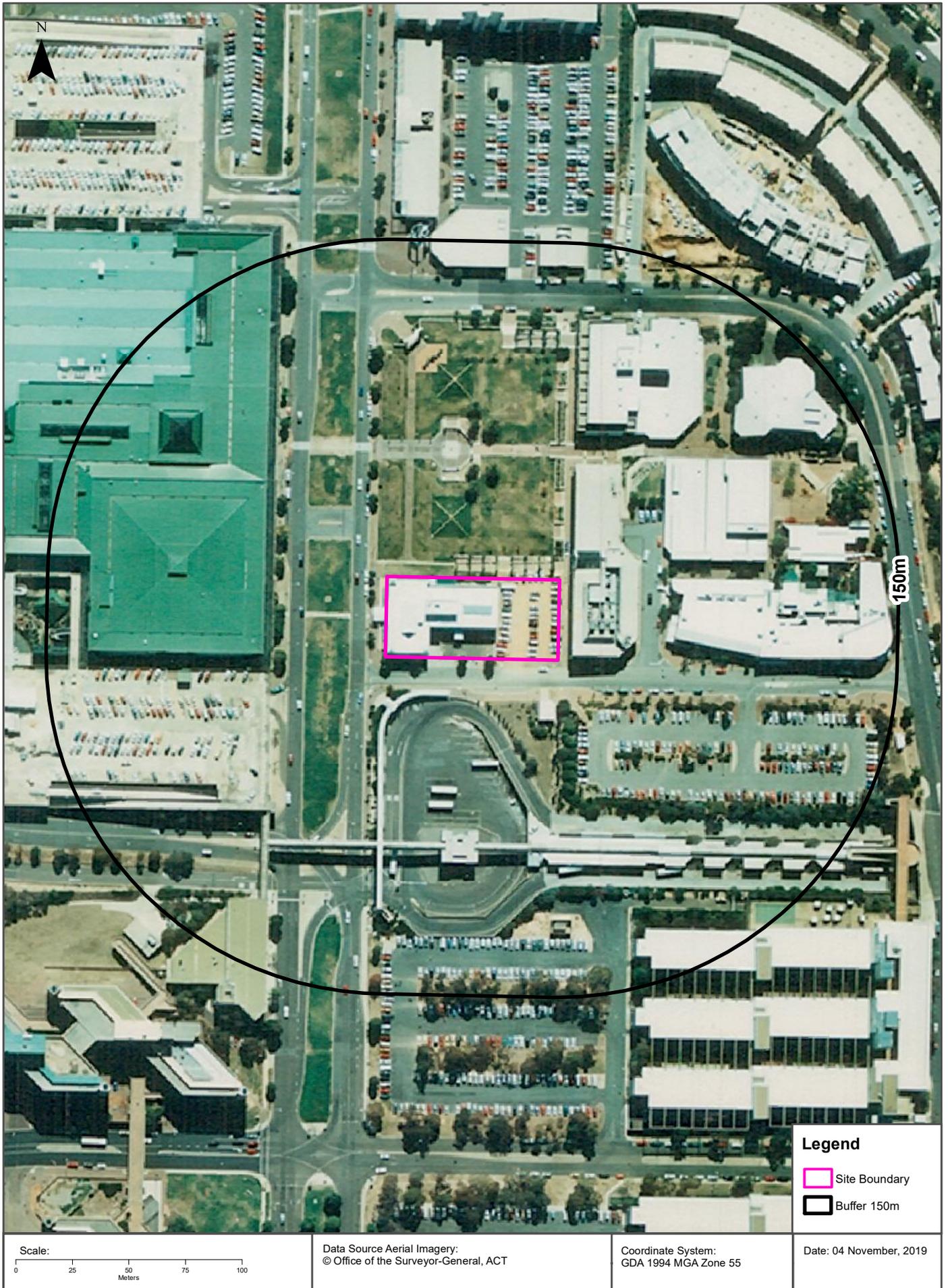
Data Sources Aerial Imagery: © Aerometrex Pty Ltd

Coordinate System:
GDA 1994 MGA Zone 55

Date: 04 November 2019

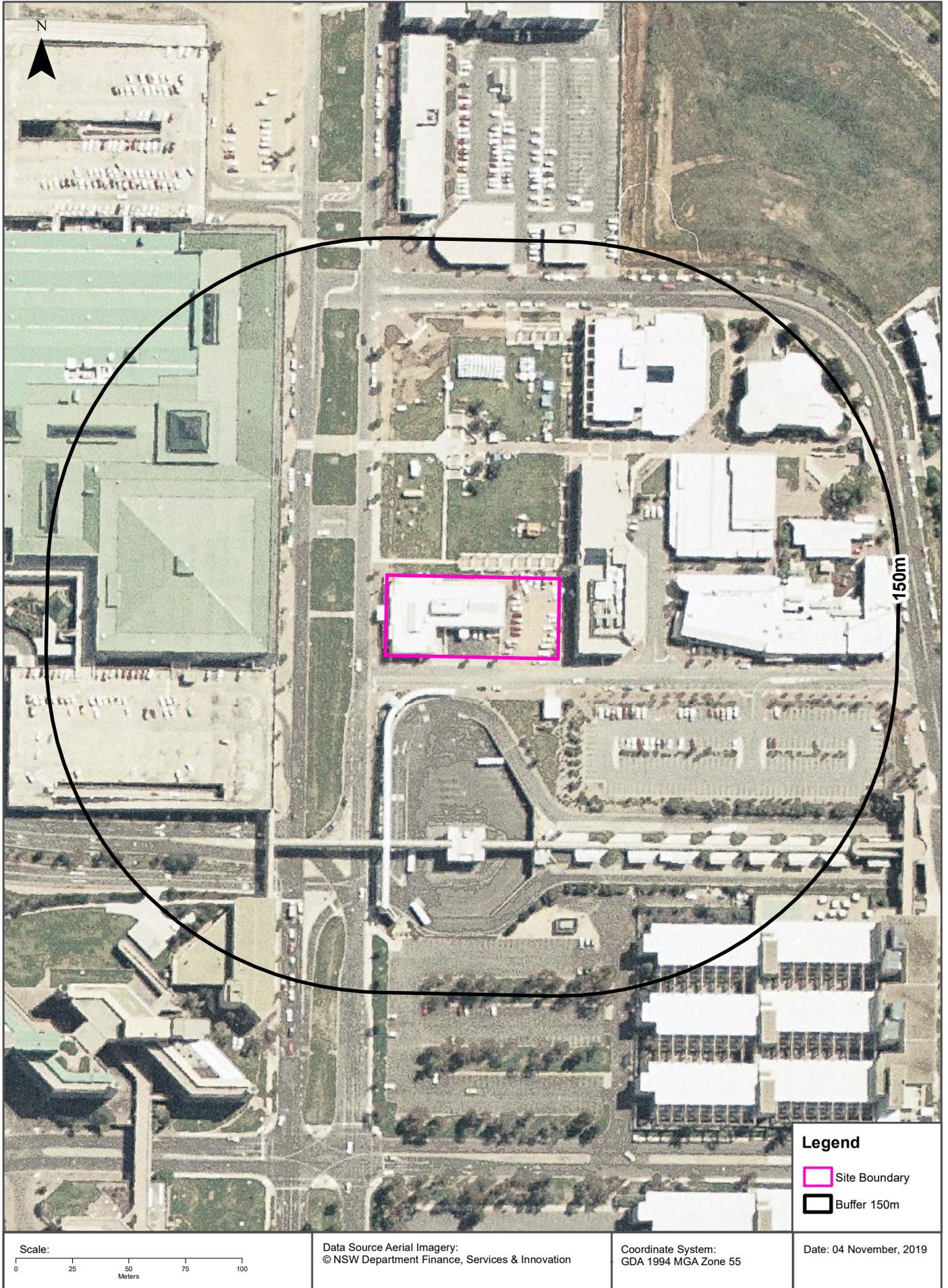
Aerial Imagery 1997

1 Swanson Court, Belconnen, ACT 2617



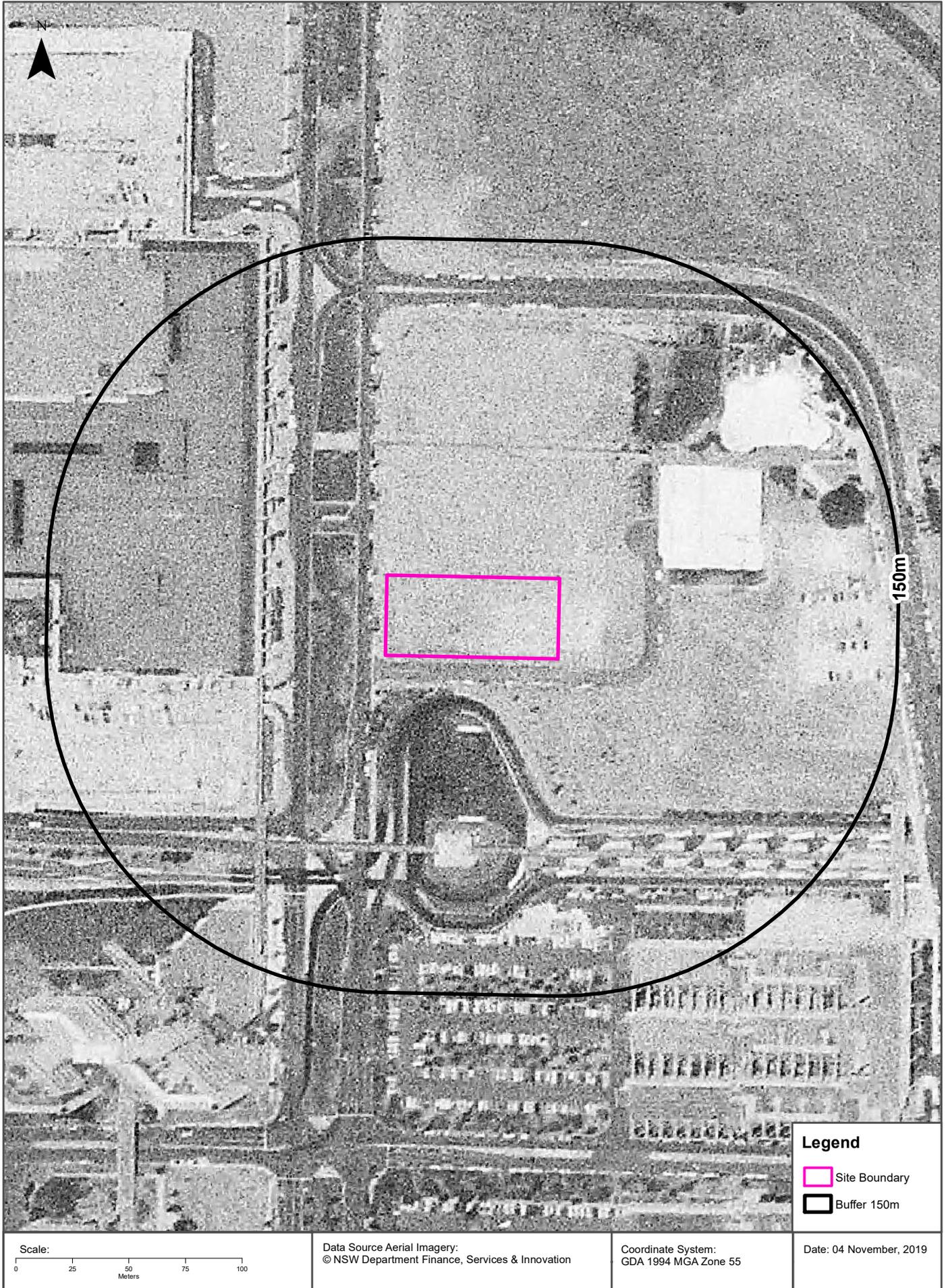
Aerial Imagery 1992

1 Swanson Court, Belconnen, ACT 2617



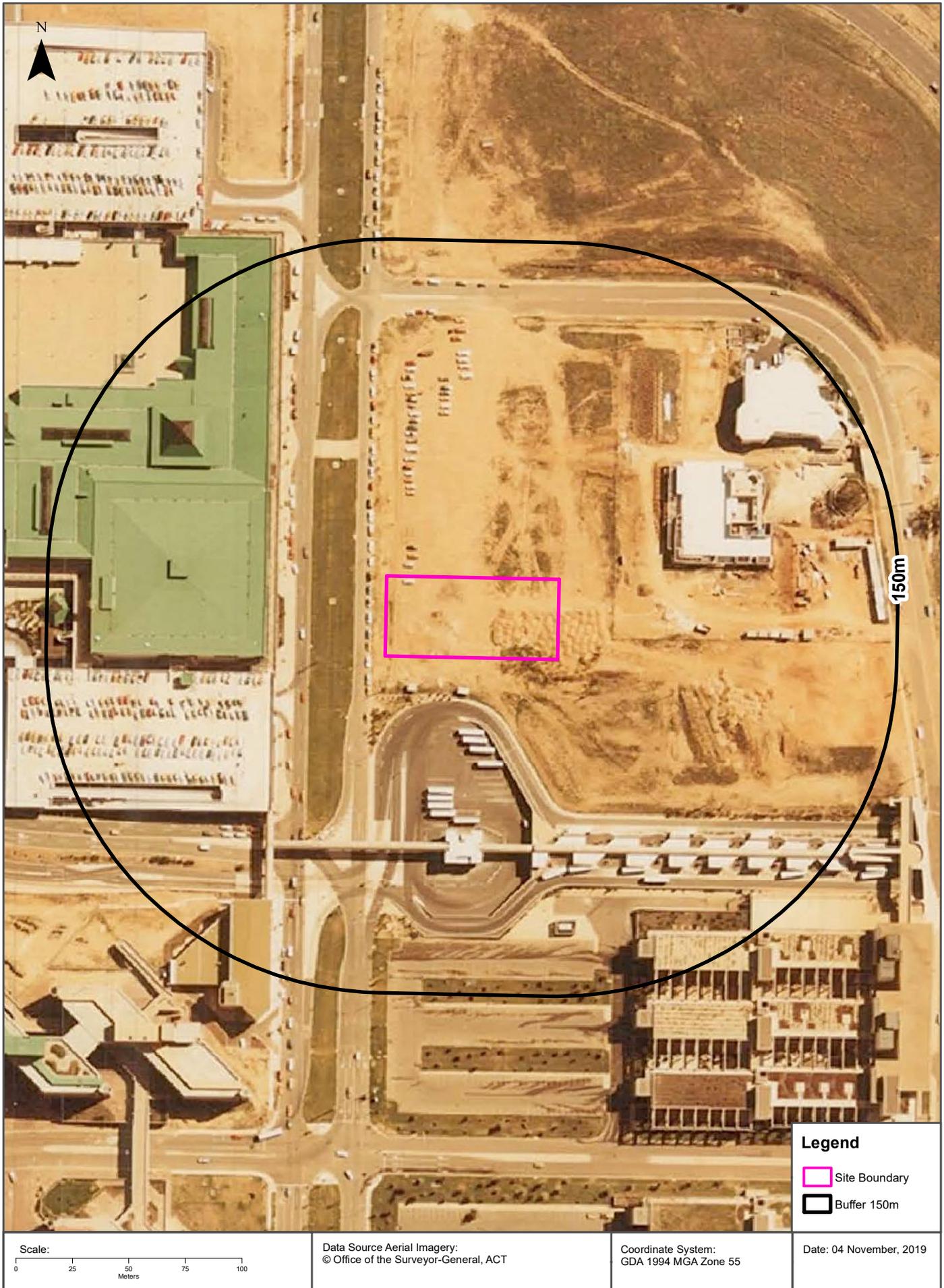
Aerial Imagery 1985

1 Swanson Court, Belconnen, ACT 2617



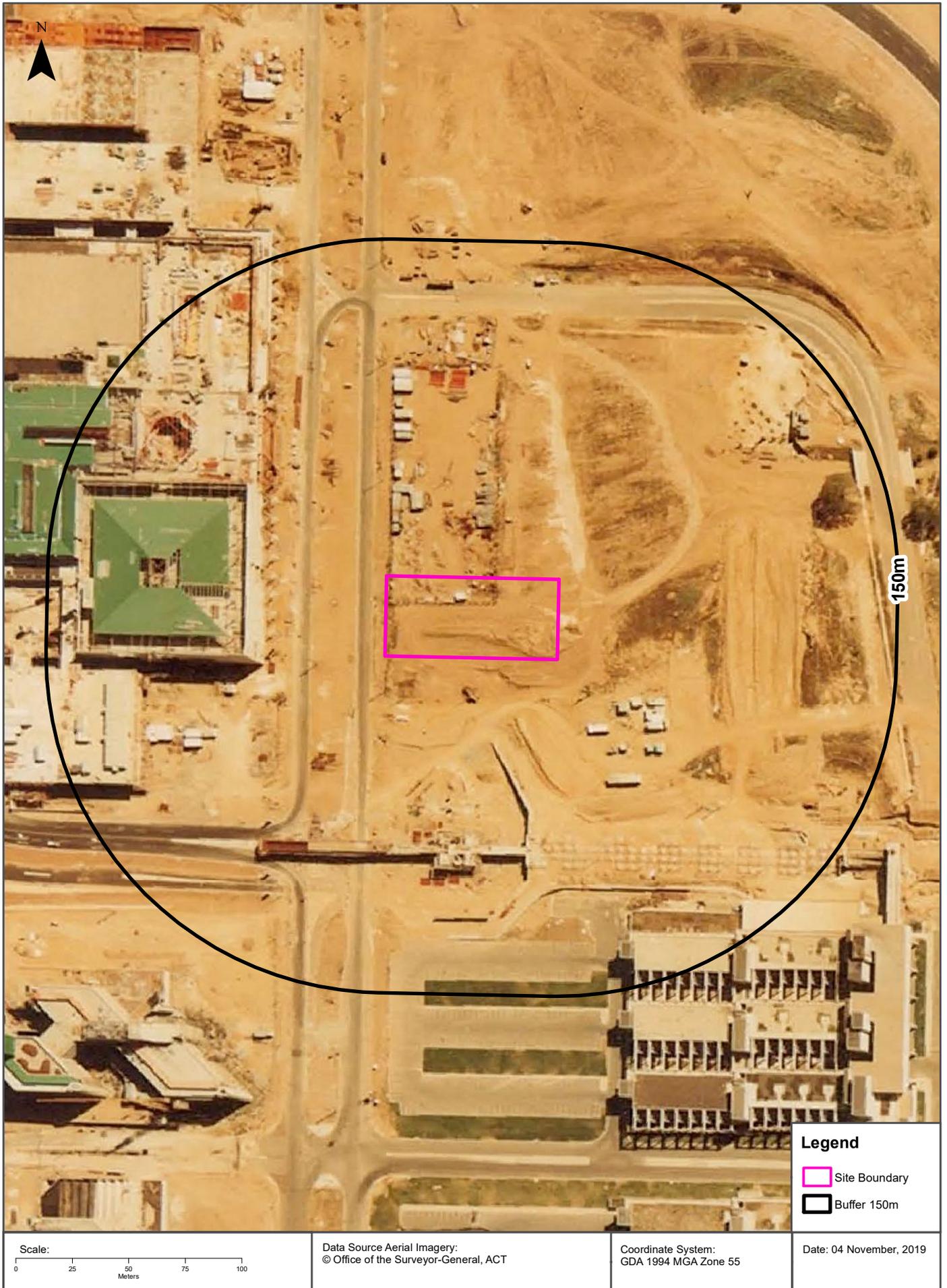
Aerial Imagery 1981

1 Swanson Court, Belconnen, ACT 2617



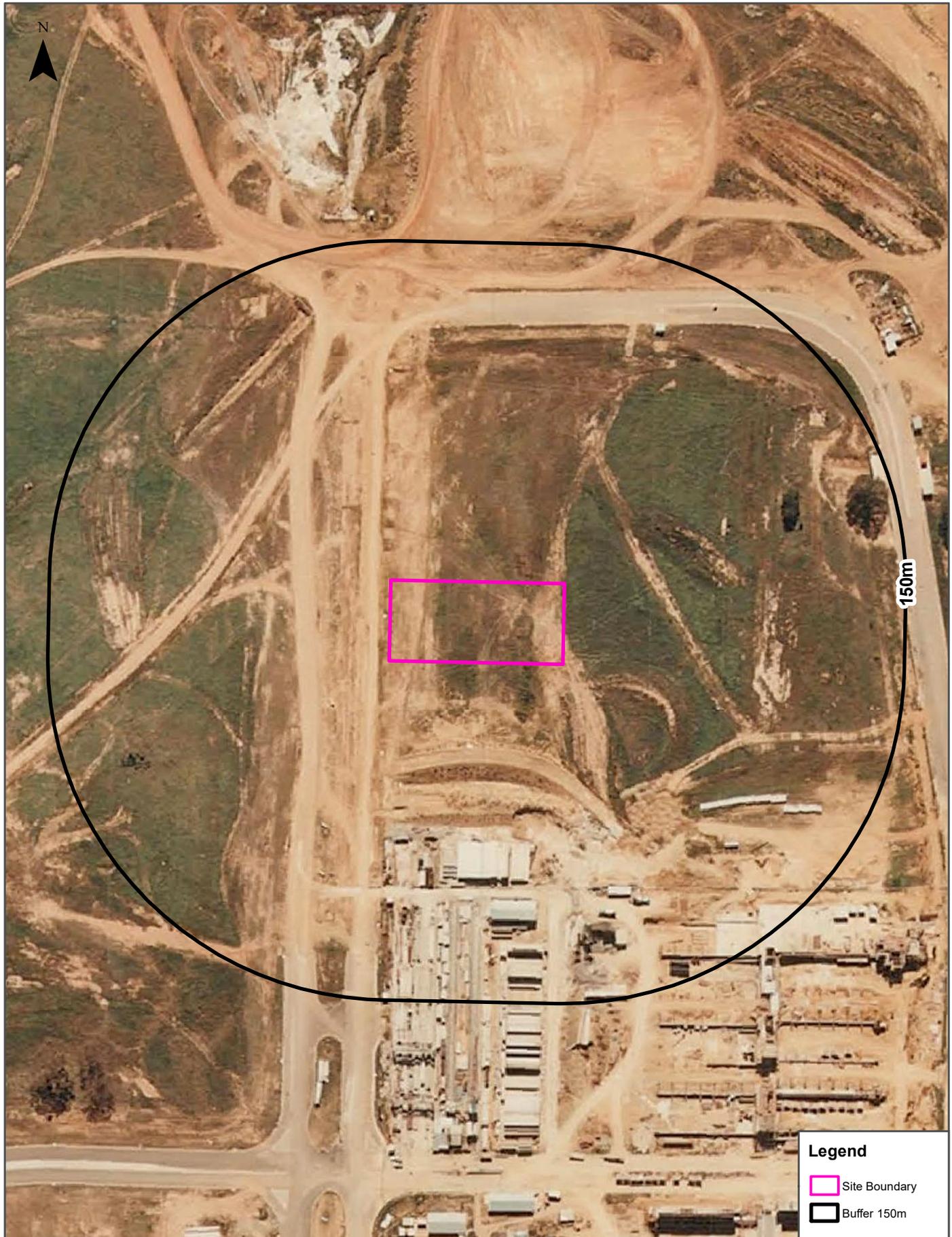
Aerial Imagery 1978

1 Swanson Court, Belconnen, ACT 2617



Aerial Imagery 1973

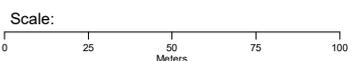
1 Swanson Court, Belconnen, ACT 2617



150m

Legend

-  Site Boundary
-  Buffer 150m



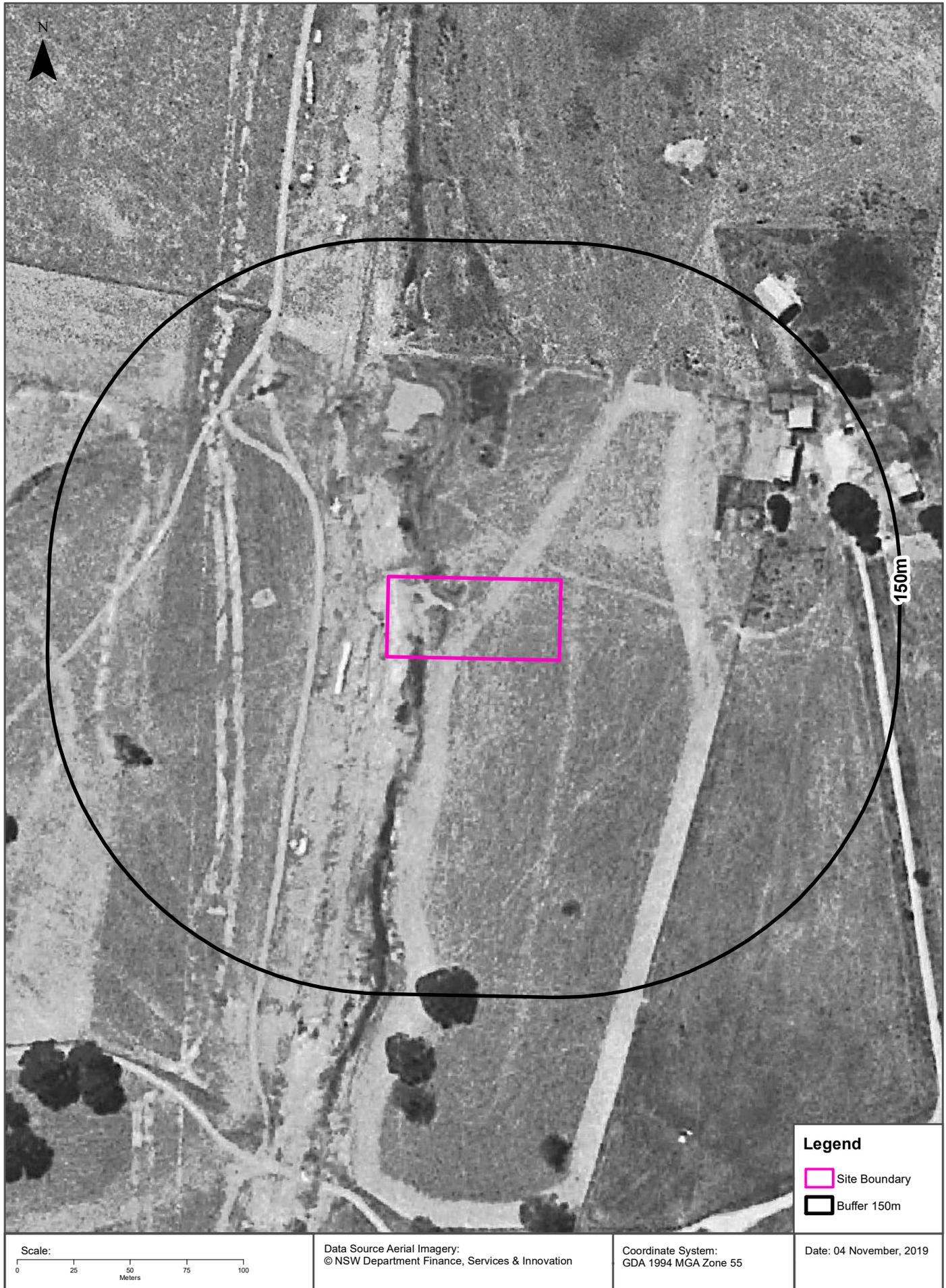
Data Source Aerial Imagery:
© Office of the Surveyor-General, ACT

Coordinate System:
GDA 1994 MGA Zone 55

Date: 04 November, 2019

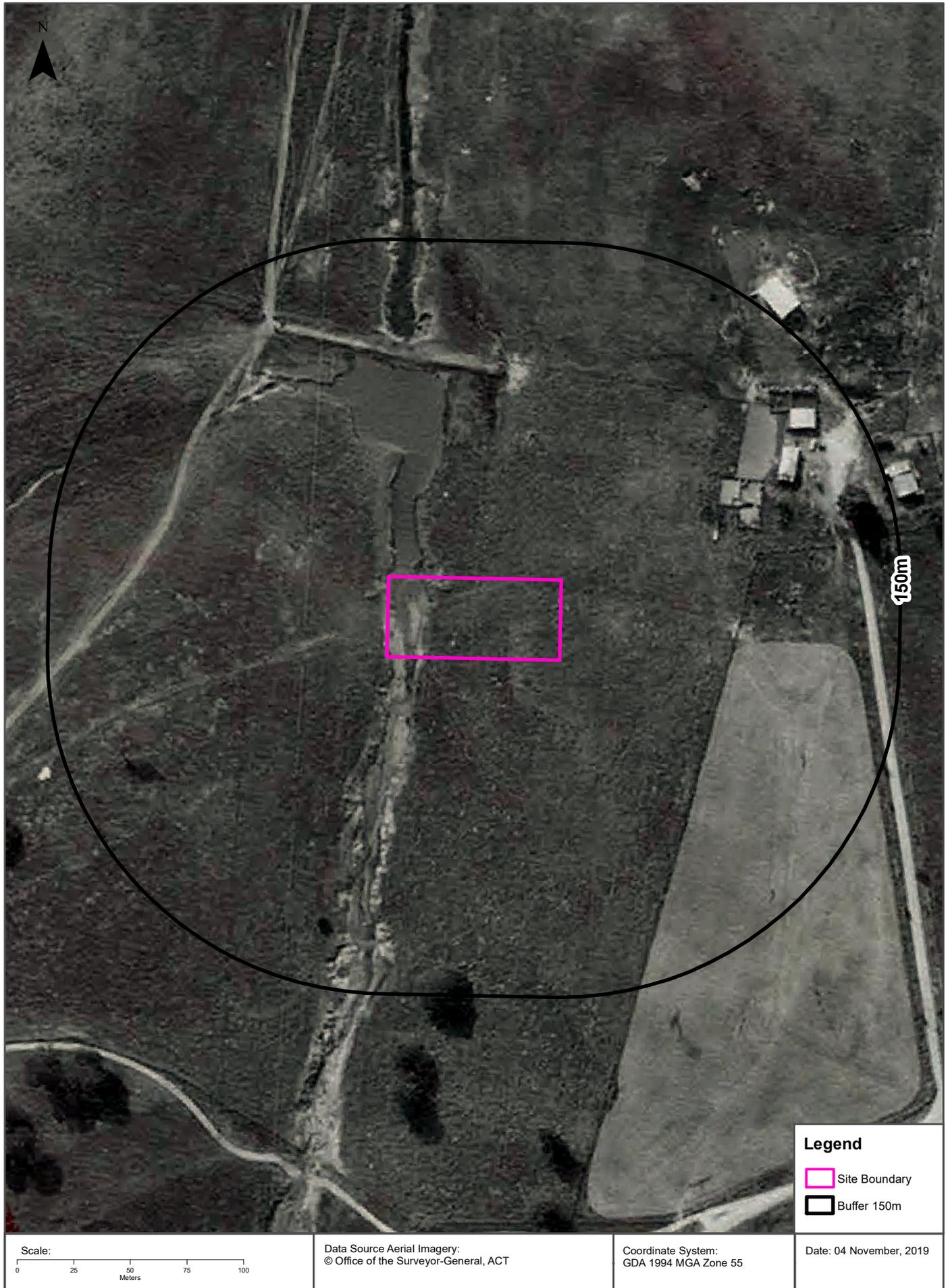
Aerial Imagery 1967

1 Swanson Court, Belconnen, ACT 2617



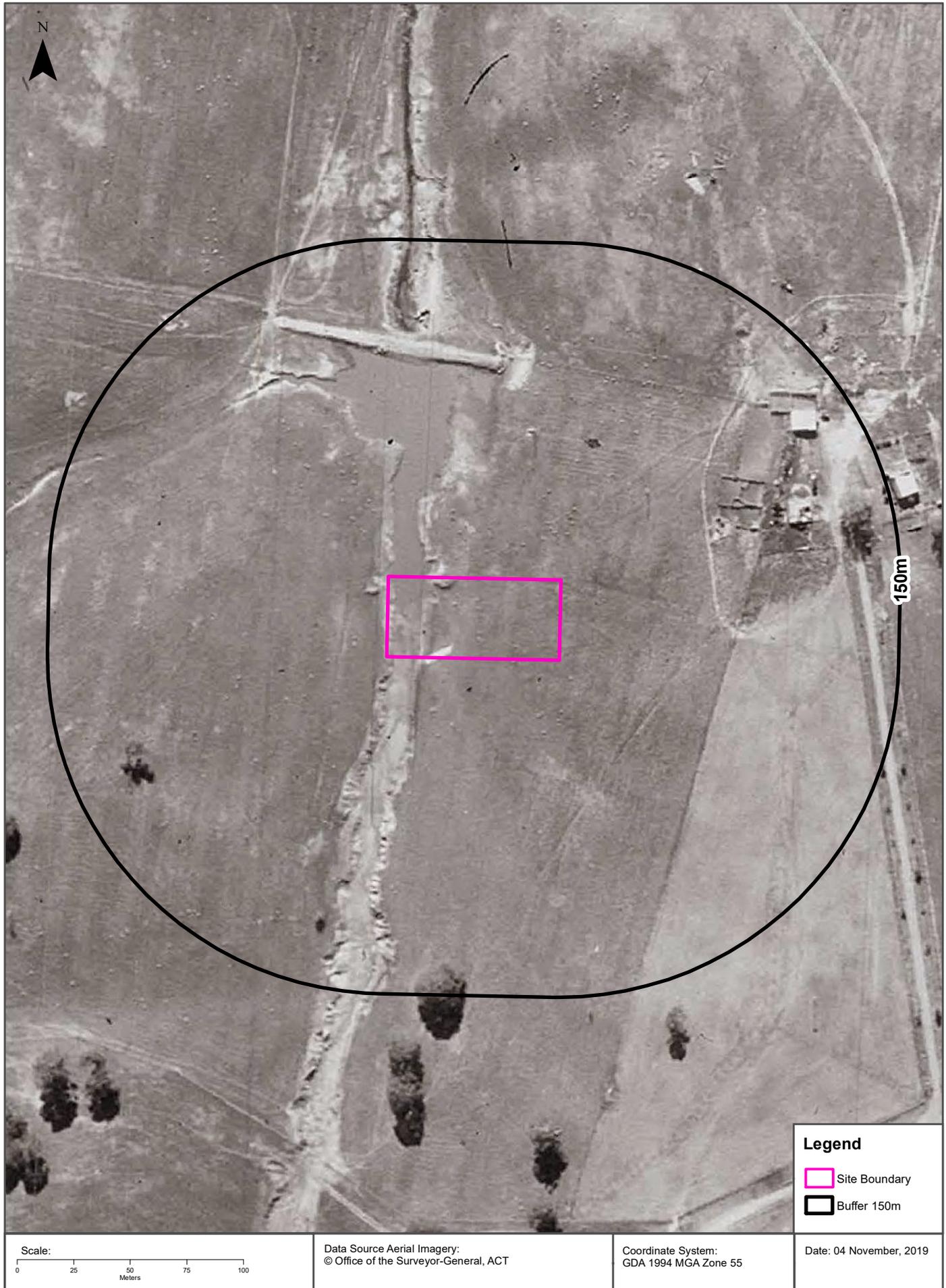
Aerial Imagery 1961

1 Swanson Court, Belconnen, ACT 2617



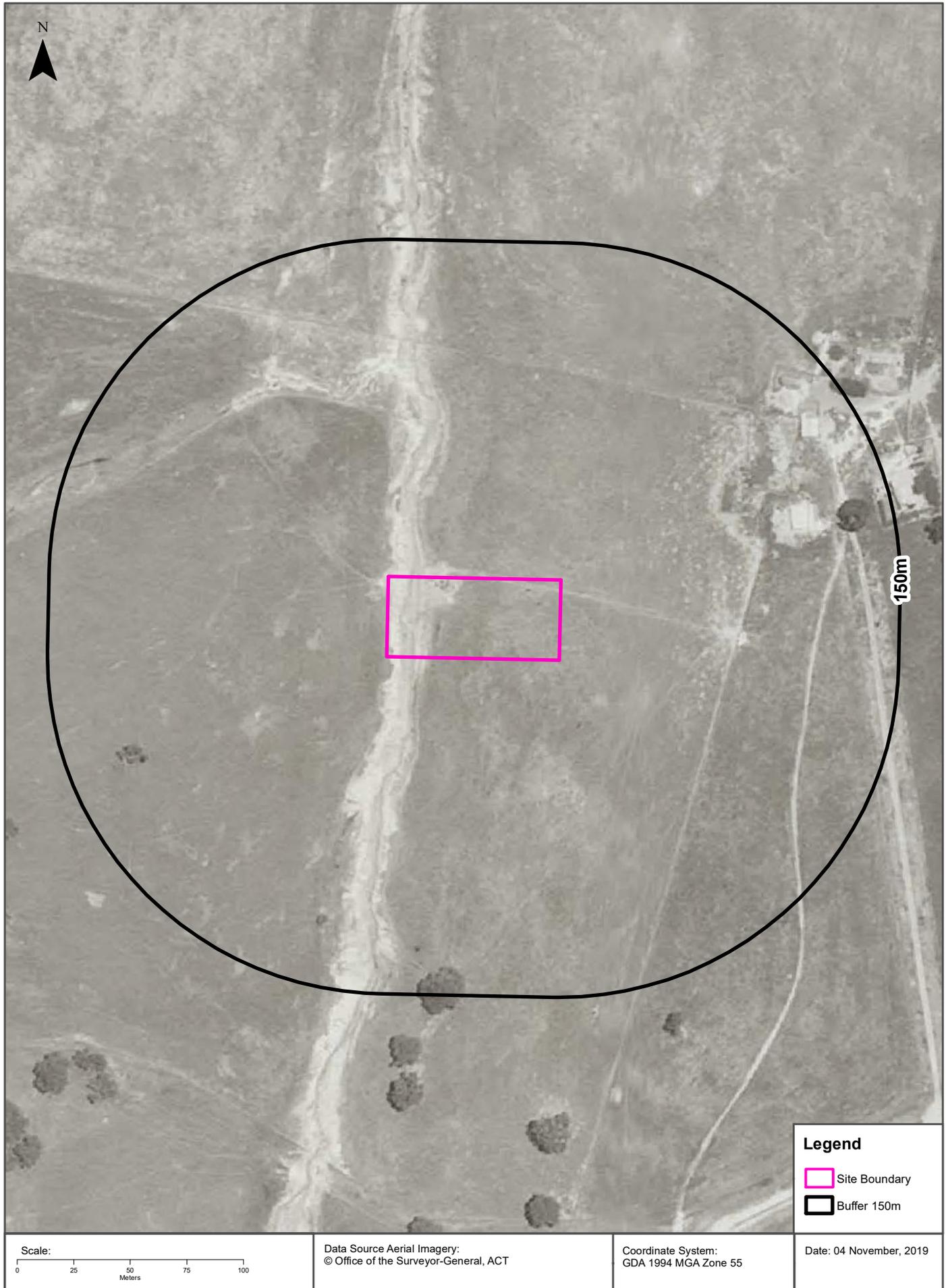
Aerial Imagery 1958

1 Swanson Court, Belconnen, ACT 2617



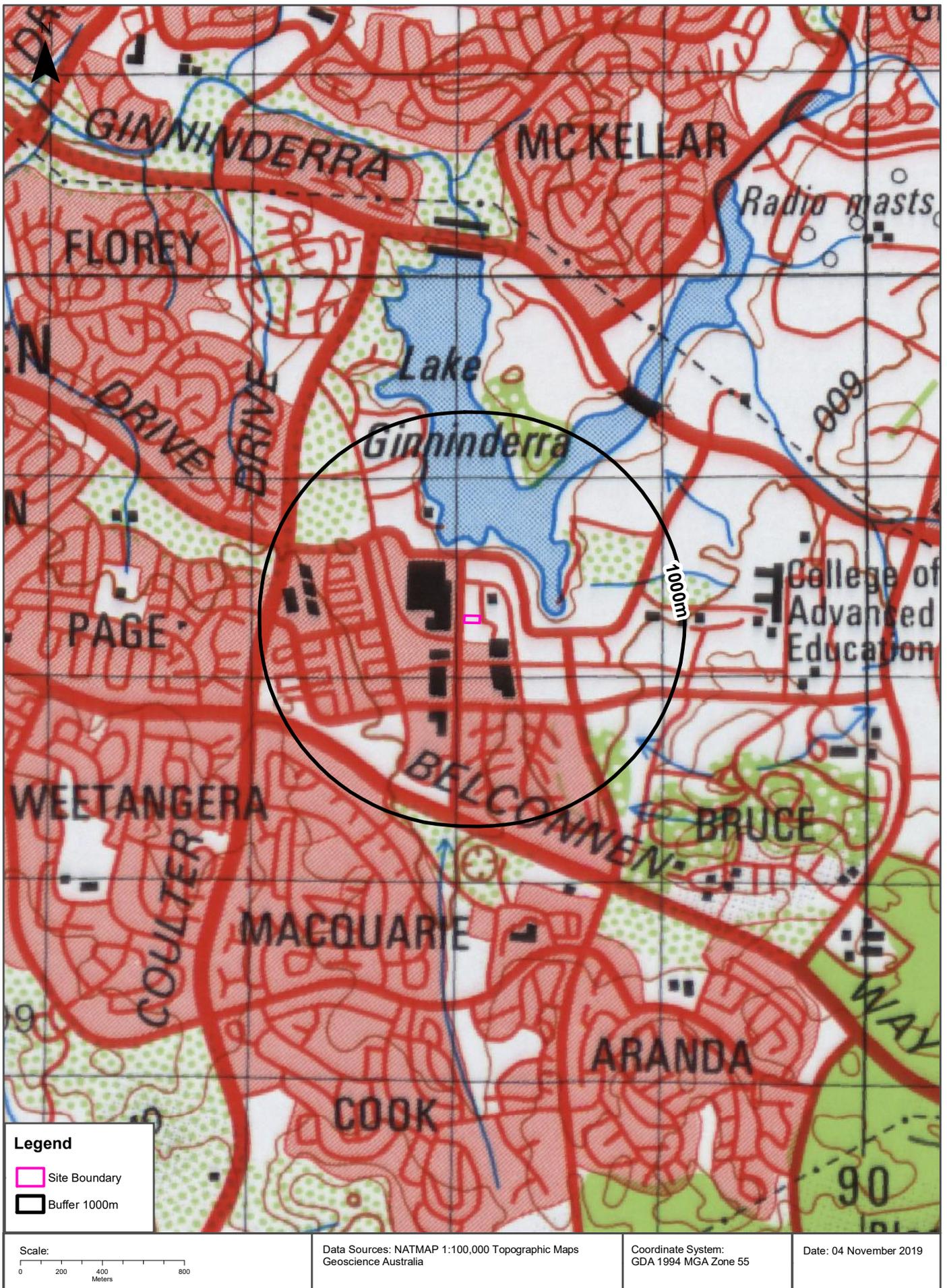
Aerial Imagery 1950

1 Swanson Court, Belconnen, ACT 2617



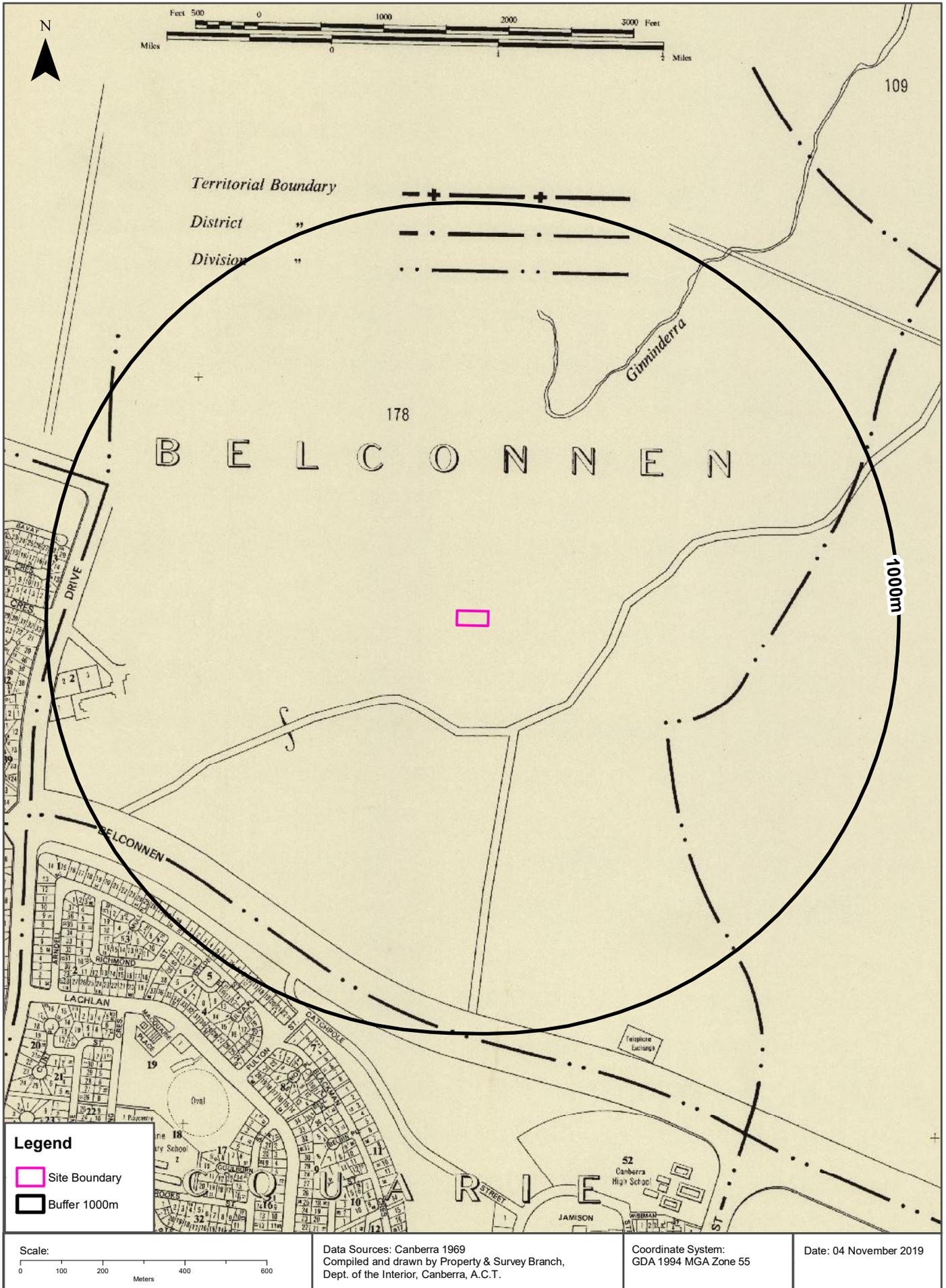
Historical Map 1987

1 Swanson Court, Belconnen, ACT 2617



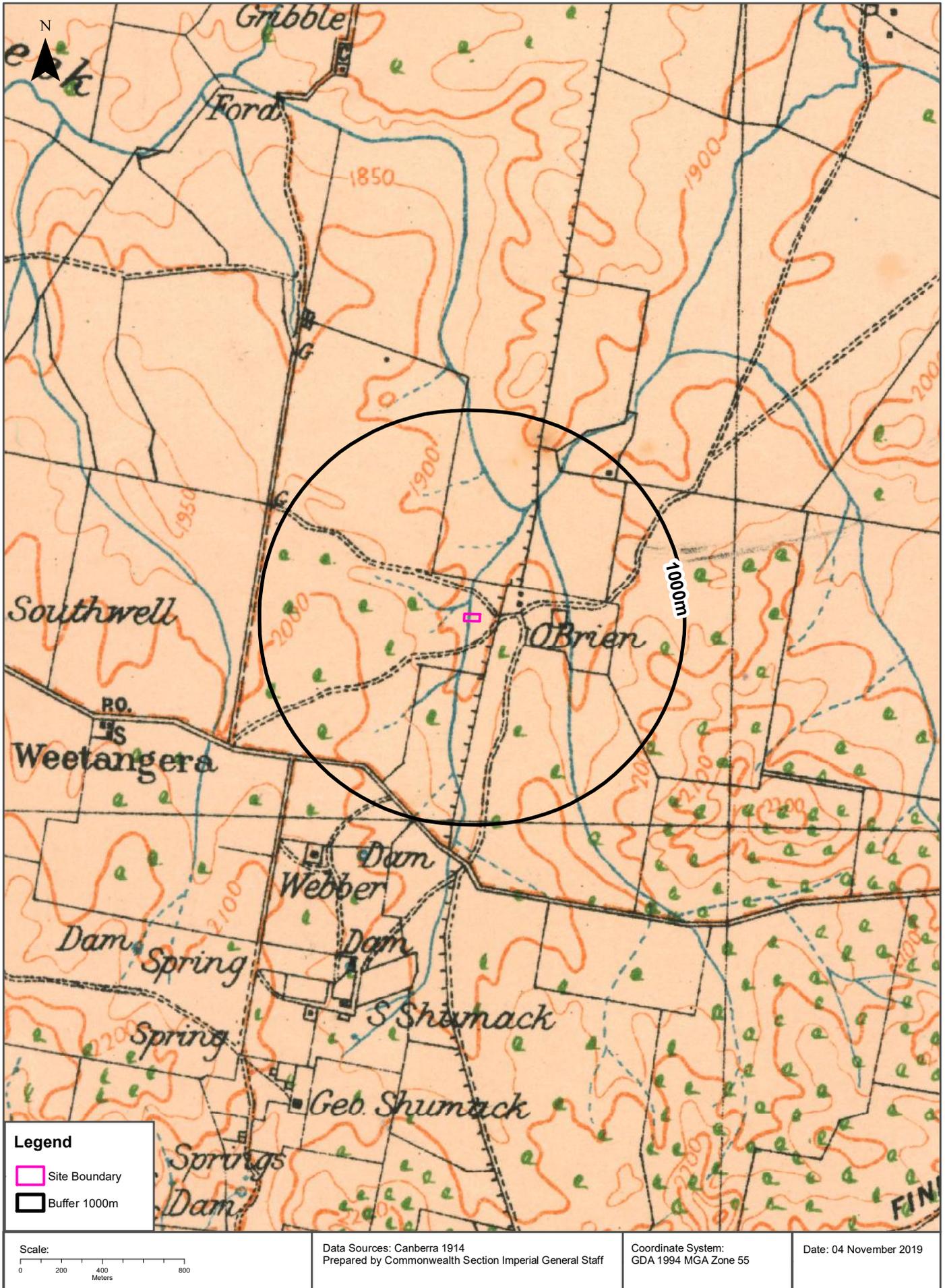
Historical Map 1969

1 Swanson Court, Belconnen, ACT 2617



Historical Map 1914

1 Swanson Court, Belconnen, ACT 2617



Topographic Features

1 Swanson Court, Belconnen, ACT 2617



Topographic Features

1 Swanson Court, Belconnen, ACT 2617

Features of Interest

What Features of Interest exist within the report buffer?

Map Id	Feature Type	Name	Description	Distance	Direction
50210	BUILDING	Health Centre	HEALTH FACILITY - BABY HEALTH CLINIC, CONSULTING ROOM	0m	Onsite
50169	BUILDING	Swanson Plaza	COMMERCIAL USE	21m	East
66478	BUILDING	Sentinel	MULTI-UNIT DEVELOPMENT	57m	South
50202	BUILDING	Library	CULTURAL FACILITY - ART GALLERY, LIBRARY, MUSEUM	72m	East
50212	RESERVE,PARK,NATIONAL PARK,CONSERVATION PARK,COMMON	Margaret Timpson Park	PARKLAND - BOTANIC GARDENS AND PUBLIC ARBORETUM	76m	North
50168	BUILDING	Northpoint Plaza	COMMERCIAL USE	82m	North East
50182	BUILDING	Community Centre	COMMUNITY USE	96m	East
50180	BUILDING	Senior Citizen Club	COMMUNITY USE	116m	East
50177	BUILDING	Belconnen Revival Centre	PLACE OF WORSHIP - CHAPEL, CHURCH, MOSQUE, SHRINE, TEMPLE	123m	North East
50166	BUILDING	Churches Centre	COMMERCIAL USE	147m	South West
50167	BUILDING	Belconnen Mall	COMMERCIAL USE	176m	North West
50155	BUILDING	Lake View Plaza	OFFICE - CHANCELLERY, DEPARTMENTAL OFFICES	180m	North
50237	BUILDING	Netanya	APARTMENT - FLATS, HOME UNITS	188m	North East
50234	BUILDING	Padthaway Gardens	APARTMENT - FLATS, HOME UNITS	198m	North East
50199	BUILDING	Cameron Offices	CIVIC ADMINISTRATION - ACT LEGISLATIVE ASSEMBLY,CIVIC SQUARE	205m	South East
66242	BUILDING	Altitude	MULTI-UNIT DEVELOPMENT	205m	East
66781	BUILDING	North Canberra Family Practice	COMMERCIAL USE	213m	North
50200	BUILDING	Benjamin Offices	CIVIC ADMINISTRATION - ACT LEGISLATIVE ASSEMBLY,CIVIC SQUARE	223m	South West
50201	BUILDING	Nature Conservation House	CIVIC ADMINISTRATION - ACT LEGISLATIVE ASSEMBLY,CIVIC SQUARE	229m	North
50236	BUILDING	Miramar	APARTMENT - FLATS, HOME UNITS	238m	North East
50235	BUILDING	Miramar	APARTMENT - FLATS, HOME UNITS	252m	North East
65547		ComSuper	UNCATEGORIZED	252m	South
50156	BUILDING	Club	CLUB - ETHNIC CLUBS, FOOTBALL CLUB, LABOR CLUB, LEGUES CLUB	258m	South East
67075	BUILDING	Cirrus	MULTI-UNIT DEVELOPMENT	285m	North West
66159	BUILDING	Belconnen Medical Centre	HEALTH FACILITY - BABY HEALTH CLINIC, CONSULTING ROOM	286m	North West
67172	BUILDING	Belconnen Hotel	HOTEL	286m	South East
66136		Unilodge	APARTMENT - FLATS, HOME UNITS	290m	South
66409	BUILDING	SOHO	MULTI-UNIT DEVELOPMENT	302m	East

Map Id	Feature Type	Name	Description	Distance	Direction
65945		Belconnen Arts Centre	CULTURAL FACILITY - ART GALLERY, LIBRARY, MUSEUM	308m	North
50172	BUILDING	Restaurant	COMMERCIAL USE	312m	East
50183	BUILDING	Toilets	COMMUNITY USE	312m	East
50214	RESERVE,PARK,NATIONAL PARK,CONSERVATION PARK,COMMON	Skateboard Park	PARKLAND - BOTANIC GARDENS AND PUBLIC ARBORETUM	315m	East
50173	BUILDING	Restaurant	COMMERCIAL USE	318m	North East
66276	BUILDING	Belconnen Community Health Centre	HEALTH FACILITY - BABY HEALTH CLINIC, CONSULTING ROOM	324m	West
66310	BUILDING	Oracle	MULTI-UNIT DEVELOPMENT	347m	South
50196	BUILDING	Benjamin Offices	CIVIC ADMINISTRATION - ACT LEGISLATIVE ASSEMBLY,CIVIC SQUARE	364m	South West
50198	BUILDING	Chandler Building	CIVIC ADMINISTRATION - ACT LEGISLATIVE ASSEMBLY,CIVIC SQUARE	378m	South East
50149	BUILDING	Professional Offices	OFFICE - CHANCELLERY, DEPARTMENTAL OFFICES	415m	West
50150	BUILDING	DMA	OFFICE - CHANCELLERY, DEPARTMENTAL OFFICES	417m	West
50148	BUILDING	Commercial Chambers	OFFICE - CHANCELLERY, DEPARTMENTAL OFFICES	424m	West
50162	BUILDING	Shops	COMMERCIAL USE	448m	West
50176	BUILDING	Holy Cross Lutheran Church	PLACE OF WORSHIP - CHAPEL, CHURCH, MOSQUE, SHRINE, TEMPLE	473m	East
50178	BUILDING	Gymnastic Hall	COMMUNITY USE	477m	South East
50151	BUILDING	Joint Technical Facility	OFFICE - CHANCELLERY, DEPARTMENTAL OFFICES	493m	West
50240	BUILDING	Illawarra Court	APARTMENT - FLATS, HOME UNITS	495m	South
50208	BUILDING	PO	GOVERNMENT OFFICES	506m	West
50163	BUILDING	Shops	COMMERCIAL USE	523m	South West
50152	BUILDING	Garage	OFFICE - CHANCELLERY, DEPARTMENTAL OFFICES	526m	South West
52216	BUILDING	Central Park	MULTI-UNIT DEVELOPMENT	528m	North West
66871	BUILDING	Wayfarer	MULTI-UNIT DEVELOPMENT	531m	South East
50184	BUILDING	Lake Ginninderra College	EDUCATIONAL ESTABLISHMENT - ADULT EDUCATION CENTRE, HIGH SCH	534m	East
50207	BUILDING	Federal Police Headquarters	EMERGENCY SERVICES FACILITY - AMBULANCE STATION,CIVIL DEFENCE	548m	South West
66559	BUILDING	Linq Apartments	APARTMENT - FLATS, HOME UNITS	555m	South East
50203	BUILDING	Children's Road Safety Training Centre	CIVIC ADMINISTRATION - ACT LEGISLATIVE ASSEMBLY,CIVIC SQUARE	557m	West
59369	BEACH	Gummiuk Beach	NATIONAL PARK OR RESERVE	567m	North
50174	BUILDING	Childcare Centre	CHILD CARE CENTRE - ADJUNCT CARE, CRECHE, LONG DAY CARE	571m	North West
50242	BUILDING	Wallcliffe Flats	APARTMENT - FLATS, HOME UNITS	571m	South East
50179	BUILDING	Ten Pin Bowl	COMMUNITY USE	576m	East
50164	BUILDING	Nettlefold Plaza	COMMERCIAL USE	582m	South West
50241	BUILDING	Cameron Gardens	APARTMENT - FLATS, HOME UNITS	588m	South
50147	BUILDING	Garage	OFFICE - CHANCELLERY, DEPARTMENTAL OFFICES	594m	West
66562	BUILDING	Lakeside	MULTI-UNIT DEVELOPMENT	619m	North West

Map Id	Feature Type	Name	Description	Distance	Direction
50175	BUILDING	Church of Christ	PLACE OF WORSHIP - CHAPEL, CHURCH, MOSQUE, SHRINE, TEMPLE	621m	North West
50190	BUILDING	Govt Depot	MUNICIPAL DEPOT - PARKS MAINTENANCE DEPOT	622m	South West
66131	BUILDING	Belconnen Police Station	UNCATEGORIZED	628m	South
50185	BUILDING	Arscott House	EDUCATIONAL ESTABLISHMENT - ADULT EDUCATION CENTRE, HIGH SCH	632m	East
50160	BUILDING	Shops	COMMERCIAL USE	645m	North West
50213	RESERVE,PARK,NATIONAL PARK,CONSERVATION PARK,COMMON	John Knight Memorial Park	PARKLAND - BOTANIC GARDENS AND PUBLIC ARBORETUM	646m	East
66561	BUILDING	The Shores	MULTI-UNIT DEVELOPMENT	674m	North West
50161	BUILDING	Shops	COMMERCIAL USE	682m	North West
50231	BUILDING	Lakeview Gardens	MULTI-UNIT DEVELOPMENT	701m	North West
50209	BUILDING	Recycling Centre	RECYCLING FACILITY - COMPOSTING FACILITY, SCRAP METAL DEALER	706m	West
50146	BUILDING	NCR House	OFFICE - CHANCELLERY, DEPARTMENTAL OFFICES	711m	West
50158	BUILDING	Motel	MOTEL	718m	South
50239	BUILDING	Lakeview Terrace	APARTMENT - FLATS, HOME UNITS	744m	North West
50238	BUILDING	Craigerne Gardens	APARTMENT - FLATS, HOME UNITS	749m	North West
50425	BUILDING	Bruce Court	MULTI-UNIT DEVELOPMENT	764m	South East
50188	BUILDING	ACTION Depot	MUNICIPAL DEPOT - PARKS MAINTENANCE DEPOT	765m	West
50195	BUILDING	Markets	CIVIC ADMINISTRATION - ACT LEGISLATIVE ASSEMBLY,CIVIC SQUARE	772m	South
50145	BUILDING	Wiltum House	OFFICE - CHANCELLERY, DEPARTMENTAL OFFICES	774m	West
50159	BUILDING	Shops	COMMERCIAL USE	777m	South West
67036	BUILDING	Storage King	COMMERCIAL USE	784m	South West
50227	BUILDING	Bundanon Gardens	MULTI-UNIT DEVELOPMENT	794m	North West
50229	BUILDING	Ginninderra Havens	MULTI-UNIT DEVELOPMENT	800m	North West
50144	BUILDING	Alexden Chambers	OFFICE - CHANCELLERY, DEPARTMENTAL OFFICES	804m	West
50143	BUILDING	Carco Centre	COMMERCIAL USE	827m	South West
50211		Eastern Valley Oval	PLAYING FIELD - UNFENCED OVAL	827m	South East
50219	BUILDING	Georgia Court	MULTI-UNIT DEVELOPMENT	838m	North West
50230	BUILDING	Pinto Court	MULTI-UNIT DEVELOPMENT	858m	North West
65833		Canberra Lakes Estate	MULTI-UNIT DEVELOPMENT	860m	North East
50153	BUILDING	Cretonia House	OFFICE - CHANCELLERY, DEPARTMENTAL OFFICES	864m	West
50424	BUILDING	Pinto Court	MULTI-UNIT DEVELOPMENT	882m	South East
50233	BUILDING	Bundanon Gardens	APARTMENT - FLATS, HOME UNITS	884m	North West
50170	BUILDING	Shops	COMMERCIAL USE	895m	North West
67236	BUILDING	WAP Apartments	MULTI-UNIT DEVELOPMENT	903m	North East
65783		Gininderra Medical Centre	UNCATEGORIZED	908m	West
50191	BUILDING	Govt Depot	MUNICIPAL DEPOT - PARKS MAINTENANCE DEPOT	915m	South West

Map Id	Feature Type	Name	Description	Distance	Direction
50218	BUILDING	Hilton Court	MULTI-UNIT DEVELOPMENT	915m	South
50429	BUILDING	Shannon Grove	MULTI-UNIT DEVELOPMENT	915m	South East
50228	BUILDING	Totterdell Court	MULTI-UNIT DEVELOPMENT	916m	North West
50216	BUILDING	Pindari Gardens	MULTI-UNIT DEVELOPMENT	921m	South
56377	BUILDING	Rowan Court	UNCATEGORIZED	925m	South
50215	BUILDING	Apollo Terrace	MULTI-UNIT DEVELOPMENT	927m	South
50428	BUILDING	Mimosa Court	MULTI-UNIT DEVELOPMENT	927m	South East
50426	BUILDING	Galway Gardens	MULTI-UNIT DEVELOPMENT	930m	South East
50376	BUILDING	Student Residences	EDUCATIONAL ESTABLISHMENT - ADULT EDUCATION CENTRE, HIGH SCH	933m	East
50225	BUILDING	Interlaken Court	MULTI-UNIT DEVELOPMENT	936m	North West
50224	BUILDING	Hilltop Court	MULTI-UNIT DEVELOPMENT	939m	North West
50171	BUILDING	Shops	COMMERCIAL USE	940m	South West
50165	BUILDING	Shops	COMMERCIAL USE	949m	West
50222	BUILDING	Menalon Court	MULTI-UNIT DEVELOPMENT	964m	North West
50223	BUILDING	Belconnen Court	MULTI-UNIT DEVELOPMENT	969m	North West
50221	BUILDING	Carwoola Gardens	MULTI-UNIT DEVELOPMENT	974m	North West
50423	BUILDING	Wattle Brae Court	MULTI-UNIT DEVELOPMENT	977m	South East
50217	BUILDING	Graceland Court	MULTI-UNIT DEVELOPMENT	983m	South
50189	BUILDING	ACT Parks	MUNICIPAL DEPOT - PARKS MAINTENANCE DEPOT	984m	West
50430	BUILDING	Capricorn	MULTI-UNIT DEVELOPMENT	988m	South East

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

Elevation Contours (2015 - 1m)

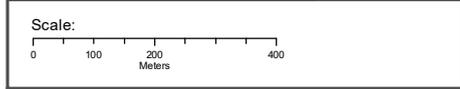
1 Swanson Court, Belconnen, ACT 2617



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: 04 November 2019

Hydrogeology & Groundwater

1 Swanson Court, Belconnen, ACT 2617

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)
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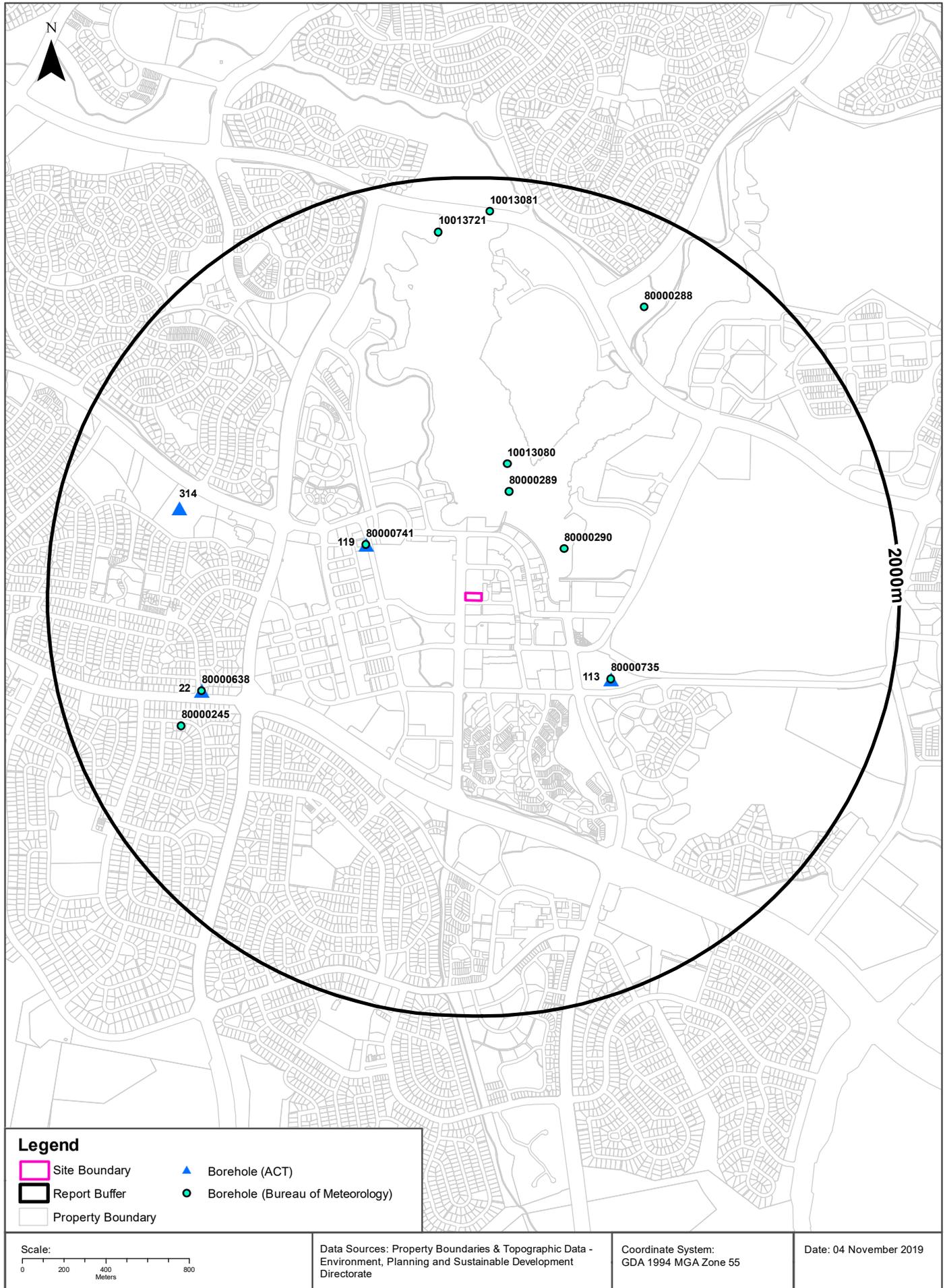
Hydrogeological Landscapes Units

Unit No	Landscape Name	Land Salinity	Stream Salinity	Stream EC	Salt Store	Salt Availability	Salt Mobility	Hazard Impact	Hazard Likelihood	Hazard Overall	Distance	Direction
7	Gungahlin	Low	Moderate	Moderate	Moderate	Low	Low	Limited	Moderate	Low	0m	Onsite
4	Bruce	Moderate	Low	Low	Moderate	High	High	Significant	Moderate	Moderate	580m	East

Hydrogeological Landscapes Units Data Source: ACT Government Creative Commons 4.0 ©
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Groundwater Boreholes

1 Swanson Court, Belconnen, ACT 2617



Hydrogeology & Groundwater

1 Swanson Court, Belconnen, ACT 2617

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
119	Abstraction	Rotary percussion	26/06/2009	186.00	200	43.0	44.0		0.26		529m	North West
113	Abstraction	Rotary Air	16/11/2003	41.00	200	15.0	20.0	5.00	2.00	2.00	728m	South East
22	Abstraction	Bore Assessment		30.00							1334m	West
314	Abstraction	Rotary - Percussion	31/07/2014	88.00	200	50.0	51.0	9.00	0.32	0.45	1430m	West

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

Hydrogeology & Groundwater

1 Swanson Court, Belconnen, ACT 2617

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
80000290	367	01/08/1973			575.40	451m	North East
80000289	366	01/08/1973			575.00	508m	North
80000741	346	26/06/2009	186.00	186.00	594.87	529m	North West
10013080	41010246				575.00	634m	North
80000735	322	16/11/2003	41.00	41.00	595.56	728m	South East
80000638	68		30.00	30.00	615.23	1334m	West
80000245	281		30.50	30.50	623.43	1487m	South West
80000288	365	01/08/1973			589.60	1583m	North East
10013721	410765				578.26	1742m	North
10013081	41010247				577.75	1839m	North

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
80000245	281	0.00m-3.05m Topsoil 3.05m-30.48m Blue metal	1487m	South West

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

1 Swanson Court, Belconnen, ACT 2617

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
Dbg34	Minor granitoid stocks	unnamed		undifferentiated	unnamed	Palaeozoic	Devonian	1:250,000
Oa	Turbiditic sequence; sandstone, mudstone, shale; quartzite, quartz phyllite, phyllite, slate	Adaminaby Group	Adaminaby Group			Palaeozoic	Ordovician	1:250,000
Oaa	Black graptolitic siliceous shale	Adaminaby Group	Adaminaby Group		Acton Shale Member	Palaeozoic	Ordovician	1:250,000
Shp	Dacitic ignimbrite with lithic xenoliths and dacitic autoliths, minor tuff and ashstone	Mount Painter Volcanics	Hawkins Volcanic Suite			Palaeozoic	Silurian	1:250,000
Shw	Green to purple dacite ignimbrite and bedded tuff, minor andesite, volcaniclastic sediment and limestone	Walker Volcanics	Hawkins Volcanic Suite			Palaeozoic	Silurian	1:250,000
Sld	Rhyodacitic ignimbrite and minor volcaniclastic and argillaceous sediments	Deakin Volcanics	Laidlaw Volcanic Suite			Palaeozoic	Silurian	1:250,000
Slp1	Green-grey dacite porphyry, unfoliated (associated with Hawkins volcanic Suite)	Laidlaw Volcanics	Laidlaw Volcanic Suite			Palaeozoic	Silurian	1:250,000
Sly	Interbedded shale and siltstone	Yass Formation	Douro Group			Palaeozoic	Silurian	1:250,000
w	Water	water	water			Cainozoic	Quaternary	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?

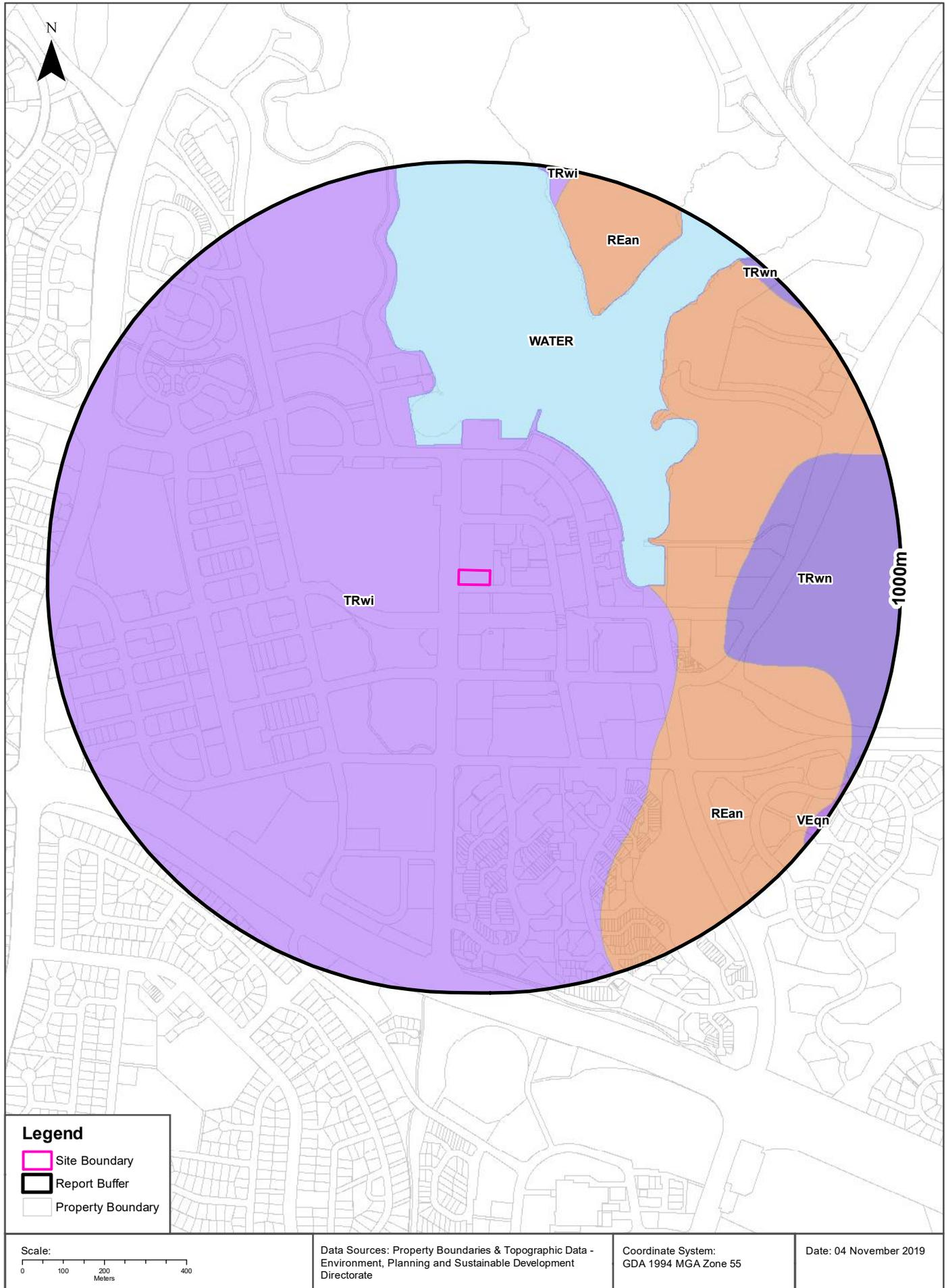
Feature	Name	Description	Map Sheet	Dataset
Fault		Fault, Approximate	SCRA	1:250,000
Fault		Fault, Accurate	SCRA	1:250,000
Fault		Fault, Approximate	SCRA	1:250,000

Feature	Name	Description	Map Sheet	Dataset
Fault		Fault, Approximate	SCRA	1:250,000

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

1 Swanson Court, Belconnen, ACT 2617



Soils

1 Swanson Court, Belconnen, ACT 2617

Soil Landscapes

What are the onsite Soil Landscapes?

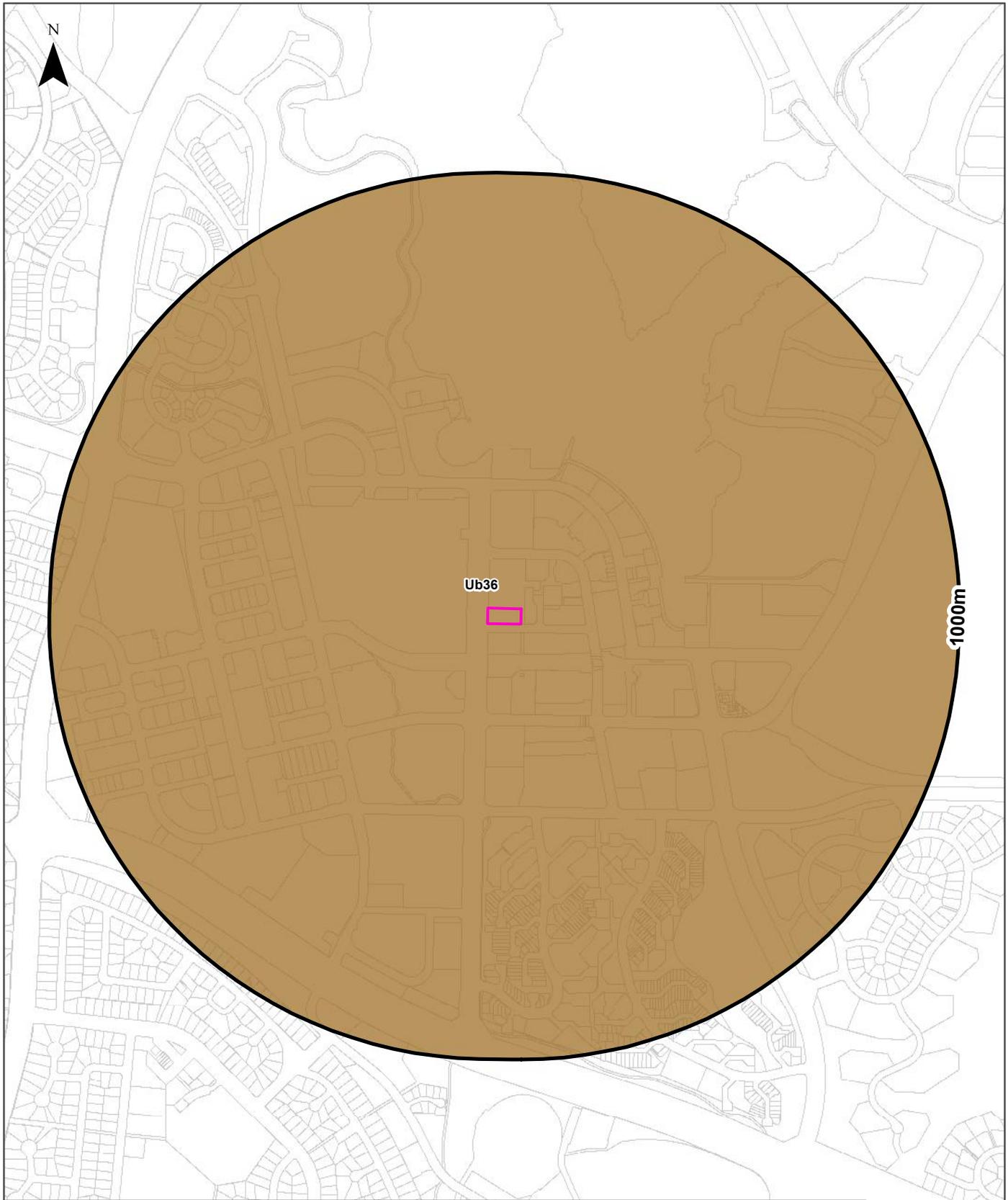
Soil Code	Name	Group	Process	Map Sheet	Scale
TRwi	WILLIAMSDALE		TRANSFERRAL	Canberra	1:100,000

What are the Soil Landscapes within the report buffer?

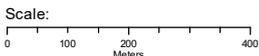
Soil Code	Name	Group	Process	Map Sheet	Scale
REan	ANEMBO		RESIDUAL	Canberra	1:100,000
TRwi	WILLIAMSDALE		TRANSFERRAL	Canberra	1:100,000
TRwn	WINNUNGA		TRANSFERRAL	Canberra	1:100,000
VEqn	QUEANBEYAN		VESTIGIAL	Canberra	1:100,000
WATER	WATER		WATER	Canberra	1:100,000

Soils Landscapes Data Source : NSW Office of Environment and Heritage

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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: 04 November 2019

Soil Landscapes

1 Swanson Court, Belconnen, ACT 2617

Atlas of Australian Soils

Australian soil types within the dataset buffer:

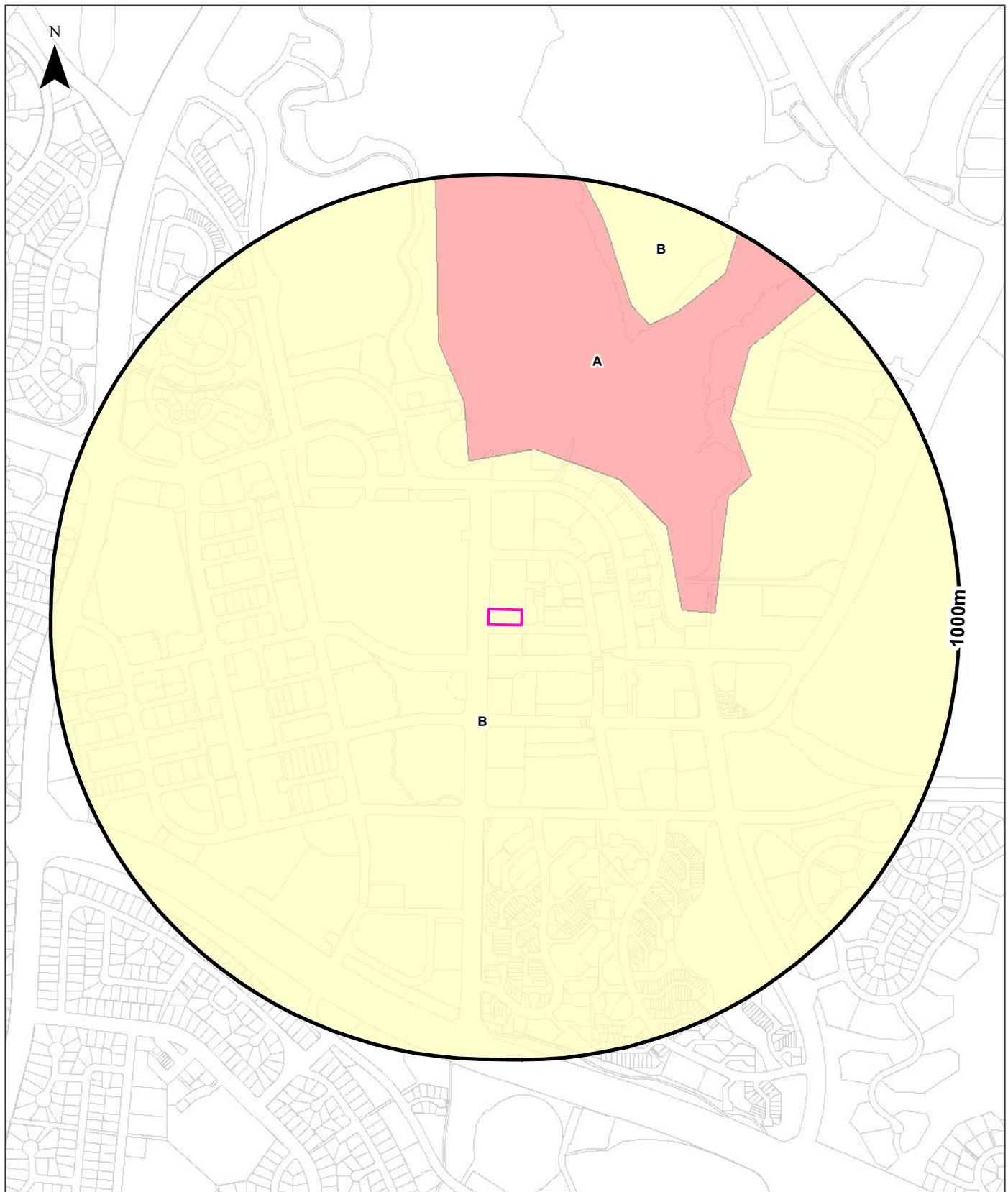
Symbol	Soil Order	Map Unit Description	Distance
Ub36	Sodosol	Areas of subdued relief at moderate elevations (1800 3000 ft), broad valleys of low hilly (rolling) to hilly topography with undulating basins and some low residual ridges and hills, buried and layered soil materials occur: chief soils of the low hilly to hilly areas are hard neutral yellow mottled soils (Dy3.42) with yellow earths (Gn2.25 and Gn2.75) and sometimes with (Dd1.43) soils in the lower- lying and seasonally wet situations. Associated are: undulating basins of (Dy3.42 and Dy3.43) and/or (Gn2.15 and Gn2.25) soils; residual ridges and hills with slopes of (Dr2.22 and Dr2.42) and/or (Dy3.22 and Dy3.42) soils often in complexes with red and yellow earths (Gn2. 15 and Gn2.25) especially in depositional sites, and with (Um4.2) soils and rock outcrops on hill tops; stream terraces of variable width of (Um1) soils on present flood-plains, (Um6.11) soils on the lower terrace, and (Gn2) soils on the next higher terrace remnants; and scarps of undescribed soils along some stream valleys. Other soils may occur.	0m

Atlas of Australian Soils: CSIRO

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Atlas of Australian Acid Sulfate Soils

1 Swanson Court, Belconnen, ACT 2617



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: 04 November 2019

Acid Sulfate Soils

1 Swanson Court, Belconnen, ACT 2617

Atlas of Australian Acid Sulfate Soils

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

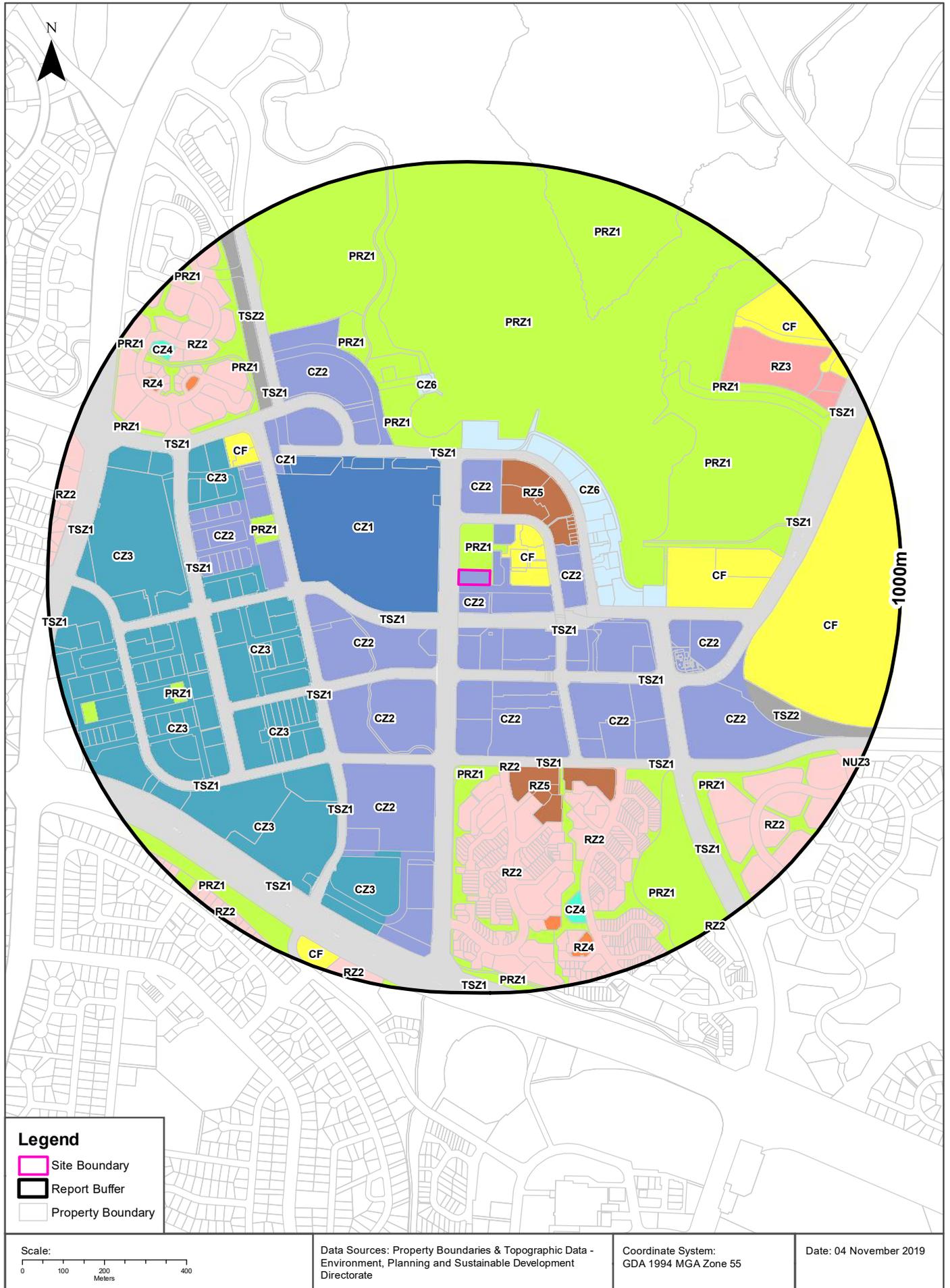
Class	Description	Distance
B	Low Probability of occurrence. 6-70% chance of occurrence.	0m
A	High Probability of occurrence. >70% chance of occurrence.	343m

Atlas of Australian Acid Sulfate Soils Data Source: CSIRO

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Territory Plan Zones

1 Swanson Court, Belconnen, ACT 2617



Territory Plan Zones

1 Swanson Court, Belconnen, ACT 2617

Territory Plan Zones

What Plan Zones exist within the report buffer?

Zone Code	Zone Name	Description	Variation	Gazettal Name	Gazettal Date	Distance	Direction
CZ2	BUSINESS ZONE		V342	CN2019-04	28/02/2019	0m	Onsite
CZ2	BUSINESS ZONE		TP2008	NI2008-27	31/03/2008	0m	Onsite
TSZ1	TRANSPORT		TP 2008	NI2008-27	31/03/2008	0m	South
PRZ1	URBAN OPEN SPACE		TP 2008	NI2008-27	31/03/2008	0m	North
CZ2	BUSINESS ZONE		TA2012-38	NI2012-588	19/11/2012	17m	South East
CZ2	BUSINESS ZONE		TA2011-02	NI2011-30	03/02/2011	17m	South
CF	COMMUNITY FACILITIES		TP 2008	NI2008-27	31/03/2008	40m	East
CZ1	CORE ZONE		TA2011-02	NI2011-30	03/02/2011	48m	North West
CZ2	BUSINESS ZONE		TP 2008	NI2008-27	31/03/2008	63m	North East
TSZ1	TRANSPORT		TP2008	NI2008-27	31/03/2008	68m	South East
TSZ1	TRANSPORT		TA2011-02	NI2011-30	03/02/2011	85m	West
CZ2	BUSINESS ZONE		TP 2008	NI2008-27	31/03/2008	103m	South East
CZ2	BUSINESS ZONE		TA2011-02	NI2011-30	03/02/2011	120m	South West
CZ2	BUSINESS ZONE		TP 2008	NI2008-27	31/03/2008	138m	North
RZ5	HIGH DENSITY RESIDENTIAL		TP 2008	NI2008-27	31/03/2008	140m	North East
CZ2	BUSINESS ZONE		TP 2008	NI2008-27	31/03/2008	162m	East
TSZ1	TRANSPORT		289	CN2008-14	05/09/2008	187m	East
TSZ1	TRANSPORT		TP 2008	NI2008-27	31/03/2008	191m	South East
TSZ1	TRANSPORT		TP 2008	NI2008-27	31/03/2008	201m	South West
CZ2	BUSINESS ZONE		TP 2008	NI2008-27	31/03/2008	214m	South East
TSZ1	TRANSPORT		TP 2008	NI2008-27	31/03/2008	222m	North
TSZ1	TRANSPORT		TP 2008	NI2008-27	31/03/2008	224m	East
CZ2	BUSINESS ZONE		TP 2008	NI2008-27	31/03/2008	233m	South
CZ2	BUSINESS ZONE		TP 2008	NI2008-27	31/03/2008	242m	South West
CZ6	LEISURE AND ACCOMMODATION		TP 2008	NI2008-27	31/03/2008	247m	North East
CZ2	BUSINESS ZONE		289	CN2008-14	05/09/2008	251m	East
TSZ1	TRANSPORT		TP 2008	NI2008-27	31/03/2008	284m	South East
PRZ1	URBAN OPEN SPACE		TP 2008	NI2008-27	31/03/2008	296m	North West
PRZ1	URBAN OPEN SPACE		TP 2008	NI2008-27	31/03/2008	307m	North
CZ2	BUSINESS ZONE		TP 2008	NI2008-27	31/03/2008	307m	South East
CZ2	BUSINESS ZONE		TP 2008	NI2008-27	31/03/2008	342m	North West

Zone Code	Zone Name	Description	Variation	Gazettal Name	Gazettal Date	Distance	Direction
PRZ1	URBAN OPEN SPACE		TP 2008	NI2008-27	31/03/2008	377m	North East
CZ3	SERVICES ZONE		TP 2008	NI2008-27	31/03/2008	401m	West
TSZ1	TRANSPORT		TP 2008	NI2008-27	31/03/2008	409m	West
CZ2	BUSINESS ZONE		V342	CN2019-04	28/02/2019	413m	West
TSZ1	TRANSPORT		TP 2008	NI2008-27	31/03/2008	419m	South East
CZ2	BUSINESS ZONE		TP 2008	NI2008-27	31/03/2008	419m	North West
CZ6	LEISURE AND ACCOMMODATION		TP 2008	NI2008-27	31/03/2008	428m	North
CF	COMMUNITY FACILITIES		TP 2008	NI2008-27	31/03/2008	429m	East
PRZ1	URBAN OPEN SPACE		TP 2008	NI2008-27	31/03/2008	442m	South
RZ2	SUBURBAN CORE		TP 2008	NI2008-27	31/03/2008	443m	South
CZ2	BUSINESS ZONE		TP 2008	NI2008-27	31/03/2008	443m	East
CZ3	SERVICES ZONE		TP 2008	NI2008-27	31/03/2008	443m	South West
PRZ1	URBAN OPEN SPACE		V342	CN2019-04	28/02/2019	443m	West
RZ5	HIGH DENSITY RESIDENTIAL		TP 2008	NI2008-27	31/03/2008	446m	South
CZ2	BUSINESS ZONE		TP 2008	NI2008-27	31/03/2008	446m	South
RZ2	SUBURBAN CORE		TP 2008	NI2008-27	31/03/2008	446m	South
CZ3	SERVICES ZONE		TP2008	NI2008-27	31/03/2008	462m	West
CZ2	BUSINESS ZONE		TP 2008	NI2008-27	31/03/2008	466m	East
PRZ1	URBAN OPEN SPACE		TP 2008	NI2008-27	31/03/2008	468m	North
PRZ1	URBAN OPEN SPACE		TP 2008	NI2008-27	31/03/2008	477m	South
RZ5	HIGH DENSITY RESIDENTIAL		TP 2008	NI2008-27	31/03/2008	480m	South East
CZ2	BUSINESS ZONE		V342	CN2019-04	28/02/2019	484m	North West
PRZ1	URBAN OPEN SPACE		TP 2008	NI2008-27	31/03/2008	485m	North
CZ1	CORE ZONE		TA2011-02	NI2011-30	03/02/2011	488m	North West
TSZ1	TRANSPORT		TP 2008	NI2008-27	31/03/2008	489m	East
RZ5	HIGH DENSITY RESIDENTIAL		V342	CN2019-08	28/02/2019	499m	South East
CZ2	BUSINESS ZONE		V342	CN2019	28/02/2019	505m	North West
TSZ1	TRANSPORT		TP 2008	NI2008-27	31/03/2008	518m	South West
RZ2	SUBURBAN CORE		TP2008	NI2008-27	31/03/2008	521m	South East
CZ2	BUSINESS ZONE		TP 2008	NI2008-27	31/03/2008	526m	South East
CZ3	SERVICES ZONE		TP2008	NI2008-27	31/03/2008	539m	South West
CZ3	SERVICES ZONE		TP2008	NI2008-27	31/03/2008	547m	West
PRZ1	URBAN OPEN SPACE		TP 2008	NI2008-27	31/03/2008	550m	North West
CF	COMMUNITY FACILITIES		TP 2008	NI2008-27	31/03/2008	552m	North West
PRZ1	URBAN OPEN SPACE		TP 2008	NI2008-27	31/03/2008	561m	South East
TSZ1	TRANSPORT		TP 2008	NI2008-27	31/03/2008	563m	South East
TSZ1	TRANSPORT		TP 2008	NI2008-27	31/03/2008	592m	North West

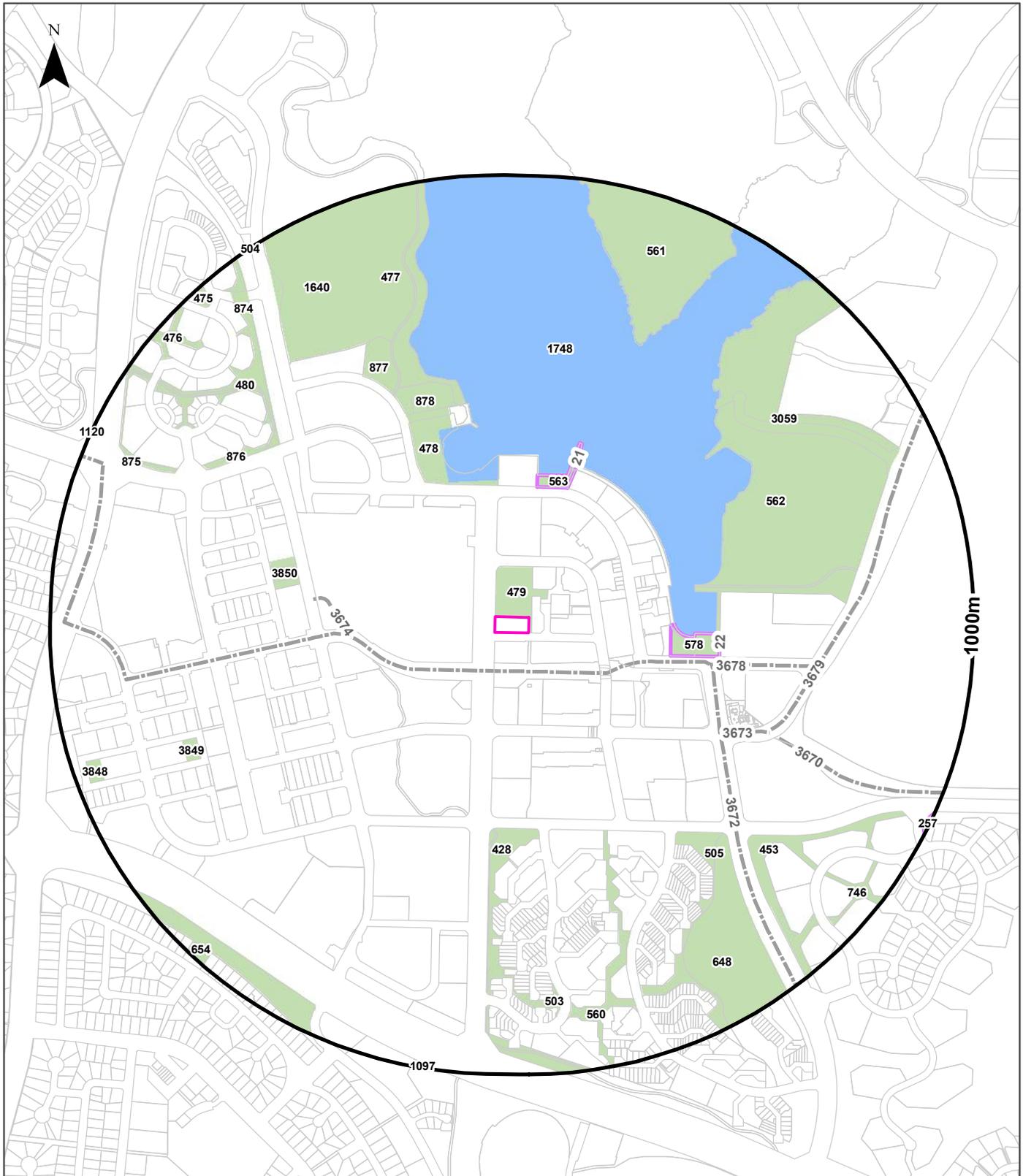
Zone Code	Zone Name	Description	Variation	Gazettal Name	Gazettal Date	Distance	Direction
TSZ2	SERVICES		TP 2008	NI2008-27	31/03/2008	605m	North West
PRZ1	URBAN OPEN SPACE		TP 2008	NI2008-27	31/03/2008	621m	North West
TSZ1	TRANSPORT		V342	CN2019-04	28/02/2019	626m	West
CZ3	SERVICES ZONE		TP2008	NI2008-27	31/03/2008	640m	South West
PRZ1	URBAN OPEN SPACE		TP 2008	NI2008-27	31/03/2008	641m	North West
TSZ1	TRANSPORT		V342	CN2019-04	28/02/2019	642m	West
TSZ1	TRANSPORT		TP 2008	NI2008-27	31/03/2008	643m	West
CF	COMMUNITY FACILITIES		TP 2008	NI2008-27	31/03/2008	643m	East
RZ2	SUBURBAN CORE		TP 2008	NI2008-27	31/03/2008	645m	North West
CZ3	SERVICES ZONE		TP 2008	NI2008-27	31/03/2008	648m	West
TSZ1	TRANSPORT		TP 2008	NI2008-27	31/03/2008	653m	East
TSZ2	SERVICES		TP 2008	NI2008-27	31/03/2008	659m	East
PRZ1	URBAN OPEN SPACE		TP 2008	NI2008-27	31/03/2008	663m	North
TSZ1	TRANSPORT		V342	CN2019-04	28/02/2019	663m	West
CZ3	SERVICES ZONE		TP 2008	NI2008-27	31/03/2008	668m	South
PRZ1	URBAN OPEN SPACE		TP 2008	NI2008-27	31/03/2008	677m	South East
PRZ1	URBAN OPEN SPACE		TP 2008	NI2008-27	31/03/2008	683m	North West
PRZ1	URBAN OPEN SPACE		302	CN2011-11	03/11/2011	706m	North East
PRZ1	URBAN OPEN SPACE		TP 2008	NI2008-27	31/03/2008	708m	South
PRZ1	URBAN OPEN SPACE		V342	CN2019-04	28/02/2019	711m	West
RZ3	URBAN RESIDENTIAL		302	CN2011-11	03/11/2011	723m	North East
RZ2	SUBURBAN CORE		TP 2008	NI2008-27	31/03/2008	726m	South East
CZ4	LOCAL CENTRE		TP 2008	NI2008-27	31/03/2008	780m	South
RZ4	MEDIUM DENSITY RESIDENTIAL		TP 2008	NI2008-27	31/03/2008	784m	North West
PRZ1	URBAN OPEN SPACE		TP 2008	NI2008-27	31/03/2008	788m	North West
PRZ1	URBAN OPEN SPACE		TP 2008	NI2008-27	31/03/2008	790m	North West
RZ4	MEDIUM DENSITY RESIDENTIAL		TP 2008	NI2008-27	31/03/2008	822m	South
TSZ1	TRANSPORT		TP 2008	NI2008-27	31/03/2008	837m	South West
CF	COMMUNITY FACILITIES		302	CN2011-11	03/11/2011	838m	North East
RZ4	MEDIUM DENSITY RESIDENTIAL		TP 2008	NI2008-27	31/03/2008	854m	North West
TSZ1	TRANSPORT		TP 2008	NI2008-27	31/03/2008	857m	North East
PRZ1	URBAN OPEN SPACE		TP 2008	NI2008-27	31/03/2008	860m	South East
CZ4	LOCAL CENTRE		TP 2008	NI2008-27	31/03/2008	873m	North West
RZ4	MEDIUM DENSITY RESIDENTIAL		TP 2008	NI2008-27	31/03/2008	879m	South
TSZ1	TRANSPORT		TA2010-15	NI2010-2558	27/05/2010	884m	South
TSZ1	TRANSPORT		TP 2008	NI2008-27	31/03/2008	890m	West
PRZ1	URBAN OPEN SPACE		TP 2008	NI2008-27	31/03/2008	896m	North West

Zone Code	Zone Name	Description	Variation	Gazettal Name	Gazettal Date	Distance	Direction
TSZ1	TRANSPORT		TP 2008	NI2008-27	31/03/2008	897m	North West
PRZ1	URBAN OPEN SPACE		TP 2008	NI2008-27	31/03/2008	925m	South West
TSZ1	TRANSPORT		TP 2008	NI2008-27	31/03/2008	928m	West
PRZ1	URBAN OPEN SPACE		V342	CN2019-08	28/02/2019	932m	West
CF	COMMUNITY FACILITIES		TP 2008	NI2008-27	31/03/2008	939m	South West
TSZ1	TRANSPORT		TP 2008	NI2008-27	31/03/2008	946m	North West
TSZ1	TRANSPORT		TP 2008	NI2008-27	31/03/2008	949m	South
RZ2	SUBURBAN CORE		TP 2008	NI2008-27	31/03/2008	950m	West
PRZ1	URBAN OPEN SPACE		TP 2008	NI2008-27	31/03/2008	952m	North West
RZ2	SUBURBAN CORE		TP 2008	NI2008-27	31/03/2008	956m	South
RZ2	SUBURBAN CORE		TP 2008	NI2008-27	31/03/2008	963m	South West
PRZ1	URBAN OPEN SPACE		TP 2008	NI2008-27	31/03/2008	982m	South
NUZ3	HILLS, RIDGES AND BUFFER AREAS		TP 2008	NI2008-27	31/03/2008	986m	South East
PRZ1	URBAN OPEN SPACE		TP 2008	NI2008-27	31/03/2008	996m	North West
PRZ1	URBAN OPEN SPACE		TP 2008	NI2008-27	31/03/2008	997m	North West

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

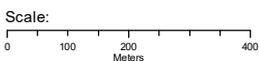
Territory Plan Overlays

1 Swanson Court, Belconnen, ACT 2617



Legend

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



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

Coordinate System: GDA 1994 MGA Zone 55

Date: 04 November 2019

Territory Plan Overlays

1 Swanson Court, Belconnen, ACT 2617

Territory Plan Overlays (areas)

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

Id	Overlay Code	Overlay Name	Variation	Gazettal Name	Distance	Direction
479	Pe	Urban Open Space.	TP 2008	NI2008-27	0m	North
563	Pe	Urban Open Space.	TP 2008	NI2008-27	295m	North
478	Pe	Urban Open Space.	TP 2008	NI2008-27	296m	North West
1748	Ph	Lake	TP 2008	NI2008-27	307m	North
578	Pe	Urban Open Space.	TP 2008	NI2008-27	319m	East
562	Pe	Urban Open Space.	TP 2008	NI2008-27	377m	North East
428	Pe	Urban Open Space.	TP 2008	NI2008-27	442m	South
3850	Pe	Urban Open Space.	V342	CN2019-04	443m	West
878	Pe	Urban Open Space.	TP 2008	NI2008-27	468m	North
560	Pe	Urban Open Space.	TP 2008	NI2008-27	477m	South
477	Pe	Urban Open Space.	TP 2008	NI2008-27	485m	North
877	Pe	Urban Open Space.	TP 2008	NI2008-27	550m	North West
505	Pe	Urban Open Space.	TP 2008	NI2008-27	561m	South East
480	Pe	Urban Open Space.	TP 2008	NI2008-27	621m	North West
876	Pe	Urban Open Space.	TP 2008	NI2008-27	641m	North West
561	Pe	Urban Open Space.	TP 2008	NI2008-27	663m	North
453	Pe	Urban Open Space.	TP 2008	NI2008-27	677m	South East
1640	Pe	Urban Open Space.	TP 2008	NI2008-27	683m	North West
3059	Pe	Urban Open Space.	302	CN2011-11	706m	North East
648	Pe	Urban Open Space.	TP 2008	NI2008-27	707m	South East
503	Pe	Urban Open Space.	TP 2008	NI2008-27	708m	South
3849	Pe	Urban Open Space.	V342	CN2019-04	711m	West
875	Pe	Urban Open Space.	TP 2008	NI2008-27	788m	North West
874	Pe	Urban Open Space.	TP 2008	NI2008-27	790m	North West
746	Pe	Urban Open Space.	TP 2008	NI2008-27	860m	South East
476	Pe	Urban Open Space.	TP 2008	NI2008-27	896m	North West
654	Pe	Urban Open Space.	TP 2008	NI2008-27	925m	South West
3848	Pe	Urban Open Space.	V342	CN2019-04	932m	West
475	Pe	Urban Open Space.	TP 2008	NI2008-27	952m	North West
1097	Pe	Urban Open Space.	TP 2008	NI2008-27	982m	South

Id	Overlay Code	Overlay Name	Variation	Gazettal Name	Distance	Direction
257	Pc	Nature Reserve.	TP 2008	NI2008-27	986m	South East
1120	Pe	Urban Open Space.	TP 2008	NI2008-27	996m	North West
504	Pe	Urban Open Space.	TP 2008	NI2008-27	997m	North West

Territory Plan Overlays (lines)

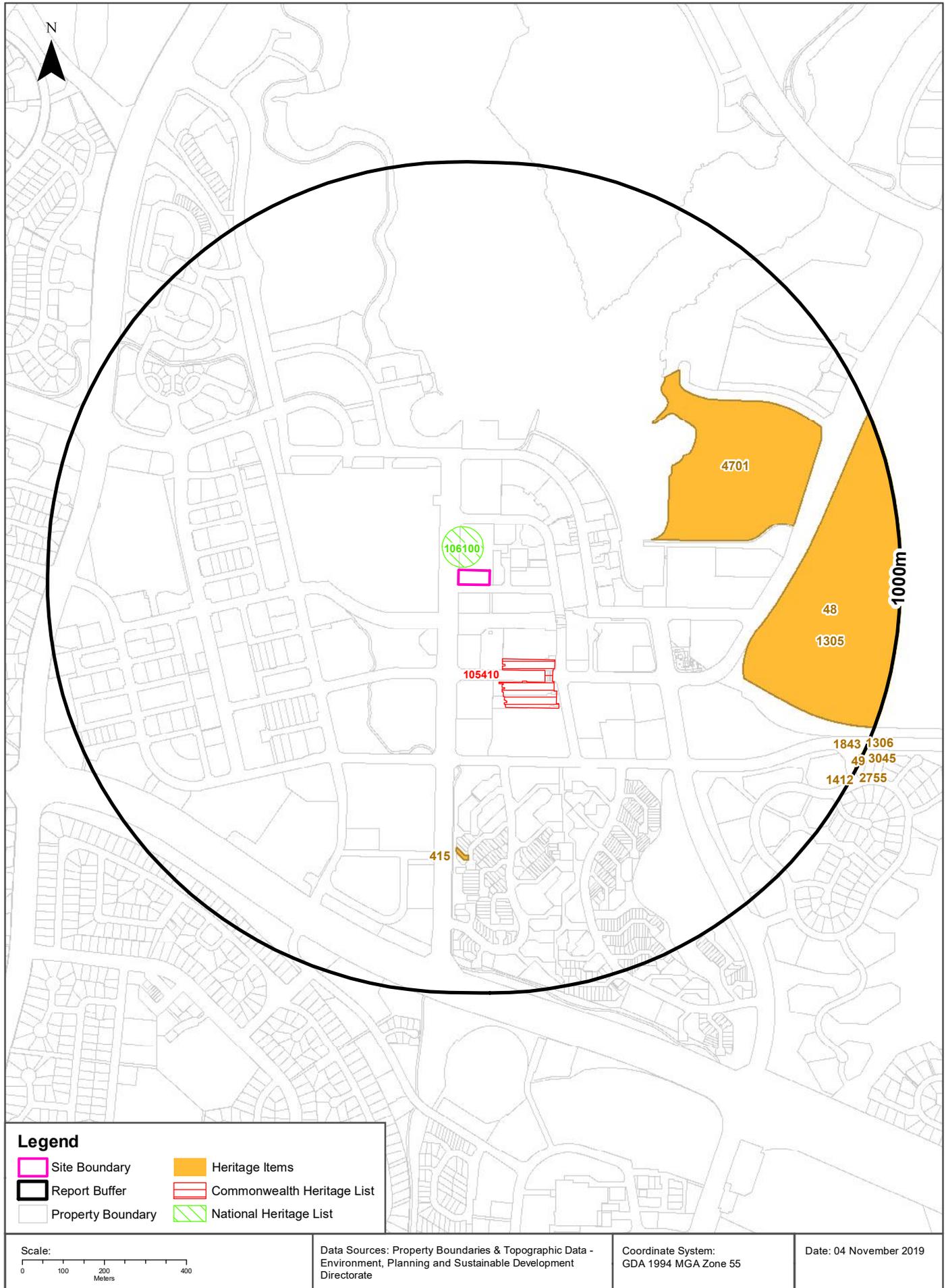
What Plan Overlays (lines) exist within the report buffer?

Id	Overlay Code	Overlay Name	Variation	Gazettal Name	Distance	Direction
3673	IPT	Inter-town Public Transport.	289	CN2008-14	86m	West
21	PUBLAN	Public Land	TP 2008	NI2008-27	295m	North
22	PUBLAN	Public Land	TP 2008	NI2008-27	319m	East
3674	IPT	Inter-town Public Transport.	TA2017-03	NI2017-265	319m	West
3678	IPT	Inter-town Public Transport.	TA2017-03	NI2017-265	413m	East
3672	IPT	Inter-town Public Transport.	TP 2008	NI2008-27	487m	South East
3679	IPT	Inter-town Public Transport.	TA2017-03	NI2017-265	586m	North East
3670	IPT	Inter-town Public Transport.	TP 2008	NI2008-27	611m	East
3675	IPT	Inter-town Public Transport.	TA2017-03	NI2017-265	946m	North West
218	PUBLAN	Public Land	TP 2008	NI2008-27	986m	South East

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

Heritage Items

1 Swanson Court, Belconnen, ACT 2617



Heritage

1 Swanson Court, Belconnen, ACT 2617

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
105410	Cameron Offices (Wings 3, 4 and 5, and Bridge)	Chandler St, Belconnen ACT	8/01/000/0501	Historic	Listed place	2005-08-22	184m	South East

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
106100	Canberra - Central National Area and Inner Hills/ Canberra the Planned	Northbourne Av, Canberra ACT	8/01/000/0134	Historic	Minister considering decision within extended period		6m	South East

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?

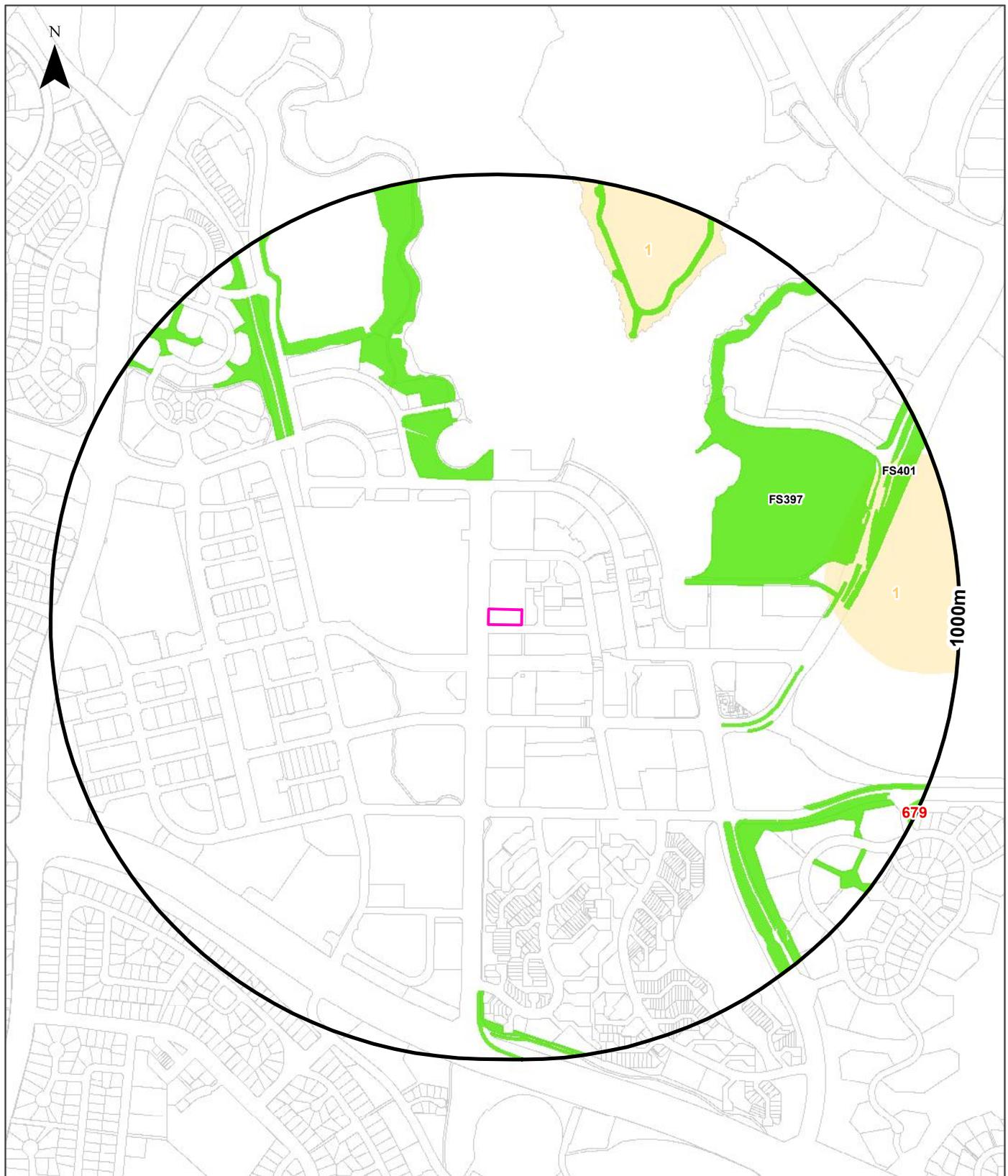
Map Id	Heritage Id	Name	Description	Status	Status Date	Location Type	Block Key	District	Division	Dist	Dir
4701	1361	John Knight Memorial Park	Section 65 Block 33	Final Registration		Historic		BELCONNEN	BELCONNEN	400m	North East
48	33	University of Canberra Student Residences Group 2	Section 3 Block 1 (part)	Final Registration		Historic		BELCONNEN	BRUCE	643m	East
1305	1172	BELC 19		Final Registration	09/03/2005	Restricted	55550030009	BELCONNEN	BRUCE	643m	East
415	406	Giralang Primary School	Section 80 Block 2, 4 and 5	Final Registration		Historic		BELCONNEN	BELCONNEN	644m	South
1306	1172	BELC 11		Final Registration	09/03/2005	Restricted	55550040019	BELCONNEN	BRUCE	985m	South East
2755	1172	BELC 16		Final Registration	09/03/2005	Restricted	55550040019	BELCONNEN	BRUCE	985m	South East
49	34	Gossan Hill	Section 4 Blocks 9 (part) & 17 (part)	Final Registration		Historic		BELCONNEN	BRUCE	985m	South East
1412	1172	Bruce 9		Final Registration	09/03/2005	Restricted	55550040019	BELCONNEN	BRUCE	985m	South East
3045	1247	GH Pad 1		Final Registration	09/03/2005	Restricted	55550040019	BELCONNEN	BRUCE	986m	South East

Map Id	Heritage Id	Name	Description	Status	Status Date	Location Type	Block Key	District	Division	Dist	Dir
1843	1247	GHIF 1		Final Registration	09/03/2005	Restricted	55550040019	BELCONNEN	BRUCE	986m	South East

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

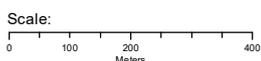
Natural Hazards - Bushfire & Flood

1 Swanson Court, Belconnen, ACT 2617



Legend

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



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

Coordinate System: GDA 1994 MGA Zone 55

Date: 04 November 2019

Natural Hazards

1 Swanson Court, Belconnen, ACT 2617

Bushfire Prone Areas

What Bushfire Prone Areas exist within the report buffer?

Feature Id	Description	Distance	Direction
1	Bushfire Prone Areas ACT	663m	South

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
679	Bushfire Abatement Zone	986m	South East

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
FS397	Slashing	48.04	296m	North
FS401	Slashing	39.83	511m	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)

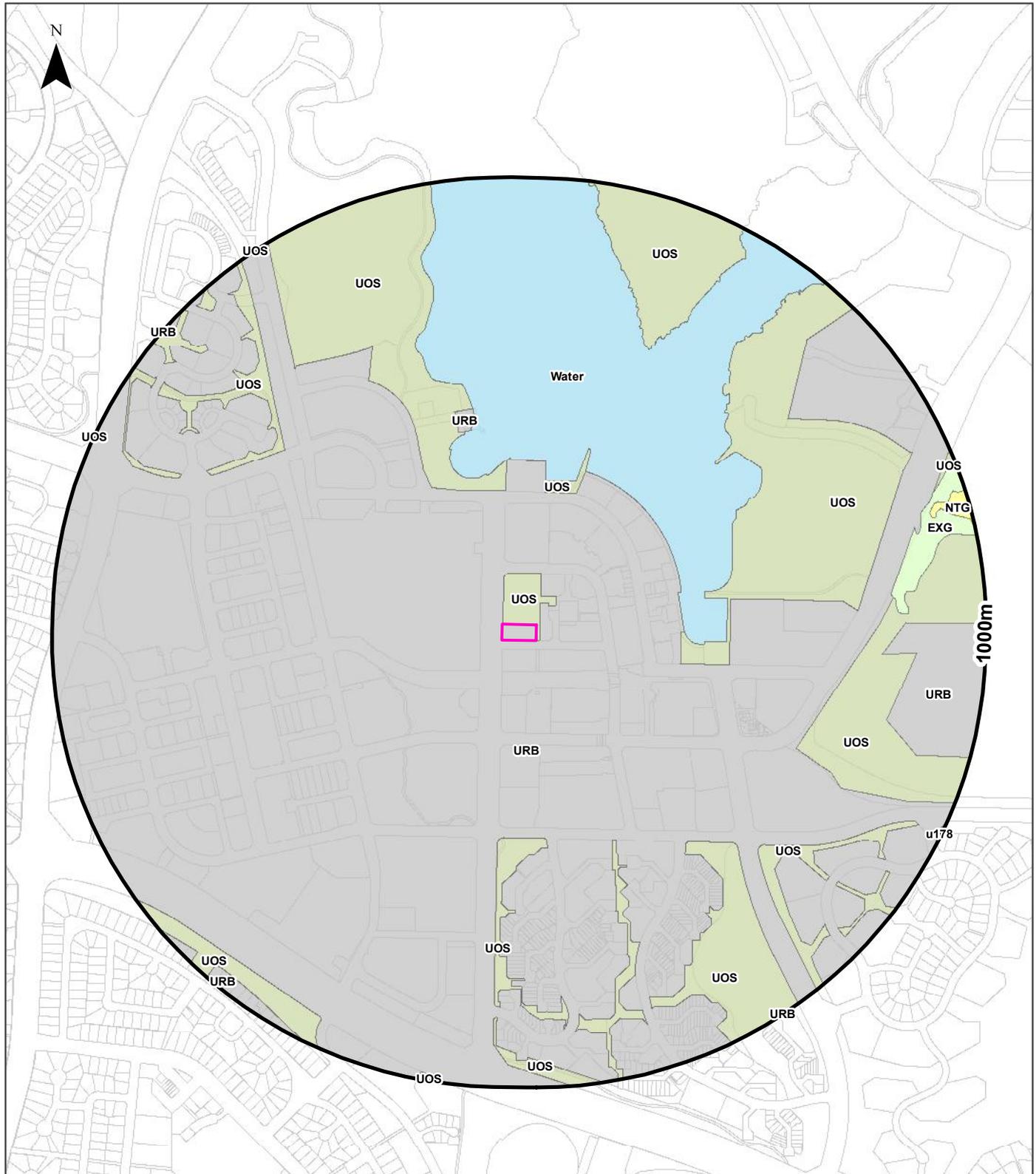
What Flood zone (1% AEP) exists within the report buffer?

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 Swanson Court, Belconnen, ACT 2617



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

<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: 04 November 2019</p>
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Ecological Constraints

1 Swanson Court, Belconnen, ACT 2617

Vegetation Communities

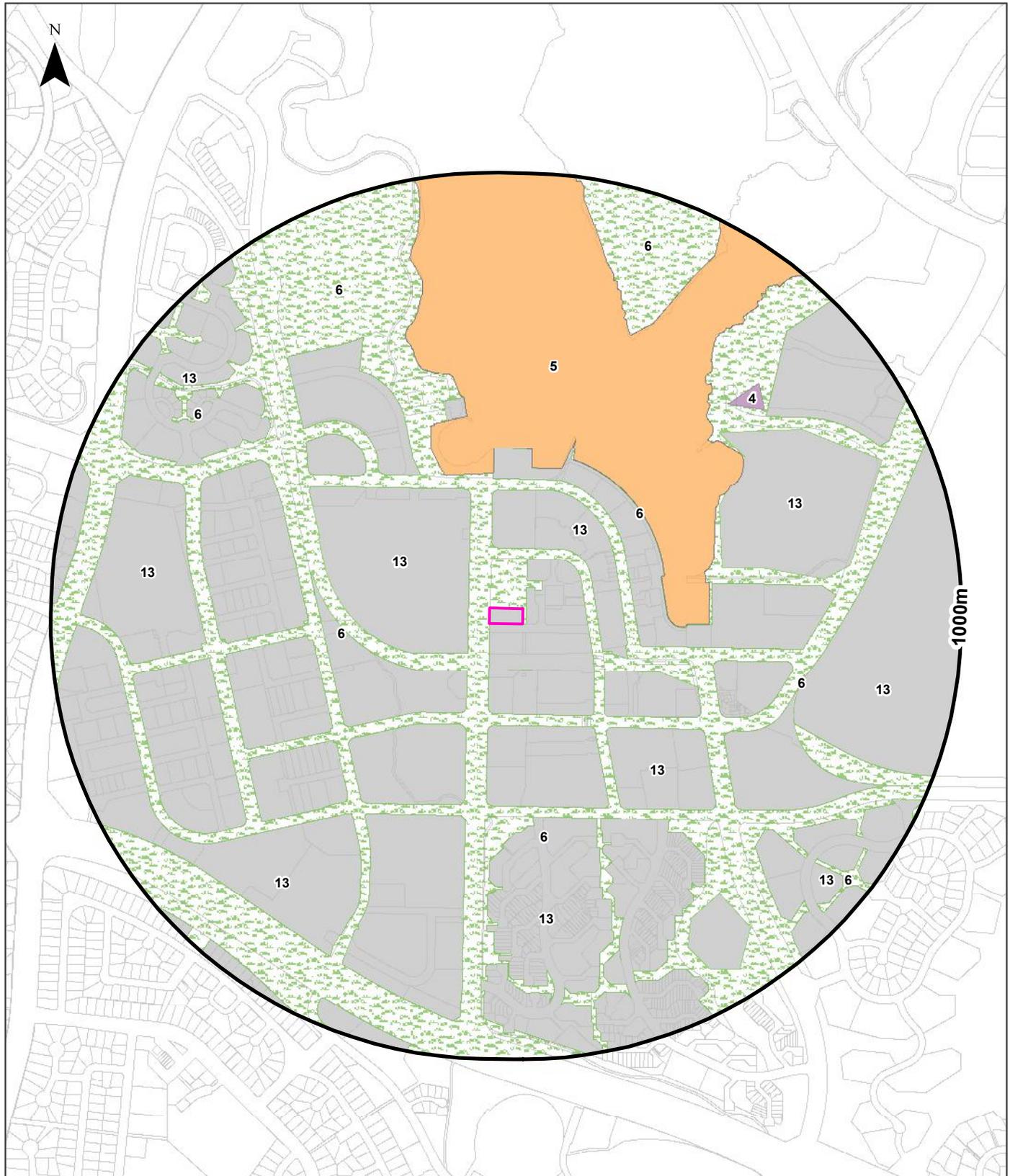
What Vegetation Communities exist within the report buffer?

UMC Id	Community	Formation	"Keith" Vegetation Class	Mean Height	Canopy Cover	Distance	Direction
URB	Urban and developed areas_URB			8.40	15.73	0m	Onsite
UOS	Urban Open Space_UOS			6.02	22.12	0m	North
UOS	Urban Open Space_UOS			5.95	18.87	295m	North
UOS	Urban Open Space_UOS			9.80	33.90	296m	North
UOS	Urban Open Space_UOS			11.08	40.47	319m	North East
Water	Water			7.95	1.18	320m	North
URB	Urban and developed areas_URB			10.43	19.36	438m	North
UOS	Urban Open Space_UOS			9.51	50.00	442m	South
UOS	Urban Open Space_UOS			11.88	48.90	477m	South
UOS	Urban Open Space_UOS			10.37	28.20	561m	South East
UOS	Urban Open Space_UOS			9.78	42.22	621m	North West
UOS	Urban Open Space_UOS			9.02	29.15	625m	East
UOS	Urban Open Space_UOS			10.24	37.90	663m	North
UOS	Urban Open Space_UOS			8.98	58.17	677m	South East
EXG	Exotic grassland_EXG			7.34	2.93	788m	East
UOS	Urban Open Space_UOS			8.20	62.62	860m	South East
NTG	Natural Temperate Grassland_NTG	GRASSLANDS	Temperate Montane Grasslands	6.57	8.52	907m	East
UOS	Urban Open Space_UOS			11.01	32.74	925m	South West
UOS	Urban Open Space_UOS			7.34	49.36	952m	North West
UOS	Urban Open Space_UOS			9.61	25.15	982m	South
u178	Yellow Box ± Apple Box tall grassy woodland_u178	GRASSY WOODLANDS	Southern Tableland Grassy Woodlands	7.92	33.33	985m	South East
UOS	Urban Open Space_UOS			8.05	32.01	996m	North West
UOS	Urban Open Space_UOS			8.15	20.74	997m	North West

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

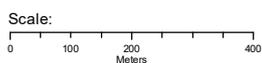
Ecological Constraints - Vegetation Subformation

1 Swanson Court, Belconnen, ACT 2617



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: 04 November 2019

Ecological Constraints

1 Swanson Court, Belconnen, ACT 2617

Vegetation Subformation

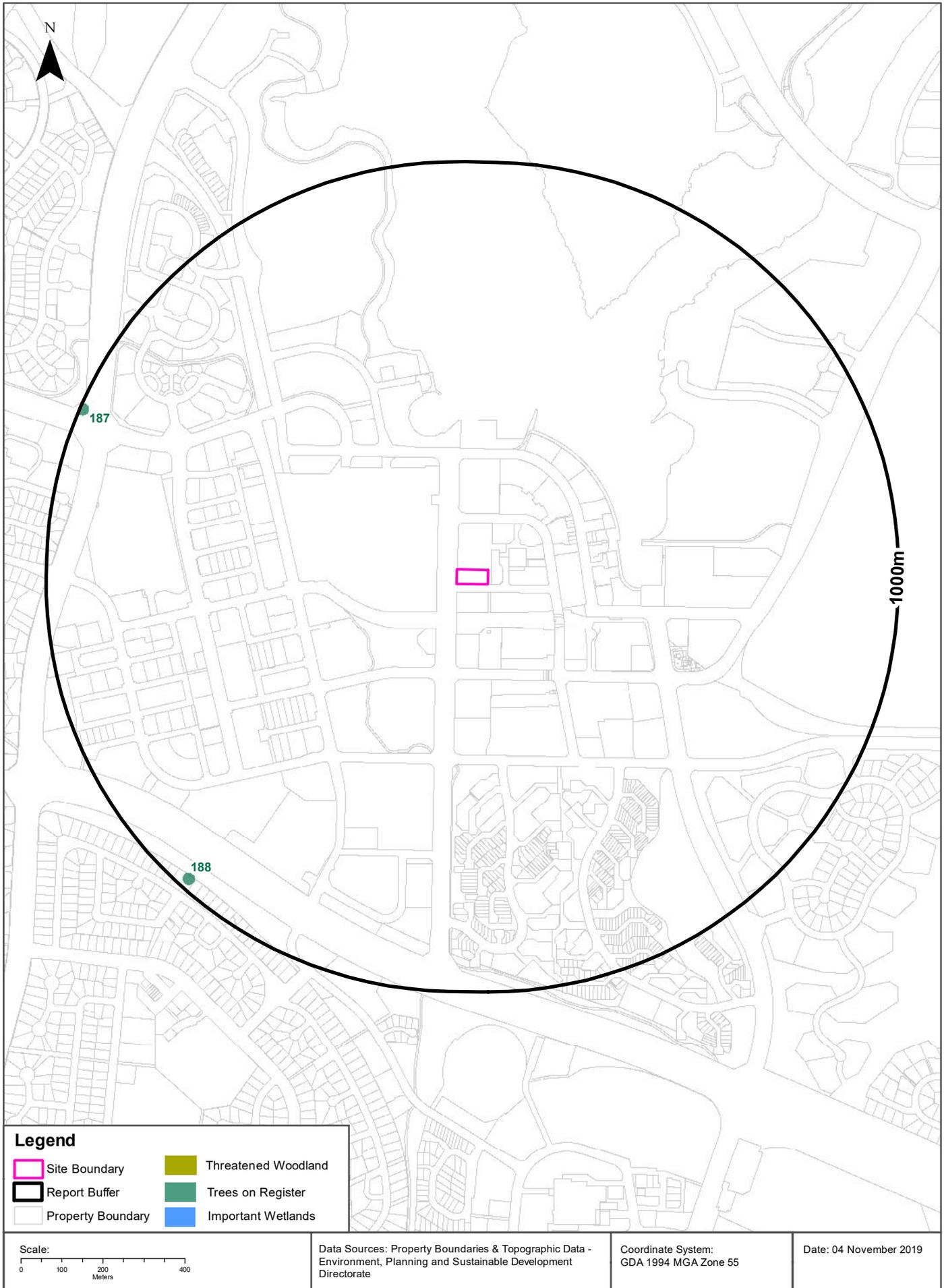
What Vegetation Subformations exist within the report buffer?

Object Id	Subformation	Distance	Direction
13	Urban	0m	Onsite
6	Modified grassland / Urban vegetation complex	0m	South East
5	Lakes / Water	307m	South East
4	Grassland	661m	South

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

Ecological Constraints - Threatened Woodland, Wetlands & Tree Register

1 Swanson Court, Belconnen, ACT 2617



Ecological Constraints

1 Swanson Court, Belconnen, ACT 2617

Threatened Woodland

What ACT Listed Threatened Woodland exists within the report buffer?

Feature Id	Community	EPBCStatus	ACT Status	Distance	Direction
N/A	No records within buffer				

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
188	Eucalyptus	melliodora	PTR145	25.0	REGISTERED	06/01/2019	960m	South West
187	Eucalyptus	blakelyi	PTR142	14.5	REGISTERED	06/01/2019	977m	North West

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

Important Wetlands

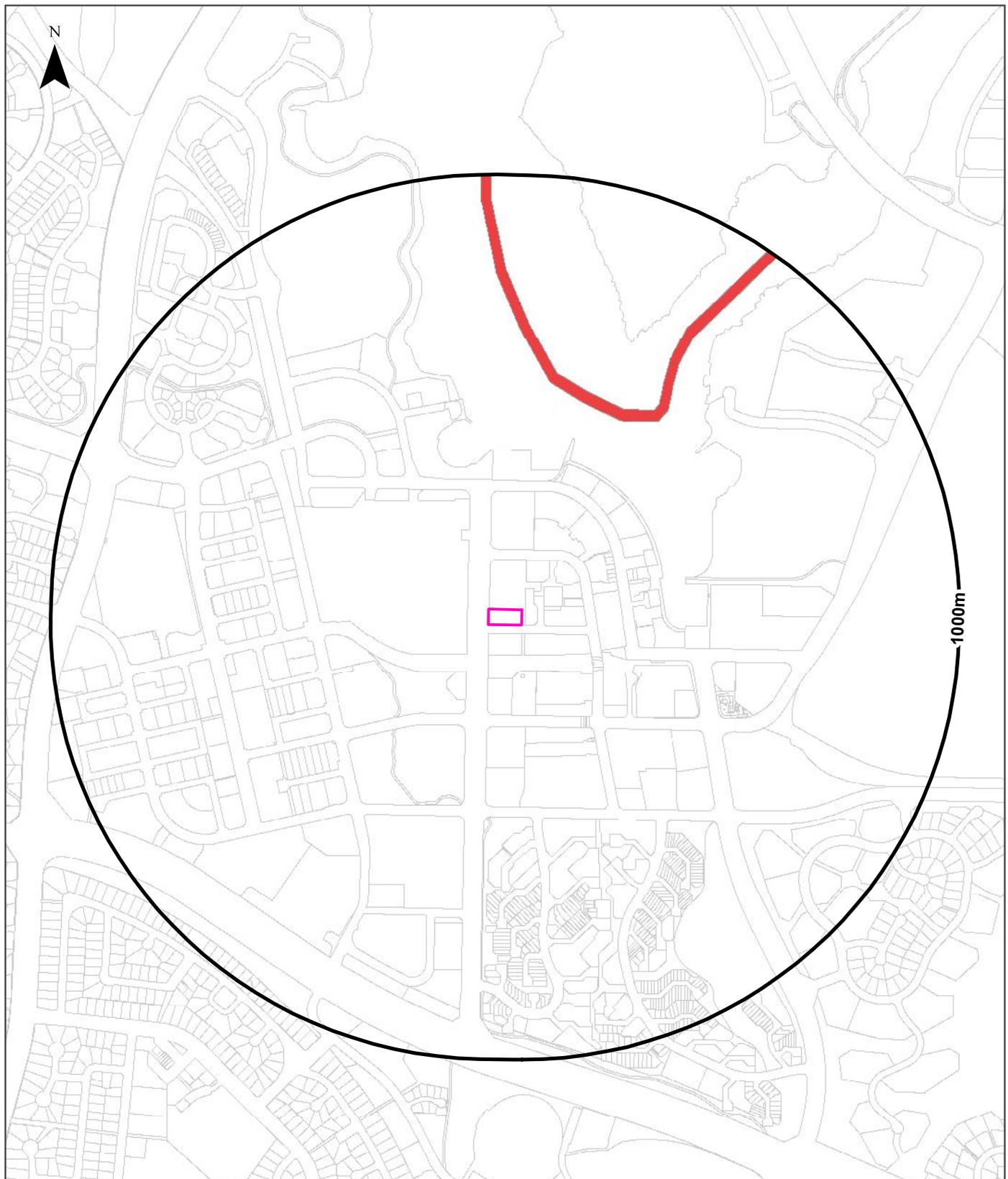
What Wetlands exist within the report buffer?

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 - Groundwater Dependent Ecosystems Atlas

1 Swanson Court, Belconnen, ACT 2617



Legend			
	Site Boundary		High potential GDE - from national assessment
	Report Buffer		High potential GDE - from regional studies
	Property Boundaries		Moderate potential GDE - from national assessment
			Moderate potential GDE - from regional studies
			Low potential GDE - from national assessment
			Low potential GDE - from regional studies
			Known GDE - from regional studies
			Unclassified potential GDE - from national assessment
			Unclassified potential GDE - from regional studies

<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: 04 November 2019</p>
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Ecological Constraints

1 Swanson Court, Belconnen, ACT 2617

Groundwater Dependent Ecosystems Atlas

GDEs within the dataset buffer:

Type	Name	GDE Potential	IDE Likelihood	Geomorphology	Ecosystem Type	Aquifer Geology	Distance	Direction
Aquatic		High potential GDE - from national assessment	2	Upland plains with separating strike-aligned hills, closed lake basins.	River		488m	North

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

1 Swanson Court, Belconnen, ACT 2617

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	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		CAMBA
Fauna	Aves	Hieraaetus morphnoides	Little Eagle	Vulnerable, Protected		
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	Ephippiorhynchus asiaticus	Black-necked Stork	Endangered, Protected		
Fauna	Aves	Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	Vulnerable, Protected		
Fauna	Aves	Stagonopleura guttata	Diamond Firetail	Vulnerable, Protected		
Fauna	Aves	Falco subniger	Black Falcon	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	Daphoenositta chrysoptera	Varied Sittella	Vulnerable, Protected		
Fauna	Aves	Pachycephala olivacea	Olive Whistler	Vulnerable, Protected		
Fauna	Aves	Pedionomus torquatus	Plains-wanderer	Endangered, Protected		Critically Endangered
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	Petroica rodinogaster	Pink Robin	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	Aves	Rostratula australis	Australian Painted Snipe	Endangered, Protected		Endangered
Fauna	Aves	Ninox strenua	Powerful Owl	Vulnerable, Protected, Category 3 Sensitive Species	Category 3	
Fauna	Insecta	Synemon plana	Golden Sun Moth	Endangered		Critically Endangered
Fauna	Mammalia	Dasyurus maculatus	Spotted-tailed Quoll	Vulnerable, Protected		Endangered
Fauna	Mammalia	Phascolarctos cinereus	Koala	Vulnerable, Protected		Vulnerable

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status
Fauna	Mammalia	Pteropus poliocephalus	Grey-headed Flying-fox	Vulnerable, Protected		Vulnerable
Fauna	Reptilia	Aprasia parapulchella	Pink-tailed Legless Lizard	Vulnerable, Protected		Vulnerable
Fauna	Reptilia	Delma impar	Striped Legless Lizard	Vulnerable, Protected		Vulnerable
Flora	Flora	Rutidosis leptorrhynchoides	Button Wrinklewort	Endangered		Endangered
Flora	Flora	Lepidium pseudopapillosum	Formbe Peppercross	Endangered		Vulnerable
Flora	Flora	Swainsona recta	Small Purple-pea	Endangered		Endangered
Flora	Flora	Prasophyllum petilum	Tarengo Leek Orchid	Endangered, Protected, Category 2 Sensitive Species	Category 2	Endangered

Data does not include NSW category 1 sensitive species.

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

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ACT EPA Contaminated Land Search



ACT
Government

Chief Minister, Treasury and
Economic Development

Dr Chris Gunton
Lanterra Consulting Pty Ltd
Unit 4, 19 Trenerry Street
Weston ACT 2611

Dear Dr Gunton

RE: CONTAMINATED LAND SEARCH

Thank you for your search form request of 01/11/2019 enquiring about:

Block 45 Section 54 Belconnen Belconnen

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

The block is not recorded on the EPA's contaminated sites management database or geographic information system.

The site is currently occupied by a commercial complex. Commercial complexes, prior to the introduction of natural gas to the ACT in the 1980's, utilised boiler heating or similar systems. These systems were generally fuelled by diesel or heating oil which was mainly stored in underground fuel storage tanks.

You or your client should also contact Access Canberra, Dangerous Substances Licensing, who administer the Dangerous Substances legislation, on 132281 regarding the possible presence and status of any fuel related facilities or hazardous materials storage at the site.

Records held by the EPA indicate that there was a historic spray sheep dip site located on adjacent Block 11 Section 54 Belconnen, which is located approximately 69 metres north east of Block 45. The dip has been identified but not investigated, with no records to indicate that an environmental assessment has been undertaken to determine the extent of any impacts from the sheep dip activities. The dip is believed to be located beneath the existing Belconnen Library.

Block 11 Section 54 Belconnen

"Emu Bank"

AMG Coordinates:

x_co-ord. 688178.1

y_co-ord. 6098355.0

Surveyed - Spray dip

Buffered investigation area (100m radius)

The ANZECC 1992, Guidelines for the Assessment and Management of Contaminated Sites and the ACT EPA 2017, Contaminated Sites Environment Protection Policy (EPP) list fuel storage and sheep dips as activities associated with land contamination which may pose a risk to human health or the environment.

Although there are no records of known contamination recorded for Block 37, under the precautionary principal, all blocks within 100m of sheep dip sites which have not been investigated are identified and persons making enquiries are made aware of potential for impacts from adjacent sites due to the ability for these activities to have impacted surrounding land.

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

The EPA has not issued any environment protection orders under sections 91C (1), 91D (1) or 125 (4), requested an audit under section 76(2) or received a 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 21(A) 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
Project Officer
Office of the Environment Protection Authority
Ground Floor TransACT House
470 Northbourne Avenue
Dickson 2602

08/11/2019

EIL Calculations

Inputs
Select contaminant from list below
As
Below needed to calculate fresh and aged ACLs
Below needed to calculate fresh and aged ABCs
or for fresh ABCs only
or for aged ABCs only

Outputs		
Land use	Arsenic generic EILs	
	(mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	20	40
Urban residential and open public spaces	50	100
Commercial and industrial	80	160

Inputs
Select contaminant from list below
DDT
Below needed to calculate fresh and aged ACLs
Below needed to calculate fresh and aged ABCs
or for fresh ABCs only
or for aged ABCs only

Outputs		
Land use	DDT generic EILs	
	(mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	3	3
Urban residential and open public spaces	180	180
Commercial and industrial	640	640

Inputs	
Select contaminant from list below	
Cr_III	
Below needed to calculate fresh and aged ACLs	
Enter % clay (values from 0 to 100%)	
5	
Below needed to calculate fresh and aged ABCs	
Measured background concentration (mg/kg). Leave blank if no measured value	
or for fresh ABCs only	
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration	
7	
or for aged ABCs only	
Enter State (or closest State)	
NSW	
Enter traffic volume (high or low)	
low	

Outputs		
Land use	Cr III soil-specific EILs	
	(mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	120	110
Urban residential and open public spaces	200	320
Commercial and industrial	290	530

Inputs	
Select contaminant from list below	
Cu	
Below needed to calculate fresh and aged ACLs	
Enter cation exchange capacity (silver thiourea method) (values from 0 to 100 cmolc/kg dwt)	
5	
Enter soil pH (calcium chloride method) (values from 1 to 14)	
5.5	
Enter organic carbon content (%OC) (values from 0 to 50%)	
1	
Below needed to calculate fresh and aged ABCs	
Measured background concentration (mg/kg). Leave blank if no measured value	
or for fresh ABCs only	
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration	
7	
or for aged ABCs only	
Enter State (or closest State)	
NSW	
Enter traffic volume (high or low)	
low	

Outputs		
Land use	Cu soil-specific EILs	
	(mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	45	50
Urban residential and open public spaces	70	110
Commercial and industrial	95	150

Inputs	
Select contaminant from list below	
Ni	
Below needed to calculate fresh and aged ACLs	
Enter cation exchange capacity (silver thiourea method) (values from 0 to 100 cmolc/kg dwt)	
5	
Below needed to calculate fresh and aged ABCs	
Measured background concentration (mg/kg). Leave blank if no measured value	
or for fresh ABCs only	
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration	
7	
or for aged ABCs only	
Enter State (or closest State)	
NSW	
Enter traffic volume (high or low)	
low	

Outputs		
Land use	Ni soil-specific EILs	
	(mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	30	10
Urban residential and open public spaces	35	35
Commercial and industrial	45	60

Inputs	
Select contaminant from list below	
Zn	
Below needed to calculate fresh and aged ACLs	
Enter cation exchange capacity (silver thiourea method) (values from 0 to 100 cmolc/kg dwt)	
5	
Enter soil pH (calcium chloride method) (values from 1 to 14)	
5.5	
Below needed to calculate fresh and aged ABCs	
Measured background concentration (mg/kg). Leave blank if no measured value	
or for fresh ABCs only	
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration	
7	
or for aged ABCs only	
Enter State (or closest State)	
NSW	
Enter traffic volume (high or low)	
low	

Outputs		
Land use	Zn soil-specific EILs	
	(mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	50	120
Urban residential and open public spaces	100	260
Commercial and industrial	140	360

Inputs
Select contaminant from list below
Naphthalene
Below needed to calculate fresh and aged ACLs
Below needed to calculate fresh and aged ABCs
or for fresh ABCs only
or for aged ABCs only

Outputs		
Land use	Naphthalene generic EILs	
	<small>(mg contaminant/kg dry soil)</small>	
	Fresh	Aged
National parks and areas of high conservation value	10	10
Urban residential and open public spaces	170	170
Commercial and industrial	370	370

Inputs
Select contaminant from list below
Pb
Below needed to calculate fresh and aged ACLs
Below needed to calculate fresh and aged ABCs
or for fresh ABCs only
or for aged ABCs only

Outputs		
Land use	Lead generic EILs	
	(mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	110	470
Urban residential and open public spaces	270	1100
Commercial and industrial	440	1800

Data Summary Table

P19089 - Preliminary Site Investigation, Block 45 Section 54, Belconnen

Table 1: Analytical Results

Method_Type	ChemName	Units	EQL	ACT EPA Information Sheet 4	ASC NEPM (2013) E1/ESL Urban Residential and Public Open Space	ASC NEPM (2013) HSL A (mg/kg) 0.0-1.0m/1.0-2.0m/2.0-4.0m	ASC NEPM (2013) HILA	Field_ID										Sample re-analysed 15/11/2019						
								BH1 0.0-0.2	BH1 2.0-2.1	BH2 0.5-0.6	BH2 1.0-1.1	BH3 0.0-0.2	QC1	RPD	BH3 1.0-1.1	BH4 0.0-0.2	BH5 0.5-0.6		BH6 0.5-0.6	BH6 2.0-2.1	BH3 1.0-1.1			
								Depth m	Depth m	Depth m	Depth m	Depth m	Depth m		Depth m	Depth m	Depth m	Depth m						
								1/11/2019	1/11/2019	1/11/2019	1/11/2019	1/11/2019	1/11/2019	1/11/2019	1/11/2019	1/11/2019	1/11/2019	1/11/2019	1/11/2019	1/11/2019	1/11/2019	1/11/2019		
								1/11/2019	1/11/2019	1/11/2019	1/11/2019	1/11/2019	1/11/2019	1/11/2019	1/11/2019	1/11/2019	1/11/2019	1/11/2019	1/11/2019	1/11/2019	1/11/2019	1/11/2019	1/11/2019	
Metals in soil	Arsenic, As	mg/kg	1	20	100		100	3	3	2	3	2	2	0%	3	3	3	3	4					N.A.
	Cadmium, Cd	mg/kg	0.3	3			20	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	-	<0.3	<0.3	<0.3	<0.3	<0.3					N.A.
	Chromium, Cr	mg/kg	0.3	50	320		100	16	31	19	21	13	13	0%	16	16	23	18	18					N.A.
	Copper, Cu	mg/kg	0.5	100	110		6000	5.1	5	6.4	5.5	5.4	4.4	20%	7	6.4	8.5	4.4	5.9					N.A.
	Lead, Pb	mg/kg	1	100	1100		300	11	9	9	12	9	8	12%	10	12	14	8	9					N.A.
	Nickel, Ni	mg/kg	0.5	60	35		400	8.1	7.5	11	5	6	6.3	5%	8.8	7.4	9.7	8.7	9.1					N.A.
	Zinc, Zn	mg/kg	2	200	310		7400	36	12	49	14	22	25	13%	21	43	19	24	19					N.A.
	Mercury	mg/kg	0.05	1			40	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05					N.A.
Organochlorine Pesticides	Hexachlorobenzene (HCB)	mg/kg	0.1				10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1					N.A.
	Alpha BHC	mg/kg	0.1					<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1					N.A.
	Lindane	mg/kg	0.1					<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1					N.A.
	Heptachlor	mg/kg	0.1					<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1					N.A.
	Aldrin	mg/kg	0.1				6	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1					N.A.
	Beta BHC	mg/kg	0.1					<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1					N.A.
	Delta BHC	mg/kg	0.1					<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1					N.A.
	Heptachlor epoxide	mg/kg	0.1					<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1					N.A.
	o,p'-DDE	mg/kg	0.1					<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1					N.A.
	Alpha Endosulfan	mg/kg	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2					N.A.
	Gamma Chlordane	mg/kg	0.1				50	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1					N.A.
	Alpha Chlordane	mg/kg	0.1				50	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1					N.A.
	trans-Nonachlor	mg/kg	0.1					<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1					N.A.
	p,p'-DDE	mg/kg	0.1					<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1					N.A.
	Dieldrin	mg/kg	0.2				6	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2					N.A.
	Endrin	mg/kg	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2					N.A.
	o,p'-DDD	mg/kg	0.1					<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1					N.A.
	o,p'-DDT	mg/kg	0.1					<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1					N.A.
	Beta Endosulfan	mg/kg	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2					N.A.
	p,p'-DDD	mg/kg	0.1				240	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1					N.A.
	p,p'-DDT	mg/kg	0.1				240	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1					N.A.
	Endosulfan sulphate	mg/kg	0.1					<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1					N.A.
	Endrin Aldehyde	mg/kg	0.1	0.5			10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1					N.A.
	Methoxychlor	mg/kg	0.1				300	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1					N.A.
	Endrin Ketone	mg/kg	0.1	0.5				<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1					N.A.
	Isodrin	mg/kg	0.1	0.5				<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1					N.A.
	Mirex	mg/kg	0.1				10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1					N.A.
Organophosphorus Pesticides	Dichlorvos	mg/kg	0.5					<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5					N.A.
	Dimethoate	mg/kg	0.5					<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5					N.A.
	Diazinon (Dimpylate)	mg/kg	0.5					<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5					N.A.
	Fenitrothion	mg/kg	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2					N.A.
	Malathion	mg/kg	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2					N.A.
	Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2				160	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2					N.A.
	Parathion-ethyl (Parathion)	mg/kg	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2					N.A.
	Bromophos Ethyl	mg/kg	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2					N.A.
	Methodathion	mg/kg	0.5					<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5					N.A.
	Ethion	mg/kg	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2					N.A.
	Azinphos-methyl (Guthion)	mg/kg	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2					N.A.

P19089 - Preliminary Site Investigation, Block 45 Section 54, Belconnen

Table 1: Analytical Results

Method_Type	ChemName	Units	EQL	ACT EPA Information Sheet 4	ASC NEPM (2013) EIL/ESL Urban Residential and Public Open Space	ASC NEPM (2013) HSL A (mg/kg) 0.0-1.0m/1.0-2.0m/2.0-4.0m	ASC NEPM (2013) HIL A	Field_ID												Sample re-analysed 15/11/2019		
								BH1 0.0-0.2	BH1 2.0-2.1	BH2 0.5-0.6	BH2 1.0-1.1	BH3 0.0-0.2	QC1	RPD	BH3 1.0-1.1	BH4 0.0-0.2	BH5 0.5-0.6	BH6 0.5-0.6	BH6 2.0-2.1		BH3 1.0-1.1	
								Depth m	0.0-0.2	2.0-2.1	0.5-0.6	1.0-1.1	0.0-0.2	0.0-0.1		1.0-1.1	0.0-0.2	0.5-0.6	0.5-0.6		2.0-2.1	1.0-1.1
Sampled-date	1/11/2019	1/11/2019	1/11/2019	1/11/2019	1/11/2019	1/11/2019	1/11/2019		1/11/2019	1/11/2019	1/11/2019	1/11/2019	1/11/2019	1/11/2019								
Fill/Natural																						
Speciated Phenol	Phenol	mg/kg	0.5					<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	N.A.	
	2-methyl phenol (o-cresol)	mg/kg	0.5					<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	N.A.
	3/4-methyl phenol (m/p-cresol)	mg/kg	1					<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	N.A.
	Total Cresol	mg/kg	1.5					<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	N.A.
	2-chlorophenol	mg/kg	0.5					<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	N.A.
	2,4-dimethylphenol	mg/kg	0.5					<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	N.A.
	2,6-dichlorophenol	mg/kg	0.5					<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	N.A.
	2,4-dichlorophenol	mg/kg	0.5					<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	N.A.
	2,4,6-trichlorophenol	mg/kg	0.5					<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	N.A.
	2-nitrophenol	mg/kg	0.5					<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	N.A.
	4-nitrophenol	mg/kg	1					<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	N.A.
	2,4,5-trichlorophenol	mg/kg	0.5					<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	N.A.
	2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1					<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	N.A.
	Pentachlorophenol	mg/kg	0.5					<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	N.A.
	2,4-dinitrophenol	mg/kg	2					<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	N.A.
4-chloro-3-methylphenol	mg/kg	2					<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	N.A.	
Asbestos	Asbestos Detected	No unit	0					No	N.A.	No	N.A.	No	N.A.	-	N.A.	No	No	No	N.A.	N.A.	N.A.	
	Estimated Fibres	%w/w	0.01					<0.01	N.A.	<0.01	N.A.	<0.01	N.A.	-	N.A.	<0.01	<0.01	<0.01	N.A.	N.A.	N.A.	

Laboratory Analytical Report, Sample Receipt and COC

CLIENT DETAILS

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 Order Number **P19089**
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 SGS Reference **SE199625 R0**
 Date Received 05 Nov 2019
 Date Reported 12 Nov 2019

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all soil samples using trace analysis technique.

A portion of the sample supplied has been sub-sampled for asbestos according to SGS In-house procedures. We therefore cannot guarantee that the sub-sample is representative of the entire sample supplied. SGS Environment, Health and Safety recommends supplying approximately 50-100g of sample in a separate container.

Asbestos analysed by Approved Identifier Ravee Sivasubramaniam.

SIGNATORIES



Akheevar BENIAMEEN
 Chemist



Dong LIANG
 Metals/Inorganics Team Leader



Ly Kim HA
 Organic Section Head



Ravee SIVASUBRAMANIAM
 Hygiene Team Leader

Parameter	Units	LOR	SE199625.001	SE199625.002	SE199625.003	SE199625.004
Sample Number			SE199625.001	SE199625.002	SE199625.003	SE199625.004
Sample Matrix			Soil	Soil	Soil	Soil
Sample Date			01 Nov 2019	01 Nov 2019	01 Nov 2019	01 Nov 2019
Sample Name			BH1 0.0-0.2	BH1 2.0-2.1	BH2 0.5-0.6	BH2 1.0-1.1

VOC's in Soil Method: AN433 Tested: 5/11/2019

Monocyclic Aromatic Hydrocarbons

Parameter	Units	LOR	SE199625.001	SE199625.002	SE199625.003	SE199625.004
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1

Polycyclic VOCs

Parameter	Units	LOR	SE199625.001	SE199625.002	SE199625.003	SE199625.004
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1

Surrogates

Parameter	Units	LOR	SE199625.001	SE199625.002	SE199625.003	SE199625.004
d4-1,2-dichloroethane (Surrogate)	%	-	92	86	88	85
d8-toluene (Surrogate)	%	-	89	84	86	82
Bromofluorobenzene (Surrogate)	%	-	90	86	84	80

Totals

Parameter	Units	LOR	SE199625.001	SE199625.002	SE199625.003	SE199625.004
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil Method: AN433 Tested: 5/11/2019

Parameter	Units	LOR	SE199625.001	SE199625.002	SE199625.003	SE199625.004
TRH C6-C10	mg/kg	25	<25	<25	<25	<25
TRH C6-C9	mg/kg	20	<20	<20	<20	<20

Surrogates

Parameter	Units	LOR	SE199625.001	SE199625.002	SE199625.003	SE199625.004
d4-1,2-dichloroethane (Surrogate)	%	-	92	86	88	85
d8-toluene (Surrogate)	%	-	89	84	86	82
Bromofluorobenzene (Surrogate)	%	-	90	86	84	80

VPH F Bands

Parameter	Units	LOR	SE199625.001	SE199625.002	SE199625.003	SE199625.004
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25

Parameter	Units	LOR	SE199625.001	SE199625.002	SE199625.003	SE199625.004
Sample Number			SE199625.001	SE199625.002	SE199625.003	SE199625.004
Sample Matrix			Soil	Soil	Soil	Soil
Sample Date			01 Nov 2019	01 Nov 2019	01 Nov 2019	01 Nov 2019
Sample Name			BH1 0.0-0.2	BH1 2.0-2.1	BH2 0.5-0.6	BH2 1.0-1.1

TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403 Tested: 5/11/2019

Parameter	Units	LOR	SE199625.001	SE199625.002	SE199625.003	SE199625.004
TRH C10-C14	mg/kg	20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210

TRH F Bands

Parameter	Units	LOR	SE199625.001	SE199625.002	SE199625.003	SE199625.004
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120

PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 Tested: 5/11/2019

Parameter	Units	LOR	SE199625.001	SE199625.002	SE199625.003	SE199625.004
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8

Surrogates

Parameter	Units	LOR	SE199625.001	SE199625.002	SE199625.003	SE199625.004
d5-nitrobenzene (Surrogate)	%	-	106	99	92	94
2-fluorobiphenyl (Surrogate)	%	-	93	90	86	85
d14-p-terphenyl (Surrogate)	%	-	92	96	93	93

OC Pesticides in Soil Method: AN420 Tested: 5/11/2019

Parameter	Units	LOR	SE199625.001	SE199625.002	SE199625.003	SE199625.004
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name	SE199625.001 Soil 01 Nov 2019 BH1 0.0-0.2	SE199625.002 Soil 01 Nov 2019 BH1 2.0-2.1	SE199625.003 Soil 01 Nov 2019 BH2 0.5-0.6	SE199625.004 Soil 01 Nov 2019 BH2 1.0-1.1
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OC Pesticides in Soil Method: AN420 Tested: 5/11/2019 (continued)

o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1	<1	<1

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	87	85	85	93
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OP Pesticides in Soil Method: AN420 Tested: 5/11/2019

Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7	<1.7	<1.7

Surrogates

2-fluorobiphenyl (Surrogate)	%	-	93	90	86	85
d14-p-terphenyl (Surrogate)	%	-	92	96	93	93

PCBs in Soil Method: AN420 Tested: 5/11/2019

Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1	<1

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	87	85	85	93
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Parameter	Units	LOR	SE199625.001	SE199625.002	SE199625.003	SE199625.004
Sample Number			SE199625.001	SE199625.002	SE199625.003	SE199625.004
Sample Matrix			Soil	Soil	Soil	Soil
Sample Date			01 Nov 2019	01 Nov 2019	01 Nov 2019	01 Nov 2019
Sample Name			BH1 0.0-0.2	BH1 2.0-2.1	BH2 0.5-0.6	BH2 1.0-1.1

Speciated Phenols in Soil Method: AN420 Tested: 5/11/2019

Parameter	Units	LOR	SE199625.001	SE199625.002	SE199625.003	SE199625.004
Phenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2-methyl phenol (o-cresol)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
3/4-methyl phenol (m/p-cresol)	mg/kg	1	<1	<1	<1	<1
Total Cresol	mg/kg	1.5	<1.5	<1.5	<1.5	<1.5
2-chlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,4-dimethylphenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,6-dichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,4-dichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-trichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2-nitrophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
4-nitrophenol	mg/kg	1	<1	<1	<1	<1
2,4,5-trichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	<1	<1	<1	<1
Pentachlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,4-dinitrophenol	mg/kg	2	<2	<2	<2	<2
4-chloro-3-methylphenol	mg/kg	2	<2	<2	<2	<2

Surrogates

Parameter	Units	LOR	SE199625.001	SE199625.002	SE199625.003	SE199625.004
2,4,6-Tribromophenol (Surrogate)	%	-	93	93	95	90
d5-phenol (Surrogate)	%	-	84	94	92	78

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: AN040/AN320 Tested: 6/11/2019

Parameter	Units	LOR	SE199625.001	SE199625.002	SE199625.003	SE199625.004
Arsenic, As	mg/kg	1	3	3	2	3
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	16	31	19	21
Copper, Cu	mg/kg	0.5	5.1	5.0	6.4	5.5
Nickel, Ni	mg/kg	0.5	8.1	7.5	11	5.0
Lead, Pb	mg/kg	1	11	9	9	12
Zinc, Zn	mg/kg	2	36	12	49	14

Mercury in Soil Method: AN312 Tested: 6/11/2019

Parameter	Units	LOR	SE199625.001	SE199625.002	SE199625.003	SE199625.004
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05

Moisture Content Method: AN002 Tested: 5/11/2019

Parameter	Units	LOR	SE199625.001	SE199625.002	SE199625.003	SE199625.004
% Moisture	%w/w	1	5.5	11.3	7.8	10.6

Fibre Identification in soil Method: AN602 Tested: 11/11/2019

FibreID

Parameter	Units	LOR	SE199625.001	SE199625.002	SE199625.003	SE199625.004
Asbestos Detected	No unit	-	No	-	No	-

	Sample Number	SE199625.001	SE199625.002	SE199625.003	SE199625.004
	Sample Matrix	Soil	Soil	Soil	Soil
	Sample Date	01 Nov 2019	01 Nov 2019	01 Nov 2019	01 Nov 2019
	Sample Name	BH1 0.0-0.2	BH1 2.0-2.1	BH2 0.5-0.6	BH2 1.0-1.1
Parameter	Units	LOR			

Fibre Identification in soil Method: AN602 Tested: 11/11/2019 (continued)

SemiQuant

Estimated Fibres*	%w/w	0.01	<0.01	-	<0.01	-
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Parameter	Units	LOR	SE199625.005	SE199625.006	SE199625.007	SE199625.008
Sample Number			SE199625.005	SE199625.006	SE199625.007	SE199625.008
Sample Matrix			Soil	Soil	Soil	Soil
Sample Date			01 Nov 2019	01 Nov 2019	01 Nov 2019	01 Nov 2019
Sample Name			BH3 0.0-0.2	BH3 1.0-1.1	BH4 0.0-0.2	BH5 0.5-0.6

VOC's in Soil Method: AN433 Tested: 5/11/2019

Monocyclic Aromatic Hydrocarbons

Parameter	Units	LOR	SE199625.005	SE199625.006	SE199625.007	SE199625.008
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1

Polycyclic VOCs

Parameter	Units	LOR	SE199625.005	SE199625.006	SE199625.007	SE199625.008
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1

Surrogates

Parameter	Units	LOR	SE199625.005	SE199625.006	SE199625.007	SE199625.008
d4-1,2-dichloroethane (Surrogate)	%	-	90	83	86	89
d8-toluene (Surrogate)	%	-	89	81	83	86
Bromofluorobenzene (Surrogate)	%	-	105	88	83	83

Totals

Parameter	Units	LOR	SE199625.005	SE199625.006	SE199625.007	SE199625.008
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil Method: AN433 Tested: 5/11/2019

Parameter	Units	LOR	SE199625.005	SE199625.006	SE199625.007	SE199625.008
TRH C6-C10	mg/kg	25	<25	<25	<25	<25
TRH C6-C9	mg/kg	20	<20	<20	<20	<20

Surrogates

Parameter	Units	LOR	SE199625.005	SE199625.006	SE199625.007	SE199625.008
d4-1,2-dichloroethane (Surrogate)	%	-	90	83	86	89
d8-toluene (Surrogate)	%	-	89	81	83	86
Bromofluorobenzene (Surrogate)	%	-	105	88	83	83

VPH F Bands

Parameter	Units	LOR	SE199625.005	SE199625.006	SE199625.007	SE199625.008
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25

Parameter	Units	LOR	SE199625.005	SE199625.006	SE199625.007	SE199625.008
Sample Number			SE199625.005	SE199625.006	SE199625.007	SE199625.008
Sample Matrix			Soil	Soil	Soil	Soil
Sample Date			01 Nov 2019	01 Nov 2019	01 Nov 2019	01 Nov 2019
Sample Name			BH3 0.0-0.2	BH3 1.0-1.1	BH4 0.0-0.2	BH5 0.5-0.6

TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403 Tested: 5/11/2019

Parameter	Units	LOR	SE199625.005	SE199625.006	SE199625.007	SE199625.008
TRH C10-C14	mg/kg	20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	52	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210

TRH F Bands

Parameter	Units	LOR	SE199625.005	SE199625.006	SE199625.007	SE199625.008
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120

PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 Tested: 5/11/2019

Parameter	Units	LOR	SE199625.005	SE199625.006	SE199625.007	SE199625.008
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8

Surrogates

Parameter	Units	LOR	SE199625.005	SE199625.006	SE199625.007	SE199625.008
d5-nitrobenzene (Surrogate)	%	-	98	95	98	96
2-fluorobiphenyl (Surrogate)	%	-	91	93	94	90
d14-p-terphenyl (Surrogate)	%	-	98	94	96	96

OC Pesticides in Soil Method: AN420 Tested: 5/11/2019

Parameter	Units	LOR	SE199625.005	SE199625.006	SE199625.007	SE199625.008
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2

Parameter	Units	LOR	SE199625.005 Soil 01 Nov 2019 BH3 0.0-0.2	SE199625.006 Soil 01 Nov 2019 BH3 1.0-1.1	SE199625.007 Soil 01 Nov 2019 BH4 0.0-0.2	SE199625.008 Soil 01 Nov 2019 BH5 0.5-0.6
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OC Pesticides in Soil Method: AN420 Tested: 5/11/2019 (continued)

o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1	<1

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	97	78	93	92
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OP Pesticides in Soil Method: AN420 Tested: 5/11/2019

Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7	<1.7

Surrogates

2-fluorobiphenyl (Surrogate)	%	-	91	93	94	90
d14-p-terphenyl (Surrogate)	%	-	98	94	96	96

PCBs in Soil Method: AN420 Tested: 5/11/2019

Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	6.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	6	<1	<1

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	97	78	93	92
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Parameter	Units	LOR	SE199625.005 Soil 01 Nov 2019 BH3 0.0-0.2	SE199625.006 Soil 01 Nov 2019 BH3 1.0-1.1	SE199625.007 Soil 01 Nov 2019 BH4 0.0-0.2	SE199625.008 Soil 01 Nov 2019 BH5 0.5-0.6
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Speciated Phenols in Soil Method: AN420 Tested: 5/11/2019

Parameter	Units	LOR	SE199625.005	SE199625.006	SE199625.007	SE199625.008
Phenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2-methyl phenol (o-cresol)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
3/4-methyl phenol (m/p-cresol)	mg/kg	1	<1	<1	<1	<1
Total Cresol	mg/kg	1.5	<1.5	<1.5	<1.5	<1.5
2-chlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,4-dimethylphenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,6-dichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,4-dichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-trichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2-nitrophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
4-nitrophenol	mg/kg	1	<1	<1	<1	<1
2,4,5-trichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	<1	<1	<1	<1
Pentachlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
2,4-dinitrophenol	mg/kg	2	<2	<2	<2	<2
4-chloro-3-methylphenol	mg/kg	2	<2	<2	<2	<2

Surrogates

Parameter	Units	LOR	SE199625.005	SE199625.006	SE199625.007	SE199625.008
2,4,6-Tribromophenol (Surrogate)	%	-	91	90	91	86
d5-phenol (Surrogate)	%	-	91	84	90	76

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: AN040/AN320 Tested: 6/11/2019

Parameter	Units	LOR	SE199625.005	SE199625.006	SE199625.007	SE199625.008
Arsenic, As	mg/kg	1	2	3	3	3
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	13	16	16	23
Copper, Cu	mg/kg	0.5	5.4	7.0	6.4	8.5
Nickel, Ni	mg/kg	0.5	6.0	8.8	7.4	9.7
Lead, Pb	mg/kg	1	9	10	12	14
Zinc, Zn	mg/kg	2	22	21	43	19

Mercury in Soil Method: AN312 Tested: 6/11/2019

Parameter	Units	LOR	SE199625.005	SE199625.006	SE199625.007	SE199625.008
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05

Moisture Content Method: AN002 Tested: 5/11/2019

Parameter	Units	LOR	SE199625.005	SE199625.006	SE199625.007	SE199625.008
% Moisture	%w/w	1	5.9	9.8	6.7	8.3

Fibre Identification in soil Method: AN602 Tested: 11/11/2019

FibreID

Parameter	Units	LOR	SE199625.005	SE199625.006	SE199625.007	SE199625.008
Asbestos Detected	No unit	-	No	-	No	No

	Sample Number	SE199625.005	SE199625.006	SE199625.007	SE199625.008
	Sample Matrix	Soil	Soil	Soil	Soil
	Sample Date	01 Nov 2019	01 Nov 2019	01 Nov 2019	01 Nov 2019
	Sample Name	BH3 0.0-0.2	BH3 1.0-1.1	BH4 0.0-0.2	BH5 0.5-0.6
Parameter	Units	LOR			

Fibre Identification in soil Method: AN602 Tested: 11/11/2019 (continued)

SemiQuant

Estimated Fibres*	%w/w	0.01	<0.01	-	<0.01	<0.01
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	Sample Number	SE199625.009	SE199625.010	SE199625.011
	Sample Matrix	Soil	Soil	Soil
	Sample Date	01 Nov 2019	01 Nov 2019	01 Nov 2019
	Sample Name	BH6 0.5-0.6	BH6 2.0-2.1	QC1
Parameter	Units	LOR		

VOC's in Soil Method: AN433 Tested: 5/11/2019

Monocyclic Aromatic Hydrocarbons

Benzene	mg/kg	0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1

Polycyclic VOCs

Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
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Surrogates

d4-1,2-dichloroethane (Surrogate)	%	-	92	83	97
d8-toluene (Surrogate)	%	-	89	81	93
Bromofluorobenzene (Surrogate)	%	-	98	79	80

Totals

Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil Method: AN433 Tested: 5/11/2019

TRH C6-C10	mg/kg	25	<25	<25	<25
TRH C6-C9	mg/kg	20	<20	<20	<20

Surrogates

d4-1,2-dichloroethane (Surrogate)	%	-	92	83	97
d8-toluene (Surrogate)	%	-	89	81	93
Bromofluorobenzene (Surrogate)	%	-	98	79	80

VPH F Bands

Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25

Sample Number	SE199625.009	SE199625.010	SE199625.011
Sample Matrix	Soil	Soil	Soil
Sample Date	01 Nov 2019	01 Nov 2019	01 Nov 2019
Sample Name	BH6 0.5-0.6	BH6 2.0-2.1	QC1
Parameter	Units	LOR	

TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403 Tested: 5/11/2019

TRH C10-C14	mg/kg	20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100
TRH C10-C36 Total	mg/kg	110	<110	<110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210

TRH F Bands

TRH >C10-C16	mg/kg	25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120

PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 Tested: 5/11/2019

Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8

Surrogates

d5-nitrobenzene (Surrogate)	%	-	92	90	91
2-fluorobiphenyl (Surrogate)	%	-	88	94	87
d14-p-terphenyl (Surrogate)	%	-	96	92	94

OC Pesticides in Soil Method: AN420 Tested: 5/11/2019

Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2

	Sample Number	SE199625.009	SE199625.010	SE199625.011
	Sample Matrix	Soil	Soil	Soil
	Sample Date	01 Nov 2019	01 Nov 2019	01 Nov 2019
	Sample Name	BH6 0.5-0.6	BH6 2.0-2.1	QC1
Parameter	Units	LOR		

OC Pesticides in Soil Method: AN420 Tested: 5/11/2019 (continued)

Endrin	mg/kg	0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	82	82	76
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OP Pesticides in Soil Method: AN420 Tested: 5/11/2019

Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7

Surrogates

2-fluorobiphenyl (Surrogate)	%	-	88	94	87
d14-p-terphenyl (Surrogate)	%	-	96	92	94

PCBs in Soil Method: AN420 Tested: 5/11/2019

Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1

Parameter	Units	LOR	SE199625.009	SE199625.010	SE199625.011
Sample Number			SE199625.009	SE199625.010	SE199625.011
Sample Matrix			Soil	Soil	Soil
Sample Date			01 Nov 2019	01 Nov 2019	01 Nov 2019
Sample Name			BH6 0.5-0.6	BH6 2.0-2.1	QC1

PCBs in Soil Method: AN420 Tested: 5/11/2019 (continued)

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	82	82	76
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Speciated Phenols in Soil Method: AN420 Tested: 5/11/2019

Phenol	mg/kg	0.5	<0.5	<0.5	<0.5
2-methyl phenol (o-cresol)	mg/kg	0.5	<0.5	<0.5	<0.5
3/4-methyl phenol (m/p-cresol)	mg/kg	1	<1	<1	<1
Total Cresol	mg/kg	1.5	<1.5	<1.5	<1.5
2-chlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5
2,4-dimethylphenol	mg/kg	0.5	<0.5	<0.5	<0.5
2,6-dichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5
2,4-dichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5
2,4,6-trichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5
2-nitrophenol	mg/kg	0.5	<0.5	<0.5	<0.5
4-nitrophenol	mg/kg	1	<1	<1	<1
2,4,5-trichlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5
2,3,4,6/2,3,5,6-tetrachlorophenol	mg/kg	1	<1	<1	<1
Pentachlorophenol	mg/kg	0.5	<0.5	<0.5	<0.5
2,4-dinitrophenol	mg/kg	2	<2	<2	<2
4-chloro-3-methylphenol	mg/kg	2	<2	<2	<2

Surrogates

2,4,6-Tribromophenol (Surrogate)	%	-	91	84	87
d5-phenol (Surrogate)	%	-	85	79	89

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: AN040/AN320 Tested: 6/11/2019

Arsenic, As	mg/kg	1	3	4	2
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	18	18	13
Copper, Cu	mg/kg	0.5	4.4	5.9	4.4
Nickel, Ni	mg/kg	0.5	8.7	9.1	6.3
Lead, Pb	mg/kg	1	8	9	8
Zinc, Zn	mg/kg	2	24	19	25

Mercury in Soil Method: AN312 Tested: 6/11/2019

Mercury	mg/kg	0.05	<0.05	<0.05	<0.05
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Moisture Content Method: AN002 Tested: 5/11/2019

% Moisture	%w/w	1	8.0	12.8	4.6
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	Sample Number	SE199625.009	SE199625.010	SE199625.011
	Sample Matrix	Soil	Soil	Soil
	Sample Date	01 Nov 2019	01 Nov 2019	01 Nov 2019
	Sample Name	BH6 0.5-0.6	BH6 2.0-2.1	QC1
Parameter	Units	LOR		

Fibre Identification in soil Method: AN602 Tested: 11/11/2019

FibreID

Asbestos Detected	No unit	-	No	-	-
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SemiQuant

Estimated Fibres*	%w/w	0.01	<0.01	-	-
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MB blank results are compared to the Limit of Reporting

LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.

DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA', the results are less than the LOR and thus the RPD is not applicable.

Mercury in Soil Method: ME-(AU)-[ENV]AN312

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Mercury	LB187082	mg/kg	0.05	<0.05	0%	106%	93%

Moisture Content Method: ME-(AU)-[ENV]AN002

Parameter	QC Reference	Units	LOR	DUP %RPD
% Moisture	LB187019	%w/w	1	3 - 7%

OC Pesticides in Soil Method: ME-(AU)-[ENV]AN420

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Hexachlorobenzene (HCB)	LB187018	mg/kg	0.1	<0.1	0%	NA	NA
Alpha BHC	LB187018	mg/kg	0.1	<0.1	0%	NA	NA
Lindane	LB187018	mg/kg	0.1	<0.1	0%	NA	NA
Heptachlor	LB187018	mg/kg	0.1	<0.1	0%	102%	101%
Aldrin	LB187018	mg/kg	0.1	<0.1	0%	101%	100%
Beta BHC	LB187018	mg/kg	0.1	<0.1	0%	NA	NA
Delta BHC	LB187018	mg/kg	0.1	<0.1	0%	99%	98%
Heptachlor epoxide	LB187018	mg/kg	0.1	<0.1	0%	NA	NA
o,p'-DDE	LB187018	mg/kg	0.1	<0.1	0%	NA	NA
Alpha Endosulfan	LB187018	mg/kg	0.2	<0.2	0%	NA	NA
Gamma Chlordane	LB187018	mg/kg	0.1	<0.1	0%	NA	NA
Alpha Chlordane	LB187018	mg/kg	0.1	<0.1	0%	NA	NA
trans-Nonachlor	LB187018	mg/kg	0.1	<0.1	0%	NA	NA
p,p'-DDE	LB187018	mg/kg	0.1	<0.1	0%	NA	NA
Dieldrin	LB187018	mg/kg	0.2	<0.2	0%	95%	94%
Endrin	LB187018	mg/kg	0.2	<0.2	0%	91%	89%
o,p'-DDD	LB187018	mg/kg	0.1	<0.1	0%	NA	NA
o,p'-DDT	LB187018	mg/kg	0.1	<0.1	0%	NA	NA
Beta Endosulfan	LB187018	mg/kg	0.2	<0.2	0%	NA	NA
p,p'-DDD	LB187018	mg/kg	0.1	<0.1	0%	NA	NA
p,p'-DDT	LB187018	mg/kg	0.1	<0.1	0%	83%	78%
Endosulfan sulphate	LB187018	mg/kg	0.1	<0.1	0%	NA	NA
Endrin Aldehyde	LB187018	mg/kg	0.1	<0.1	0%	NA	NA
Methoxychlor	LB187018	mg/kg	0.1	<0.1	0%	NA	NA
Endrin Ketone	LB187018	mg/kg	0.1	<0.1	0%	NA	NA
Isodrin	LB187018	mg/kg	0.1	<0.1	0%	NA	NA
Mirex	LB187018	mg/kg	0.1	<0.1	0%	NA	NA
Total CLP OC Pesticides	LB187018	mg/kg	1	<1	0%	NA	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Tetrachloro-m-xylene (TCMX) (Surrogate)	LB187018	%	-	82%	3%	85%	90%

MB blank results are compared to the Limit of Reporting

LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared to the amount of analyte spiked into the sample.

DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA', the results are less than the LOR and thus the RPD is not applicable.

OP Pesticides in Soil Method: ME-(AU)-[ENV]AN420

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Dichlorvos	LB187018	mg/kg	0.5	<0.5	0%	93%	85%
Dimethoate	LB187018	mg/kg	0.5	<0.5	0%	NA	NA
Diazinon (Dimpylate)	LB187018	mg/kg	0.5	<0.5	0%	108%	97%
Fenitrothion	LB187018	mg/kg	0.2	<0.2	0%	NA	NA
Malathion	LB187018	mg/kg	0.2	<0.2	0%	NA	NA
Chlorpyrifos (Chlorpyrifos Ethyl)	LB187018	mg/kg	0.2	<0.2	0%	100%	96%
Parathion-ethyl (Parathion)	LB187018	mg/kg	0.2	<0.2	0%	NA	NA
Bromophos Ethyl	LB187018	mg/kg	0.2	<0.2	0%	NA	NA
Methidathion	LB187018	mg/kg	0.5	<0.5	0%	NA	NA
Ethion	LB187018	mg/kg	0.2	<0.2	0%	97%	95%
Azinphos-methyl (Guthion)	LB187018	mg/kg	0.2	<0.2	0%	NA	NA
Total OP Pesticides*	LB187018	mg/kg	1.7	<1.7	0%	NA	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
2-fluorobiphenyl (Surrogate)	LB187018	%	-	101%	5%	97%	99%
d14-p-terphenyl (Surrogate)	LB187018	%	-	107%	3%	95%	92%

PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: ME-(AU)-[ENV]AN420

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Naphthalene	LB187018	mg/kg	0.1	<0.1	NVL	94%	104%
2-methylnaphthalene	LB187018	mg/kg	0.1	<0.1	NVL	NA	NA
1-methylnaphthalene	LB187018	mg/kg	0.1	<0.1	NVL	NA	NA
Acenaphthylene	LB187018	mg/kg	0.1	<0.1	NVL	101%	110%
Acenaphthene	LB187018	mg/kg	0.1	<0.1	NVL	95%	101%
Fluorene	LB187018	mg/kg	0.1	<0.1	NVL	NA	NA
Phenanthrene	LB187018	mg/kg	0.1	<0.1	NVL	96%	106%
Anthracene	LB187018	mg/kg	0.1	<0.1	NVL	90%	102%
Fluoranthene	LB187018	mg/kg	0.1	<0.1	NVL	97%	103%
Pyrene	LB187018	mg/kg	0.1	<0.1	NVL	99%	107%
Benzo(a)anthracene	LB187018	mg/kg	0.1	<0.1	NVL	NA	NA
Chrysene	LB187018	mg/kg	0.1	<0.1	NVL	NA	NA
Benzo(b&j)fluoranthene	LB187018	mg/kg	0.1	<0.1	NVL	NA	NA
Benzo(k)fluoranthene	LB187018	mg/kg	0.1	<0.1	NVL	NA	NA
Benzo(a)pyrene	LB187018	mg/kg	0.1	<0.1	NVL	102%	111%
Indeno(1,2,3-cd)pyrene	LB187018	mg/kg	0.1	<0.1	NVL	NA	NA
Dibenzo(ah)anthracene	LB187018	mg/kg	0.1	<0.1	NVL	NA	NA
Benzo(ghi)perylene	LB187018	mg/kg	0.1	<0.1	NVL	NA	NA
Carcinogenic PAHs, BaP TEQ <LOR=0	LB187018	TEQ (mg/kg)	0.2	<0.2	NVL	NA	NA
Carcinogenic PAHs, BaP TEQ <LOR=LOR	LB187018	TEQ (mg/kg)	0.3	<0.3	NVL	NA	NA
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	LB187018	TEQ (mg/kg)	0.2	<0.2	NVL	NA	NA
Total PAH (18)	LB187018	mg/kg	0.8	<0.8	NVL	NA	NA
Total PAH (NEPM/WHO 16)	LB187018	mg/kg	0.8	<0.8			

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
d5-nitrobenzene (Surrogate)	LB187018	%	-	112%	NVL	103%	97%
2-fluorobiphenyl (Surrogate)	LB187018	%	-	101%	NVL	97%	99%
d14-p-terphenyl (Surrogate)	LB187018	%	-	107%	NVL	95%	92%

MB blank results are compared to the Limit of Reporting

LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared to the amount of analyte spiked into the sample.

DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA', the results are less than the LOR and thus the RPD is not applicable.

PCBs in Soil Method: ME-(AU)-[ENV]AN420

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Arochlor 1016	LB187018	mg/kg	0.2	<0.2	0%	NA	NA
Arochlor 1221	LB187018	mg/kg	0.2	<0.2	0%	NA	NA
Arochlor 1232	LB187018	mg/kg	0.2	<0.2	0%	NA	NA
Arochlor 1242	LB187018	mg/kg	0.2	<0.2	0%	NA	NA
Arochlor 1248	LB187018	mg/kg	0.2	<0.2	0%	NA	NA
Arochlor 1254	LB187018	mg/kg	0.2	<0.2	0%	NA	NA
Arochlor 1260	LB187018	mg/kg	0.2	<0.2	0%	101%	109%
Arochlor 1262	LB187018	mg/kg	0.2	<0.2	0%	NA	NA
Arochlor 1268	LB187018	mg/kg	0.2	<0.2	0%	NA	NA
Total PCBs (Arochlors)	LB187018	mg/kg	1	<1	0%	NA	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Tetrachloro-m-xylene (TCMX) (Surrogate)	LB187018	%	-	82%	3%	82%	89%

Speciated Phenols in Soil Method: ME-(AU)-[ENV]AN420

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Phenol	LB187018	mg/kg	0.5	<0.5	0%	96%	77%
2-methyl phenol (o-cresol)	LB187018	mg/kg	0.5	<0.5	0%	NA	NA
3/4-methyl phenol (m/p-cresol)	LB187018	mg/kg	1	<1	0%	NA	NA
Total Cresol	LB187018	mg/kg	1.5	<1.5	0%	NA	NA
2-chlorophenol	LB187018	mg/kg	0.5	<0.5	0%	NA	NA
2,4-dimethylphenol	LB187018	mg/kg	0.5	<0.5	0%	NA	NA
2,6-dichlorophenol	LB187018	mg/kg	0.5	<0.5	0%	NA	NA
2,4-dichlorophenol	LB187018	mg/kg	0.5	<0.5	0%	87%	74%
2,4,6-trichlorophenol	LB187018	mg/kg	0.5	<0.5	0%	82%	75%
2-nitrophenol	LB187018	mg/kg	0.5	<0.5	0%	NA	NA
4-nitrophenol	LB187018	mg/kg	1	<1	0%	NA	NA
2,4,5-trichlorophenol	LB187018	mg/kg	0.5	<0.5	0%	NA	NA
2,3,4,6/2,3,5,6-tetrachlorophenol	LB187018	mg/kg	1	<1	0%	NA	NA
Pentachlorophenol	LB187018	mg/kg	0.5	<0.5	0%	72%	71%
2,4-dinitrophenol	LB187018	mg/kg	2	<2	0%	NA	NA
4-chloro-3-methylphenol	LB187018	mg/kg	2	<2	0%	NA	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
2,4,6-Tribromophenol (Surrogate)	LB187018	%	-	123%	0%	98%	97%
d5-phenol (Surrogate)	LB187018	%	-	121%	2%	99%	90%

MB blank results are compared to the Limit of Reporting

LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.

DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA', the results are less than the LOR and thus the RPD is not applicable.

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: ME-(AU)-[ENV]AN040/AN320

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Arsenic, As	LB187082	mg/kg	1	<1	9%	102%	87%
Cadmium, Cd	LB187082	mg/kg	0.3	<0.3	0%	81%	82%
Chromium, Cr	LB187082	mg/kg	0.5	<0.5	2%	94%	90%
Copper, Cu	LB187082	mg/kg	0.5	<0.5	18%	102%	89%
Nickel, Ni	LB187082	mg/kg	0.5	<0.5	11%	99%	87%
Lead, Pb	LB187082	mg/kg	1	<1	23%	105%	89%
Zinc, Zn	LB187082	mg/kg	2	<2.0	35%	98%	120%

TRH (Total Recoverable Hydrocarbons) in Soil Method: ME-(AU)-[ENV]AN403

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
TRH C10-C14	LB187018	mg/kg	20	<20	NVL	95%	90%
TRH C15-C28	LB187018	mg/kg	45	<45	NVL	100%	90%
TRH C29-C36	LB187018	mg/kg	45	<45	NVL	88%	88%
TRH C37-C40	LB187018	mg/kg	100	<100	NVL	NA	NA
TRH C10-C36 Total	LB187018	mg/kg	110	<110	NVL	NA	NA
TRH >C10-C40 Total (F bands)	LB187018	mg/kg	210	<210	NVL	NA	NA

TRH F Bands

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
TRH >C10-C16	LB187018	mg/kg	25	<25	NVL	98%	90%
TRH >C10-C16 - Naphthalene (F2)	LB187018	mg/kg	25	<25	NVL	NA	NA
TRH >C16-C34 (F3)	LB187018	mg/kg	90	<90	NVL	103%	98%
TRH >C34-C40 (F4)	LB187018	mg/kg	120	<120	NVL	80%	NA

VOC's in Soil Method: ME-(AU)-[ENV]AN433

Monocyclic Aromatic Hydrocarbons

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Benzene	LB187017	mg/kg	0.1	<0.1	0%	77%	88%
Toluene	LB187017	mg/kg	0.1	<0.1	0%	79%	91%
Ethylbenzene	LB187017	mg/kg	0.1	<0.1	0%	79%	98%
m/p-xylene	LB187017	mg/kg	0.2	<0.2	0%	80%	99%
o-xylene	LB187017	mg/kg	0.1	<0.1	0%	81%	101%

Polycyclic VOCs

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Naphthalene	LB187017	mg/kg	0.1	<0.1	0%	NA	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
d4-1,2-dichloroethane (Surrogate)	LB187017	%	-	87%	0 - 11%	86%	89%
d8-toluene (Surrogate)	LB187017	%	-	82%	2 - 12%	82%	87%
Bromofluorobenzene (Surrogate)	LB187017	%	-	78%	10 - 19%	81%	103%

Totals

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Total Xylenes	LB187017	mg/kg	0.3	<0.3	0%	NA	NA
Total BTEX	LB187017	mg/kg	0.6	<0.6	0%	NA	NA

MB blank results are compared to the Limit of Reporting

LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared to the amount of analyte spiked into the sample.

DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA', the results are less than the LOR and thus the RPD is not applicable.

Volatile Petroleum Hydrocarbons in Soil Method: ME-(AU)-[ENV]AN433

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
TRH C6-C10	LB187017	mg/kg	25	<25	0%	70%	77%
TRH C6-C9	LB187017	mg/kg	20	<20	0%	72%	77%

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
d4-1,2-dichloroethane (Surrogate)	LB187017	%	-	87%	0 - 11%	86%	89%
d8-toluene (Surrogate)	LB187017	%	-	82%	2 - 12%	82%	87%
Bromofluorobenzene (Surrogate)	LB187017	%	-	78%	10 - 19%	81%	103%

VPH F Bands

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Benzene (F0)	LB187017	mg/kg	0.1	<0.1	0%	NA	NA
TRH C6-C10 minus BTEX (F1)	LB187017	mg/kg	25	<25	0%	66%	68%

METHOD

METHODOLOGY SUMMARY

AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid, mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Recoverable Hydrocarbons - Silica (TRH-Si) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents.
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC's are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic 'clues', which provide a reasonable degree of certainty, dispersion staining is a mandatory 'clue' for positive identification. If sufficient 'clues' are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocally identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.

METHOD

METHODOLOGY SUMMARY

- AN602 AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples , Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
- AN602 The sample can be reported "no asbestos found at the reporting limit of 0.1 g/kg" (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if-
- (a) no trace asbestos fibres have been detected (i.e. no 'respirable' fibres);
 - (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg; and
 - (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

IS	Insufficient sample for analysis.	LOR	Limit of Reporting
LNR	Sample listed, but not received.	↑↓	Raised or Lowered Limit of Reporting
*	NATA accreditation does not cover the performance of this service.	QFH	QC result is above the upper tolerance
**	Indicative data, theoretical holding time exceeded.	QFL	QC result is below the lower tolerance
		-	The sample was not analysed for this analyte
		NVL	Not Validated

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received. Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the "Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.

Note that in terms of units of radioactivity:

- a. 1 Bq is equivalent to 27 pCi
- b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/pv.sgsvr/en-gb/environment.

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		Facsimile:	
		Email Results:	Chris.gunton@lanterra.com.au

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL	PRESERVATIVE	NO OF CONTAINERS	CL15 - TRH, BTEX, PAH, OCP, OPP, PCB, Phenol, Metals	Asbestos ID	HOLD	Received By:	Date/Time
BH1 0.0-0.2	1/11/19	1	X	X		1	X	X			
BH1 0.5-0.6	1/11/19		X	X		1					
BH1 1.0-1.1	1/11/19		X	X		1					
BH1 2.0-2.1	1/11/19	2	X	X		1	X				
BH1 2.6-2.7	1/11/19		X	X		1					
BH2 0.0-0.2	1/11/19		X	X		1					
BH2 0.5-0.6	1/11/19	3	X	X		1	X	X			
BH2 1.0-1.1	1/11/19	4	X	X		1	X				
BH2 2.0-2.1	1/11/19		X	X		1					
BH2 2.6-2.7	1/11/19		X	X		1					
Relinquished By:	<i>CG</i>	Date/Time:	4/11/19	14.00	Received By:	<i>Chris Gunton</i>	Date/Time	05/11/19 @ 11.15			
Samples Intact:	Yes/ No	Temperature:	Ambient / Chilled	Sample Cooler Sealed:	Yes/ No	Laboratory Quotation No:	Lante MPP140				
Comments:											



CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
 Unit 16, 33 Maddox Street
 Alexandria NSW 2015
 Telephone No: (02) 85940400
 Facsimile No: (02) 85940499
 Email: au.samplerreceipt.sydney@sgs.com

Company Name: Lanterra Consulting Pty Ltd
 Address: Unit 4, 19 Tenerry Street
 Weston, ACT, 2611
 Contact Name: Chris Gunton

Project Name/No: P19089 - B54 S45 Belconnen
 Purchase Order No:
 Results Required By:
 Telephone: 0432 324 348
 Facsimile:
 Email Results: Chris.gunton@lanterra.com.au

Client Sample ID	Date Sampled	Lab Sample ID	NO OF CONTAINERS				CL15 - TRH, BTEX, PAH, OCP, OPP, PCB, Phenol, Metals	Asbestos ID	HOLD	Received By:	Date/Time
			WATER	SOIL	PRESERVATIVE	NO OF CONTAINERS					
BH3 0.0-0.2	1/11/19	5	X	X		1	X	X			
BH3 0.5-0.6	1/11/19		X			1					
BH3 1.0-1.1	1/11/19	6	X			1	X				
BH3 2.0-2.1	1/11/19		X			1					
BH3 2.5-2.6	1/11/19		X			1					
BH4 0.0-0.2	1/11/19	7	X			1	X	X			
BH4 0.5-0.6	1/11/19		X			1					
BH4 1.0-1.1	1/11/19		X			1					
BH5 0.0-2.2	1/11/19		X			1					
BH5 0.5-0.6	1/11/19	8	X			1	X	X			
Relinquished By: <i>[Signature]</i>	Date/Time: 4/11/19								Received By: <i>[Signature]</i>	Date/Time: 05/11/19 @ 11:15	
Reinquired By:	Date/Time:								Received By:	Date/Time:	
Samples Intact: Yes/No	Temperature: Ambient / Chilled	Comments:		Sample Cooler Sealed: Yes/No	Laboratory Quotation No: Lante MPP140						



SGS Environmental Services

Unit 16, 33 Maddox Street

Alexandria NSW 2015

Telephone No: (02) 85940400

Facsimile No: (02) 85940499

Email: au.samplerreceipt.sydney@sgs.com

CHAIN OF CUSTODY & ANALYSIS REQUEST

Page ____ of ____

Company Name: Lanterra Consulting Pty Ltd

Address: Unit 4, 19 Trenerry Street
Weston, ACT, 2611

Project Name/No: P19089 - B54 S45 Balcomen

Purchase Order No:

Results Required By: Standard Turnaround Time

Contact Name: Chris Gunton

Telephone: 0432 324 348

Facsimile:

Email Results: Chris.gunton@lanterra.com.au

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL	PRESERVATIVE	NO OF CONTAINERS	CL15 - TRH, BTEX, PAH, OCP, OPP, PCB, Phenol, Metals	Asbestos ID	TRH, BTEX, PAH, Heavy Metals	HOLD	Received By:	Date/Time
BH5 1.0-1.1	1/11/19		X			1					<i>[Signature]</i>	05/11/19 @ 11:15
BH6 0.0-0.2	1/11/19		X			1						
BH6 0.5-0.6	1/11/19	9	X			1	X	X				
BH6 1.0-1.1	1/11/19		X			1						
BH6 2.0-2.1	1/11/19	10	X			1	X					
BH6 2.5-2.6	1/11/19		X			1						
QC1	1/11/19	11	X			1	X					
QC2	1/11/19		X			1		X				
Please forward to Envirolab												
Relinquished By:	<i>[Signature]</i>	Date/Time:	4/11/19	14:00								
Relinquished By:		Date/Time:										
Samples Intact:	Yes/ No	Temperature:	Ambient / Chilled	Comments:								
Sample Cooler Sealed:	Yes/ No	Sample Cooler Sealed:	Yes/ No	Laboratory Quotation No:	Lante MPP140							

CLIENT DETAILS

LABORATORY DETAILS

Contact Chris Gunton
 Client LANTERRA CONSULTING PTY LTD
 Address PO BOX 3626
 WESTON ACT 2611

Telephone (Not specified)
 Facsimile (Not specified)
 Email Chris.Gunton@lanterra.com.au

Project **P19089-B54 S45 Belconnen**
 Order Number **P19089**
 Samples 6

Manager Huong Crawford
 Laboratory SGS Alexandria Environmental
 Address Unit 16, 33 Maddox St
 Alexandria NSW 2015

Telephone +61 2 8594 0400
 Facsimile +61 2 8594 0499
 Email au.environmental.sydney@sgs.com

SGS Reference **SE199625 R0**
 Date Received 05 Nov 2019
 Date Reported 12 Nov 2019

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all soil samples using trace analysis technique.

A portion of the sample supplied has been sub-sampled for asbestos according to SGS In-house procedures. We therefore cannot guarantee that the sub-sample is representative of the entire sample supplied. SGS Environment, Health and Safety recommends supplying approximately 50-100g of sample in a separate container.

Asbestos analysed by Approved Identifier Ravee Sivasubramaniam .

SIGNATORIES



Akheequeq BENIAMEEN
 Chemist



Dong LIANG
 Metals/Inorganics Team Leader



Ly Kim HA
 Organic Section Head



Ravee SIVASUBRAMANIAM
 Hygiene Team Leader

RESULTS

Fibre Identification in soil

Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est.%w/w*
SE199625.001	BH1 0.0-0.2	Soil	91g Clay, Rocks	01 Nov 2019	No Asbestos Found	<0.01
SE199625.003	BH2 0.5-0.6	Soil	61g Clay, Rocks	01 Nov 2019	No Asbestos Found	<0.01
SE199625.005	BH3 0.0-0.2	Soil	69g Clay, Rocks	01 Nov 2019	No Asbestos Found	<0.01
SE199625.007	BH4 0.0-0.2	Soil	118g Clay, Sand, Rocks	01 Nov 2019	No Asbestos Found Organic Fibres Detected	<0.01
SE199625.008	BH5 0.5-0.6	Soil	82g Clay, Sand, Rocks	01 Nov 2019	No Asbestos Found	<0.01
SE199625.009	BH6 0.5-0.6	Soil	76g Clay, Sand, Rocks	01 Nov 2019	No Asbestos Found	<0.01

METHOD

METHODOLOGY SUMMARY

AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic 'clues', which provide a reasonable degree of certainty, dispersion staining is a mandatory 'clue' for positive identification. If sufficient 'clues' are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocally identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states: "Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602	The sample can be reported "no asbestos found at the reporting limit of 0.1 g/kg" (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- <ul style="list-style-type: none"> (a) no trace asbestos fibres have been detected (i.e. no 'respirable' fibres); (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg; and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

Amosite	-	Brown Asbestos	NA	-	Not Analysed
Chrysotile	-	White Asbestos	LNR	-	Listed, Not Required
Crocidolite	-	Blue Asbestos	*	-	NATA accreditation does not cover the performance of this service.
Amphiboles	-	Amosite and/or Crocidolite	**	-	Indicative data, theoretical holding time exceeded.

(In reference to soil samples only) This report does not comply with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment and Remediation and Management of Asbestos Contaminated sites in Western Australia - May 2009.

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.

Where reported: 'Asbestos Detected': Asbestos detected by polarised light microscopy, including dispersion staining.

Where reported: 'No Asbestos Found': No Asbestos Found by polarised light microscopy, including dispersion staining.

Where reported: 'UMF Detected': Mineral fibres of unknown type detected by polarised light microscopy, including dispersion staining. Confirmation by another independent analytical technique may be necessary.

Even after disintegration it can be very difficult, or impossible, to detect the presence of asbestos in some asbestos-containing bulk materials using polarised light microscopy. This is due to the low grade or small length or diameter of asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/pv.sgsvr/en-qb/environment.

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SAMPLE RECEIPT ADVICE

SE199625

CLIENT DETAILS

Contact Chris Gunton
Client LANTERRA CONSULTING PTY LTD
Address PO BOX 3626
WESTON ACT 2611

Telephone (Not specified)
Facsimile (Not specified)
Email Chris.Gunton@lanterra.com.au

Project **P19089-B54 S45 Belconnen**
Order Number **P19089**
Samples 11

LABORATORY DETAILS

Manager Huong Crawford
Laboratory SGS Alexandria Environmental
Address Unit 16, 33 Maddox St
Alexandria NSW 2015

Telephone +61 2 8594 0400
Facsimile +61 2 8594 0499
Email au.environmental.sydney@sgs.com

Samples Received Tue 5/11/2019
Report Due Tue 12/11/2019
SGS Reference **SE199625**

SUBMISSION DETAILS

This is to confirm that 11 samples were received on Tuesday 5/11/2019. Results are expected to be ready by COB Tuesday 12/11/2019. Please quote SGS reference SE199625 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	11 Soil
Date documentation received	5/11/2019	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	12.5°C	Sufficient sample for analysis	Yes
Turnaround time requested	Standard		

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

A separate portion was not supplied for Asbestos analysis. A sub-sample will be used from the jar provided.
16 soil samples have been placed on hold as no tests have been assigned for them by the client. These samples will not be processed.
Sample QC2 has been forwarded to Envirolab

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CLIENT DETAILS

Client **LANTERRA CONSULTING PTY LTD**

Project **P19089-B54 S45 Belconnen**

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	PCBs in Soil	Speciated Phenols in Soil	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	BH1 0.0-0.2	29	14	26	11	18	10	11	7
002	BH1 2.0-2.1	29	14	26	11	18	10	11	7
003	BH2 0.5-0.6	29	14	26	11	18	10	11	7
004	BH2 1.0-1.1	29	14	26	11	18	10	11	7
005	BH3 0.0-0.2	29	14	26	11	18	10	11	7
006	BH3 1.0-1.1	29	14	26	11	18	10	11	7
007	BH4 0.0-0.2	29	14	26	11	18	10	11	7
008	BH5 0.5-0.6	29	14	26	11	18	10	11	7
009	BH6 0.5-0.6	29	14	26	11	18	10	11	7
010	BH6 2.0-2.1	29	14	26	11	18	10	11	7
011	QC1	29	14	26	11	18	10	11	7

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document. The numbers shown in the table indicate the number of results requested in each package. Please indicate as soon as possible should your request differ from these details. Testing as per this table shall commence immediately unless the client intervenes with a correction.

CLIENT DETAILS

Client **LANTERRA CONSULTING PTY LTD**

Project **P19089-B54 S45 Belconnen**

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Mercury in Soil	Moisture Content	Total Recoverable Elements in Soil/Waste
001	BH1 0.0-0.2	2	1	1	7
002	BH1 2.0-2.1	-	1	1	7
003	BH2 0.5-0.6	2	1	1	7
004	BH2 1.0-1.1	-	1	1	7
005	BH3 0.0-0.2	2	1	1	7
006	BH3 1.0-1.1	-	1	1	7
007	BH4 0.0-0.2	2	1	1	7
008	BH5 0.5-0.6	2	1	1	7
009	BH6 0.5-0.6	2	1	1	7
010	BH6 2.0-2.1	-	1	1	7
011	QC1	-	1	1	7

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document. The numbers shown in the table indicate the number of results requested in each package. Please indicate as soon as possible should your request differ from these details. Testing as per this table shall commence immediately unless the client intervenes with a correction.