



REPORT TO
PYMBLE LADIES COLLEGE

ON
PRELIMINARY (DESKTOP) SITE INVESTIGATION

FOR
**PROPOSED GREY HOUSE PRECINCT
DEVELOPMENT**

AT
**PYMBLE LADIES COLLEGE, AVON ROAD, PYMBLE,
NSW**

Date: 23 June 2021

Ref: E33775PLrpt

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Executive Summary

Pymble Ladies College ('the client') commissioned JK Environments (JKE) to undertake a Preliminary (Stage 1) Site Investigation (PSI) for the proposed Grey House Precinct development at Pymble Ladies College, Avon Road, Pymble, NSW. The purpose of the PSI is to make a preliminary assessment of site contamination. The site location is shown on Figure 1 and the investigation was confined to the site boundaries as shown on Figure 2 attached in the appendices.

This report has been prepared to support the lodgement of a Development Application (DA) for the proposed development, with regards to State Environmental Planning Policy No.55 – Remediation of Land (1998) (SEPP55).

JKE previously conducted a Preliminary Waste Classification Assessment for the proposed development (Ref: E33775PHlet, dated 3 February 2021). The assessment encountered fill material maximum depth of approximately 0.75m below ground level (BGL), underlain by natural silty clay soil to a maximum depth of approximately 1.5mBGL.

The primary aims of the investigation were to: identify past or present potentially contaminating activities at the site; identify the potential for site contamination; and assess the need for further investigation. The objectives were to:

- Provide an appraisal of the past site use(s) based on a review of historical records;
- Assess the current site conditions and land use by completing a site walkover inspection;
- Identify potential contamination sources/areas of environmental concern (AEC) and contaminants of potential concern (CoPC);
- Prepare a conceptual site model (CSM); and
- Assess whether an intrusive investigation is required.

The scope of work included the following:

- Review of site information, including background and site history information from various sources outlined in the report;
- A walkover site inspection; and
- Preparation of a PSI report presenting the results of the assessment, including a CSM.

Based on the information reviewed and a weight of evidence assessment of the site history documentation, and site observations made by JKE, we consider that the site has historically been used for potential agricultural purposes as part of the school/church grounds since 1916 and may have been of similar use before this time. The site has undergone various stages of development for use as tennis courts and other school uses including the existing demountable buildings and marquee structure since 1951 to the present day. Cut and fill works may have been undertaken at various stages throughout this time to create a level platform for the developments.

The immediate surrounds to the south of the site were mostly used for residential purposes, while the surrounds to the east, west and north of the site were part of the wider school grounds and underwent various stages of development for the school buildings and amenities.

Based on the scope of work undertaken for this investigation, JKE identified the following potential contamination sources/AEC:

- Fill material;
- Historical agricultural use;
- Use of pesticides; and
- Hazardous building materials.

Considering the above, and based on a qualitative assessment of various lines of evidence as discussed throughout this report, JKE are of the opinion that there is a potential for site contamination.

Based on the potential contamination sources/AEC identified, and the potential for contamination, further investigation of the contamination conditions is considered to be required. A Detailed Site Investigation (DSI/Stage 2) will be required to characterise the contamination conditions with regards to SEPP55 and NEPM 2013.

The Preliminary Waste Classification Assessment identified historically imported fill and this AEC has not been adequately characterised.

JKE are of the opinion that the historical land uses and potential sources of contamination/AEC identified would not preclude the proposed development. The following is recommended to better assess the risks associated with potential contamination at the site:

- A DSI is to be undertaken to characterise the site contamination conditions and establish whether the site is suitable for the proposed development, or whether remediation is required. This must include sampling to meet the minimum sampling density specified by the NSW EPA. The use of test pits is recommended for this investigation; and
- If it is not practicable to do so as part of the DSI, additional inspection and sampling is to be undertaken following demolition/removal of the existing demountables and marquee structures to confirm the classification of material to be excavated for the proposed development.

The conclusions and recommendations should be read in conjunction with the limitations presented in the body of this report.



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Abbreviations

Asbestos Fines/Fibrous Asbestos	AF/FA
Ambient Background Concentrations	ABC
Added Contaminant Limits	ACL
Asbestos Containing Material	ACM
Australian Drinking Water Guidelines	ADWG
Area of Environmental Concern	AEC
Australian Height Datum	AHD
Acid Sulfate Soil	ASS
Above-Ground Storage Tank	AST
Below Ground Level	BGL
Benzo(a)pyrene Toxicity Equivalent Factor	BaP TEQ
Bureau of Meteorology	BOM
Benzene, Toluene, Ethylbenzene, Xylene	BTEX
Cation Exchange Capacity	CEC
Contaminated Land Management	CLM
Contaminant(s) of Potential Concern	CoPC
Chain of Custody	COC
Conceptual Site Model	CSM
Development Application	DA
Detailed Site Investigation	DSI
Ecological Investigation Level	EIL
Ecological Screening Level	ESL
Environmental Management Plan	EMP
Excavated Natural Material	ENM
Environment Protection Authority	EPA
Environmental Site Assessment	ESA
Ecological Screening Level	ESL
Fibre Cement Fragment(s)	FCF
Health Investigation Level	HILs
Health Screening Level	HSLs
JK Environments	JKE
Map Grid of Australia	MGA
National Association of Testing Authorities	NATA
National Environmental Protection Measure	NEPM
Organochlorine Pesticides	OCP
Organophosphate Pesticides	OPP
Polycyclic Aromatic Hydrocarbons	PAH
Potential ASS	PASS
Polychlorinated Biphenyls	PCBs
Per- and Polyfluoroalkyl Substances	PFAS
Photo-ionisation Detector	PID
Protection of the Environment Operations	POEO
Practical Quantitation Limit	PQL
Remediation Action Plan	RAP
Sampling, Analysis and Quality Plan	SAQP
Site Audit Statement	SAS
Site Audit Report	SAR
Site Specific Assessment	SSA
Source, Pathway, Receptor	SPR
Standard Sampling Procedure	SSP
Standing Water Level	SWL
Total Recoverable Hydrocarbons	TRH
United States Environmental Protection Agency	USEPA



Underground Storage Tank	UST
Virgin Excavated Natural Material	VENM
Volatile Organic Compounds	VOC
World Health Organisation	WHO
Work Health and Safety	WHS

Units

Litres	L
Metres BGL	mBGL
Metres	m
Millivolts	mV
Millilitres	ml or mL
Milliequivalents	meq
micro Siemens per Centimetre	$\mu\text{S}/\text{cm}$
Micrograms per Litre	$\mu\text{g}/\text{L}$
Milligrams per Kilogram	mg/kg
Milligrams per Litre	mg/L
Parts Per Million	ppm
Percentage weight for weight	%w/w
Percentage	%

1 INTRODUCTION

Pymble Ladies College ('the client') commissioned JK Environments (JKE) to undertake a Preliminary (Stage 1) Site Investigation (PSI) for the proposed Grey House Precinct development at Pymble Ladies College, Avon Road, Pymble, NSW. The purpose of the PSI is to make a preliminary assessment of site contamination. The site location is shown on Figure 1 and the investigation was confined to the site boundaries as shown on Figure 2 attached in the appendices.

This report has been prepared to support the lodgement of a Development Application (DA) for the proposed development, with regards to State Environmental Planning Policy No.55 – Remediation of Land (1998)¹.

A geotechnical investigation was undertaken previously to this PSI by JK Geotechnics (JKG). The results of the investigation are presented in a separate report (Ref: 33775SCrpt2, 26 April 2021)². This report should be read in conjunction with the JKG report.

JKE previously conducted a Preliminary Waste Classification Assessment for the proposed development (Ref: E33775PHlet, dated 3 February 2021)³. A summary of this information has been included in Section 2.

1.1 Proposed Development Details

We understand that the proposed development is still in the early design stage. However, from the preliminary information provided by the client, JKE understand that the proposed development includes demolition of the existing demountable buildings and construction of a five-storey building, which may include a lower ground or basement level which would require excavation to a maximum depth of approximately 3m below ground level (BGL). The proposed building footprint will likely have an area of approximately 2,900m².

1.2 Aim and Objectives

The primary aims of the PSI were to: identify past or present potentially contaminating activities at the site; identify the potential for site contamination; and assess the need for further investigation. The objectives were to:

- Provide an appraisal of the past site use(s) based on a review of historical records;
- Assess the current site conditions and land use by completing a site walkover inspection;
- Identify potential contamination sources/areas of environmental concern (AEC) and contaminants of potential concern (CoPC);
- Prepare a conceptual site model (CSM); and
- Assess whether an intrusive investigation is required.

¹ State Environmental Planning Policy No. 55 – Remediation of Land 1998 (NSW) (referred to as SEPP55)

² JKG, (2020). *Report to Pymble Ladies College on Geotechnical Investigation for Proposed School Building at 20 Avon Road, Pymble, NSW.* (referred to as JKG report)

³ JKE, (2021a). *Preliminary Waste Classification Assessment, Proposed New School Building, 20 Avon Road, Pymble.* (referred to as JKE 2021a)

1.3 Scope of Work

The investigation was undertaken generally in accordance with a JKE proposal (Ref: EP54208PL) of 24 May 2021 and written acceptance from the client of 25 May 2021. The scope of work included the following:

- Review of site information, including background and site history information from various sources outlined in the report;
- A walkover site inspection; and
- Preparation of a PSI report presenting the results of the assessment, including a CSM.

The scope of work was undertaken with reference to the National Environmental Protection (Assessment of Site Contamination) Measure 1999 as amended (2013)⁴, guidelines made under or with regards to the Contaminated Land Management Act (1997)⁵ and SEPP55. A list of reference documents/guidelines is included in the appendices.

⁴ National Environment Protection Council (NEPC), (2013). *National Environmental Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013)*. (referred to as NEPM 2013)

⁵ Contaminated Land Management Act 1997 (NSW) (referred to as CLM Act 1997)

2 SITE INFORMATION

2.1 JKE 2021a

The Preliminary Waste Classification Assessment included soil sampling from four borehole locations within the proposed development area that were drilled for the JKG geotechnical investigation. The boreholes encountered fill material at the surface or beneath concrete pavement in all locations to a maximum depth of approximately 0.75m below ground level (BGL), underlain by natural silty clay soil to a maximum depth of approximately 1.5mBGL. Siltstone bedrock was encountered in all boreholes beneath the natural clay soil and extended to the borehole termination depth.

The assessment assigned the fill material a preliminary classification of General Solid Waste (non-putrescible) and the underlying natural soil and bedrock a preliminary classification of virgin excavated natural material (VENM). The assessment recommended further investigation following removal of the demountable buildings at the site which would include test pits to allow better assessment of the presence/absence of asbestos in the fill.

As part of the scope for the PSI, the laboratory data obtained for the JKE 2021a assessment were screened against the appropriate human-health and ecological risk-based site assessment criteria (SAC). The results did not identify any elevations of contaminants above the human-health based SAC or the ecological based SAC. Minor detections of heavy metals and polycyclic aromatic hydrocarbons (PAHs) were encountered in the fill soil sampled. However, these are not considered to pose a risk to on-site receptors in the context of the current site layout, at the concentrations at which they were detected.

2.2 Site Identification

Table 2-1: Site Identification

Current Site Owner (certificate of title):	Pymble Ladies College
Site Address:	20 Avon Road, Pymble, NSW
Lot & Deposited Plan:	Part of Lot 1 DP 69541
Current Land Use:	School (K-12)
Proposed Land Use:	School
Local Government Authority (LGA):	Ku-ring-gai Council
Current Zoning:	SP2: Infrastructure
Site Area (m²) (approx.):	4,800m ²
RL (AHD in m) (approx.):	114-120
Geographical Location (decimal degrees) (approx. centre of site):	Latitude: -33.748182 Longitude: 151.136368

2.3 Site Location and Regional Setting

The site is located in a predominantly residential area of Pymble and is bound by the wider school grounds to the north, east and west, and by residential properties to the south. The site is located approximately 300m to the north-west of Blackbutt Creek.

2.4 Topography

The regional topography is characterised by steeply undulating topography with an overall slope down to the east. The site itself is located towards the top of a north-east facing hillside with an overall slope of approximately 7° down towards a gully feature. Parts of the site appear to have been levelled to account for the slope and accommodate the existing development.

2.5 Site Inspection

A walkover inspection of the site was undertaken by JKE on 21 June 2021. The inspection was limited to accessible areas of the site and immediate surrounds. An internal inspection of buildings was not undertaken. Selected site photographs obtained during the inspection are attached in the appendices.

A summary of the inspection findings is outlined in the following subsections:

2.5.1 Current Site Use and/or Indicators of Former Site Use

At the time of the inspection, a temporary marquee type structure constructed on a concrete pad with plastic panel walls was located in the south-west portion (known as 'The Pavilion'). Demountable buildings were located immediately north-east of The Pavilion and appeared to have been assembled on a former concrete tennis court.

The central portion of the site was occupied by a landscaped area that included gardens and concrete paved footpaths. A small retaining wall ran along the north-east perimeter of the landscaped area. The east portion of the site contained several grassed mounds, presumed to be man-made. No signs or indicators of former land use other than a school/tennis court were identified.

2.5.2 Boundary Conditions, Soil Stability and Erosion

The site was either paved or covered with garden mulch or grass around the boundaries. No signs of erosion or soil wash was encountered at the time of the site inspections.

2.5.3 Presence of Drums/Chemical Storage and Waste

No drums, containers or evidence of chemical storage were identified at the site. A small electrical substation kiosk was located in the north-east corner of the site within the landscaped garden area. This kiosk appeared

to be of new age construction. There was no staining on the sides of the kiosk slab and this features was not considered to be a potential source of contamination.

2.5.4 Evidence of Cut and Fill

Portions of the site may have historically been cut and/or filled to create a level platform for the existing buildings, to account for the overall slope of the site.

2.5.5 Visible or Olfactory Indicators of Contamination (odours, spills etc)

No visible or olfactory indicators of contamination were identified at the time of the inspection.

2.5.6 Drainage and Services

The surface water runoff is presumed to follow in sympathy with the overall slope of the site towards the north-east. A network of stormwater drains was observed across the site and presumed to be plumbed into the local stormwater system.

2.5.7 Sensitive Environments

Sensitive environments such as wetlands, ponds, creeks or extensive areas of natural vegetation were not identified on site or in the immediate surrounds.

2.5.8 Landscaped Areas and Visible Signs of Plant Stress

Landscaped garden beds containing native shrubs were located in the central portion of the site, with large native trees scattered centrally and along the southern perimeter of the site. No visual signs of plant stress or dieback were identified at the time of the inspections.

2.6 Surrounding Land Use

During the site inspection, JKE observed the following land uses in the immediate surrounds:

- North – School buildings (demountables and Goodlet House);
- South – Sloping gully and residential properties beyond;
- East – School buildings to the north-east and grassed lawn;
- West – School sports centre.

JKE did not observe any land uses in the immediate surrounds that were identified as potential contamination sources for the site.

2.7 Underground Services

The 'Dial Before You Dig' (DBYD) plans were reviewed for the PSI in order to establish whether any major underground services exist at the site or in the immediate vicinity that could act as a preferential pathway

for contamination migration. Major services were not identified that would be expected to act as preferential pathways for contamination migration.

2.8 Section 10.7 Planning Certificate

The section 10.7 (2 and 5) planning certificates were reviewed for the PSI. Copies of the certificates are attached in the appendices. A summary of the relevant information is outlined below:

- The land is not deemed to be: significantly contaminated; subject to a management order; subject of an approved voluntary management proposal; or subject to an on-going management order under the provisions of the CLM Act 1997;
- The land is not the subject of a Site Audit Statement (SAS);
- The land is not located within an acid sulfate soil (ASS) risk area; and
- The land is not located in a heritage conservation area.

3 GEOLOGY AND HYDROGEOLOGY

3.1 Regional Geology

Regional geological information was reviewed for the PSI. The information was sourced from the Lotsearch report attached in the appendices. The report indicates that the site is underlain by Ashfield Shale of the Wianamatta Group, which typically consists of black to dark grey shale and laminite.

3.2 Acid Sulfate Soil (ASS) Risk and Planning

The site is not located in an ASS risk area according to the risk maps prepared by the Department of Land and Water Conservation. ASS information presented in the Lotsearch report indicated that the site is not located within an ASS risk area.

Based on the data reviewed for the PSI, there is a low potential for ASS materials to be disturbed during the proposed development conditions are considered to be negligible and does not need to be considered further. The elevation of the land above sea level, the geology and ASS risk mapping supports this conclusion. A management plan is not required.

3.3 Dryland Salinity

Salinity information presented in the Lotsearch report indicated that the site is not located within an area of salinity potential and there are no areas of dryland salinity within the report.

3.4 Hydrogeology

Hydrogeological information was reviewed for the PSI. The information was sourced from the Lotsearch report attached in the appendices. The report indicates that the regional aquifer on-site and, in the areas, immediately surrounding the site includes porous, extensive aquifers of low to moderate productivity. There was a total of 31 registered bores within the report buffer of 2,000m. In summary:

- The nearest registered bore was located approximately 240m from the site. This was utilised for irrigation purposes (likely for irrigation of the golf course);
- There were a number of bores located to the west and south-west of the site that were likely utilised for irrigation of the nearby Pymble golf course;
- There was one nearby bore utilised for domestic purposes. This bore was located approximately 415m and down-gradient from the site; and
- The drillers log information from the closest registered bores typically identified fill and/or top soil to depths of 0.3-1.52m, underlain by shallow sandstone bedrock. Standing water levels (SWLs) in the bores ranged from 4.5mBGL to 8.2mBGL.

The information reviewed for the PSI indicates that the subsurface conditions at the site are likely to consist of relatively low permeability (residual) soils overlying shallow bedrock. The potential for viable groundwater abstraction and use of groundwater under these conditions is considered to be low. There is a reticulated water supply in the area and consumption of groundwater is not expected to occur. Use of groundwater is not proposed as part of the development.

Considering the local topography and surrounding land features, JKE anticipate groundwater to flow towards the north-east.

3.5 Water Bodies

Surface water bodies were not identified in the immediate vicinity of the site. The closest surface water body is the tributary to Blackbutt Creek located approximately 300m to the south-east of the site. This is down-gradient from site and is considered to be a potential receptor.

4 SITE HISTORY INFORMATION

4.1 Review of Historical Aerial Photographs

Historical aerial photographs were reviewed for the PSI. The information was sourced for the Lotsearch report. A summary of the relevant information is presented in the following table:

Table 4-1: Summary of Historical Aerial Photographs

Year	Details
1930	<p>On-site: The site appeared to be vacant and grassed, potentially used for grazing. A single track was running through the centre of the site from north to south.</p> <p>Off-site: The immediate surrounds appeared similar to the site. Several buildings were located to the north of the site, presumed to be original school or church buildings. Some residential properties were located to the south.</p>
1943	<p>On-site: The site appeared generally similar to the previous photograph.</p> <p>Off-site: The wider school grounds to the north and west appeared to have additional buildings and expanded existing ones with the addition of playing fields and a swimming pool to the west. Additional residential properties were constructed to the south of the site.</p>
1951	<p>On-site: The south-western portion of the site appeared to contain tennis courts. Potential cut and fill activities may have been required to create a level platform for the tennis courts.</p> <p>Off-site: Additional residential properties were constructed to the south of the site.</p>
1956-1982	<p>On-site: The site appeared generally similar to the previous photograph with large trees growing across the western portion of the site over this time.</p> <p>Off-site: The wider school grounds appeared to have additional buildings constructed and expanded existing ones over this time. Additional residential properties were constructed to the south of the site.</p>
1986	<p>On-site: The site appeared generally similar to the previous photograph. New tennis courts appeared to have been constructed across the western portion of the site.</p> <p>Off-site: The wider school grounds appeared to have additional buildings constructed and expanded existing ones over this time. The swimming pool to the west of the site had been extended.</p>
1991-2000	<p>On-site: The site appeared generally similar to the previous photograph, except trees had been removed from the northern portion.</p> <p>Off-site: The wider school grounds appeared to have additional buildings constructed over this time with various upgrades to sporting fields and other buildings.</p>
2005-2011	<p>On-site: A large temporary structure covered the northern tennis court in the western portion of the site in 2005 and had been removed by 2011.</p> <p>Off-site: The immediate surrounds appeared generally unchanged from the previous photograph.</p>
2016-2021	<p>The temporary structures and demountables now covered both tennis courts with concrete footpaths and landscaping covering the eastern portion of the site. The general site layout and immediate surrounds appeared generally similar to the present day.</p>

4.2 Review of Historical Land Title Records

Historical land title records were reviewed for the PSI. The record search was undertaken by InfoTrack. Copies of the title records are attached in the appendices. The title records indicate the following:

- The site was owned by The Presbyterian Church (New South Wales) Property Trust between 1916 and 1981; and
- The site was purchased by the Uniting Church in Australia Property Trust (N.S.W) in 1981 and ownership has remained unchanged to the present day.

The historical land title records did not identify any particular land uses which could have resulted in site contamination.

4.3 Review of Council Records

Council records were sourced under an informal access to information request and were reviewed for the PSI. The council records indicated that various building and development applications have been submitted for the wider school grounds including refurbishment of existing buildings and construction of new amenities and buildings. No contamination or environmental reports were provided.

The erection of the marquee structure in the western portion of the site was approved in 2014 with the Complying Development Certificate signed and dated 6 November 2014. The certificate noted that the marquee was a pre-fabricated structure and no waste was to be produced through the development itself. Only minor waste management strategies were required (i.e. disposal of rubbish).

4.4 SafeWork NSW Records

SafeWork NSW records in relation to the registered storage of dangerous goods were reviewed for the PSI. Copies of relevant documents are attached in the appendices. The stored chemicals include fuel, cleaning products, pool chemicals and refrigeration chemicals associated with the general running of the school. The storage areas for these chemicals are associated with the wider school grounds and not in the immediate vicinity of the site itself.

A summary of the relevant information is provided in the following table:

Table 4-2: Summary of SafeWork NSW Records

Date	Record Number	License Details
3 April 2007	35/037713	<ul style="list-style-type: none">• Storage of up to 400L of unleaded petrol;• Storage of up to 200L of diesel;• Storage of up to 2,500L of sodium hypochlorite solution (13%);• Storage of up to 72L of compressed propane gas; and• Storage of up to 120kg of refrigerated liquid carbon dioxide.

The storage of these materials is not considered to represent a potential source of contamination for the site.

4.5 NSW EPA and Department of Defence Records

A review of the NSW EPA and Department of Defence databases was undertaken for the PSI. Information from the following databases were sourced from the Lotsearch report:

- Records maintained in relation to contaminated land under Section 58 of the CLM Act 1997;
- Records of sites notified in accordance with the Guidelines on the Duty to Report Contamination under Section 60 of the CLM Act 1997 (2015)⁶;
- Licensed activities under the Protection of the Environment Operations Act (1997)⁷;
- Sites being investigated under the NSW EPA per-and polyfluoroalkyl substances (PFAS) investigation program;
- Sites being investigated by the Department of Defence for PFAS contamination; and
- Sites being managed by the Department of Defence for PFAS contamination.

The search included the site and surrounding areas in the report buffer. A summary of the information is provided below:

Table 4-3: NSW EPA and Department of Defence Records

Records	On-site	Off-site
Records under Section 58 of the CLM Act 1997	None	None
Records under the Duty to Report Contamination under Section 60 of the CLM Act 1997	None	There were three properties listed in the report buffer. The nearest property was a service station located approximately 765m to the south-east and cross-gradient of the site. Due to the distance and cross-gradient location, this property is not considered to represent an off-site source of contamination. The remaining properties were two petrol stations located over 770m and cross-gradient of the site and are not considered to be potential off-site sources of contamination.
Licences under the POEO Act 1997	None	Current and historical licenses were identified for several properties within the report buffer, including the application of herbicides along waterways, railway activities and road construction. However, these activities are considered unlikely to pose a contamination risk to the site or represent an off-site source of contamination.
Records relating to the NSW EPA PFAS Investigation Program	None	None

⁶ NSW EPA, (2015). *Guidelines on the Duty to Report Contamination under Section 60 of the CLM Act 1997*. (referred to as Duty to Report Contamination)

⁷ Protection of the Environment Operations Act 1997 (NSW) (referred to as POEO Act 1997)

Records	On-site	Off-site
Records relating to the Department of Defence PFAS management and investigation programs	None	None

4.6 Historical Business Directory and Additional Lotsearch Information

Historical business records and other relevant information were reviewed for the PSI. The information was sourced from the Lotsearch report and summarised in the following table:

Table 4-4: Historical Business Directory and other Records

Records	On-site	Off-site
Historical dry cleaners, motor garages and service stations	None	None
Other historical businesses that could represent potential sources of contamination	None	None
National waste management site database	None	None
National liquid fuel facilities	None	There were two listed liquid fuel facilities within the report buffer. Both were located over 700m and cross-gradient of the site and not considered to represent off-site sources of contamination.
Mapped heritage items	The site is located within a national heritage listed area that covers the Urban Conservation of Ku-ring-gai. This is not considered to have any relevance in the context of the PSI objectives.	Various heritage items were mapped in the report buffer. These are not considered to have any relevance in the context of the PSI objectives.
Mapped ecological constraints	None	Various ecological items were mapped in the report buffer. These are not considered to have any relevance in the context of the PSI objectives.
Mapped naturally occurring asbestos	None	None

4.7 Summary of Site History Information

A time line summary of the historical land uses and activities is presented in the table below. The information is based on a weight of evidence assessment of the site history documentation and observations made by JKE.

Table 4-5: Summary of Historical Land Uses / Activities

Year(s)	On-site - Potential Land Use / Activities	Off-site - Potential Land Use / Activities
1916-1951	Grassed, potential agriculture use as part of the school/church grounds, or prior to ownership by the church.	The aerial photographs indicate the immediate surrounds to the south of the site were mostly used for residential purposes. The surrounds to the east, west and north of the site were part of the wider school grounds and underwent various stages of development for the school buildings and amenities.
1951-1986	Tennis courts were constructed on the western portion of the site. Potential cut and fill activities may have taken place for this development.	
1986-2000	The site remained relatively unchanged during this time.	
2000-2011	A temporary structure was erected across the northern tennis court in 2005 and had been removed by 2011.	
2011-present day	The temporary marquee and demountable structures had been erected across the tennis courts in the western portion of the site by 2014. Concrete footpaths and landscaping were constructed the eastern portion of the site. The site was maintained as part of the school grounds to the present day.	

4.8 Integrity of Site History Information

The majority of the site history information was obtained from government organisations as outlined in the relevant sections of this report. The veracity of the information from these sources is considered to be relatively high. A certain degree of information loss can be expected given the lack of specific land use details over time. JKE have relied upon the Lotsearch report and have not independently verified any information contained within. However, it is noted that the Lotsearch report is generated based on databases maintained by various government agencies and is expected to be reliable.

5 CONCEPTUAL SITE MODEL

NEPM (2013) defines a CSM as a representation of site related information regarding contamination sources, receptors and exposure pathways between those sources and receptors. The CSM for the site is presented in the following sub-sections and is based on the site information (including the site inspection information) and the review of site history information. Reference should also be made to the figures attached in the appendices.

5.1 Potential Contamination Sources/AEC and CoPC

The potential contamination sources/AEC and CoPC are presented in the following table:

Table 5-1: Potential (and/or known) Contamination Sources/AEC and Contaminants of Potential Concern

Source / AEC	CoPC
<p><u>Fill material</u> – The site appears to have been historically cut and/or filled to achieve level platform for the existing development. The fill may have been imported from various sources and could be contaminated.</p> <p>Th JKE 2021a assessment encountered fill material at the site to a maximum depth of 0.75m BGL. The deeper fill profiles were encountered along the eastern portion of the site.</p>	<p>Heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc), petroleum hydrocarbons (referred to as total recoverable hydrocarbons – TRHs), benzene, toluene, ethylbenzene and xylene (BTEX), polycyclic aromatic hydrocarbons (PAHs), organochlorine pesticides (OCPs), organophosphate pesticides (OPPs), polychlorinated biphenyls (PCBs) and asbestos.</p>
<p><u>Historical agricultural use</u> – The site may have been used for grazing purposes. This could have resulted in contamination across the site via use of machinery and application of pesticides. Although no structures were observed on site in the early and mid-1900s, the potential presence of former structures associated with this use cannot be ruled out. Irrigation pipes made from asbestos cement may also be associated with this AEC.</p>	<p>Heavy metals, TRH, PAHs, OCPs, PCBs and asbestos</p> <p>JKE note that OCPs only became commercially available in the 1940s. Prior to this time pesticides were predominantly heavy metal compounds.</p>
<p><u>Use of pesticides</u> – Pesticides may have been used beneath the buildings and/or around the site.</p>	<p>Heavy metals and OCPs</p>
<p><u>Hazardous Building Material</u> – Hazardous building materials may be present as a result of former building and demolition activities. These materials may also be present in the existing buildings/ structures on site.</p>	<p>Asbestos, lead and PCBs</p>

Based on the site inspection and historical assessment, JKE are of the opinion that there is a low potential for the site to have been used for activities associated with point sources of PFAS (as outlined in Appendix B of the PFAS National Environmental Management Plan 2020)⁸. It is acknowledged that PFAS can be associated with pesticides and agricultural use, however, this is more commonly linked to intensive farming practices and there is no evidence that intensive farming occurred. Given that the JKE 2021a assessment also did not detect any pesticides, PFAS are not CoPC at the site.

⁸ Heads of EPA Australia and New Zealand, (2020). *PFAS National Environmental Management Plan Version 2.0* (referred to as PFAS NEMP)

5.2 Mechanism for Contamination, Affected Media, Receptors and Exposure Pathways

The mechanisms for contamination, affected media, receptors and exposure pathways relevant to the potential contamination sources/AEC are outlined in the following CSM table:

Table 5-2: Conceptual Site Model

Potential mechanism for contamination	The potential mechanisms for contamination are most likely to include 'top-down' impacts and spills. There is a potential for sub-surface releases to have occurred if deep fill (or other buried infrastructure) is present, although this is considered to be the least likely mechanism for contamination.
Affected media	Soil has been identified as the potentially affected medium. The potential for groundwater impacts is considered to be relatively low. However, groundwater would need to be considered in the event significant/mobile contamination was identified in soil.
Receptor identification	<p>Human receptors include site occupants/users (including adults and children), construction workers and intrusive maintenance workers. Off-site human receptors include adjacent land users in an educational (K-12) and residential land use scenario.</p> <p>Ecological receptors include terrestrial organisms and plants within unpaved areas (including the proposed landscaped areas), and freshwater ecology in down-gradient water bodies (e.g. Blackbutt Creek).</p>
Potential exposure pathways	<p>Potential exposure pathways relevant to the human receptors include ingestion, dermal absorption and inhalation of dust (all contaminants) and vapours (volatile TRH, naphthalene and BTEX). The potential for exposure would typically be associated with the construction and excavation works, and future use of the site. Potential exposure pathways for ecological receptors include primary contact and ingestion.</p> <p>Exposure during future site use could occur via direct contact with soil in unpaved areas such as gardens, inhalation of airborne asbestos fibres during soil disturbance, or inhalation of vapours within enclosed spaces such as buildings and basements.</p>
Potential exposure mechanisms	<p>The following have been identified as potential exposure mechanisms for site contamination:</p> <ul style="list-style-type: none"> • Vapour intrusion into the proposed basement and/or building (from soil contamination); and • Contact (dermal, ingestion or inhalation) with exposed soils in landscaped areas and/or unpaved areas.

5.3 Assessment of Data Gaps

The primary data gap relates to intrusive sampling and analysis of soil. This has been considered in drawing conclusions in this PSI report.

6 CONCLUSIONS

6.1 Contamination Sources/AEC and Potential for Site Contamination

Based on the scope of work undertaken for this PSI, JKE identified the following potential contamination sources/AEC:

- Fill material;
- Historical agricultural use;
- Use of pesticides; and
- Hazardous building materials.

Considering the above, and based on a qualitative assessment of various lines of evidence as discussed throughout this report, JKE are of the opinion that there is a potential for site contamination.

6.2 Need for Further Investigation

Based on the potential contamination sources/AEC identified, and the potential for contamination, further investigation of the contamination conditions is considered to be required. A Detailed Site Investigation (DSI/Stage 2) will be required to characterise the contamination conditions with regards to SEPP55 and NEPM 2013.

The JKE 2021a assessment identified historically imported fill and this AEC has not been adequately characterised.

6.3 Conclusions and Recommendations

JKE are of the opinion that the historical land uses and potential sources of contamination/AEC identified would not preclude the proposed development. The following is recommended to better assess the risks associated with potential contamination at the site:

- A DSI is to be undertaken to characterise the site contamination conditions and establish whether the site is suitable for the proposed development, or whether remediation is required. This must include sampling to meet the minimum sampling density specified by the NSW EPA. The use of test pits is recommended for this investigation; and
- If it is not practicable to do so as part of the DSI, additional inspection and sampling is to be undertaken following demolition/removal of the existing demountables and marquee structures to confirm the classification of material to be excavated for the proposed development.

JKE consider that the PSI objectives outlined in Section 1.2 have been addressed.

7 LIMITATIONS

The following limitation apply to this investigation:

- JKE accepts no responsibility for any unidentified contamination issues at the site. Any unexpected problems/subsurface features that may be encountered during development works should be inspected by an environmental consultant as soon as possible;
- Previous use of this site may have involved excavation for the foundations of buildings, services, and similar facilities. In addition, unrecorded excavation and burial of material may have occurred on the site. Backfilling of excavations could have been undertaken with potentially contaminated material that may be discovered in discrete, isolated locations across the site during construction work;
- This report has been prepared based on site conditions which existed at the time of the investigation; scope of work and limitation outlined in the JKE proposal; and terms of contract between JKE and the client (as applicable);
- The conclusions presented in this report are based on investigation of conditions at specific locations, chosen to be as representative as possible under the given circumstances, visual observations of the site and immediate surrounds and documents reviewed as described in the report;
- This report has been prepared in accordance with accepted practice for environmental consultants, with reference to applicable environmental regulatory authority and industry standards, guidelines and the assessment criteria outlined in the report;
- Where information has been provided by third parties, JKE has not undertaken any verification process, except where specifically stated in the report;
- JKE has not investigated off-site areas that may be potential contamination sources or may have been impacted by site contamination, except where specifically stated in the report;
- JKE accept no responsibility for potentially asbestos containing materials that may exist at the site. These materials may be associated with demolition of pre-1990 constructed buildings or fill material at the site;
- JKE have not and will not make any determination regarding finances associated with the site;
- Additional investigation work may be required in the event of changes to the proposed development or landuse. JKE should be contacted immediately in such circumstances; and
- This report has been prepared for the particular project described and no responsibility is accepted for the use of any part of this report in any other context or for any other purpose.

Important Information About This Report

These notes have been prepared by JKE to assist with the interpretation of this report.

The Report is based on a Unique Set of Project Specific Factors:

This report has been prepared in response to specific project requirements as stated in the JKE proposal document which may have been limited by instructions from the client. This report should be reviewed, and if necessary, revised if any of the following occur:

- The proposed land use is altered;
- The defined subject site is increased or sub-divided;
- The proposed development details including size, configuration, location, orientation of the structures or landscaped areas are modified;
- The proposed development levels are altered, eg addition of basement levels; or
- Ownership of the site changes.

JKE will not accept any responsibility whatsoever for situations where one or more of the above factors have changed since completion of the assessment. If the subject site is sold, ownership of the assessment report should be transferred by JKE to the new site owners who will be informed of the conditions and limitations under which the assessment was undertaken. No person should apply an assessment for any purpose other than that originally intended without first conferring with the consultant.

Changes in Subsurface Conditions:

Subsurface conditions are influenced by natural geological and hydrogeological process and human activities. Groundwater conditions are likely to vary over time with changes in climatic conditions and human activities within the catchment (e.g. water extraction for irrigation or industrial uses, subsurface waste water disposal, construction related dewatering). Soil and groundwater contaminant concentrations may also vary over time through contaminant migration, natural attenuation of organic contaminants, ongoing contaminating activities and placement or removal of fill material. The conclusions of an assessment report may have been affected by the above factors if a significant period of time has elapsed prior to commencement of the proposed development.

This Report is based on Professional Interpretations of Factual Data:

Site assessments identify actual subsurface conditions at the actual sampling locations at the time of the investigation. Data obtained from the sampling and subsequent laboratory analyses, available site history information and published regional information is interpreted by geologists, engineers or environmental scientists and opinions are drawn about the overall subsurface conditions, the nature and extent of contamination, the likely impact on the proposed development and appropriate remediation measures.

Actual conditions may differ from those inferred, because no professional, no matter how qualified, and no subsurface exploration program, no matter how comprehensive, can reveal what is hidden by earth, rock and time. The actual interface between materials may be far more gradual or abrupt than an assessment indicates. Actual conditions in areas not sampled may differ from predictions. Nothing can be done to prevent the unanticipated, but steps can be taken to help minimise the impact. For this reason, site owners should retain the services of their consultants throughout the development stage of the project, to identify variances, conduct additional tests which may be needed, and to recommend solutions to problems encountered on site.

Investigation Limitations:

Although information provided by an investigation can reduce exposure to the risk of the presence of contamination, no investigation can eliminate the risk. Even a rigorous professional assessment may not detect all contamination on a site. Contaminants may be present in areas that were not surveyed or sampled, or may migrate to areas which showed no signs of contamination when sampled. Contaminant analysis cannot possibly cover every type of contaminant which may occur; only the most likely contaminants are screened.

Misinterpretation of Reports by Design Professionals:

Costly problems can occur when design professionals develop plans based on misinterpretation of the report. To minimise problems associated with misinterpretations, the environmental consultant should be retained to work with appropriate professionals to explain relevant findings and to review the adequacy of plans and specifications relevant to contamination issues.

Logs Should not be Separated from the Report:

Borehole and test pit logs are prepared by environmental scientists, engineers or geologists based upon interpretation of field conditions and laboratory evaluation of field samples. Logs are normally provided in our reports and these should not be re-drawn for inclusion in site remediation or other design drawings, as subtle but significant drafting errors or omissions may occur in the transfer process. Photographic reproduction can eliminate this problem, however contractors can still misinterpret the logs during bid preparation if separated from the text of the assessment. If this occurs, delays, disputes and unanticipated costs may result. In all cases it is necessary to refer to the rest of the report to obtain a proper understanding of the assessment. Please note that logs with the 'Environmental Log' header are not suitable for geotechnical purposes as they have not been peer reviewed by a Senior Geotechnical Engineer.

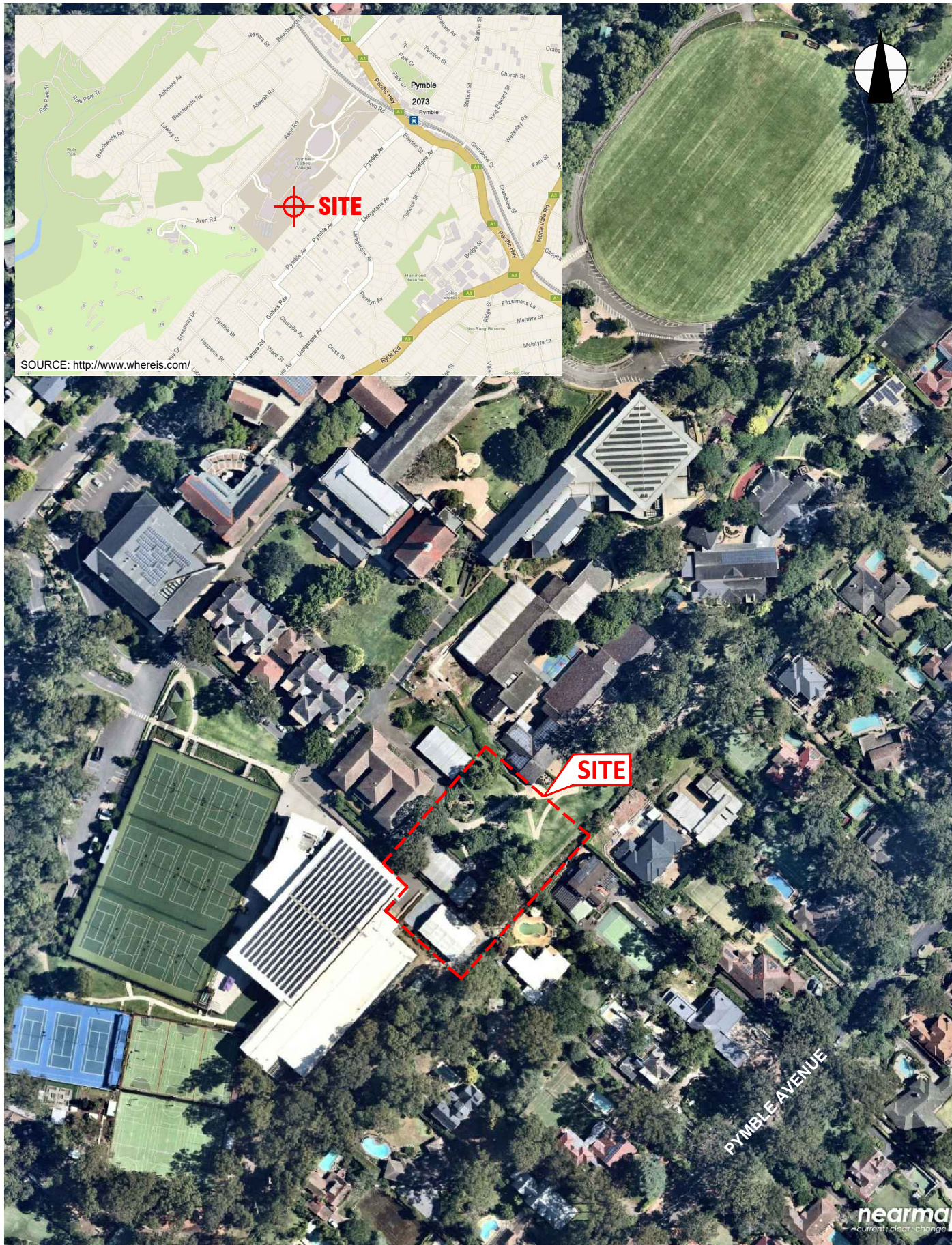
To reduce the likelihood of borehole and test pit log misinterpretation, the complete report should be available to persons or organisations involved in the project, such as contractors, for their use. Denial of such access and disclaiming responsibility for the accuracy of subsurface information does not insulate an owner from the attendant liability. It is critical that the site owner provides all available site information to persons and organisations such as contractors.

Read Responsibility Clauses Closely:

As the investigation is based extensively on judgement and opinion, it is necessarily less exact than other disciplines. This situation has resulted in wholly unwarranted claims being lodged against consultants. To help prevent this problem, model clauses have been developed for use in written transmittals. These are definitive clauses designed to indicate consultant responsibility. Their use helps all parties involved recognise individual responsibilities and formulate appropriate action. Some of these definitive clauses are likely to appear in the report, and you are encouraged to read them closely.



Appendix A: Report Figures



AERIAL IMAGE SOURCE: MAPS.AU.NEARMAP.COM

Title:

SITE LOCATION PLAN

Location:

20 AVON ROAD, PYMBLE, NSW

Project No:

E33775PL

Figure No:

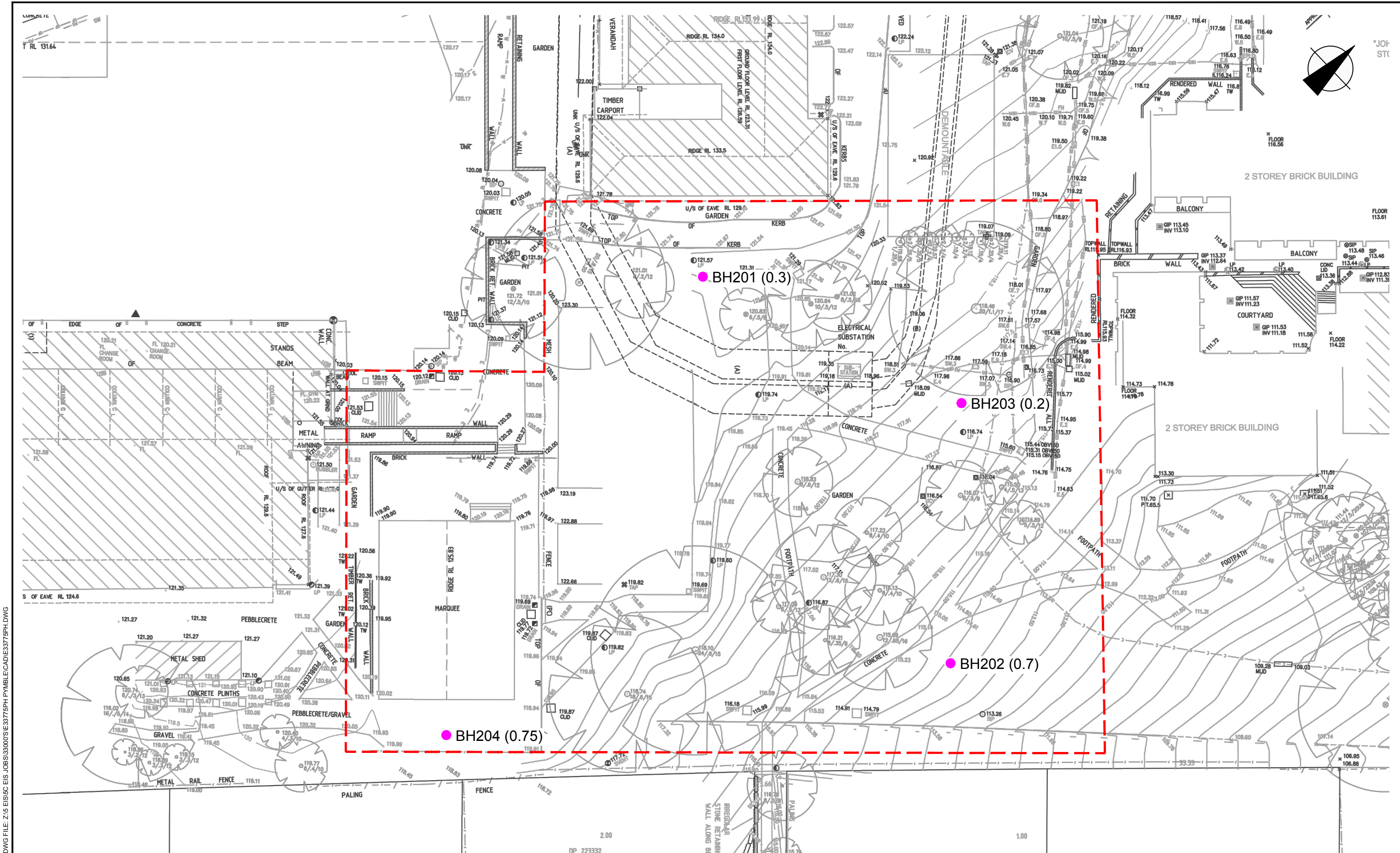
1

This plan should be read in conjunction with the Environmental report.

JKEnvironments



PLOT DATE: 18/06/2021 13:41:01 PM DWG FILE: Z:\6 EIS\SC EIS JOBS\33000\SE\33775PH PYMBLE\CAD\E33775PH.DWG

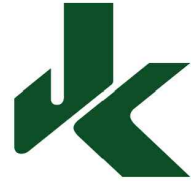


- LEGEND**
- APPROXIMATE SITE BOUNDARY
 - BH(Fill Depth)
 - BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL (m)



This plan should be read in conjunction with the Environmental report.

Title: SAMPLE LOCATION PLAN	
Location: 20 AVON ROAD, PYMBLE, NSW	
Project No: E33775PL	Figure No: 2
JKEnvironments	





Appendix B: Site Information



Selected Site Photos

Project Ref: E33775PL

Site Address: 20 Avon Road, Pymble, NSW

Selected Site Photos Dated: 21 June 2021



Photograph 1: Taken showing the north-east corner of the site, facing east. Note the electrical substation kiosk within the landscaped garden.



Photograph 2: Taken showing the temporary marquee in the western portion of the site, facing north-east.



Photograph 3: Taken showing the northern retaining wall, facing west.



Photograph 4: Taken showing the landscaped garden beds and footpaths in the central and eastern portion of the site.



Photograph 5: Taken showing the demountable buildings at the site. Note the grassed lawn and landscaping.



Photograph 6: Taken showing an example of the landscaped garden beds across the site, facing north. Note the garden mulch covering the soil surface.



Lotsearch Environmental Risk and Planning Report



LOTSEARCH

LOTSEARCH ENVIRO PROFESSIONAL

Date: 25 May 2021 16:28:27

Reference: LS020777 EP

Address: 20 Avon Road Pymble, NSW 2073

Disclaimer:

The purpose of this report is to provide an overview of some of the site history, environmental risk and planning information available, affecting an individual address or geographical area in which the property is located. It is not a substitute for an on-site inspection or review of other available reports and records. It is not intended to be, and should not be taken to be, a rating or assessment of the desirability or market value of the property or its features.

You should obtain independent advice before you make any decision based on the information within the report.

The detailed terms applicable to use of this report are set out at the end of this report.

Dataset Listing

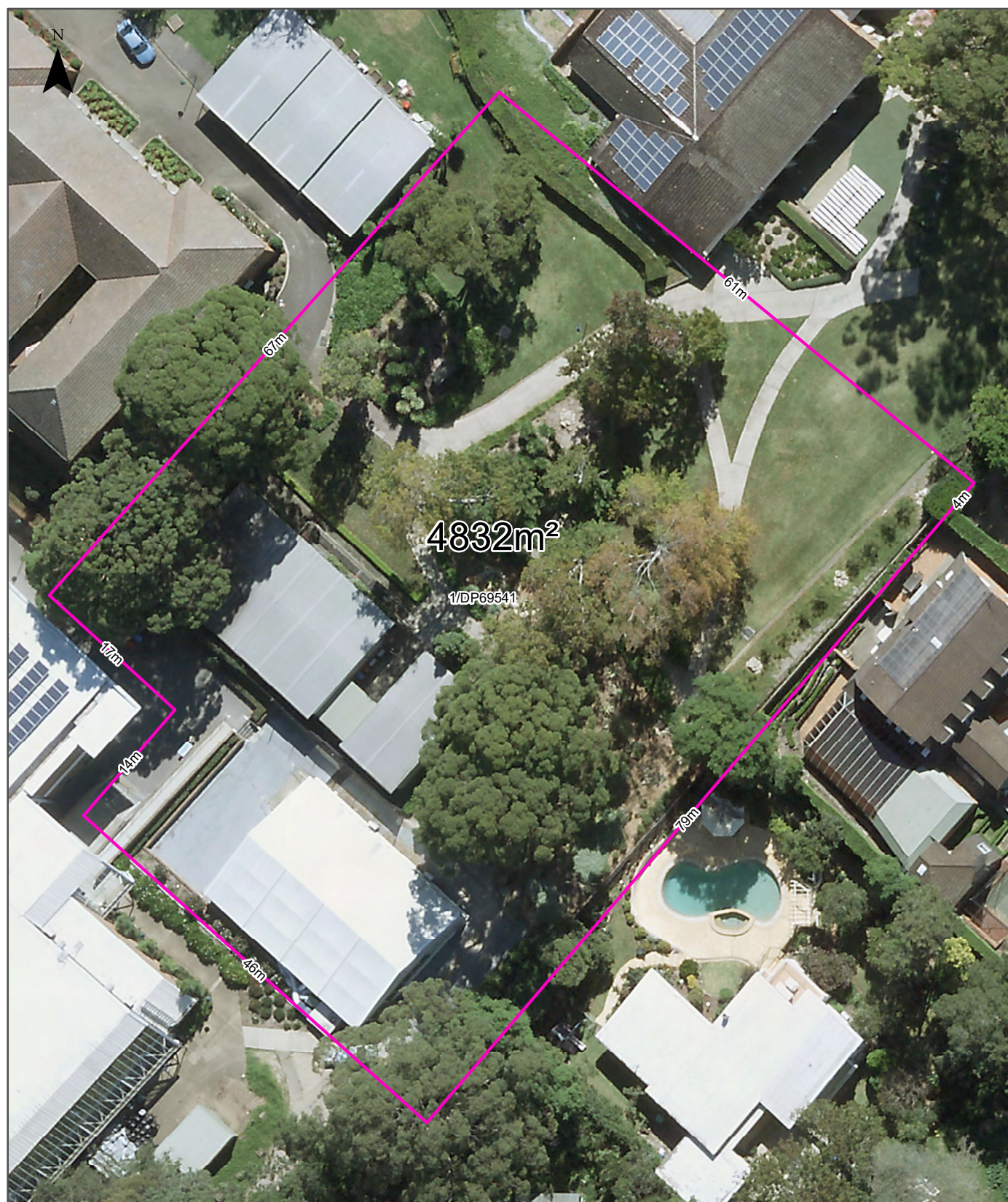
Datasets contained within this report, detailing their source and data currency:

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features Onsite	No. Features within 100m	No. Features within Buffer
Cadastre Boundaries	NSW Department of Finance, Services & Innovation	16/04/2021	16/04/2021	Quarterly	-	-	-	-
Topographic Data	NSW Department of Finance, Services & Innovation	25/06/2019	25/06/2019	As required	-	-	-	-
List of NSW contaminated sites notified to EPA	Environment Protection Authority	14/04/2021	12/04/2021	Monthly	1000m	0	0	3
Contaminated Land Records of Notice	Environment Protection Authority	03/05/2021	03/05/2021	Monthly	1000m	0	0	0
Former Gasworks	Environment Protection Authority	11/05/2021	11/10/2017	Quarterly	1000m	0	0	0
National Waste Management Facilities Database	Geoscience Australia	12/05/2021	07/03/2017	Annually	1000m	0	0	0
National Liquid Fuel Facilities	Geoscience Australia	15/02/2021	13/07/2012	Annually	1000m	0	0	2
EPA PFAS Investigation Program	Environment Protection Authority	12/05/2021	28/04/2021	Monthly	2000m	0	0	0
Defence PFAS Investigation & Management Program - Investigation Sites	Department of Defence	29/04/2021	29/04/2021	Monthly	2000m	0	0	0
Defence PFAS Investigation & Management Program - Management Sites	Department of Defence	29/04/2021	29/04/2021	Monthly	2000m	0	0	0
Airservices Australia National PFAS Management Program	Airservices Australia	26/04/2021	26/04/2021	Monthly	2000m	0	0	0
Defence 3 Year Regional Contamination Investigation Program	Department of Defence	11/05/2021	11/05/2021	Quarterly	2000m	0	0	0
EPA Other Sites with Contamination Issues	Environment Protection Authority	02/02/2021	13/12/2018	Annually	1000m	0	0	0
Licensed Activities under the POEO Act 1997	Environment Protection Authority	11/05/2021	11/05/2021	Monthly	1000m	0	0	1
Delicensed POEO Activities still regulated by the EPA	Environment Protection Authority	11/05/2021	11/05/2021	Monthly	1000m	0	0	0
Former POEO Licensed Activities now revoked or surrendered	Environment Protection Authority	11/05/2021	11/05/2021	Monthly	1000m	0	0	3
UBD Business Directories (Premise & Intersection Matches)	Hardie Grant			Not required	150m	0	0	0
UBD Business Directories (Road & Area Matches)	Hardie Grant			Not required	150m	-	0	1
UBD Business Directory Dry Cleaners & Motor Garages/Service Stations (Premise & Intersection Matches)	Hardie Grant			Not required	500m	0	0	0
UBD Business Directory Dry Cleaners & Motor Garages/Service Stations (Road & Area Matches)	Hardie Grant			Not required	500m	-	0	0
Points of Interest	NSW Department of Finance, Services & Innovation	14/05/2021	14/05/2021	Quarterly	1000m	0	1	28
Tanks (Areas)	NSW Department of Customer Service - Spatial Services	14/05/2021	14/05/2021	Quarterly	1000m	0	0	0
Tanks (Points)	NSW Department of Customer Service - Spatial Services	14/05/2021	14/05/2021	Quarterly	1000m	0	0	3
Major Easements	NSW Department of Finance, Services & Innovation	14/05/2021	14/05/2021	Quarterly	1000m	0	0	7
State Forest	Forestry Corporation of NSW	25/02/2021	14/02/2021	Annually	1000m	0	0	0
NSW National Parks and Wildlife Service Reserves	NSW Office of Environment & Heritage	22/01/2021	11/12/2020	Annually	1000m	0	0	0
Hydrogeology Map of Australia	Commonwealth of Australia (Geoscience Australia)	08/10/2014	17/03/2000	As required	1000m	1	1	1
Temporary Water Restriction (Botany Sands Groundwater Source) Order 2018	NSW Department of Planning, Industry and Environment	26/10/2020	21/02/2018	Annually	1000m	0	0	0
Groundwater Boreholes	NSW Dept. of Primary Industries - Water NSW; Commonwealth of Australia (Bureau of Meteorology)	24/07/2018	23/07/2018	Annually	2000m	0	0	31

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features Onsite	No. Features within 100m	No. Features within Buffer
Geological Units 1:100,000	NSW Department of Planning, Industry and Environment	20/08/2014		Annually	1000m	1	2	2
Geological Structures 1:100,000	NSW Department of Planning, Industry and Environment	20/08/2014		Annually	1000m	0	0	1
Naturally Occurring Asbestos Potential	NSW Dept. of Industry, Resources & Energy	04/12/2015	24/09/2015	Unknown	1000m	0	0	0
Atlas of Australian Soils	Australian Bureau of Agriculture and Resource Economics and Sciences (ABARES)	19/05/2017	17/02/2011	As required	1000m	1	1	2
Soil Landscapes of Central and Eastern NSW	NSW Department of Planning, Industry and Environment	14/10/2020	27/07/2020	Annually	1000m	1	2	5
Environmental Planning Instrument Acid Sulfate Soils	NSW Department of Planning, Industry and Environment	06/05/2021	26/02/2021	Monthly	500m	1	-	-
Atlas of Australian Acid Sulfate Soils	CSIRO	19/01/2017	21/02/2013	As required	1000m	1	1	2
Dryland Salinity - National Assessment	National Land and Water Resources Audit	18/07/2014	12/05/2013	None planned	1000m	0	0	0
Mining Subsidence Districts	NSW Department of Customer Service - Subsidence Advisory NSW	14/05/2021	28/04/2021	Quarterly	1000m	0	0	0
Current Mining Titles	NSW Department of Industry	12/05/2021	12/05/2021	Monthly	1000m	0	0	0
Mining Title Applications	NSW Department of Industry	12/05/2021	12/05/2021	Monthly	1000m	0	0	0
Historic Mining Titles	NSW Department of Industry	12/05/2021	12/05/2021	Monthly	1000m	11	11	12
Environmental Planning Instrument SEPP State Significant Precincts	NSW Department of Planning, Industry and Environment	06/05/2021	07/12/2018	Monthly	1000m	0	0	0
Environmental Planning Instrument Land Zoning	NSW Department of Planning, Industry and Environment	06/05/2021	30/04/2021	Monthly	1000m	1	2	80
Commonwealth Heritage List	Australian Government Department of the Agriculture, Water and the Environment	18/05/2021	20/11/2019	Annually	1000m	0	0	0
National Heritage List	Australian Government Department of the Agriculture, Water and the Environment	18/05/2021	20/11/2019	Annually	1000m	1	1	1
State Heritage Register - Curtilages	NSW Department of Planning, Industry and Environment	14/05/2021	26/03/2021	Quarterly	1000m	0	0	4
Environmental Planning Instrument Local Heritage	NSW Department of Planning, Industry and Environment	06/05/2021	30/04/2021	Monthly	1000m	0	4	87
Bush Fire Prone Land	NSW Rural Fire Service	21/05/2021	29/04/2021	Weekly	1000m	0	0	3
Native Vegetation of the Sydney Metropolitan Area	NSW Office of Environment & Heritage	01/03/2017	16/12/2016	As required	1000m	3	5	37
Ramsar Wetlands of Australia	Australian Government Department of Agriculture, Water and the Environment	24/02/2021	19/03/2020	Annually	1000m	0	0	0
Groundwater Dependent Ecosystems	Bureau of Meteorology	14/08/2017	15/05/2017	Annually	1000m	0	1	2
Inflow Dependent Ecosystems Likelihood	Bureau of Meteorology	14/08/2017	15/05/2017	Unknown	1000m	0	1	2
NSW BioNet Species Sightings	NSW Office of Environment & Heritage	19/05/2021	19/05/2021	Weekly	10000m	-	-	-

Site Diagram

20 Avon Road Pymble, NSW 2073



Legend

- Site Boundary
- Internal Parcel Boundaries

Total Area: 4832m²

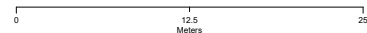
Total Perimeter: 287m

Disclaimers:

Measurements are approximate only and may have been simplified or smaller lengths removed for readability.

Parcels that make up a small percentage of the total site area have not been labelled for increased legibility.

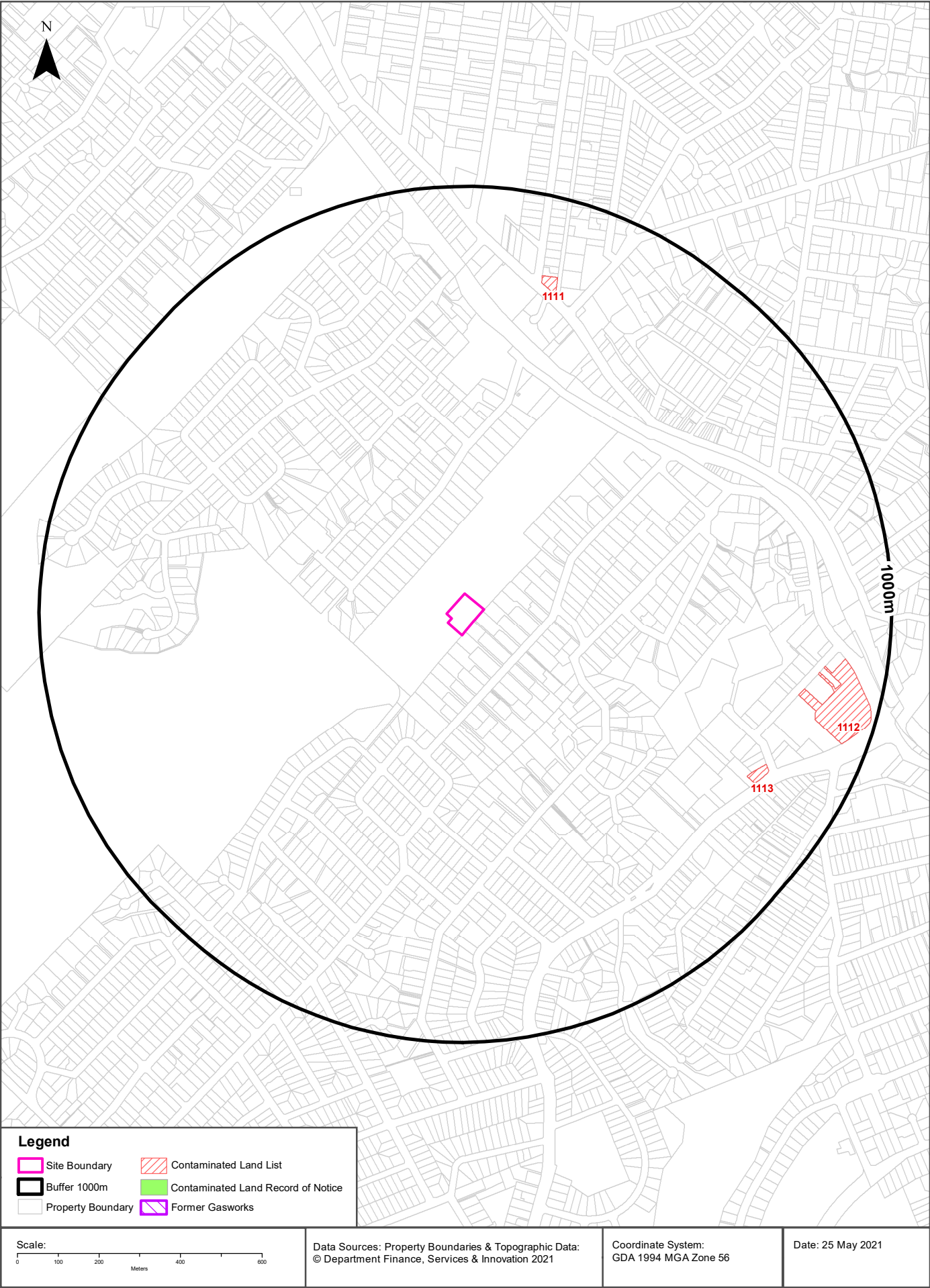
Scale:



Data Sources: Aerial Imagery:
© Aerometrex Pty Ltd

Coordinate System:
GDA 1994 MGA Zone 56

Date: 25 May 2021



Contaminated Land

20 Avon Road Pymble, NSW 2073

List of NSW contaminated sites notified to EPA

Records from the NSW EPA Contaminated Land list within the dataset buffer:

Map Id	Site	Address	Suburb	Activity	Management Class	Status	Location Confidence	Dist	Direction
1113	Shell Coles Express Service Station	21 Ryde Road	Pymble	Service Station	Regulation under CLM Act not required	Current EPA List	Premise Match	764m	South East
1111	Caltex Service Station	1089 Pacific Highway	Pymble	Service Station	Regulation under CLM Act not required	Current EPA List	Premise Match	771m	North
1112	Former 3M site	950 Pacific Highway	Pymble	Gasworks	Regulation under CLM Act not required	Current EPA List	Premise Match	799m	East

The values within the EPA site management class in the table above, are given more detailed explanations in the table below:

EPA site management class	Explanation
Contamination being managed via the planning process (EP&A Act)	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation. The contamination of this site is managed by the consent authority under the Environmental Planning and Assessment Act 1979 (EP&A Act) planning approval process, with EPA involvement as necessary to ensure significant contamination is adequately addressed. The consent authority is typically a local council or the Department of Planning and Environment.
Contamination currently regulated under CLM Act	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation under the Contaminated Land Management Act 1997 (CLM Act). Management of the contamination is regulated by the EPA under the CLM Act. Regulatory notices are available on the EPA's Contaminated Land Public Record of Notices.
Contamination currently regulated under POEO Act	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation. Management of the contamination is regulated under the Protection of the Environment Operations Act 1997 (POEO Act). The EPA's regulatory actions under the POEO Act are available on the POEO public register.
Contamination formerly regulated under the CLM Act	The EPA has determined that the contamination is no longer significant enough to warrant regulation under the Contaminated Land Management Act 1997 (CLM Act). The contamination was addressed under the CLM Act.
Contamination formerly regulated under the POEO Act	The EPA has determined that the contamination is no longer significant enough to warrant regulation. The contamination was addressed under the Protection of the Environment Operations Act 1997 (POEO Act).
Contamination was addressed via the planning process (EP&A Act)	The EPA has determined that the contamination is no longer significant enough to warrant regulation. The contamination was addressed by the appropriate consent authority via the planning process under the Environmental Planning and Assessment Act 1979 (EP&A Act).
Ongoing maintenance required to manage residual contamination (CLM Act)	The EPA has determined that ongoing maintenance, under the Contaminated Land Management Act 1997 (CLM Act), is required to manage the residual contamination. Regulatory notices under the CLM Act are available on the EPA's Contaminated Land Public Record of Notices.
Regulation being finalised	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation under the Contaminated Land Management Act 1997. A regulatory approach is being finalised.
Regulation under the CLM Act not required	The EPA has completed an assessment of the contamination and decided that regulation under the Contaminated Land Management Act 1997 is not required.
Under assessment	The contamination is being assessed by the EPA to determine whether regulation is required. The EPA may require further information to complete the assessment. For example, the completion of management actions regulated under the planning process or Protection of the Environment Operations Act 1997. Alternatively, the EPA may require information via a notice issued under s77 of the Contaminated Land Management Act 1997 or issue a Preliminary Investigation Order.

NSW EPA Contaminated Land List Data Source: Environment Protection Authority

© State of New South Wales through the Environment Protection Authority

Contaminated Land

20 Avon Road Pymble, NSW 2073

Contaminated Land: Records of Notice

Record of Notices within the dataset buffer:

Map Id	Name	Address	Suburb	Notices	Area No	Location Confidence	Distance	Direction
N/A	No records in buffer							

Contaminated Land Records of Notice Data Source: Environment Protection Authority
© State of New South Wales through the Environment Protection Authority
Terms of use and disclaimer for Contaminated Land: Record of Notices, please visit
<http://www.epa.nsw.gov.au/clm/clmdisclaimer.htm>

Former Gasworks

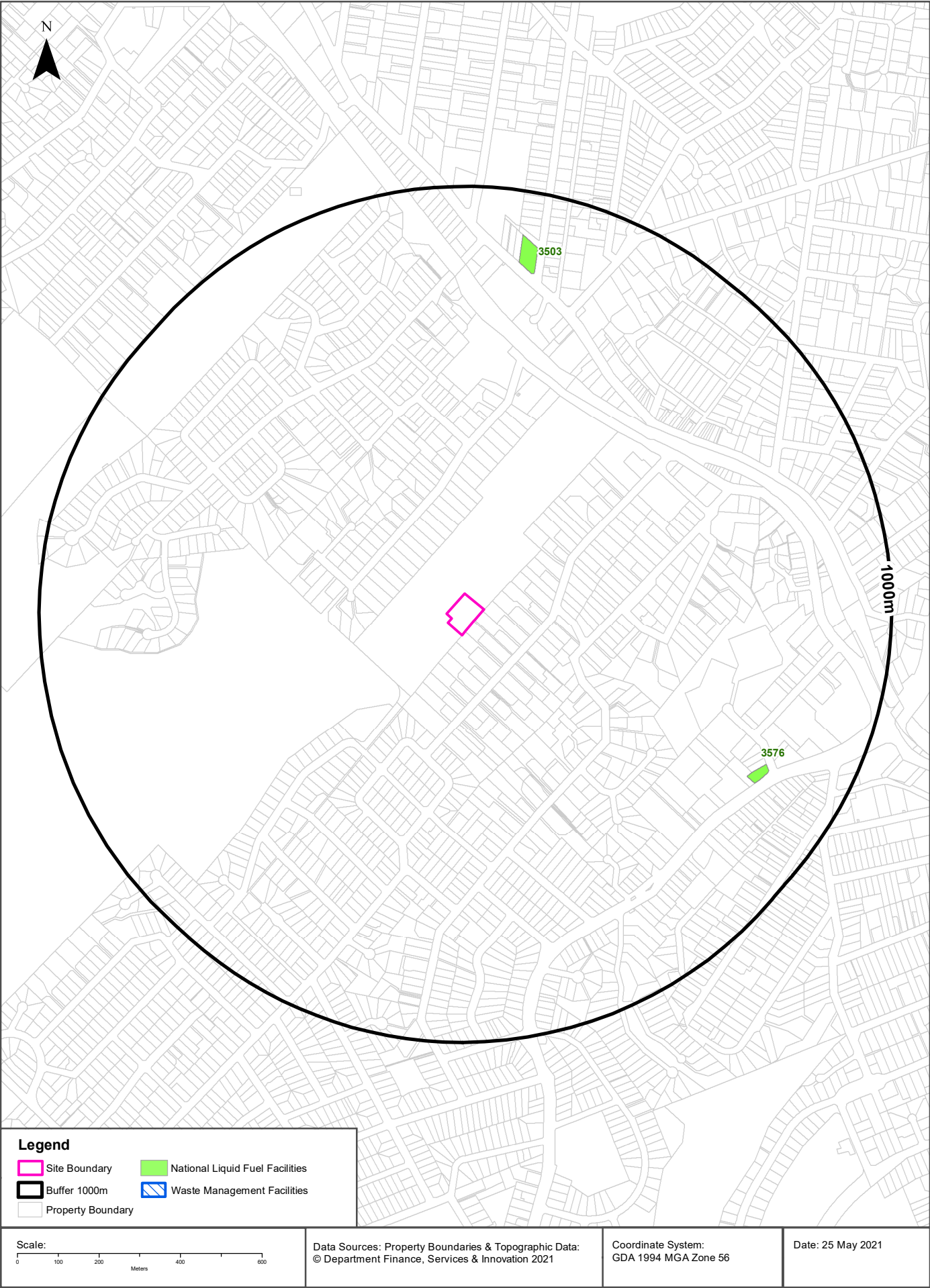
Former Gasworks within the dataset buffer:

Map Id	Location	Council	Further Info	Location Confidence	Distance	Direction
N/A	No records in buffer					

Former Gasworks Data Source: Environment Protection Authority
© State of New South Wales through the Environment Protection Authority

Waste Management & Liquid Fuel Facilities

20 Avon Road Pymble, NSW 2073



Waste Management & Liquid Fuel Facilities

20 Avon Road Pymble, NSW 2073

National Waste Management Site Database

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

Site Id	Owner	Name	Address	Suburb	Class	Landfill	Reprocess	Transfer	Comments	Loc Conf	Dist	Direction
N/A	No records in buffer											

Waste Management Facilities Data Source: Geoscience Australia

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National Liquid Fuel Facilities

National Liquid Fuel Facilities within the dataset buffer:

Map Id	Owner	Name	Address	Suburb	Class	Operational Status	Operator	Revision Date	Loc Conf	Dist	Direction
3576	Shell	Coles Express Pymble	21 Ryde Road	Pymble	Petrol Station	Operational		25/07/2011	Premise Match	764m	South East
3503	BP	BP Express Pymble	1103 Pacific Highway	Pymble	Petrol Station	Operational		25/07/2011	Premise Match	803m	North

National Liquid Fuel Facilities Data Source: Geoscience Australia

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PFAS Investigation & Management Programs

20 Avon Road Pymble, NSW 2073

EPA PFAS Investigation Program

Sites that are part of the EPA PFAS investigation program, within the dataset buffer:

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

EPA PFAS Investigation Program: Environment Protection Authority
© State of New South Wales through the Environment Protection Authority

Defence PFAS Investigation Program

Sites being investigated 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 Program Data Custodian: Department of Defence, Australian Government

Defence PFAS Management Program

Sites being 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 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

20 Avon Road Pymble, NSW 2073

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 Other Sites with Contamination Issues

20 Avon Road Pymble, NSW 2073

EPA Other Sites with Contamination Issues

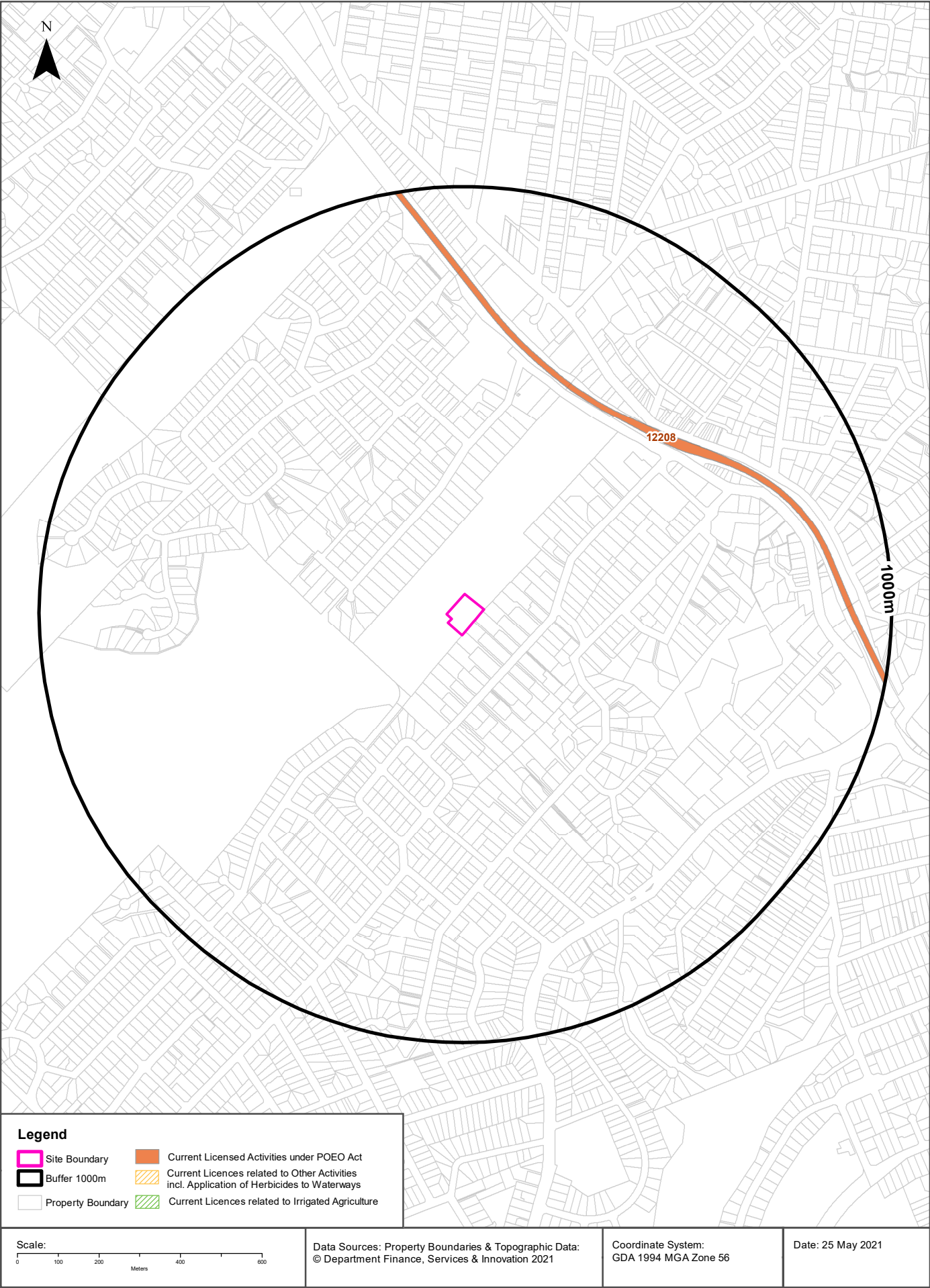
This dataset contains other sites identified on the EPA website as having contamination issues. This dataset currently includes:

- James Hardie asbestos manufacturing and waste disposal sites
- Radiological investigation sites in Hunter's Hill
- Pasminco Lead Abatement Strategy Area

Sites within the dataset buffer:

Site Id	Site Name	Site Address	Dataset	Comments	Location Confidence	Distance	Direction
N/A	No records in buffer						

EPA Other Sites with Contamination Issues: Environment Protection Authority
© State of New South Wales through the Environment Protection Authority



EPA Activities

20 Avon Road Pymble, NSW 2073

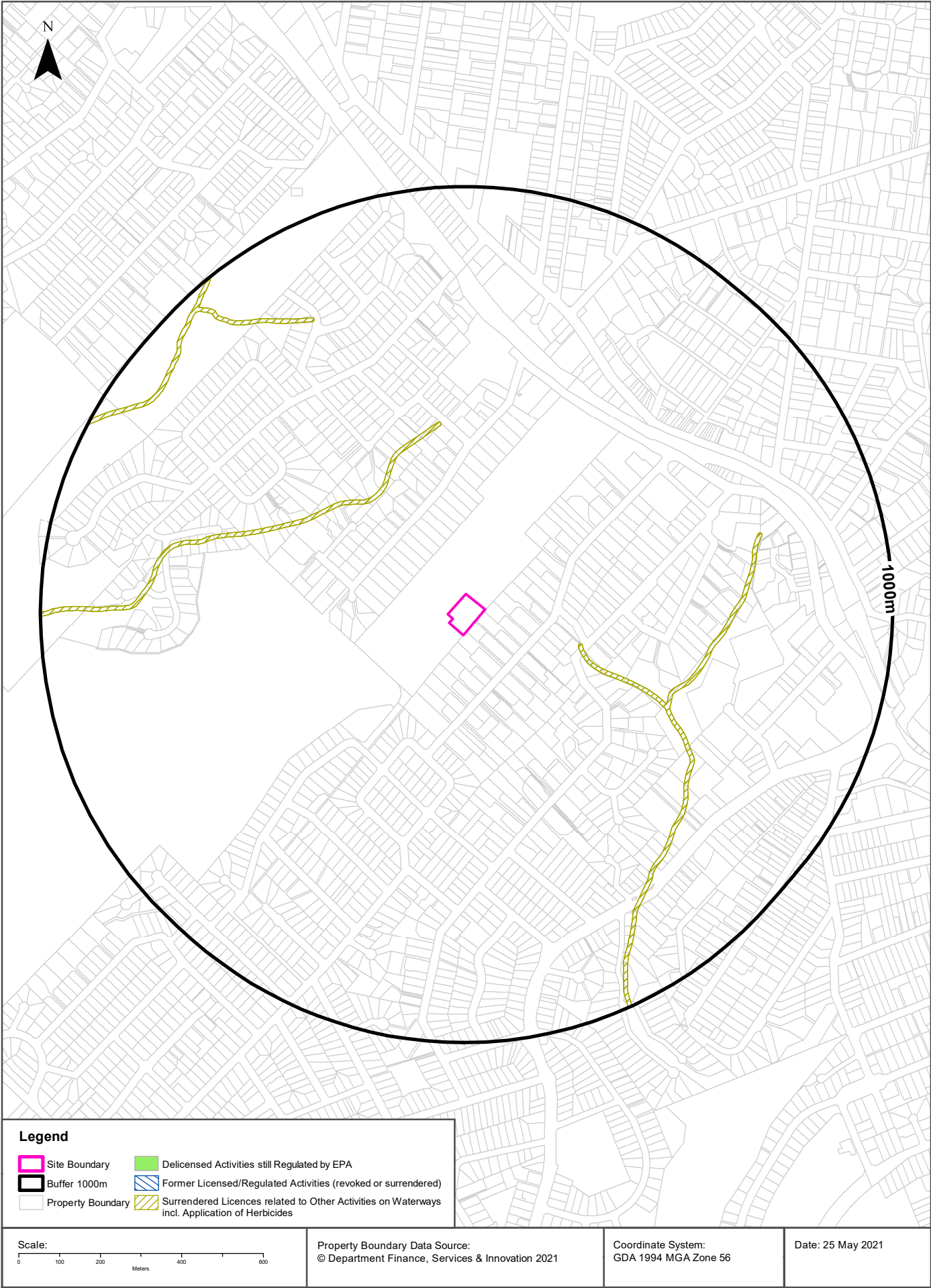
Licensed Activities under the POEO Act 1997

Licensed activities under the Protection of the Environment Operations Act 1997, within the dataset buffer:

EPL	Organisation	Name	Address	Suburb	Activity	Loc Conf	Distance	Direction
12208	SYDNEY TRAINS		SYDNEY TRAINS, HAYMARKET, NSW 1238		Railway systems activities	Network of Features	560m	North East

POEO Licence Data Source: Environment Protection Authority

© State of New South Wales through the Environment Protection Authority



EPA Activities

20 Avon Road Pymble, NSW 2073

Delicensed Activities still regulated by the EPA

Delicensed activities still regulated by the EPA, within the dataset buffer:

Licence No	Organisation	Name	Address	Suburb	Activity	Loc Conf	Distance	Direction
N/A	No records in buffer							

Delicensed Activities Data Source: Environment Protection Authority

© State of New South Wales through the Environment Protection Authority

Former Licensed Activities under the POEO Act 1997, now revoked or surrendered

Former Licensed activities under the Protection of the Environment Operations Act 1997, now revoked or surrendered, within the dataset buffer:

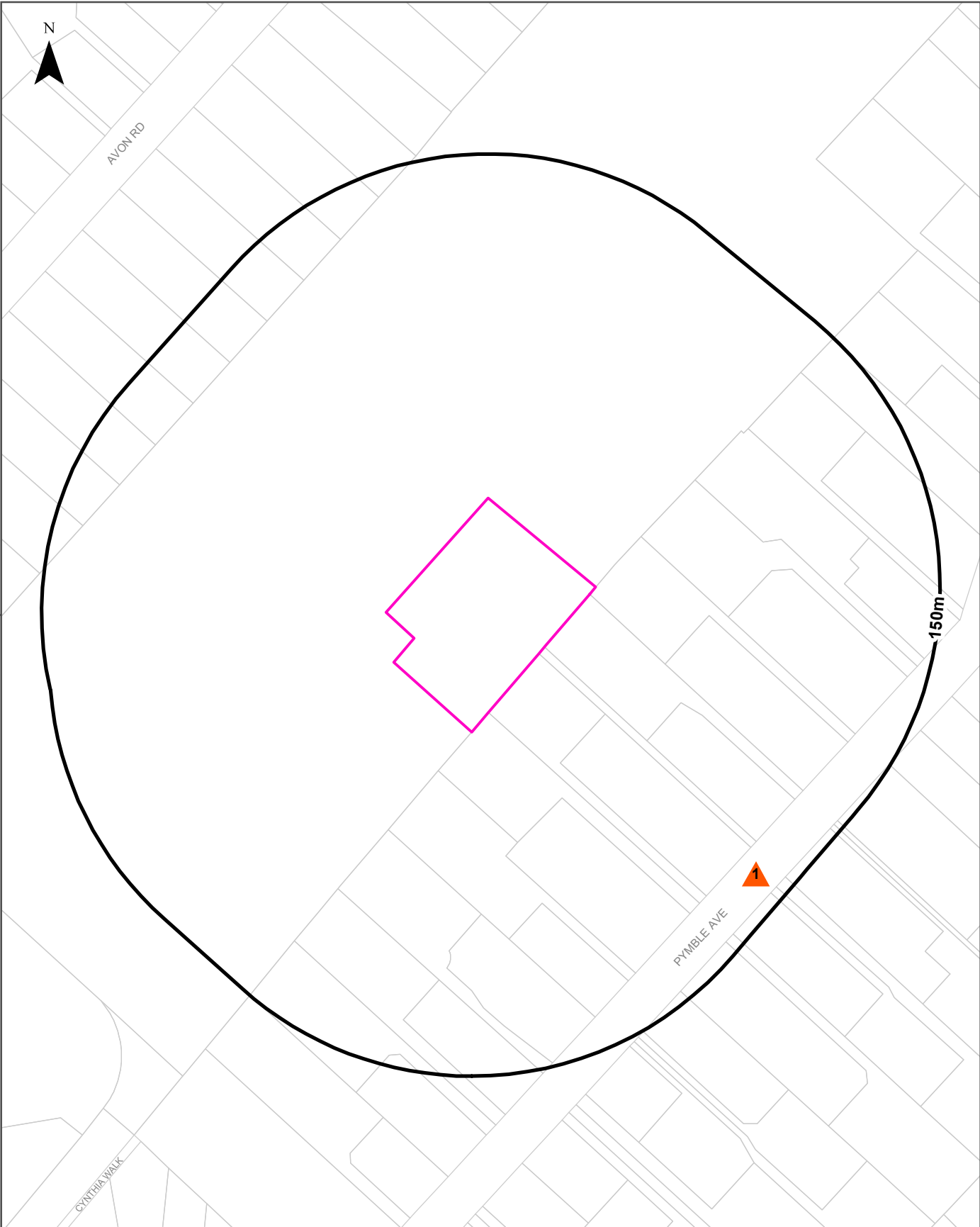
Licence No	Organisation	Location	Status	Issued Date	Activity	Loc Conf	Distance	Direction
4653	LUHRMANN ENVIRONMENT MANAGEMENT PTY LTD	WATERWAYS THROUGHOUT NSW	Surrendered	06/09/2000	Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	245m	North West
4838	Robert Orchard	Various Waterways throughout New South Wales - SYDNEY NSW 2000	Surrendered	07/09/2000	Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	245m	North West
6630	SYDNEY WEED & PEST MANAGEMENT PTY LTD	WATERWAYS THROUGHOUT NSW - PROSPECT, NSW, 2148	Surrendered	09/11/2000	Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	245m	North West

Former Licensed Activities Data Source: Environment Protection Authority

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Historical Business Directories

20 Avon Road Pymble, NSW 2073



Legend		Scale: 0 30 60 90 120 Meters	Coordinate System: GDA 1994 MGA Zone 56
Site Boundary	Business directory records mapped to a specific premise		Date: 25 May 2021
Buffer 150m	Business directory records mapped to a road intersection	Data Sources: Reproduced with permission of UBD and Hardie Grant Media Pty Ltd DD 01/08/2018	
Property Boundary	Business directory records mapped to a road corridor		
	Business directory records mapped to a general area		

Historical Business Directories

20 Avon Road Pymble, NSW 2073

Business Directory Records 1950-1991 Premise or Road Intersection Matches

Universal Business Directory records from years 1991, 1986, 1982, 1978, 1975, 1970, 1965, 1961 & 1950, 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
N/A	No records in buffer						

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

Business Directory Records 1950-1991

Road or Area Matches

Universal Business Directory records from years 1991, 1986, 1982, 1978, 1975, 1970, 1965, 1961 & 1950, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published:

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
1	DENTISTS	Arnold, J. J., "Greycliffe", Pymble Ave., Pymble	31659	1950	Road Match	124m

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Historical Business Directories

20 Avon Road Pymble, NSW 2073

Dry Cleaners, Motor Garages & Service Stations 1948-1993 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.

Note: The Universal Business Directories were published between 1948 and 1993. Dry Cleaners, Motor Garages & Service Stations have been extracted from all of these directories except the following years 1951, 1955, 1957, 1960, 1963, 1973, 1974, 1977, 1987.

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

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Dry Cleaners, Motor Garages & Service Stations 1948-1993 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.

Note: The Universal Business Directories were published between 1948 and 1993. Dry Cleaners, Motor Garages & Service Stations have been extracted from all of these directories except the following years 1951, 1955, 1957, 1960, 1963, 1973, 1974, 1977, 1987.

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

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Legend

- Site Boundary
- Buffer 150m

Scale:
 0 25 50 75 100
 Meters

Data Sources: Aerial Imagery:
 © Aerometrex Pty Ltd

Coordinate System:
 GDA 1994 MGA Zone 56

Date: 25 May 2021



Legend

- Site Boundary
- Buffer 150m

Scale:
 0 25 50 75 100
 Meters

Data Sources: Aerial Imagery:
 © Aerometrex Pty Ltd

Coordinate System:
 GDA 1994 MGA Zone 56

Date: 25 May 2021

