

# REPORT TO INTEGRATED PROJECTS

ON

PRELIMINARY (STAGE 1) SITE INVESTIGATION

**FOR** 

PROPOSED SENIORS LIVING DEVELOPMENT

AT

55 FOX HILLS CRESCENT, PROSPECT, NSW

Date: 20 January 2021 Ref: E33524PArpt

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## **Executive Summary**

Integrated Projects Pty Ltd ('the client') commissioned JK Environments (JKE) to undertake a Preliminary (Stage 1) Site Investigation (PSI) for the proposed seniors living development at Fox Hills Golf Club, 55 Fox Hills Crescent, Prospect, NSW ('the site'). The site location is shown on Figure 1 attached in the appendices. The investigation was confined to the proposed development area only as shown on Figure 2.

This report has been prepared to support the lodgement of a Site Compatibility Certificate application to the NSW Department of Planning for the proposed seniors living development within Fox Hills Golf Club.

The primary aims of the investigation were to identify any past or present potentially contaminating activities at the site, identify the potential for site contamination, and make a preliminary assessment of the soil and groundwater contamination conditions. 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 use(s) via a site walkover inspection;
- Identify potential contamination sources/areas of environmental concern (AEC) and contaminants of potential concern (CoPC);
- Assess the soil and groundwater contamination conditions via implementation of a preliminary sampling and analysis program;
- Prepare a conceptual site model (CSM);
- Assess the potential risks posed by contamination to the receptors identified in the CSM (Tier 1 assessment);
- Assess whether the site is suitable or can be made suitable for the proposed development (from a contamination viewpoint); and
- Assess whether further intrusive investigation and/or remediation 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;
- Preparation of a CSM;
- Design and implementation of a sampling, analysis and quality plan (SAQP);
- Interpretation of the analytical results against the adopted Site Assessment Criteria (SAC);
- Data Quality Assessment; and
- Preparation of a report including a Tier 1 risk assessment.

The PSI included a review of historical information, soil sampling from 10 boreholes and groundwater sampling from three monitoring wells installed onsite. The site has historically been used for agricultural purposes including for grazing and market gardens since at least 1930s until between 1956 and 1969 when the site was gradually developed for uses as a golf course (i.e. progressively acquired by the Fox Hills Golf Club).

The PSI did not identify any soil or groundwater contamination that was assessed to pose a risk to on-site receptors and/or in relation to the proposed development and anticipated land use. However, the intrusive investigation component of the PSI was limited and a Detailed (Stage 2) Site Investigation (DSI) is required to further characterise the site conditions.

The PSI has not identified any triggers for remediation. A DSI is required to confirm site suitability or establish whether remediation is necessary to make the site suitable for the proposed development. Nevertheless, JKE is of the opinion that the site is compatible for the proposed development within a residential-type land use setting. JKE have not identified contamination that would preclude the use of the site for such purpose.

We recommend the following:

- Prepare a SAQP for the DSI; and
- Complete the DSI in accordance with the SAQP.

In order to effectively design the DSI and complete the associated risk assessment, the proposed development plan will need to be further progressed so that the proposed site layout, cut/fill earthworks requirements and proposed basement depths/locations are known.





Depending on the outcome of the DSI, remediation and validation may also be required. If remediation is required, we anticipate that a Remediation Action Plan (RAP) will need to be prepared as part of the development application.

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



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Appendix B: Site Information and Site History
Appendix C: Laboratory Results Summary Tables

Appendix D: Borehole Logs

**Appendix E: Laboratory Reports & COC Documents** 

Appendix F: Report Explanatory Notes Appendix G: Data (QA/QC) Evaluation Appendix H: Field Work Documents

**Appendix I: Guidelines and Reference Documents** 



# **Abbreviations**

All the rest test and the	25/52
Asbestos Fines/Fibrous Asbestos	AF/FA
Added Contemporat Limits	ABC ACL
Added Contaminant Limits	ACM
Asbestos Containing Material Australian Drinking Water Guidelines	ACW
Area of Environmental Concern	ADWG
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
Contaminated Land Management  Contaminant(s) of Potential Concern	CoPC
Chain of Custody	COC
Conceptual Site Model	CSM
Development Application	DA
Dial Before You Dig	DBYD
Data Quality Indicator	DQI
Data Quality Midicator  Data Quality Objective	DQO
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
General Approval of Immobilisation	GAI
Health Investigation Level	HILs
Hardness Modified Trigger Values	HMTV
Health Screening Level	HSL
Health Screening Level-Site Specific Assessment	HSL-SSA
International Organisation of Standardisation	ISO
JK Environments	JKE
Lab Control Spike	LCS
Light Non-Aqueous Phase Liquid	LNAPL
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
Quality Assurance	QA
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Quality Control	QC
Remediation Action Plan	RAP
Relative Percentage Difference	RPD
Site Assessment Criteria	SAC
Sampling, Analysis and Quality Plan	SAQP
Site Audit Statement	SAS
Site Audit Report	SAR
Site Specific Assessment	SSA
Source, Pathway, Receptor	SPR
Specific Contamination Concentration	SCC
Standard Penetration Test	SPT
Standing Water Level	SWL
Trip Blank	ТВ
Toxicity Characteristic Leaching Procedure	TCLP
Total Recoverable Hydrocarbons	TRH
Trip Spike	TS
Upper Confidence Limit	UCL
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 μS/cm Micrograms per Litre μg/L Milligrams per Kilogram mg/kg Milligrams per Litre mg/L Parts Per Million ppm Percentage %



#### 1 INTRODUCTION

Integrated Projects Pty Ltd ('the client') commissioned JK Environments (JKE) to undertake a Preliminary (Stage 1) Site Investigation (PSI) for the proposed seniors living development at Fox Hills Golf Club, 55 Fox Hills Crescent, Prospect, NSW ('the site'). The purpose of the investigation is to make a preliminary assessment of site contamination. The site location is shown on Figure 1.

The investigation was confined to the proposed development area only as shown on Figure 2. For the purpose of this report, the development area is referred to as 'the site', whilst the whole Fox Hills Golf Club property is referred to as 'the wider site'.

This report has been prepared to support the lodgement of a Site Compatibility Certificate application to the NSW Department of Planning for the proposed seniors living development within Fox Hills Golf Club.

A geotechnical investigation was undertaken in conjunction with this PSI by JK Geotechnics (JKG). The results of the geotechnical investigation are presented in a separate report (Ref: 33524PNrpt, dated 11 December 2020)<sup>1</sup>. This report should be read in conjunction with the JKG report.

#### 1.1 Proposed Development Details

The proposed development will be situated within the south-western part of the Fox Hills Golf Club and will include construction of 14 separate multi storey residential apartment buildings with one- and two-level basement car parks as well as tennis courts, lawn bowls area, facilities, communal areas, internal new road infrastructure and cycle paths. Bulk excavations to depths of approximately 3.0m to 6.0m below ground level (BGL) are likely to be required to accommodate the proposed basement levels.

#### 1.2 Aims and Objectives

The primary aims of the investigation were to identify any past or present potentially contaminating activities at the site, identify the potential for site contamination, and make a preliminary assessment of the soil and groundwater contamination conditions. 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 use(s) via a site walkover inspection;
- Identify potential contamination sources/areas of environmental concern (AEC) and contaminants of potential concern (CoPC);
- Assess the soil and groundwater contamination conditions via implementation of a preliminary sampling and analysis program;
- Prepare a conceptual site model (CSM);
- Assess the potential risks posed by contamination to the receptors identified in the CSM (Tier 1 assessment);
- Assess whether the site is suitable or can be made suitable for the proposed development (from a contamination viewpoint); and
- Assess whether further intrusive investigation and/or remediation is required.

<sup>&</sup>lt;sup>1</sup> JKG, (2020). Report to Integrated Projects on Preliminary Geotechnical Investigation at 55 Fox Hills Crescent, Prospect, NSW. (referred to as JKG report)





#### 1.3 Scope of Work

The investigation was undertaken generally in accordance with a JKE proposal (Ref: EP52474PA) of 21 August 2020 and a written acceptance from the client of 10 September 2020. The scope of work included the following:

- Review of site information, including background and site history information from various sources outlined in the report;
- Preparation of a CSM;
- Design and implementation of a sampling, analysis and quality plan (SAQP);
- Interpretation of the analytical results against the adopted Site Assessment Criteria (SAC);
- Data Quality Assessment; and
- Preparation of a report including a Tier 1 risk assessment.

The scope of work was undertaken with reference to the National Environmental Protection (Assessment of Site Contamination) Measure 1999 as amended (2013)<sup>2</sup>, other guidelines made under or with regards to the Contaminated Land Management Act (1997)<sup>3</sup> and State Environmental Planning Policy No.55 – Remediation of Land (1998)<sup>4</sup>. A list of reference documents/guidelines is included in the appendices.

<sup>&</sup>lt;sup>4</sup> State Environmental Planning Policy No. 55 – Remediation of Land 1998 (NSW) (referred to as SEPP55)



<sup>&</sup>lt;sup>2</sup> National Environment Protection Council (NEPC), (2013). *National Environmental Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013)*. (referred to as NEPM 2013)

<sup>&</sup>lt;sup>3</sup> Contaminated Land Management Act 1997 (NSW) (referred to as CLM Act 1997)



#### 2 SITE INFORMATION

#### 2.1 Site Identification

Table 2-1: Site Identification

Seven Hills – Toongabbie R.S.L. Cub Limited
55 Fox Hills Crescent, Prospect, NSW
Part of Lot 100 in DP834672
Recreational (Golf Course)
Residential
Blacktown City Council
RE2 – Private Recreation
82,000m <sup>2</sup>
43 – 60
Latitude: -33.80356
Longitude: 150.932211
Figure 1
Figure 2
Figure 3
Figure 4

#### 2.2 Site Location and Regional Setting

The wider site is situated within the suburb of Toongabbie and is bound by Great Western Highway to the south, Fox Hills Crescent to the south-west, Toongabbie Road to the east and is mainly surrounded by residential and commercial/light industrial areas. Girraween Creek runs along the eastern part of the wider site traversing it from north to south and a number of man-made water features (i.e. dams/ponds) are also present across central, eastern and south-eastern parts of the wider site.

#### 2.3 Topography

The regional topography is characterised by a north-south trending gully with regional slopes which typically trends towards Girraween Creek. The site area is located on the western side of the gully feature with undulating hills having an overall gentle slope to the east and south towards Girraween Creek at approximately 2-3°.



A number of locally steeper areas were noted throughout the wider site mainly attributed to localised cut and fill earthworks for the golf course. Parts of the site appeared to have been levelled to account for the slope and to accommodate the existing club building and on-grade car park (i.e. southern parts of the site).

#### 2.4 Site Inspection

A walkover inspection of the site was undertaken by JKE on 9 November 2020. The inspection was limited to accessible areas of the site and immediate surrounds. An internal inspection of most building areas on site was not undertaken. However, the equipment and maintenance shed with some of the nearby structures were inspected. Selected site photographs obtained during the inspection are attached in the appendices.

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

#### 2.4.1 Current Site Use and/or Indicators of Former Site Use

At the time of the inspection, the wider site was occupied by the Fox Hills Golf Course which was originally established circa late 1950s. No indications of any former site uses were observed anywhere on-site during the inspection.

#### 2.4.2 Buildings, Structures and Roads

Fox Hills Golf Club house was situated in the southern part of the site with adjoining on-grade car parking area and an accessing road. Club house was a two-storey building of concrete precast and glass construction with metal roofing. Other structures on site included equipment maintenance shed and nearby smaller storage structures associated with the "Maintenance and Workshop Area" in the western part of the site (refer Figure 2).

Based on the age of the buildings on site (i.e. some constructed circa 1960s – 70s), it is considered likely that hazardous building materials including asbestos and lead paint may have been utilised for their construction.

#### 2.4.3 Boundary Conditions, Soil Stability and Erosion

The wider site was bound by perimeter steel fencing. The majority of the site area was covered with grass and trees and no obvious signs of erosion were noted.

#### 2.4.4 Evidence of Cut and Fill

Fill material is expected to be present associated with developed areas across the site such as beneath the existing buildings, pavements, access ways etc. Imported fill material may also potentially be present within undulating mounts across areas of the golf course.

#### 2.4.5 Observed Indicators of Contamination

Two above ground storage tanks (ASTs) were identified to within the "Maintenance and Workshop Area" in the western part of the site. ASTs were situated in a designated area west of the equipment and maintenance shed. ASTs were used to store bulk quantities of petrol and diesel, presumably used to service machinery





used in the greens keeping operation for the golf course. Both ASTs were approximately 1,000L in capacity and were kept within dedicated concrete bunded area with spill kits present nearby. No evidence of any major fuel spills or leaks were observed anywhere in the vicinity of the ASTs.

Various chemicals were observed to have been kept inside the equipment and maintenance shed as well as within nearby storage sheds, including: herbicides, pesticides, small quantities of fuel, engine oil, hydraulic fluid, degreasers, fertilizers etc. Most of these chemicals were kept in dedicated containers/cylinder drums and were typically stored on top of a hardstand, within shelves and in dedicated areas with secondary containment/spill mitigation measures provided (e.g. spill trays, spill kits, designated cabinets etc.). Plastic drums with bulk quantities of waste oil were also noted to be present within dedicated area along the southern wall of the equipment shed building, which also provides secondary containment. No evidence of any major chemical spills or leaks were identified anywhere internally or in the vicinity of the equipment shed building or for the nearby structures.

A backup power generator was present in an external area next to the club house in the south-western part of the site. This generator was situated within a booth and was most likely supplied by an associated diesel AST within the booth. No evidence of any fuel leaks or spills were identified anywhere in the vicinity of the booth.

An external in-ground grease trap was also identified next to the club house and in close proximity to the generator booth. This grease trap was utilised by the kitchen and servery areas within the club house. No evidence of any major spills or leaks were noted anywhere around the grease trap.

An enclosed pumping station was noted to the north-east of the site in the vicinity of the water dam (central part of the wider site). No signs of any significant leaks or spills were noted anywhere in the vicinity of this pumping station.

#### 2.4.6 Drainage and Services

Surface water is not expected to accumulate at the site due to site topography which slopes gently to the east and south, and due to the presence of drainage in the form of stormwater pits and drainage channels across the site. The majority of surface water runoff from across the site is expected to eventuate in manmade ponds/dams and Girraween Creek located to the east and south of the site. Some of the runoff is also expected to be captured by the municipal stormwater system.

#### 2.4.7 Sensitive Environments

Sensitive environments such as wetlands, ponds, creeks or extensive areas of natural vegetation were not present on site. However, a number of man-made dams/ponds and Girraween Creek were situated in close proximity to the east and south-east of the site.

#### 2.4.8 Landscaped Areas and Visible Signs of Plant Stress

The site was largely covered with grasses and tree plantings which were observed throughout the golf course area. No obvious signs of vegetation stress or grass dieback were noted anywhere on site.





#### 2.5 Surrounding Land Use

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

- North Fox Hills Golf Course grounds further beyond which were residential properties;
- South Great Western Highway and Fox Hills Crescent beyond which was vacant land as well as commercial and residential properties;
- East Fox Hills Golf Course grounds further beyond which was Toongabbie Road and commercial/industrial properties; and
- West residential properties.

JKE did not observe any land uses in the immediate surrounds that were identified as potential contamination sources for the site. However, commercial/industrial properties further to the east of the wider site are considered to be potential contamination sources as these are located within 250-300m of the site area and are upgradient of the Girraween Creek and the site.

#### 2.6 Underground Services

The 'Dial Before You Dig' (DBYD) plans were reviewed for the investigation 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. The DBYD plans indicated that a sewer main was running through the north/north-western part of the site and the water main was traversing the site from south-west to northeast. A copy of the sewer DBYD plan is included in Appendix B.

#### 2.7 Section 10.7 Planning Certificate

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

- The land to which certificate relates is not: 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 investigation. The information was sources from the Lotsearch report attached in the appendices. The report indicates that the site is underlain by Bringelly Shale of the Wianamatta Group, which typically consists of shale, carbonaceous claystone, claystone, laminite, fine to medium grained lithic sandstone, rare coal and tuff. The site is also underlain by Quaternary aged alluvial deposits of fine-grained sand, silt and clay along the base of the gully.

#### 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.

#### 3.3 Hydrogeology

Hydrogeological information presented in the Lotsearch report indicated 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 10 registered bores in the report buffer of 1,000m. In summary:

- The nearest registered bore was located approximately 294m to the west. This bore was utilised for monitoring purposes;
- The majority of the bores within the buffer were noted to be registered for monitoring purposes;
- There were no nearby bores (i.e. within 1,000m) which were registered for domestic or irrigation uses;
- The drillers log information from the closest registered bores typically identified fill and residual clay soil to shallow depths of up to 5.0-6.0mBGL, underlain by shale bedrock. Standing water levels (SWLs) in the bores ranged from 13.84mBGL to 16.30mBGL.

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 in an easterly direction towards Girraween Creek. Field data collected during groundwater sampling as part of this investigation indicated groundwater flows in a north-easterly direction as shown on the attached Figure 4.

#### 3.4 Receiving Water Bodies

The site location and regional topography indicates that excess surface water flows have the potential to enter the Girraween Creek and nearby man-made dams/ponds located across the eastern section of the wider site. These water bodies are a potential receptor.





#### 4 SITE HISTORY INFORMATION

## 4.1 Review of Historical Aerial Photographs

Historical aerial photographs were reviewed for the investigation. The information was sourced for the Lotsearch report. JKE has reviewed the photographs, and summarised relevant information in the following table:

Table 4-1: Summary of Historical Aerial Photographs

Year	Details
1930	On-site: The site area appeared to be part of a larger rural property which comprised mostly vacant cleared land overgrown with grasses (possibly used for grazing purposes) with some tree cover areas across its northern part. A building was noted to be present in the southern part of the site accessed from the bounding road to the south (i.e. dirt track at this time). Girraween Creek was running through the eastern part of the wider site traversing it from north to south.
	<b>Off-site:</b> The surrounding land appeared similar to the site and mostly comprised rural type properties overgrown with grasses and trees (likely used for grazing purposes). Crop growing fields and market gardening activities were noted on neighbouring land to the east/south-east of the wider site area.
1943	<b>On-site:</b> The site appeared generally similar to the previous photograph. All bounding streets/roads appeared to have been established by this time.
	<b>Off-site:</b> Additional rural/residential type properties appeared to have been established west and north-west of the site including more agricultural/market gardening activities established further to the east and south-east of the wider site.
1949	On-site: The site appeared generally similar to the previous photograph.
	<b>Off-site:</b> Crop growing fields and market gardening activities were observed to the west and northwest of the site. No other significant changes were noted.
1956	On-site: Central and southern parts of the site and the wider site area appeared to have been used as a golf course with a number of established "greens" and "sand trap/bunkers" visible at this time. The building in the southern part of the site appeared to have been refurbished with some ancillary structures constructed nearby. This area appeared to be consistent with the club-house type facilities for the golf course. Northern parts of the site and parts of the wider site area appeared to be utilised as crop growing fields and/or for market gardening.
	<b>Off-site:</b> More crop growing and market gardening activities were noted to have been established on the surrounding land including some additional rural residential properties to the west/southwest.
1961	On-site: Crop growing and/or market gardening activities appeared to have ceased across northern parts of the site and parts of the wider site area with these areas prepared for use as an extension to the golf course. The area around the building in the southern part of the site appeared to have undergone further upgrades and on-grade visitor car park appeared to have been established at this time.
	Off-site: No significant changes were noted for the surrounding land.
1965	On-site: At this time most of the wider site including the site area appeared to be used as a golf course. Some re-development/establishment works appeared to still be on-going across northern parts of the site and the wider site area. A new commercial building appeared to have been constructed in the southern part of the site in place of previously existing building, and nearby car



Year	Details			
	parking appeared to have been extended. Ancillary shed type structure appeared to have been constructed in the western part of the site.			
	<b>Off-site:</b> Some residential type properties appeared to have been developed to the west of the site. A number of commercial/industrial type properties appeared to have also been developed on the land further to the east across Toongabbie Road.			
1970	On-site: The entire wider site area appeared to be used as a golf course at this time. A number of man-made dams/ponds (i.e. "water hazards") were visible across central and southern parts of the wider site. Additional structure was noted to have been added next to the building in the southern part of the site.			
	<b>Off-site:</b> More residential properties appeared to have been established to the north and west of the site. Further commercial/industrial development was noted for the properties to the east across Toongabbie Road.			
1978	On-site: Car parking area next to the commercial building in the southern part of the site appeared to have been extended comparing to the previous aerial photograph. Additional ancillary structures were noted to have been constructed in the vicinity of the larger shed type structure in the western part of the site.			
	<b>Off-site:</b> Further residential development was noted on the neighbouring land to the north and west of the site. More commercial/light industrial properties appeared to have been developed further to the east across Toongabbie Road.			
1982	The site and surrounding features appeared generally similar to the previous photograph.			
1986	<b>On-site:</b> The site area appeared generally similar to the previous aerial photograph. However, an additional man-made dam/"water hazard" appeared to have been added in the south-eastern section of the wider site.			
	<b>Off-site:</b> Further residential (i.e. to the north and west) and commercial/industrial development (i.e. to the east/south-east across Toongabbie Road) were noted for some of the areas surrounding the wider site.			
1991 1994 2000	The site and surrounding features appeared generally similar to the previous photograph.			
2009	<b>On-site:</b> Building in the southern part of the site appeared to have been renovated/refurbished with car parking areas extended.			
	Off-site: No significant changes were noted for the surrounding areas.			
2015	<b>On-site:</b> Some additional man-made dams/ponds (i.e. "water hazards") appeared to have been added across eastern and south-eastern parts of the wider site. No other discernible changes were noted.			
	Off-site: No significant changes were noted for the surrounding land.			
2020	The site and surrounding features appeared generally similar to the previous photograph.			



#### 4.2 Review of Historical Land Title Records

Historical land title records for the wider site area were reviewed for this investigation. The record search was undertaken by InfoTrack Pty Ltd. Copies of the title records are attached in the appendices. The title records indicate the following:

- Central and southern parts of the site/wider site were under the ownership of The Emu and Prospect
  Gravel and Road Metal Company Limited between 1923 and 1936. The remainder of the site/wider
  site areas were under the ownership of The Haymarket Land and Building Company Limited since at
  least 1925 until circa late 1930s early 1940s;
- It was noted that a narrow strip of land along the eastern boundary of the wider site was under the ownership of The N.S.W. Associated Blue Metal Quarries Pty Limited between 1933 and 1966;
- Most of the site and the wider site were under the ownership of various individuals including farmers, market gardeners etc. from circa 1930s/40s until 1950s/60s;
- Fox Hills Golf Club Limited gradually acquired all areas comprising the wider site between 1957 and 1969 and have remained its registered proprietor since until circa 2000;
- All parts of the wider site were amalgamated under current single title circa 2000. The title became attributed to Seven Hills – Toongabbie R.S.L. Cub Limited that year who remains its current registered proprietor.

The historical land title records identified a number of ownerships indicative of activities for parts of the site and wider site area which could have potentially resulted in contamination of the land. These include ownerships by entities such as The Emu and Prospect Gravel and Road Metal Company Limited (i.e. central and southern parts of the site/wider site area between 1923–1936) and The N.S.W. Associated Blue Metal Quarries Pty Limited (i.e. eastern most part of the wider site between 1933-1966) as well as ownership by private individuals who were farmers/market gardeners (i.e. central and northern parts of the site / wider site between 1930s and1960s). It is noted that extractive industries (e.g. quarries) and agricultural/horticultural activities (e.g. market gardens) are listed in Table 1 of the SEPP55 Planning Guidelines 1998 as activities that may cause contamination.

Review of historical aerial photographs presented in Section 4.1 above did not reveal any evidence of site uses for quarrying activities or stockpiling/transfer of any significant bulk quantities of materials. JKE are of the opinion that ownerships for parts of the site/wider site area by The N.S.W. Associated Blue Metal Quarries Pty Limited and The Emu & Prospect Gravel and Road Metal Company Limited are not considered to be indicative of historical commercial/industrial activities associated with the site. However, farming/market gardening activities were noted to have taken place in the past across central and northern parts of the site/wider site area.

#### 4.3 Review of Council Records

Council records were sourced under an informal access to information request and were reviewed for the investigation. The council records revealed the following pertaining information:

Pollution complaint notice, in relation to the wider site, submitted to the council via e-mail dated 18
December 2018. This notice indicated that the creek which runs through the golf course on some days
was noted to be covered in an oily substance across the water surface, with creek appearing black and



- having an odour. The source of this pollution was not confirmed. However, the notice did suggest to check on factories in the immediate area (i.e. across Toongabbie Road); and
- A water pollution notice, related to the wider site, lodged with the council in 2015 indicated that Girraween Creek appeared to have been impacted by a green liquid (possibly a coolant). It was unclear as to where this liquid originated from.

#### 4.4 SafeWork NSW Records

SafeWork NSW records in relation to the registered storage of dangerous goods were reviewed for the investigation. Copies of relevant documents are attached in the appendices. 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
October 2003	35/017087	The search identified an application for Renewal of Licence to Keep Dangerous Goods submitted on behalf of Seven Hills/Toongabbie RSL Ltd for the Fox Hills Golf Club. Two dangerous goods depots were indicated to have been registered on site which included:  • "Roofed Store" storing mercury-based pesticide (50 Litres), liquid pesticide (50 Litres) and liquid organophosphorus pesticide (50 Litres); and  • A 1,000 Litre above-ground storage tank (AST) for petrol.  A hand drawn plan attached to this application indicated that both of these depots were situated in the vicinity of the Maintenance and Workshop Area (i.e. western part of the site – see Figure 2). Diesel storage was also indicated to have been present in close proximity to the registered depots. However, no details were available with regards to the diesel storage. All of the above-mentioned dangerous goods stores were inspected as described in Section 2.4 above.
1968	NA	A standalone hand drawn plan dating back to 1968 indicated that a 625 Gallon tank was present west of the Club House building. No other related information was provided in regards to this tank and the drawing did not indicate the purpose or contents of the tank. It was further noted during our inspection that this tank is not currently present on-site and that its location, as was indicated on the plan, was since re-developed and built over i.e. between circa 2000 and 2009.

#### 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)<sup>5</sup>;

<sup>&</sup>lt;sup>5</sup> 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)





- Licensed activities under the Protection of the Environment Operations Act (1997)<sup>6</sup>;
- 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	There were two properties notified to the NSW EPA which were listed in the report buffer. These included an industrial galvanizers site (metal industry) and a service station (i.e. Caltex, Pendle Hill). Both of these properties were located approximately 284m and 694m to the east and south-east of the wider site. Due to the distance, local topography and/or down/cross-gradient location both of these properties are not considered to represent an off-site source of contamination.
Records under the Duty to Report Contamination under Section 60 of the CLM Act 1997	None	None
Licences under the POEO Act 1997	A number of former licences now surrendered (issued circa 2000) for application of herbicides along waterways including within the man-made dam/pond in the central part of the wider site and along Girraween Creek.	Current and historical licenses were identified for a number of properties within the report buffer for activities including: waste storage and recovery of general waste (current, 20m south-east), animal products manufacturing (current, 144m south-east), metal coating and metal waste generation (current, 284m south-east), dangerous goods production (current, 306m north-east), slaughtering or processing animals (current, 412m east), concrete works (current, 433m south-east), hazardous, industrial or group A waste generation or storage (delicensed but still regulated by the EPA, 485m north-east).  Surrendered licenses were identified dating to 2000-2003 for various commercial/industrial activities to the east/north-east and south of the site. Due to the distance, local topography and/or down-gradient location, most of 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
Records relating to the Department of Defence PFAS	None	None

<sup>&</sup>lt;sup>6</sup> Protection of the Environment Operations Act 1997 (NSW) (referred to as POEO Act 1997)





Records	On-site	Off-site *
management and		
investigation		
programs		

<sup>\*</sup> Distance reported from the wider site boundary

#### 4.6 Historical Business Directory and Additional Lotsearch Information

Historical business records and other relevant information were reviewed for the investigation. 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	There were a number of motor garages/service stations as well as dry cleaners identified within the report buffer between 1948-1993.  These were located mostly to the east, north-east and south-east of the site/wider site. Due to the distance, local topography and/or down-gradient location, most of these activities are not considered to represent an off-site source of contamination.
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 properties listed in the report buffer. These were active petrol stations located approximately 494m north-east and 694m south-east of the wider site. Due to the distance, local topography and/or down-gradient location, these properties are not considered to represent an off-site source of contamination.
Mapped heritage items	None	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

<sup>\*</sup> Distance from the wider site boundary



#### 4.7 Summary of Site History Information

A time line summary of the historical land uses and activities is presented in the following table. The information presented in the table 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
1930-1956	The site area was part of a larger rural property extending further to the north and east. The site was predominantly vacant land overgrown with grasses having some tree cover areas (possibly used for grazing purposes) with a dwelling in its southern part. Parts of the site were used for farming and market garden activities during this period.	During this period surrounding areas were mostly characterised by rural type properties similar to the site with some agricultural uses which included crop cultivation and market gardens.
1956-1969	The wider site including site area were gradually acquired and adopted for uses as a golf course by the Fox Hills Golf Club.	Surrounding areas were characterised by rural type properties with some agricultural uses (i.e. crop growing fields, market gardens, grazing land etc.). In 1965 low density residential properties appeared to the west of the site and some commercial/industrial type properties were established further to the east and southeast of the wider site across Toongabbie Road.
1969-Current	The site and the wider site areas were used as a golf course.	Residential to the north and west. Commercial/industrial to the east and south.

#### 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.

A review of the CSM in relation to source, pathway and receptor (SPR) linkages has been undertaken as part of the Tier 1 risk assessment process, as outlined in Section 9.

#### 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
<u>Fill material</u> – The site appears to have been historically filled to achieve the existing levels. The fill may have been imported from various sources and could be contaminated.	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.
Fuel and chemical storage – Two ASTs, approximately 1,000 Litre capacity each, used for storing petrol and diesel were identified for the "Maintenance and Workshop Area" of the site (see Figure 2). Various types of chemicals including minor quantities of fuels, oils, solvents, bulk quantities of waste oil as well as various pesticides and herbicides were also noted to have been kept in this area.  A backup generator present within a dedicated booth situated south of the club house building (see Figure 2) was supplied by an associated diesel AST inside the booth. An in-ground grease trap was also identified in an external area next to backup generator and the club house.	Heavy Metals, TRH, BTEX, PAHs, OCPs and OPPs.
<u>Use of pesticides</u> – Pesticides may have been used/applied around various parts of the site area, including beneath the existing buildings.	Heavy metals, OCPs, OPPs.
Hazardous Building Material – Hazardous building materials may be present as a result of former building and demolition activities in the vicinity of the currently present buildings in southern and western parts of the site. These materials may also be present in the existing buildings/structures on site or within fill soil.	Asbestos, lead and PCBs



Source / AEC	CoPC
Nearby low-lying gully channel to the east with associated surface water features and waterways, including groundwater – Man-made dams/ponds and Girraween Creek within the wider site may potentially be impacted by CoPCs associated with the activities on nearby up-gradient commercial/industrial properties to the east and north-east across Toongabbie Road. A number of pollution complaint notices were previously submitted to the Council (circa 2015-2018) in relation to the waterways and surface water features within the wider site. These areas have been identified as an AEC as the hydraulic connectivity between these features and the groundwater at the site are not yet understood.	Heavy metals, TRH, BTEX, PAHs and volatile organic compounds (VOCs).
Historical agricultural use – Parts of the site area and nearby land were used for agricultural purposes in the past including for grazing and market gardens. This could have resulted in contamination across the site via use of machinery, application of pesticides and building/demolition of various structures. Irrigation pipes made from asbestos cement may also be associated with this AEC.	Heavy metals, TRH, PAHs, OCPs, PCBs and asbestos

JKE note that herbicides have not been included as CoPC as herbicides are not commonly found at residual concentrations likely to pose a risk to human health or the environment (NSW DEC 2005, *Guidelines for Assessing Former Orchards and Market Gardens*).

## 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: CSM	
Potential mechanism for contamination	<ul> <li>Potential mechanisms for contamination include:</li> <li>Fill material – importation of impacted material, 'top-down' impacts (e.g. placement of fill, leaching from surficial material etc), or sub-surface release (e.g. impacts from buried material);</li> <li>Fuel and chemical storage – 'top-down', spills (e.g. during filling of the ASTs and/or dispensing activities, from leaking ASTs, in-ground grease trap, storage drums or containers, improper storage);</li> <li>Use of pesticides – 'top-down' and spills (e.g. during normal use, application and/or improper storage);</li> <li>Hazardous building materials – 'top-down' (e.g. demolition resulting in surficial impacts in unpaved areas, demolition waste mixed with soil and used as fill);</li> <li>Nearby low-lying gully channel with associated surface water features and waterways including groundwater – transport of potentially impacted groundwater onto site (e.g. potential connectivity of the groundwater aquifer</li> </ul>
	beneath the site to the nearby creek and man-made dams/ponds);



	Historical agricultural use – 'top-down' and spills (e.g. application of pesticides, refuelling or repairing machinery, and other activities at the ground surface level).
Affected media	Soil and groundwater have been identified as potentially affected media.
Receptor identification	Human receptors include site occupants/users (including adults and children), construction workers and intrusive maintenance workers. Off-site human receptors include adjacent land users, recreational water users within Girraween Creek.
	Ecological receptors include terrestrial organisms and plants within unpaved areas, and freshwater ecology associated with Girraween Creek and the adjacent dams/ponds within the wider site.
Potential exposure pathways	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/direct contact and ingestion.
	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.
	Exposure to groundwater could occur in man-made dams/ponds within the wider site and within Girraween Creek. However, it is noted that connectivity between the aquifer, man-made dams and the creek has not been confirmed at this time.
	Groundwater also has the potential to enter the creek and/or man-made dams/ponds via the stormwater system (which is expected to discharge into the creek and/or man-made dams/ponds) in a drained basement scenario and/or a situation where groundwater seepage is captured and discharged to stormwater.
Potential exposure mechanisms	The following have been identified as potential exposure mechanisms for site contamination:
	<ul> <li>Vapour intrusion into the proposed basement and/or building (either from soil contamination or volatilisation of contaminants from groundwater);</li> </ul>
	<ul> <li>Contact (dermal, ingestion or inhalation) with exposed soils in landscaped areas and/or unpaved areas; and</li> </ul>
	<ul> <li>Migration of groundwater off-site and into nearby water bodies (man-made dams/ponds and Girraween Creek), including aquatic ecosystems and those being used for recreation; and</li> </ul>
	<ul> <li>Migration of potentially impacted groundwater onto site from nearby gully channel and associated water bodies.</li> </ul>
Presence of preferential pathways for contaminant movement	Local underground services such as sewer and stormwater have the potential to act as preferential pathways for contaminant migration at the site. However, the potential for migration would depend on the fate and transport properties of the CoPC.



#### 6 SAMPLING, ANALYSIS AND QUALITY PLAN

#### 6.1 Data Quality Objectives (DQO)

Data Quality Objectives (DQOs) were developed to define the type and quality of data required to achieve the project objectives outlined in Section 1.2. The DQOs were prepared with reference to the process outlined in Schedule B2 of NEPM (2013) and the Guidelines for the NSW Site Auditor Scheme, 3<sup>rd</sup> Edition (2017)<sup>7</sup>. The seven-step DQO approach for this project is outlined in the following sub-sections.

The DQO process is validated in part by the Data Quality Assurance/Quality Control (QA/QC) Evaluation. The Data (QA/QC) Evaluation is summarised in Section 8.1 and the detailed evaluation is provided in the appendices.

#### 6.1.1 Step 1 - State the Problem

The CSM identified potential sources of contamination/AEC at the site that may pose a risk to human health and the environment. Investigation data is required to assess the contamination status of the site, assess the risks posed by the contaminants in the context of the proposed development/intended land use, and assess whether further investigation or remediation is required. This information will be considered by the consent authority in exercising its planning functions in relation to the approval of the development proposal.

#### 6.1.2 Step 2 - Identify the Decisions of the Study

The objectives of the investigation are outlined in Section 1.2. The decisions to be made reflect these objectives and are as follows:

- Did the site inspection, or does the historical information identify potential contamination sources/AEC at the site?
- Are any results above the SAC?
- Do potential risks associated with contamination exist, and if so, what are they?
- Is remediation required?
- Is the site characterisation sufficient to provide adequate confidence in the above decisions?
- Is the site suitable for the proposed development, or can the site be made suitable subject to further characterisation and/or remediation?

#### 6.1.3 Step 3 - Identify Information Inputs

The primary information inputs required to address the decisions outlined in Step 2 include the following:

- Site information, including site observations and site history documentation;
- Sampling of potentially affected media, including soil and groundwater;
- Observations of sub-surface variables such as soil type, photo-ionisation detector (PID) concentrations, odours and staining, and groundwater physiochemical parameters;
- Laboratory analysis of soils and groundwater for the CoPC identified in the CSM; and
- Field and laboratory QA/QC data.

<sup>&</sup>lt;sup>7</sup> NSW EPA (2017). *Guidelines for the NSW Site Auditor Scheme, 3<sup>rd</sup> ed.* (referred to as Site Auditor Guidelines 2017)





#### 6.1.4 Step 4 - Define the Study Boundary

The sampling will be confined to the site boundaries as shown in Figure 2 and will be limited vertically to a depth of 3.8mBGL (spatial boundary). The sampling was completed on 9, 10 and 23 November 2020 (temporal boundary). The assessment of potential risk to adjacent land users has been made based on data collected within the site boundary. The scope of the investigation is limited to that described in Section 1.3.

#### 6.1.5 Step 5 - Develop an Analytical Approach (or Decision Rule)

#### 6.1.5.1 Tier 1 Screening Criteria

The laboratory data will be assessed against relevant Tier 1 screening criteria (referred to as SAC), as outlined in Section 7. Exceedances of the SAC do not necessarily indicate a requirement for remediation or a risk to human health and/or the environment. Exceedances are considered in the context of the CSM and valid SPR-linkages.

For this investigation, the individual results have been assessed as either above or below the SAC. Statistical evaluation of the dataset via calculation of mean values and/or 95% upper confidence limit (UCL) values has not been undertaken due to the preliminary nature of the intrusive investigation.

#### 6.1.5.2 Field and Laboratory QA/QC

Field QA/QC included analysis of intra-laboratory duplicates, trip spike, trip blank and rinsate samples. Further details regarding the sampling and analysis undertaken, and the acceptable limits adopted, is provided in the Data Quality (QA/QC) Evaluation in the appendices.

The suitability of the laboratory data is assessed against the laboratory QA/QC criteria which is outlined in the attached laboratory reports. These criteria were developed and implemented in accordance with the laboratory's National Association of Testing Authorities, Australia (NATA) accreditation and align with the acceptable limits for QA/QC samples as outlined in NEPM (2013) and other relevant guidelines.

In the event that acceptable limits are not met by the laboratory analysis, other lines of evidence are reviewed (e.g. field observations of samples, preservation, handling etc) and, where required, consultation with the laboratory is undertaken in an effort to establish the cause of the non-conformance. Where uncertainty exists, JKE typically adopt the most conservative concentration reported (or in some cases, consider the data from the affected sample as an estimate).

#### 6.1.5.3 Appropriateness of Practical Quantitation Limits (PQLs)

The PQLs of the analytical methods are considered in relation to the SAC to confirm that the PQLs are less than the SAC. In cases where the PQLs are greater than the SAC, a discussion of this is provided.

#### 6.1.6 Step 6 – Specify Limits on Decision Errors

To limit the potential for decision errors, a range of quality assurance processes are adopted. A quantitative assessment of the potential for false positives and false negatives in the analytical results is undertaken with reference to Schedule B(3) of NEPM (2013) using the data quality assurance information collected.





Decision errors can be controlled through the use of hypothesis testing. The test can be used to show either that the baseline condition is false or that there is insufficient evidence to indicate that the baseline condition is false. The null hypothesis is an assumption that is assumed to be true in the absence of contrary evidence. For this investigation, the null hypothesis has been adopted which is that, there is considered to be a complete SPR linkage for the CoPC identified in the CSM unless this linkage can be proven not to (or unlikely to) exist. The null hypothesis has been adopted for this investigation.

#### 6.1.7 Step 7 - Optimise the Design for Obtaining Data

The most resource-effective design will be used in an optimum manner to achieve the investigation objectives. Adjustment of the investigation design can occur following consultation or feedback from project stakeholders. For this investigation, the design was optimised via consideration of the various lines of evidence used to select the sample locations, the media being sampled, and also by the way in which the data were collected.

The sampling plan and methodology are outlined in the following sub-sections.

#### 6.2 Soil Sampling Plan and Methodology

The soil sampling plan and methodology adopted for this investigation is outlined in the table below:

Table 6-1: Soil Sampling Plan and Methodology

able 6-1: Soil Sampling Plan and Methodology				
Aspect	Input			
Sampling	The sampling density for asbestos in soil included sampling from 10 locations across the site			
Density	(shown on Figure 2) which were selected for broad site coverage and were not designed to meet			
	the minimum sampling density recommended in the Guidelines for the Assessment, Remediation			
	and Management of Asbestos-Contaminated Sites in Western Australia (2009) <sup>8</sup> (endorsed in NEPN			
	2013). This was considered adequate to make a preliminary assessment of potential risks across			
	the site and to assess if further characterisation is required.			
	Samples for other contaminants were also collected from 10 locations as shown on the attached Figure 2. Based on the site area (approximately 82,000m²), this number of locations corresponded to a sampling density of approximately one sample per 8,200m². The sampling plan was not designed to meet the minimum sampling density for hotspot identification, as outlined in the NSW EPA Contaminated Sites Sampling Design Guidelines (1995) <sup>9</sup> .			
Sampling Plan	The sampling locations were placed on a judgemental sampling plan and were broadly positioned for site coverage, taking into consideration areas that were not easily accessible. This sampling			
	plan was considered suitable to make a preliminary assessment of potential risks associated with			
	the AEC (excluding the point source areas within the maintenance and workshop area) and CoPC			
	identified in the CSM, and assess whether further investigation is warranted.			

<sup>&</sup>lt;sup>8</sup> Western Australian (WA) Department of Health (DoH), (2009). Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia. (referred to as WA DoH 2009)

<sup>9</sup> NSW EPA, (1995), Contaminated Sites Sampling Design Guidelines. (referred to as EPA Sampling Design Guidelines 1995)





Aspect	Input
Set-out and Sampling Equipment	Sampling locations were set out using hand held specialised survey GPS unit which utilises a Sokkia GCX3 GNSS Receiver (with an accuracy of ±30mm). The sampling locations were checked for underground services by an external contractor prior to sampling.
	Samples were collected using a drill rig equipped with spiral flight augers (150mm diameter). Soil samples were obtained from a Standard Penetration Test (SPT) split-spoon sampler, and/or directly from the auger.
Sample Collection and Field QA/QC	Soil samples were obtained on 9 and 10 November 2020 in accordance with our standard field procedures. Soil samples were collected from the fill and natural profiles based on field observations. The sample depths are shown on the logs attached in the appendices.  Samples were placed in glass jars with plastic caps and teflon seals with minimal headspace.
	Samples for asbestos analysis were placed in zip-lock plastic bags. During sampling, soil at selected depths was split into primary and duplicate samples for field QA/QC analysis. The field splitting procedure included alternately filling the sampling containers to obtain a representative split sample.
Field Screening	A portable Photoionisation Detector (PID) fitted with a 10.6mV lamp was used to screen the samples for the presence of volatile organic compounds (VOCs). PID screening for VOCs was undertaken on soil samples using the soil sample headspace method. VOC data was obtained from partly filled zip-lock plastic bags following equilibration of the headspace gases. PID calibration records are maintained on file by JKE.
	<ul> <li>The field screening for asbestos quantification included the following:</li> <li>A representative bulk sample was collected from fill at 1m intervals, or from each distinct fill profile. The quantity of material for each sample varied based on whatever return could be achieved using the auger. The bulk sample intervals are shown on the attached borehole logs;</li> <li>Each sample was weighed using an electronic scale;</li> <li>Each bulk sample was passed through a sieve with a 7.1mm aperture and inspected for the presence of fibre cement;</li> </ul>
	<ul> <li>The condition of fibre cement or any other suspected asbestos materials was noted on the field records; and</li> <li>If observed, any fragments of fibre cement in the bulk sample were collected, placed in a ziplock bag and assigned a unique identifier. Calculations for asbestos content were undertaken based on the requirements outlined in Schedule B1 of NEPM (2013), as summarised in Section 7.1.</li> </ul>
Decontami- nation and Sample Preservation	Sampling personnel used disposable nitrile gloves during sampling activities.  Soil samples were preserved by immediate storage in an insulated sample container with ice. On completion of the fieldwork, the samples were stored temporarily in fridges in the JKE warehouse before being delivered in the insulated sample container to a NATA registered laboratory for analysis under standard chain of custody (COC) procedures.



# 6.3 Groundwater Sampling Plan and Methodology

The groundwater sampling plan and methodology is outlined in the table below:

Table 6-2: Groundwater Sampling Plan and Methodology

Aspect	Input
Sampling Plan	Groundwater monitoring wells were installed in BH1 (MW1), BH3 (MW3) and BH8 (MW8). The wells were positioned to gain a snap-shot of the groundwater conditions. Considering the topography and the location of the nearest down-gradient water body, MW1 was considered to be in the up-gradient area of the site and would be expected to provide an indication of groundwater flowing onto (beneath) the site from the south-west. MW8 was considered to be in the intermediate to down-gradient area of the site and would be expected to provide an indication of groundwater flowing across (beneath) the site and beyond the down-gradient site boundary.
Monitoring Well Installation Procedure	<ul> <li>The monitoring well construction details are documented on the appropriate borehole logs attached in the appendices. The monitoring wells were installed to depths of approximately 7.5m BGL. The wells were generally constructed as follows:</li> <li>50mm diameter Class 18 PVC (machine slotted screen) was installed in the lower section of the well to intersect groundwater;</li> <li>50mm diameter Class 18 PVC casing was installed in the upper section of the well (screw fixed);</li> <li>A 2mm sand filter pack was used around the screen section for groundwater infiltration;</li> <li>A hydrated bentonite seal/plug was used on top of the sand pack to seal the well; and</li> <li>A gatic cover was installed at the surface with a concrete plug to limit the inflow of surface water.</li> <li>The monitoring well installation, including the screen lengths, were considered suitable for assessment of general groundwater quality with regards to Table 5 in Schedule B2 of NEPM 2013.</li> </ul>
Monitoring Well Development	The monitoring wells were developed on 10 November 2020 using a submersible electrical pump. Due to the hydrogeological conditions, groundwater inflow into MW1 and MW3 was relatively low, therefore these wells were pumped until they were effectively dry. MW8 was developed until steady state conditions were achieved.
	Steady state conditions were considered to have been achieved when the difference in the pH measurements was less than 0.2 units, the difference in conductivity was less than 10%, and when the SWL was not in drawdown.  The field monitoring records and calibration data are attached in the appendices.
Groundwater Sampling	The monitoring wells were allowed to recharge for approximately 12 days after development. Groundwater samples were obtained on 23 November 2020.  Prior to sampling, the monitoring wells were checked for the presence of Light Non-Aqueous Phase Liquids (LNAPLs) using an inter-phase probe electronic dip meter. The monitoring well head space was checked for VOCs using a calibrated PID unit. The samples were obtained using a peristaltic pump. During sampling, the following parameters were monitored using calibrated field instruments:  SWL using an electronic dip meter; and  pH, temperature, electrical conductivity (EC), dissolved oxygen (DO) and redox potential (Eh) using a YSI Multi-probe water quality meter.



Aspect	Input		
	Steady state conditions were considered to have been achieved when the difference in the pH measurements was less than 0.2 units, the difference in conductivity was less than 10%, and when the SWL was not in drawdown.		
	Groundwater samples were obtained directly from the single use PVC tubing and placed in the sample containers. Duplicate samples were obtained by alternate filling of sample containers. This technique was adopted to minimise disturbance of the samples and loss of volatile contaminants associated with mixing of liquids in secondary containers, etc.		
	Groundwater removed from the wells during development and sampling was transported to JKE in jerry cans and stored in holding drums prior to collection by a licensed waste water contractor for off-site disposal.		
	The field monitoring record and calibration data are attached in the appendices.		
Decontaminant and Sample Preservation	During development, the pump was flushed between monitoring wells with potable water (single-use tubing was used for each well). The pump tubing was discarded after each sampling event and replaced therefore no decontamination procedure was considered necessary.		
	The samples were preserved with reference to the analytical requirements and placed in an insulated container with ice. On completion of the fieldwork, the samples were temporarily stored in a fridge at the JKE office, before being delivered in the insulated sample container to a NATA registered laboratory for analysis under standard COC procedures.		
Monitoring Well Survey	All monitoring wells were surveyed using specialised hand-held survey GPS unit which utilises a Sokkia GCX3 GNSS Receiver (with calibration accuracy of ±30mm) to obtain exact northing, easting and elevation (mAHD) data including the RLs for each location. All well measurements were taken from top of the gatic cover.		

# 6.4 Laboratory Analysis

Samples were analysed by an appropriate, NATA Accredited laboratory using the analytical methods detailed in Schedule B(3) of NEPM 2013. Reference should be made to the laboratory reports attached in the appendices for further details.

Table 6-3: Laboratory Details

Samples	Laboratory	Report Reference
All primary samples and field QA/QC samples including (intra-laboratory duplicates, trip blanks, trip spikes and field rinsate samples)	Envirolab Services Pty Ltd NSW, NATA Accreditation Number – 2901 (ISO/IEC 17025 compliance)	255513, 255513-A and 256497



#### 7 SITE ASSESSMENT CRITERIA (SAC)

The SAC were derived from the NEPM 2013 and other guidelines as discussed in the following sub-sections. The guideline values for individual contaminants are presented in the attached report tables and further explanation of the various criteria adopted is provided in the appendices.

#### **7.1** Soil

Soil data were compared to relevant Tier 1 screening criteria in accordance with NEPM (2013) as outlined below.

#### 7.1.1 Human Health

- Health Investigation Levels (HILs) for a 'residential with accessible soils' exposure scenario (HIL-A);
- Health Screening Levels (HSLs) for a 'low-high density residential' exposure scenario (HSL-A & HSL-B).
   HSLs were calculated based on conservative assumptions including a 'sand' type and a depth interval of 0m to 1m;
- HSLs for direct contact presented in the CRC Care Technical Report No. 10 Health screening levels for hydrocarbons in soil and groundwater Part 1: Technical development document (2011)<sup>10</sup>; and
- For decision making purposes asbestos was primarily assessed on the basis of presence/absence due to the preliminary nature of the investigation. However, the HSL-A criteria have also been considered for quantitative risk assessment purposes for fibrous asbestos (FA) and asbestos fines (AF), and for field testing. A summary of the quantitative asbestos criteria is provided in the table below:

Table 7-1: Details for Asbestos SAC

Guideline	Applicability
Asbestos in Soil	The HSL-A criteria were adopted for the assessment of asbestos in soil. The SAC adopted for asbestos were derived from the NEPM 2013 and are based on WA DoH (2009) guidance. The SAC includes the following:  No visible asbestos at the surface/in the top 10cm of soil;  <0.01% w/w bonded asbestos containing material (ACM) in soil; and  <0.001% w/w asbestos fines/fibrous asbestos (AF/FA) in soil.  Concentrations for bonded ACM concentrations in soil are based on the following equation which is presented in Schedule B1 of NEPM (2013):  **w/w asbestos in soil = ** asbestos content x bonded ACM (kg)* Soil volume (L) x soil density (kg/L)  However, we are of the opinion that the actual soil volume in a 10L bucket varies considerably due to the presence of voids, particularly when assessing cohesive soils. Therefore, each bucket sample was weighed using electronic scales and the above equation was adjusted as follows (we note that the units have also converted to grams):  **w/w asbestos in soil = ** asbestos content x bonded ACM (g)*
	Soil weight (g)

<sup>&</sup>lt;sup>10</sup> Cooperative Research Centre for Contamination Assessment and Remediation of the Environment (CRC Care), (2011). Technical Report No. 10 - Health screening levels for hydrocarbons in soil and groundwater Part 1: Technical development document





#### 7.1.2 Environment (Ecological – terrestrial ecosystems)

- Ecological Investigation Levels (EILs) and Ecological Screening Levels (ESLs) for an 'urban residential and public open space' (URPOS) exposure scenario. These have only been applied to the top 2m of soil as outlined in NEPM (2013). The criterion for benzo(a)pyrene has been increased from the value presented in NEPM (2013) based on the Canadian Soil Quality Guidelines<sup>11</sup>;
- ESLs were adopted based on the soil type;
- EILs for selected metals were calculated based on the most conservative added contaminant limit (ACL) values presented in Schedule B(1) of NEPM (2013) and published ambient background concentration (ABC) values presented in the document titled Trace Element Concentrations in Soils from Rural and Urban Areas of Australia (1995)<sup>12</sup>. This method is considered to be adequate for the Tier 1 screening.

#### 7.1.3 Management Limits for Petroleum Hydrocarbons

Management limits for petroleum hydrocarbons (as presented in Schedule B1 of NEPM 2013) were considered.

#### 7.2 Groundwater

Groundwater data were compared to relevant Tier 1 screening criteria in accordance with NEPM (2013), following an assessment of environmental values in accordance with the Guidelines for the Assessment and Management of Groundwater Contamination (2007)<sup>13</sup>. Environmental values for this investigation include aquatic ecosystems and human-health risks in non-use scenarios.

#### 7.2.1 Human Health

- The NEPM (2013) HSLs were not applicable for this project as the proposed concept masterplan indicates that the proposed development design includes buildings with basement levels which may potentially intersect groundwater table. On this basis, JKE have undertaken a site-specific assessment (SSA) for the Tier 1 screening of human health risks posed by volatile contaminants in groundwater. The assessment included selection of alternative Tier 1 criteria that were considered suitably protective of human health. These criteria are based on drinking water guidelines and have been referred to as HSL-SSA. The criteria were based on the following (as shown in the attached report tables):
  - Australian Drinking Water Guidelines 2011 (updated 2018)<sup>14</sup> for BTEX compounds and selected VOCs;

<sup>&</sup>lt;sup>14</sup> National Health and Medical Research Council (NHMRC), (2018). *National Water Quality Management Strategy, Australian Drinking Water Guidelines 2011* (referred to as ADWG 2011)



<sup>&</sup>lt;sup>11</sup> Canadian Council of Ministers of the Environment, (1999). *Canadian soil quality guidelines for the protection of environmental and human health: Benzo(a)Pyrene (1997)* (referred to as the Canadian Soil Quality Guidelines)

<sup>&</sup>lt;sup>12</sup> Olszowy, H., Torr, P., and Imray, P., (1995), *Trace Element Concentrations in Soils from Rural and Urban Areas of Australia. Contaminated Sites Monograph Series No. 4*. Department of Human Services and Health, Environment Protection Agency, and South Australian Health Commission

<sup>&</sup>lt;sup>13</sup> NSW Department of Environment and Conservation, (2007). Guidelines for the Assessment and Management of Groundwater Contamination.



- World Health Organisation (WHO) document titled Petroleum Products in Drinking-water,
   Background document for the development of WHO Guidelines for Drinking Water Quality
   (2008)<sup>15</sup> for petroleum hydrocarbons;
- o USEPA Region 9 screening levels for naphthalene (threshold value for tap water); and
- The use of the laboratory PQLs for other contaminants where there were no Australian guidelines.
- The ANZG 2018 criteria were multiplied by a factor of 10 to assess potential risks associated with incidental/recreational-type exposure to groundwater (e.g. within down-gradient water bodies or with seepage water in a basement). These have been deemed as 'recreational' SAC.

#### 7.2.2 Environment (Ecological - aquatic ecosystems)

Groundwater Investigation Levels (GILs) for 95% protection of freshwater species were adopted based on the Default Guideline Values in the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2018)<sup>16</sup>. The 99% trigger values were adopted where required to account for bioaccumulation. Low and moderate reliability trigger values were also adopted for some contaminants where high-reliability trigger values don't exist.

<sup>&</sup>lt;sup>16</sup> Australian and New Zealand Governments (ANZG), (2018). *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. Australian and New Zealand Governments and Australian state and territory governments, Canberra ACT, Australia (referred to as ANZG 2018)



<sup>&</sup>lt;sup>15</sup> World Health Organisation (WHO), (2008). *Petroleum Products in Drinking-water, Background document for the development of WHO Guidelines for Drinking Water Quality* (referred to as WHO 2008)



#### 8 RESULTS

#### 8.1 Summary of Data (QA/QC) Evaluation

The data evaluation is presented in the appendices. In summary, JKE are of the opinion that the data are adequately precise, accurate, representative, comparable and complete to serve as a basis for interpretation to achieve the investigation objectives.

#### 8.2 Subsurface Conditions

A summary of the subsurface conditions encountered during the investigation is presented in the following table. Reference should be made to the borehole logs attached in the appendices for further details.

Table 8-1: Summary of Subsurface Conditions

Profile	Description
Fill	Fill was encountered at the surface in all boreholes and extended to depths of approximately 0.2-3.3mBGL.
	The fill typically comprised sandy clay, silty sand, silty clay, clayey sand and clayey sandy gravel with inclusions of ash, igneous and ironstone gravel, concrete and plastic fragments and traces of silt fines, clay nodules, roots and root fibres.
Natural Soil	Natural alluvial and residual silty clays were encountered below the fill at each borehole location extending down to depths of 1.2-4.7mBGL. The silty clay profile typically extended to the top of the weathered siltstone bedrock.
Bedrock	Siltstone bedrock with some interbedded sandstone was encountered in all of the boreholes beneath silty clay profile (i.e. from 1.2-4.7mBGL), and extended to the borehole termination depths.
Groundwater	SWLs were measured within monitoring wells installed in BH1, BH3 and BH8 at approximately 2.46mBGL, 4.5mBGL and 3.1mBGL respectively, during sampling on 23 November 2020.

## 8.3 Field Screening

A summary of the field screening results is presented in the following table:

Table 8-2: Summary of Field Screening

Aspect	Details
PID Screening of Soil Samples for VOCs	PID soil sample headspace readings are presented in attached report tables and the COC documents attached in the appendices. The results ranged from 0.1ppm to 7.6ppm equivalent isobutylene. These results indicate relatively low concentrations of PID detectable VOCs are present in some of the samples. Selected samples with elevated PID readings were analysed for TRH and BTEX.
Bulk Screening for Asbestos	The bulk field screening results are summarised in the attached report tables. All results were below the SAC. Visible asbestos was not detected in any of the bulk screening samples.
Groundwater Depth & Flow	SWLs were measured in MW1, MW3 and MW8 at depths ranging from 3.8mBGL to 7.4mBGL a short time after completion of drilling prior to stabilisation. The remaining boreholes were dry during and a short time after completion of drilling.



Aspect	Details
	SWLs measured in the monitoring wells 5-7 days (or more ) after installation and prior to sampling ranged from 2.46mBGL to 4.50mBGL. Groundwater RLs calculated on these measurements ranged from 43.473 to 46.316mAHD. On this basis it is anticipated that excavations for the proposed basements may intercept groundwater.
	A contour plot was prepared for the groundwater levels using Surfer v8.08 (Surface Mapping Program) as shown on Figure 4. Groundwater flow generally occurs in a down gradient direction perpendicular to the groundwater elevation contours. The contour plot indicates that groundwater generally flows north-east towards Girraween Creek and the larger man-mad dam/pond just beyond the north-east corner of the site.
Groundwater Field Parameters	Field measurements recorded during sampling were as follows:  - pH ranged from 6.47 to 7.28;  - EC ranged from 3,079μS/cm to11,360μS/cm;  - Eh ranged from 16.9mV to 125.4mV; and  - DO ranged from 0.4ppm to 4.2ppm.
LNAPLs petroleum hydrocarbons	Phase separated product (i.e. LNAPL) were not detected using the interphase probe during groundwater sampling.

# 8.4 Soil Laboratory Results

The soil laboratory results were assessed against the SAC presented in Section 7.1. Individual SAC are shown in the report tables attached in the appendices. A summary of the results is presented below:

# 8.4.1 Human Health and Environmental (Ecological) Assessment

Table 8-3: Summary of Soil Laboratory Results – Human Health and Environmental (Ecological)

Analyte	N	Max. (mg/kg)	N> Human Health SAC	N> Ecological SAC	Comments
Arsenic	15	16	0	NSL	-
Cadmium	15	<pql< td=""><td>0</td><td>NSL</td><td>-</td></pql<>	0	NSL	-
Chromium (total)	15	39	0	0	-
Copper	15	26	0	0	-
Lead	15	32	0	0	-
Mercury	15	0.6	0	NSL	-
Nickel	15	31	0	0	-
Zinc	15	94	0	0	-
Total PAHs	14	<pql< td=""><td>0</td><td>NSL</td><td>-</td></pql<>	0	NSL	-
Benzo(a)pyrene	14	<pql< td=""><td>NSL</td><td>0</td><td>-</td></pql<>	NSL	0	-



Analyte	N	Max. (mg/kg)	N> Human Health SAC	N> Ecological SAC	Comments
Carcinogenic PAHs (as BaP TEQ)	15	<pql< td=""><td>0</td><td>NSL</td><td>-</td></pql<>	0	NSL	-
Naphthalene	15	<pql< td=""><td>0</td><td>NSL</td><td>-</td></pql<>	0	NSL	-
DDT+DDE+DDD	15	<pql< td=""><td>0</td><td>NSL</td><td>-</td></pql<>	0	NSL	-
DDT	15	<pql< td=""><td>NSL</td><td>0</td><td>-</td></pql<>	NSL	0	-
Aldrin and dieldrin	15	<pql< td=""><td>0</td><td>NSL</td><td>-</td></pql<>	0	NSL	-
Chlordane	15	<pql< td=""><td>0</td><td>NSL</td><td>-</td></pql<>	0	NSL	-
Heptachlor	15	<pql< td=""><td>0</td><td>NSL</td><td>-</td></pql<>	0	NSL	-
PCBs	15	<pql< td=""><td>0</td><td>NSL</td><td>-</td></pql<>	0	NSL	-
TRH F1	16	<pql< td=""><td>0</td><td>0</td><td>-</td></pql<>	0	0	-
TRH F2	16	51	0	0	-
TRH F3	16	270	0	0	-
TRH F4	16	240	0	0	-
Benzene	15	<pql< td=""><td>0</td><td>0</td><td>-</td></pql<>	0	0	-
Toluene	15	<pql< td=""><td>0</td><td>0</td><td>-</td></pql<>	0	0	-
Ethylbenzene	15	<pql< td=""><td>0</td><td>0</td><td>-</td></pql<>	0	0	-
Xylenes	15	<pql< td=""><td>0</td><td>0</td><td>-</td></pql<>	0	0	-
Asbestos (in soil)	7	Absent  AF/FA <0.001% w/w  ACM <0.01% w/w	0	NA	Asbestos was absent in the samples analysed for the investigation.

## Notes:

N: Total number (primary samples)

NSL: No set limit NL: Not limiting



## 8.5 Groundwater Laboratory Results

The soil laboratory results were assessed against the SAC presented in Section 7.2. Individual SAC are shown in the report tables attached in the appendices. A summary of the results is presented below:

Table 8-4: Summary of Groundwater Laboratory Results – Human Health and Environmental (Ecological)

Analyte	N^	Max.	N> Human	N> Ecological	Comments
,		(μg/L)	Health SAC	SAC	
Arsenic	3	<pql< td=""><td>0</td><td>0</td><td>-</td></pql<>	0	0	-
Cadmium	3	<pql< td=""><td>0</td><td>0</td><td>-</td></pql<>	0	0	-
Chromium (total)	3	<pql< td=""><td>0</td><td>0</td><td>-</td></pql<>	0	0	-
Copper	3	2	0	2	Copper concentrations in MW1 (2µg/L) and MW3 (2µg/L) marginally exceeded the freshwater ecological SAC of 1.4µg/L.
Lead	3	<pql< td=""><td>0</td><td>0</td><td>-</td></pql<>	0	0	-
Mercury	3	<pql< td=""><td>0</td><td>0</td><td>-</td></pql<>	0	0	-
Nickel	3	13	0	1	The nickel concentration in MW1 (13µg/L) marginally exceeded the freshwater ecological SAC of 11µg/L.
Zinc	3	16	0	2	Zinc concentrations in MW1 (16μg/L) and MW8 (12μg/L) exceeded the freshwater ecological SAC of 8μg/L.
Total PAHs	3	<pql< td=""><td>0</td><td>00</td><td>-</td></pql<>	0	00	-
Benzo(a)pyrene	3	<pql< td=""><td>0</td><td>0</td><td>-</td></pql<>	0	0	-
Carcinogenic PAHs (as BaP TEQ)	3	<pql< td=""><td>0</td><td>0</td><td>-</td></pql<>	0	0	-
TRH F1	3	<pql< td=""><td>0</td><td>0</td><td>-</td></pql<>	0	0	-
TRH F2	3	<pql< td=""><td>0</td><td>0</td><td>-</td></pql<>	0	0	-
TRH F3	3	<pql< td=""><td>0</td><td>0</td><td>-</td></pql<>	0	0	-
TRH F4	3	<pql< td=""><td>0</td><td>0</td><td>-</td></pql<>	0	0	-
Benzene	3	<pql< td=""><td>0</td><td>0</td><td>-</td></pql<>	0	0	-
Toluene	3	<pql< td=""><td>0</td><td>0</td><td>-</td></pql<>	0	0	-
Ethylbenzene	3	<pql< td=""><td>0</td><td>0</td><td>-</td></pql<>	0	0	-
m+p-Xylene	3	<pql< td=""><td>NSL</td><td>0</td><td>-</td></pql<>	NSL	0	-



Analyte	N^	Max. (μg/L)	N> Human Health SAC	N> Ecological SAC	Comments
o-Xylene	3	<pql< td=""><td>NSL</td><td>0</td><td>-</td></pql<>	NSL	0	-
Total Xylenes	3	<pql< td=""><td>0</td><td>0</td><td>-</td></pql<>	0	0	-
1,1-dichloro- ethane (VOC)	3	1	NSL	0	A detectable concentration of 1,1-dichloroethane was identified in MW1. The detected concentration was 1µg/L (equal to the PQL) and was below the adopted ecological groundwater SAC.
Remaining VOCs excluding 1,1- dichloro-ethane	3	<pql< td=""><td>0</td><td>0</td><td>All other VOC concentrations were below the laboratory PQL.</td></pql<>	0	0	All other VOC concentrations were below the laboratory PQL.

# Notes:

^: Primary samples N: Total number NSL: No set limit NL: Not limiting



#### 9 DISCUSSION

## 9.1 Contamination Sources/AEC and Potential for Site Contamination

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

- Imported fill material (entire site);
- Fuel and chemical storage (ASTs and chemical storage identified for the "Maintenance and Workshop Area" in the western part of the site and in the vicinity of the club house in the southern part of the site);
- Use of pesticides (entire site);
- Hazardous building materials;
- Nearby low-lying gully channel to the east with associated surface water features and waterways including groundwater; and
- Historical agricultural uses.

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. The preliminary soil and groundwater data collected for the investigation is discussed further in the following subsection, as part of the Tier 1 risk assessment.

#### 9.2 Tier 1 Risk Assessment and Review of CSM

For a contaminant to represent a risk to a receptor, the following three conditions must be present:

- 1. Source The presence of a contaminant;
- 2. Pathway A mechanism or action by which a receptor can become exposed to the contaminant; and
- 3. Receptor The human or ecological entity which may be adversely impacted following exposure to contamination.

If one of the above components is missing, the potential for adverse risks is relatively low.

## 9.2.1 Soil

All soil results were below the SAC. Fill/soil impacts associated with the identified AEC/sources of contamination were not identified within the scope of the PSI.

## 9.2.2 Groundwater

Copper, nickel and zinc were detected in the groundwater samples above the ecological SAC, as shown on Figure 3 attached in the appendices. Elevated concentrations of these metals are common in urban groundwater as a result of leaking water infrastructure and surface run-off. As the concentrations were relatively consistent across the site and were only marginally above the SAC, we consider that the concentrations are likely to be consistent with regional conditions and are not indicative of contamination.

All other CoPC were below the SAC and there was no indication of widespread contamination in the shallow groundwater investigated for the PSI. Considering the groundwater flow direction inferred on Figure 4,



potential impacts from off-site industrial areas/Girraween Creek are unlikely to adversely affect the proposed development at the site.

It is noted that a detectable concentration of 1,1-dichloroethane was identified in groundwater sample collected from MW1. This result was below the adopted ecological groundwater SAC. 1,1-dichloroethane has a variety of commercial applications including uses in manufacturing (i.e. plastics, rubber, oils, adhesives, synthetic fibres etc.), as a solvent (i.e. for paints, plastics, oils, fats etc.), as a degreaser, as a fumigant in insecticide sprays and in fire extinguishers etc<sup>17</sup>. Its presence in groundwater could potentially be attributed to a variety of sources on-site and/or off-site.

Further investigation of groundwater is required in the vicinity of the maintenance and workshop area to assess risks posed by the CoPC in this area of the site.

#### 9.3 Decision Statements

The decision statements are addressed below:

Did the site inspection, or does the historical information identify potential contamination sources/AEC at the site?

Yes, as noted in Section 9.1.

Are any results above the SAC?

Copper, nickel and zinc were identified above the ecological SAC for groundwater within MW1, MW3 and MW8. All other results were below the SAC.

Do potential risks associated with contamination exist, and if so, what are they?

The PSI has not identified any soil or groundwater contamination that was assessed to pose a risk in relation to the proposed development and land use. Further assessment of the potential risks posed by the CoPC is required as part of a detailed site investigation (DSI) to further characterise the site.

Is remediation required?

Based on the current dataset, JKE did not identify any triggers for remediation at this point in time.

Is the site characterisation sufficient to provide adequate confidence in the above decisions?

Yes, however a DSI is required to establish whether remediation will be necessary. Due to a large site area and preliminary nature of this investigation not all AEC/site areas have been adequately characterised.



<sup>&</sup>lt;sup>17</sup> https://en.wikipedia.org/wiki/1,1-Dichloroethane



Is the site suitable for the proposed development, or can the site be made suitable subject to further characterisation and/or remediation?

A DSI is required to confirm site suitability or establish whether remediation is necessary to make the site suitable for the proposed development. Nevertheless, JKE is of the opinion that the site is compatible for the proposed development within a residential-type land use setting. JKE have not identified contamination that would preclude the use of the site for such purpose.

## 9.4 Data Gaps

An assessment of data gaps is provided in the following table:

Table 9-1: Data Gap Assessment

Data Gap	Assessment
Soil sampling density below minimum guideline density	Sampling was limited to approximately 11% of the minimum sampling density recommended in the EPA Sampling Design Guidelines 1995. Additionally, there is lack of laboratory data associated with the "Maintenance and Workshop Area" and the club house area on site where specific point sources of contamination were identified. These areas must also be targeted within the scope of the DSI.  This data gap can be addressed as part of the DSI.
Groundwater assessment limited in scope.	The PSI included a limited assessment of groundwater. The groundwater conditions and quality are to be further assessed during the DSI in the vicinity of the maintenance and workshop area.  This data gap can be addressed as part of the DSI.



#### 10 CONCLUSIONS AND RECOMMENDATIONS

The PSI included a review of historical information, soil sampling from 10 boreholes and groundwater sampling from three monitoring wells installed onsite. The site has historically been used for agricultural purposes including for grazing and market gardens since at least 1930s until between 1956 and 1969 when the site was gradually developed for uses as a golf course (i.e. progressively acquired by the Fox Hills Golf Club).

The PSI did not identified any soil or groundwater contamination that was assessed to pose a risk to on-site receptors and/or in relation to the proposed development and anticipated land use. However, the intrusive investigation component of the PSI was limited and a DSI is required to further characterise the site conditions.

The PSI has not identified any triggers for remediation. A DSI is required to confirm site suitability or establish whether remediation is necessary to make the site suitable for the proposed development. Nevertheless, JKE is of the opinion that the site is compatible for the proposed development within a residential-type land use setting. JKE have not identified contamination that would preclude the use of the site for such purpose.

We recommend the following:

- Prepare a Sampling, Analysis and Quality Plan (SAQP) for the DSI; and
- Complete the DSI in accordance with the SAQP.

In order to effectively design the DSI and complete the associated risk assessment, the proposed development plan will need to be further progressed so that the proposed site layout, cut/fill earthworks requirements and proposed basement depths/locations are known.

Depending on the outcome of the DSI, remediation and validation may also be required. If remediation is required, we anticipate that a Remediation Action Plan (RAP) will need to be prepared as part of the development application.

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



#### 11 LIMITATIONS

The report limitations are outlined below:

- 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;
- Subsurface soil and rock conditions encountered between investigation locations may be found to be different from those expected. Groundwater conditions may also vary, especially after climatic changes;
- The investigation and preparation of this report have been undertaken 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 undertaken any assessment of 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;
- Material considered to be suitable from a geotechnical point of view may be unsatisfactory from a soil contamination viewpoint, and vice versa; 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 assessment and 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 investigation. If the subject site is sold, ownership of the investigation report should be transferred by JKE to the new site owners who will be informed of the conditions and limitations under which the investigation was undertaken. No person should apply an investigation 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 investigation 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 investigations 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 investigation 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 a site investigation can reduce exposure to the risk of the presence of contamination, no environmental site investigation can eliminate the risk. Even a rigorous professional investigation 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 Site Investigations by Design Professionals

Costly problems can occur when other design professionals develop plans based on misinterpretation of an investigation 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 Investigation 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 investigation. 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 investigation. 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 investigation 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**

Because an environmental site 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 environmental site investigation, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to any questions.



**Appendix A: Report Figures** 



AERIAL IMAGE SOURCE: MAPS.AU.NEARMAP.COM

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

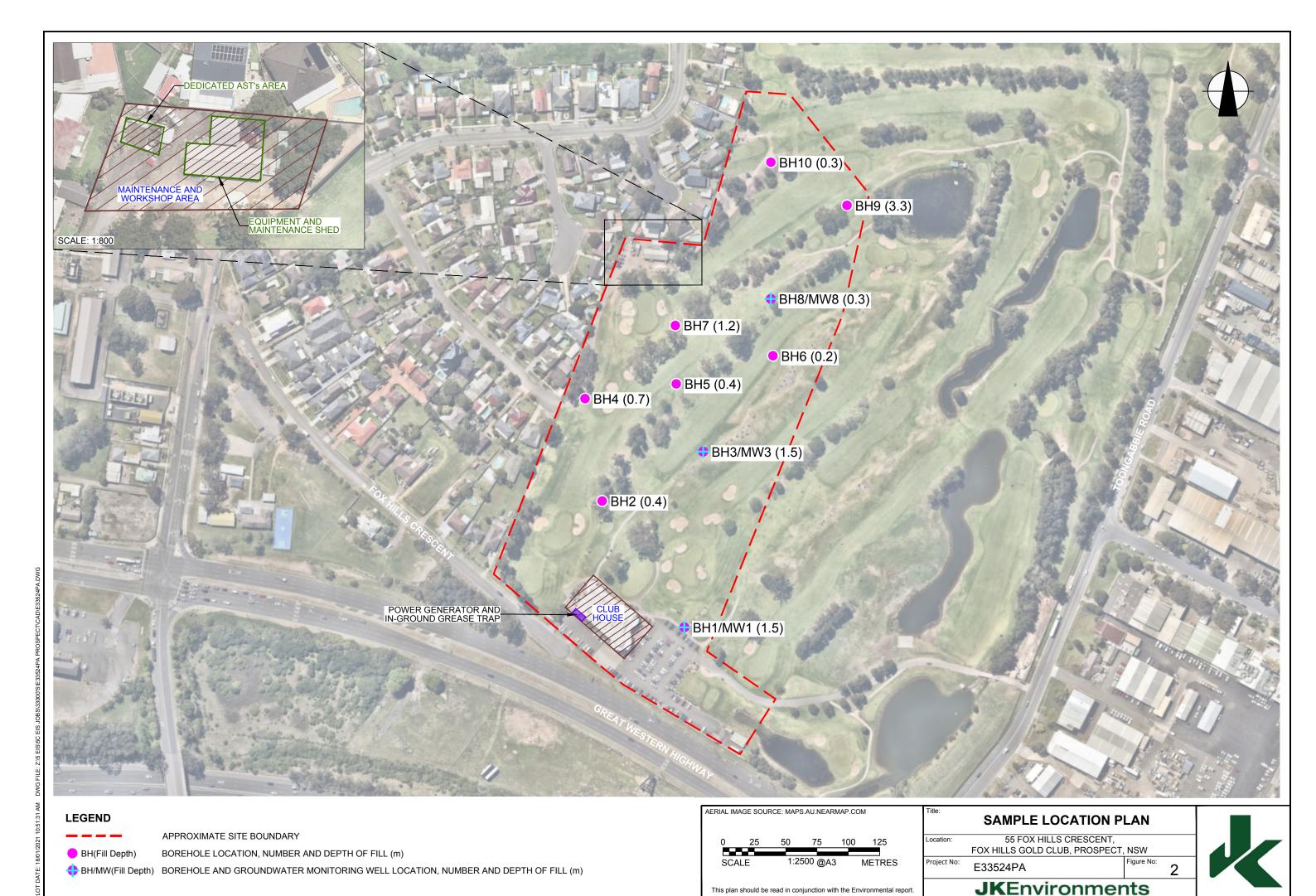
Title: **SITE LOCATION PLAN** 

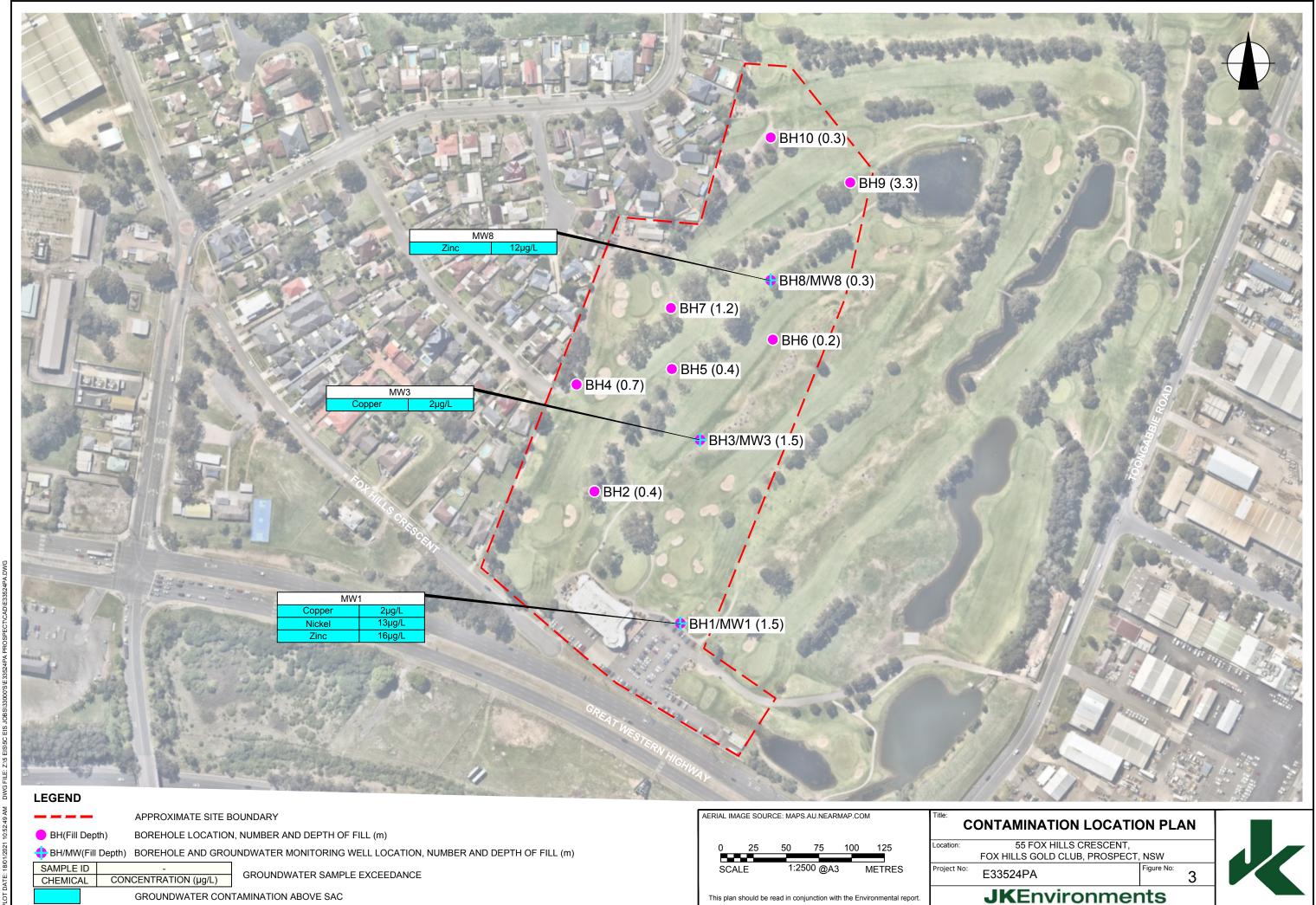
55 FOX HILLS CRESCENT, FOX HILLS GOLD CLUB, PROSPECT, NSW Location: Project No:

E33524PA

**JK**Environments









© JK ENVIRONMENTS

BH(Fill Depth)

APPROXIMATE SITE BOUNDARY

GROUNDWATER CONTOURS (mAHD)

BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL (m)

\$\text{\text{\$\text{BH/MW(Fill Depth)}}}\$ BOREHOLE AND GROUNDWATER MONITORING WELL LOCATION, NUMBER AND DEPTH OF FILL (m)

1:2500 @A3 METRES

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

55 FOX HILLS CRESCENT, FOX HILLS GOLD CLUB, PROSPECT, NSW

E33524PA **JK**Environments





**Appendix B: Site Information and Site History** 



**Selected Site Photographs** 



**Site Address:** 55 Fox Hills Crescent, Prospect, NSW **Selected Site Photos Dated:** 9 and 23 November 2020



Photograph 1: Club House Building.



**Photograph 2:** View of the patron's car parking area.



**Photographs 3:** Backup power generator booth next to the Club House Building.



**Photograph 4:** In-ground grease trap next to the Club House Building.



**Site Address:** 55 Fox Hills Crescent, Prospect, NSW **Selected Site Photos Dated:** 9 and 23 November 2020



**Photograph 5:** Plant enclosure area west of the Club House Building.



Photograph 6: View of the golf course area.



**Photographs 7:** View of the golf course area.



**Photograph 8:** View of the golf course area.





**Site Address:** 55 Fox Hills Crescent, Prospect, NSW **Selected Site Photos Dated:** 9 and 23 November 2020



**Photograph 9:** View of the nearby dam and pumping station (N-E of the site).



Photograph 10: Pumping station.



**Photographs 11:** Maintenance and Workshop Area (view N-W).



**Photograph 12:** Maintenance and Workshop Area (view N-E).



**Site Address:** 55 Fox Hills Crescent, Prospect, NSW **Selected Site Photos Dated:** 9 and 23 November 2020



**Photograph 13:** Bulk quantities of waste oil kept within dedicated adjoining the equipment shed building.



**Photograph 14:** Chemicals kept inside the equipment and maintenance shed.



**Photographs 15:** Pesticide chemical storage shed.



**Photograph 16:** Petrol and diesel ASTs within dedicated concrete bunded area.



**Selected Underground Services Plans** 





**Proposed Development Plans** 

# FOX HILLS GOLF CLUB SENIORS LIVING MASTERPLAN

JUNE 2020







476 APARTMENTS TOTAL 93 x 1 bed (19%) 289 x 2 bed (61%) 94 x 3 bed (20%)

ALTIS architecture









A NEW FRONT DOOR - A NEW LIFESTYLE & PRECINCT







COMMUNITY GARDENS



CONNECTED WALKING PATHS





COMMUNITY PARK



RESIDENTIAL AMENITY & VIEWS



RESIDENTIAL HIGH STREET



RESIDENT DINING, GYM, LIBRARY

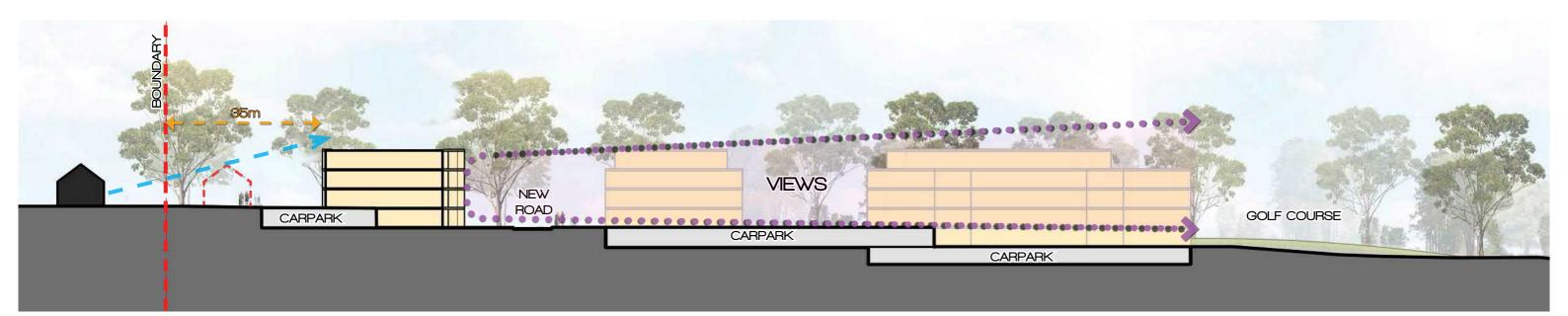








SECTION A-A



SECTION B-B



STAGE 1 - 81 APARTMENTS 106 CARS (incl Visitor)

BUILDING 3 - 22 APARTMENTS 26 CARS
BUILDING 4 - 25 APARTMENTS 23 CARS
BUILDING 5 - 34 APARTMENTS 37 CARS

STAGE 2 - 60 APARTMENTS 63 CARS (incl Visitor)

BUILDING 1 - 33 APARTMENTS 27 cars
BUILDING 2 - 27 APARTMENTS 21 cars

STAGE 3 - 64 APARTMENTS 89 CARS (incl Visitor)

BUILDING 8 - 30 APARTMENTS 36 cars
BUILDING 9 - 34 APARTMENTS 37 cars

STAGE 4 - 59 APARTMENTS 75 CARS (incl Visitor)

BUILDING 10 - 34 APARTMENTS 37 cars
BUILDING 11 - 25 APARTMENTS 23 cars

STAGE 5 - 85 APARTMENTS 114 CARS (incl Visitor)

BUILDING 12 - 25 APARTMENTS 23 cars
BUILDING 13 - 34 APARTMENTS 37 cars
BUILDING 14 - 26 APARTMENTS 32 cars

STAGE 6 - 54 APARTMENTS 68 CARS (incl Visitor)

BUILDING 6 - 27 APARTMENTS 27 cars
BUILDING 7 - 27 APARTMENTS 27 cars

403 APARTMENTS TOTAL

515 CARS

403 APARTMENTS TOTAL

88 x 1 bed (22%) 247 x 2 bed (61%) 68 x 3 bed (17%) PARKING RATES

0.5 PER BEDROOM

VISITOR = 0.25 PER APT







1. GROUND LEVEL APARTMENT VIEWS







2. GROUND LEVEL APARTMENT VIEWS









3. GROUND LEVEL APARTMENT VIEWS







4. GROUND LEVEL APARTMENT VIEWS









5. PENTHOUSE LEVEL APARTMENT VIEWS



5. GROUND LEVEL APARTMENT VIEWS

APARTMENT VIEW ANALYSIS























Integrated Projects









**Lotsearch Environmental Risk and Planning Report** 



Date: 07 Oct 2020 14:10:39 Reference: LS015189 EP

Address: 55 Fox Hills Crescent, Prospect, NSW 2148

#### 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	22/04/2020	22/04/2020	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	11/09/2020	11/09/2020	Monthly	1000	0	0	2
Contaminated Land Records of Notice	Environment Protection Authority	28/09/2020	28/09/2020	Monthly	1000	0	0	0
Former Gasworks	Environment Protection Authority	29/09/2020	11/10/2017	Monthly	1000	0	0	0
National Waste Management Facilities Database	Geoscience Australia	15/05/2020	07/03/2017	Quarterly	1000	0	0	0
National Liquid Fuel Facilities	Geoscience Australia	12/08/2020	13/07/2012	Quarterly	1000	0	0	2
EPA PFAS Investigation Program	Environment Protection Authority	09/09/2020	07/05/2020	Monthly	2000	0	0	0
Defence PFAS Investigation & Management Program - Investigation Sites	Department of Defence	14/09/2020	14/09/2020	Monthly	2000	0	0	0
Defence PFAS Investigation & Management Program - Management Sites	Department of Defence	14/09/2020	14/09/2020	Monthly	2000	0	0	0
Airservices Australia National PFAS Management Program	Airservices Australia	28/09/2020	28/09/2020	Monthly	2000	0	0	0
Defence 3 Year Regional Contamination Investigation Program	Department of Defence	14/09/2020	14/09/2020	Monthly	2000	0	0	0
EPA Other Sites with Contamination Issues	Environment Protection Authority	04/02/2020	13/12/2018	Annually	1000	0	0	0
Licensed Activities under the POEO Act 1997	Environment Protection Authority	25/09/2020	25/09/2020	Monthly	1000	0	2	8
Delicensed POEO Activities still regulated by the EPA	Environment Protection Authority	25/09/2020	25/09/2020	Monthly	1000	0	0	1
Former POEO Licensed Activities now revoked or surrendered	Environment Protection Authority	25/09/2020	25/09/2020	Monthly	1000	3	4	11
UBD Business Directories (Premise & Intersection Matches)	Hardie Grant			Not required	150	0	153	251
UBD Business Directories (Road & Area Matches)	Hardie Grant			Not required	150	-	170	172
UBD Business Directory Dry Cleaners & Motor Garages/Service Stations (Premise & Intersection Matches)	Hardie Grant			Not required	500	0	10	53
UBD Business Directory Dry Cleaners & Motor Garages/Service Stations (Road & Area Matches)	Hardie Grant			Not required	500	-	120	123
Points of Interest	NSW Department of Finance, Services & Innovation	30/03/2020	30/03/2020	Quarterly	1000	2	2	43
Tanks (Areas)	NSW Department of Customer Service - Spatial Services	30/03/2020	30/03/2020	Quarterly	1000	0	0	0
Tanks (Points)	NSW Department of Customer Service - Spatial Services	30/03/2020	30/03/2020	Quarterly	1000	0	0	2
Major Easements	NSW Department of Finance, Services & Innovation	30/03/2020	30/03/2020	Quarterly	1000	0	0	32
State Forest	Forestry Corporation of NSW	18/01/2018	18/01/2018	As required	1000	0	0	0
NSW National Parks and Wildlife Service Reserves	NSW Office of Environment & Heritage	21/01/2020	30/09/2019		1000	0	0	0
Hydrogeology Map of Australia	Commonwealth of Australia (Geoscience Australia)	08/10/2014	17/03/2000	As required	1000	1	1	1
Botany Groundwater Management Zones	NSW Department of Planning, Industry and Environment	15/03/2018	01/10/2005	As required	1000	0	0	0

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features Onsite	No. Features within 100m	No. Features within Buffer
Groundwater Boreholes	NSW Dept. of Primary Industries - Water NSW; Commonwealth of Australia (Bureau of Meteorology)	24/07/2018	23/07/2018	Annually	2000	0	0	18
Geological Units 1:100,000	NSW Department of Planning, Industry and Environment	20/08/2014		None planned	1000	2	-	5
Geological Structures 1:100,000	NSW Department of Planning, Industry and Environment	20/08/2014		None planned	1000	0	-	1
Naturally Occurring Asbestos Potential	NSW Dept. of Industry, Resources & Energy	04/12/2015	24/09/2015	Unknown	1000	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	1000	1	1	2
Soil Landscapes	NSW Department of Planning, Industry and Environment	12/08/2014		None planned	1000	2	-	3
Environmental Planning Instrument Acid Sulfate Soils	NSW Department of Planning, Industry and Environment	01/10/2020	03/07/2020	Monthly	500	0	-	-
Atlas of Australian Acid Sulfate Soils	CSIRO	19/01/2017	21/02/2013	As required	1000	1	1	2
Dryland Salinity - National Assessment	National Land and Water Resources Audit	18/07/2014	12/05/2013	None planned	1000	0	0	0
Dryland Salinity Potential of Western Sydney	NSW Department of Planning, Industry and Environment	12/05/2017	01/01/2002	None planned	1000	2	2	3
Mining Subsidence Districts	NSW Department of Customer Service - Subsidence Advisory NSW	30/03/2020	30/03/2020	Quarterly	1000	0	0	0
Current Mining Titles	NSW Department of Industry	29/07/2020	29/07/2020	Monthly	1000	0	0	0
Mining Title Applications	NSW Department of Industry	29/07/2020	29/07/2020	Monthly	1000	0	0	0
Historic Mining Titles	NSW Department of Industry	29/07/2020	29/07/2020	Monthly	1000	16	16	16
Environmental Planning Instrument SEPP State Significant Precincts	NSW Department of Planning, Industry and Environment	01/10/2020	07/12/2018	Monthly	1000	0	0	0
Environmental Planning Instrument Land Zoning	NSW Department of Planning, Industry and Environment	01/10/2020	25/09/2020	Monthly	1000	3	17	78
Commonwealth Heritage List	Australian Government Department of the Agriculture, Water and the Environment	18/08/2020	20/11/2019	Quarterly	1000	0	0	1
National Heritage List	Australian Government Department of the Agriculture, Water and the Environment	18/08/2020	20/11/2019	Quarterly	1000	0	0	0
State Heritage Register - Curtilages	NSW Department of Planning, Industry and Environment	24/07/2020	02/07/2020	Quarterly	1000	0	0	3
Environmental Planning Instrument Heritage	NSW Department of Planning, Industry and Environment	01/10/2020	11/09/2020	Monthly	1000	0	2	11
Bush Fire Prone Land	NSW Rural Fire Service	07/10/2020	14/12/2019	Weekly	1000	0	0	0
Native Vegetation of the Sydney Metropolitan Area	NSW Office of Environment & Heritage	01/03/2017	16/12/2016	As required	1000	2	4	7
Ramsar Wetlands of Australia	Department of the Agriculture, Water and the Environment	08/10/2014	24/06/2011	As required	1000	0	0	0
Groundwater Dependent Ecosystems	Bureau of Meteorology	14/08/2017	15/05/2017	Unknown	1000	0	0	2
Inflow Dependent Ecosystems Likelihood	Bureau of Meteorology	14/08/2017	15/05/2017	Unknown	1000	0	0	2
NSW BioNet Species Sightings	NSW Office of Environment & Heritage	06/10/2020	06/10/2020	Weekly	10000	-	-	-

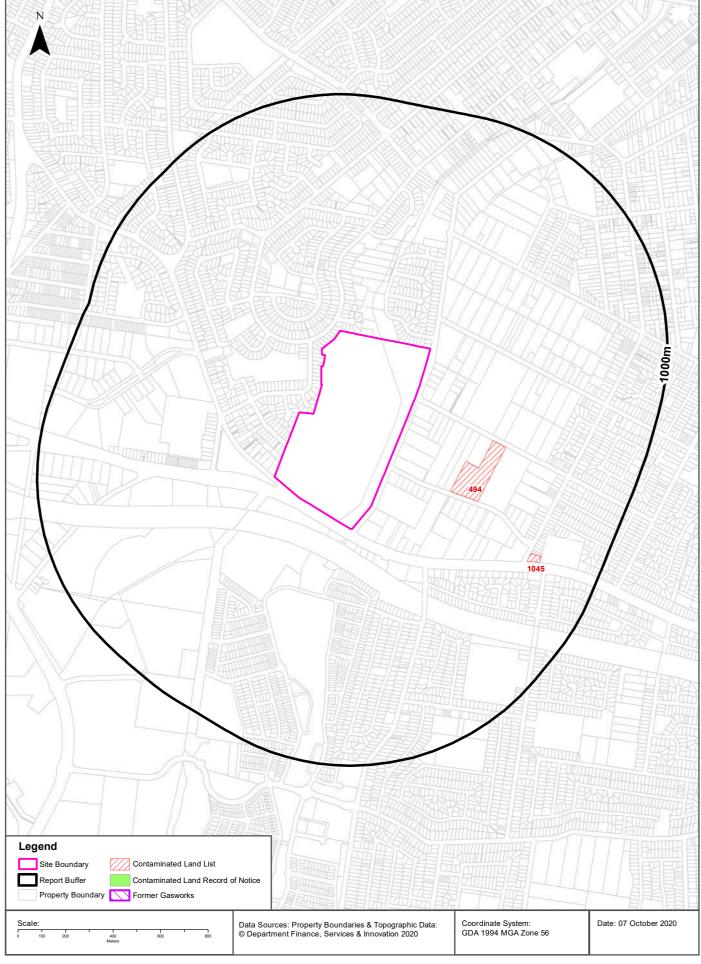
## **Site Diagram**





#### **Contaminated Land**





## **Contaminated Land**

55 Fox Hills Crescent, Prospect, NSW 2148

#### 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 (m)	Direction
494	Industrial Galvanizers site	20-22 Amax Avenue	Girraween	Metal Industry	Contamination currently regulated under POEO Act	Current EPA List	Premise Match	284m	East
1045	Caltex Pendle Hill Service Station Girraween	602 Great Western Highway	Girraween	Service Station	Regulation under CLM Act not required	Current EPA List	Premise Match	694m	South 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**

55 Fox Hills Crescent, Prospect, NSW 2148

#### **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**

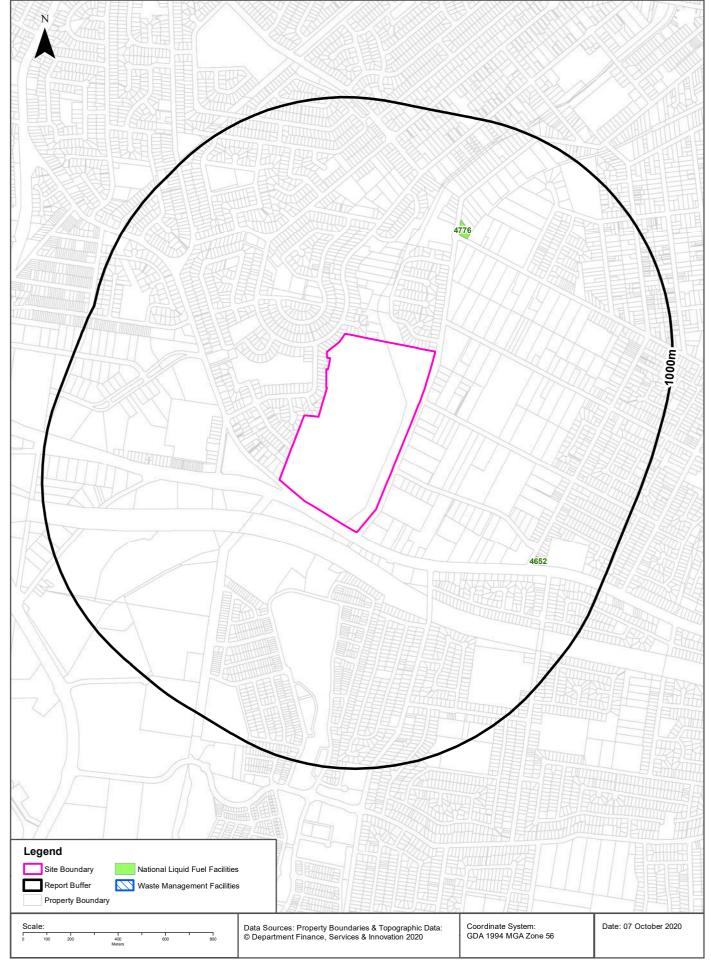
Former Gasworks within the dataset buffer:

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**





## **Waste Management & Liquid Fuel Facilities**

55 Fox Hills Crescent, Prospect, NSW 2148

## **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 (m)	Direction
	No records in buffer											

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

## **National Liquid Fuel Facilities**

National Liquid Fuel Facilties within the dataset buffer:

Map Id	Owner	Name	Address	Suburb	Class	Operational Status	Operator	Revision Date	Loc Conf	Dist (m)	Direction
4776	BP	Fox Hills	152 Toongabbie Road	Girraween	Petrol Station	Operational		25/07/2011	Premise Match	494m	North East
4652	Caltex	Caltex Pendle Hill	602-606 Great Western Highway	Girraween	Petrol Station	Operational		25/07/2011	Premise Match	694m	South East

National Liquid Fuel Facilities Data Source: Geoscience Australia Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

## **PFAS Investigation & Management Programs**

55 Fox Hills Crescent, Prospect, NSW 2148

#### **EPA PFAS Investigation Program**

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

ld	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:

N	lap ID	Base Name	Address	Loc Conf	Dist	Dir
N	I/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 I	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**

55 Fox Hills Crescent, Prospect, NSW 2148

## **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**

55 Fox Hills Crescent, Prospect, NSW 2148

#### **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

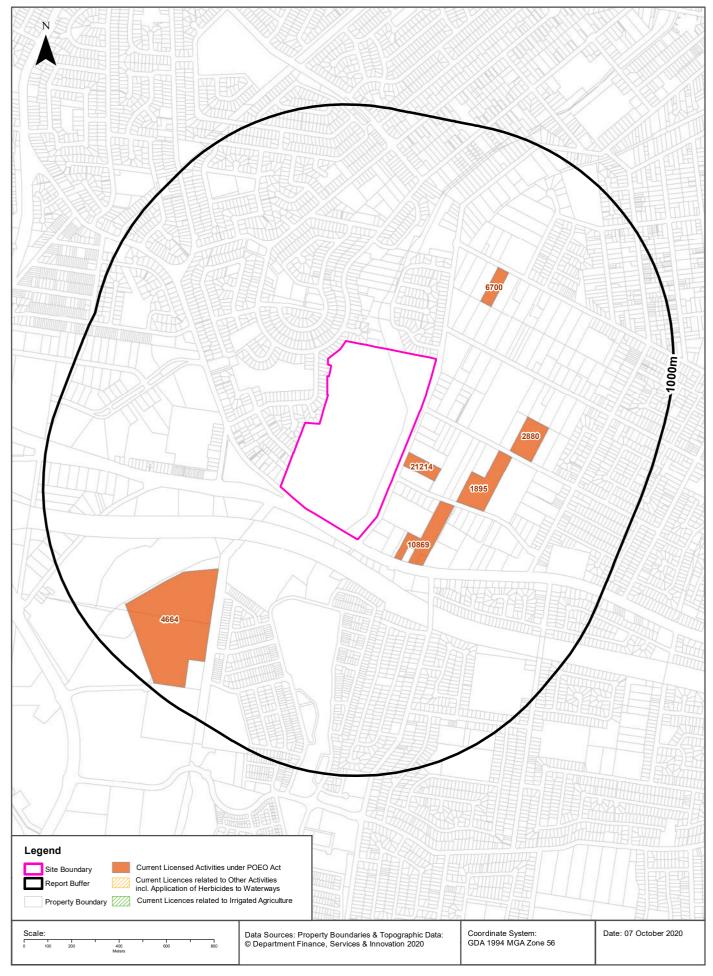
#### Sites within the dataset buffer:

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

## **Current EPA Licensed Activities**





## **EPA Activities**

55 Fox Hills Crescent, Prospect, NSW 2148

## **Licensed Activities under the POEO Act 1997**

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

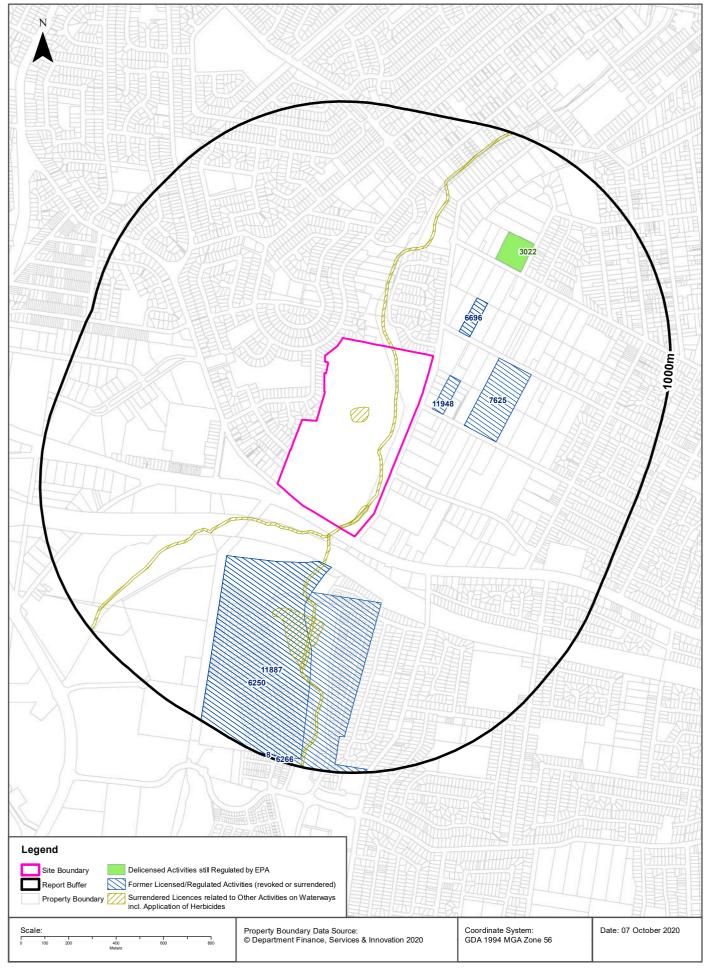
EPL	Organisation	Name	Address	Suburb	Activity	Loc Conf	Distance	Direction
21214	BENEDICT RECYCLING PTY LIMITED		224 - 232 Toongabbie Road, GIRRAWEEN, NSW 2145		Recovery of general waste	Premise Match	20m	South East
21214	BENEDICT RECYCLING PTY LIMITED		224 - 232 Toongabbie Road, GIRRAWEEN, NSW 2145		Waste storage - other types of waste	Premise Match	20m	South East
10869	BAIADA POULTRY PTY LIMITED	BAIADA POULTRY PTY LIMITED	642 GREAT WESTERN HIGHWAY	PENDLE HILL	General animal products production	Premise Match	144m	South East
1895	INDUSTRIAL GALVANIZERS CORPORATION PTY LTD	INDUSTRIAL GALVANIZERS CORPORATION PTY LTD	56-58 Mandoon RoAD	GIRRAWEEN	Metal coating	Premise Match	284m	East
1895	INDUSTRIAL GALVANIZERS CORPORATION PTY LTD	INDUSTRIAL GALVANIZERS CORPORATION PTY LTD	56-58 Mandoon RoAD	GIRRAWEEN	Metal waste generation	Premise Match	284m	East
6700	REDOX PTY LTD	CAMPBELL BROTHERS LIMITED	144 GILBA ROAD	GIRRAWEEN	Dangerous goods production	Premise Match	306m	North East
2880	CORDINA CHICKEN FARMS PTY LTD	CORDINA CHICKEN FARMS	55 MANDOON RD	GIRRAWEEN	Slaughtering or processing animals	Premise Match	412m	East
4664	AUSTRAL MASONRY (NSW) PTY LTD	Austral Masonry (NSW) Pty Ltd	CLUNIES ROSS STREET	PROSPECT	Concrete works	Premise Match	433m	South West

POEO Licence Data Source: Environment Protection Authority

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## **Delicensed & Former Licensed EPA Activities**





#### **EPA Activities**

55 Fox Hills Crescent, Prospect, NSW 2148

### **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
3022	MSA (AUST.) PTY. LIMITED	MSA (AUST.) PTY LTD	137 GILBA ROAD	GIRRAWEEN	Hazardous, Industrial or Group A Waste Generation or Storage	Premise Match	485m	North East

Delicensed Activities Data Source: Environment Protection Authority

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## 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	0m	Onsite
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	0m	Onsite
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	0m	Onsite
11948	MRI (AUST) PTY LTD	93B Mandoon Road, GIRRAWEEN, NSW 2145	Surrendered	15/12/2003	Hazardous, Industrial or Group A Waste Generation or Storage	Premise Match	62m	East
6696	DU PONT (AUSTRALIA) PTY LTD	DU PONT (AUSTRALIA) LTD, 179 MAGOWAR ROAD, GIRRAWEEN	Surrendered	15/01/2001	Chemical production waste generation	Premise Match	150m	North East
6696	DU PONT (AUSTRALIA) PTY LTD	DU PONT (AUSTRALIA) LTD, 179 MAGOWAR ROAD, GIRRAWEEN	Surrendered	15/01/2001	Pesticides and related products production	Premise Match	150m	North East
11887	BORAL RECYCLING PTY LIMITED	CSIRO PROSPECT, CLUNIES ROSS STREET, PROSPECT, NSW 2148	Surrendered	17/04/2003	Other Land-Based Extraction	Premise Match	162m	South
6250	SCHERING- PLOUGH PTY LIMITED	CLUNIES ROSS STREET , PROSPECT, NSW 2148	Surrendered	09/02/2000	Pharmaceutical and veterinary products production, Hazardous, Industrial or Group A Waste Generation or Storage, Pesticides and related products production	Premise Match	162m	South West
7625	VERSACOLD LOGISTICS LIMITED	69 MANDOON ROAD, GIRRAWEEN, NSW 2145	Surrendered	09/08/2000	Hazardous, Industrial or Group A Waste Generation or Storage	Premise Match	212m	East

Licence No	Organisation	Location	Status	Issued Date	Activity	Loc Conf	Distance	Direction
6266	BORAL RECYCLING PTY LIMITED	BORAL ASPHALT, GREYSTANES ROAD, SOUTH WENTWORTHVILLE , NSW 2145	Surrendered	10/01/2001	Waste Storage, Transfer, Separating or Processing; Crushing, grinding or separating	Premise Match	975m	South
8	BITUPAVE LTD	GREYSTANES ROAD, GREYSTANES, NSW 2145	Surrendered	02/03/2000	Bitumen pre-mix or hot-mix production	Premise Match	975m	South

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

## **Historical Business Directories**





## **Historical Business Directories**

55 Fox Hills Crescent, Prospect, NSW 2148

# **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
1	Pipe &/or Pipe Fittings Mfrs &/or Dists	ASTM Van Leeuwen Pipe & Tube, 214 Toongabbie Rd., Girraween. 2145	57643	1991	Premise Match	20m	East
	Valve &/or Cock Mfrs &/or Dists	ASTM Van Leeuwen Pipe &Tube, 214 Toongabbie Rd Girraween 2145	65533	1991	Premise Match	20m	East
	Tube Metal Mfrs &/or Dists	ASTM Van Leeuwen Pipe Tube, 214 Toongabbie Rd Girraween 2145	65061	1991	Premise Match	20m	East
	Hydraulic Equipment Mfrs &/or Imps &/or Dists	ASTM-Van Leeuwen Pipe & Tube, 214 Toongabbie Rd., Girraween. 2145	48730	1991	Premise Match	20m	East
	HYDRAULIC EQUIPMENT MFRS. &/OR IMPS. &/OR DISTS.	Astm-Van Leeuwen Pipe & Tube., 214 222 Toongabbie Rd Girraween	87408	1991	Premise Match	20m	East
	HYDRAULIC EQUIPMENT MFRS. &/OR IMPS. &/OR DISTS.	Astm-Van Leeuwen Pipe & Tube., 214.222 Toongabbie Rd Girraween	141028	1991	Premise Match	20m	East
	Hydraulic Equipment Mfrs &/or Imps &/or Dists	ASTM-VAN LEEUWEN PIPE & TUBE., 214-222 Toongabbie Road., Girraween. 2145	48729	1991	Premise Match	20m	East
	HYDRAULIC EQUIPMENT MFRS. &/OR IMPS. &/OR DISTS.	Astm-Van Leeuwen Pipe & Tube., 222 Toongabbie Rd Girraween, New South Wales	80971	1991	Premise Match	20m	East
	SOLDER MFRS. &/OR DISTS. (S4410)	Brookside Metal (A'Asia) Pty, Ltd., 214 Toongabbie Rd, Girraween. 2145.	75246	1982	Premise Match	20m	East
	SCRAP METAL MERCHANTS. (S1605)	Brookside Metal (A'Asia) Pty. Ltd., 214 Toongabbie Rd., Girraween. 2145.	73647	1982	Premise Match	20m	East
	SCRAP METAL MERCHANTS.	Brookside Metal (A'Asia) Pty. Ltd., 214 Toongabbie Rd., Girraween. 2145	65162	1978	Premise Match	20m	East
	SOLDER MFRS. &/OR DISTS.	Brookside Metal (A'Asia) Pty. Ltd., 214 Toongabbie Rd., Girraween. 2145	66677	1978	Premise Match	20m	East
2	Motor Engineers	Chally's Car Surgery, Unit 4/200 Toongabbie Rd, Girraween 2145	53070	1991	Premise Match	20m	East
	Motor Engineers	Girraween Brake & Steering, 2/200 Toongabbie Rd, Girraween 2145	53186	1991	Premise Match	20m	East
	Motor Engineers	Renauli Enterprises Pty Ltd, 3/200 Toongabbie Rd Girraween 2145	53408	1991	Premise Match	20m	East
	Motor Engine Reconditioners	Tur-err Performance, Unit 1/200 Toongabbie Rd., Toongabbie 2146	96289	1991	Premise Match	20m	East
	MOTOR ENGINEERS.	Kleinig, F., 2/200 Toongabbie Rd., Girraween. 2145	63428	1986	Premise Match	20m	East
	MOTOR GARAGES & SERVICE STATIONS.	Kleinig, F., 2/200 Toongabbie Rd., Girraween. 2145	64962	1986	Premise Match	20m	East
	MOTOR WRECKERS.	Renault Enterprises, 200 Toongabbie Rd., Girraween. 2145	68824	1986	Premise Match	20m	East
	MOTOR ENGINE RECONDITIONERS.	Tru-Err Head & Engine Services 200 Toongabbie Road, Toongabbie. 2146	63066	1986	Premise Match	20m	East
	MOTOR ENGINE RECONDITIONERS.	Tru-Err Head & Engine Services, 200 Toongabbie Rd., Toongabbie. 2146	63168	1986	Premise Match	20m	East
	MOTOR ENGINEERS.	Tru-Err Head & Engine Services, 200 Toongabbie Rd., Toongabbie. 2146	63597	1986	Premise Match	20m	East
	MOTOR GARAGES & SERVICE STATIONS.	Tru-Err Head & Engine Services, 200 Toongabbie Rd., Toongabbie. 2146	65647	1986	Premise Match	20m	East

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
2	MOTOR WRECKERS. (M8600)	C.N.R. Wreckers Pty. Ltd., 200 Toongabbie Rd., Girraween. 2145.	60010	1982	Premise Match	20m	East
	MOTOR BRAKE SERVICES.	A L.S. Brake Service., 200 Toongabbie Rd., Girraween. 2145	56752	1975	Premise Match	20m	East
	MOTOR WRECKERS.	Kinsela, K., 200 Toongabbie Rd., Girraween. 2145	62960	1975	Premise Match	20m	East
	DAIRY MACHINE EQUIPMENT MFRS.&/OR DISTRIBUTORS (D020)	Cooper, J. R. Pty. Ltd., 200 Toongabbie Rd., Girraween	286885	1970	Premise Match	20m	East
	DAIRY MACHINE MANUFACTURERS &/OR DEALERS (D030)	Cooper, J. R. Pty. Ltd., 200 Toongabbie Rd., Girraween	286903	1970	Premise Match	20m	East
	DAIRY UTENSILS- MANUFACTURERS &/OR DISTRIBUTORS (D050)	Cooper, J. R. Pty. Ltd., 200 Toongabbie Rd., Girraween	286928	1970	Premise Match	20m	East
	ENGINEERS-DAIRY (E555)	Cooper, J. R. Pty. Ltd., 200 Toongabbie Rd., Girraween	297910	1970	Premise Match	20m	East
	IRRIGATION SYSTEMS & EQUIPMENT MFRS. &/OR DISTS. (1720)	Cooper, J. R. Pty. Ltd., 200 Toongabbie Rd., Girraween	320794	1970	Premise Match	20m	East
	PUMP MANUFACTURERS &/OR DISTRIBUTORS (P906)	Cooper, J. R. Pty. Ltd., 200 Toongabbie Rd., Girraween	353748	1970	Premise Match	20m	East
	AGRICULTURAL MACHINERY MFRS &/OR DISTS(A220)	Cooper, J.R Pty. Ltd., 200 Toongabbie Rd., Girraween.	260555	1970	Premise Match	20m	East
	MOTOR WRECKERS (M760)	Kinsela, Ken., 200 Toongabbie Rd., Girraween	342835	1970	Premise Match	20m	East
	WELDERS-ELECTRIC &/OR OXY	S.& P.Welding, 200 Toongabbie Rd., Girraween	373939	1970	Premise Match	20m	East
	WROUGHT IRON WORKERS (W545)	S.& P.Welding, 200 Toongabbie Rd., Girraween	375540	1970	Premise Match	20m	East
3	Buildings Pre-Fabricated, Portable &/or Modular Mfrs &/or Dists &/or Erectors	GKN Portacom Portable Building, 254 Toongabbie Rd, Girraween 2145	37524	1991	Premise Match	20m	South East
	Hire Services	GKN Rental, 252 Toongabbie Rd., Girraween. 2145	48438	1991	Premise Match	20m	South East
	Builders &/or Building Contractors	Long Homes, 254 Toongabbie Rd., Girraween 2145	36873	1991	Premise Match	20m	South East
	STEEL FABRICATORS.	Long Clem Pty. Ltd., 254 Toongabbie Rd., Girraween. 2145	88994	1986	Premise Match	20m	South East
	BUILDERS &/OR BUILDING CONTRACTORS.	Long E. Industries Ltd., 254 Toongabbie Rd., Girraween. 2145	8178	1986	Premise Match	20m	South East
	LAND DEVELOPERS.	Long E. Industries Ltd., 254 Toongabbie Rd., Girraween. 2145	50960	1986	Premise Match	20m	South East
	ROOF TRUSSES MFRS. &/OR DISTS.	Structural Timber Component Pty. Ltd., 254 Toongabbie Rd., Girraween, 2145	83591	1986	Premise Match	20m	South East
	BUILDERS SUPPLIERS.	Structural Timber Component Pty. Ltd., 254 Toongabbie Rd., Girraween. 2145	8779	1986	Premise Match	20m	South East
	BUILDING-PRE-FABRICATED MFRS. &/OR DISTS.	Structural Timber Component Pty. Ltd., 254 Toongabbie Rd., Girraween. 2145	9191	1986	Premise Match	20m	South East
	ROOF TRUSSES MFRS. &/OR DISTS.	Structural timber Components Pty. Ltd 254 Toongabbie Road, Girraween. 2145	83577	1986	Premise Match	20m	South East
	SPORTING GOODS MFRS. &/OR IMPS. &/OR W/SALERS.	Treloar, 252 Toongabbie Rd., Girraween. 2145	87403	1986	Premise Match	20m	South East
	ENGINEERS-GENERAL &/OR MANUFACTURING &/OR MECHANICAL. (E7140)	Forman Engineering Pty. Ltd., 252 Toongabbie Rd., Girraween. 2145.	28016	1982	Premise Match	20m	South East
	WROUGHT IRON WORKERS. (W9440)	Long Clem Pty. Ltd., 254 Toongabbie Rd., Girraween. 2145.	85490	1982	Premise Match	20m	South East
	BUILDERS &/OR BUILDING CONTRACTORS. (B6920)	Long E. Industries Ltd., 254 Toongabbie Rd., Girraween. 2145.	9338	1982	Premise Match	20m	South East
	LAND DEVELOPERS. (L1200)	Long E. Industries Ltd., 254 Toongabbie Rd., Girraween. 2145.	44621	1982	Premise Match	20m	South East

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
3	BUILDERS SUPPLIERS. (B7060)	Structural Timber Component Pty. Ltd., 254 Toongabbie Rd., Girraween. 2145.	9936	1982	Premise Match	20m	South East
	BUILDINGS - PRE- FABRICATED MFRS. &/OR DISTS. (B7600)	Structural Timber Component Pty. Ltd., 254 Toongabbie Rd., Girraween. 2145.	10158	1982	Premise Match	20m	South East
	ROOF TRUSSES MFRS. &/OR DISTS. (R6405)	Structural Timber Component Pty. Ltd., 254 Toongabbie Rd., Girraween. 2145.	72320	1982	Premise Match	20m	South East
	PLUMBERS, GASFITTERS &/OR DRAINLAYERS.	Fox Hill Plumbing Pty. Ltd., 254 Toongabbie Rd., Girraween. 2145	58141	1978	Premise Match	20m	South East
	ENGINEERS-STRUCTURAL.	Long Clem Pty. Ltd., 254 Toongabbie Rd., Girraween. 2145	26436	1978	Premise Match	20m	South East
	STEEL FABRICATORS.	Long Clem Pty. Ltd., 254 Toongabbie Rd., Girraween. 2145	68139	1978	Premise Match	20m	South East
	BUILDERS &/OR BUILDING CONTRACTORS.	Long E. Industries Ltd., 254 Toongabbie Rd., Girraween. 2145	7797	1978	Premise Match	20m	South East
	LAND DEVELOPERS.	Long E. Industries Ltd., 254 Toongabbie Rd., Girraween. 2145	39643	1978	Premise Match	20m	South East
	BUILDERS &/OR BUILDING CONTRACTORS (M.M.B.A.)	E Long Industries Limited 254 Toongabbie Rd, Girraween. 2145	8727	1975	Premise Match	20m	South East
	LAND DEVELOPERS.	E Long Industries Limited., 254 Toongabbie Rd., Girraween. 2145	46734	1975	Premise Match	20m	South East
	PLUMBERS, GASFITTERS &/OR DRAINLAYERS.	Fox Hill Plumbing Pty. Ltd., 252 Toongabbie Rd., Girraween. 2145	68434	1975	Premise Match	20m	South East
	STEEL FABRICATORS.	Long Clem Pty. Ltd., 254 Toongabbie Rd., Girraween. 2145	80563	1975	Premise Match	20m	South East
	ENGINEERS-STRUCTURAL	Long Clem Pty. Ltd., 254 Toongabbie Rd., Girraween. 2145.	30527	1975	Premise Match	20m	South East
	LAND DEVELOPERS.	Long E Industries Ltd., 254 Toongabbie Rd., Girraween. 2145	46775	1975	Premise Match	20m	South East
	BUILDERS &/OR BUILDING CONTRACTORS (M.M.B.A.)	Long E. Industries Ltd., 254 Toongabbie Rd, Girraween. 2145	8872	1975	Premise Match	20m	South East
	STEEL FABRICATORS (S673)	Long, Clem Pty. Ltd., 254 Toongabbie Rd., Girraween	365292	1970	Premise Match	20m	South East
	WROUGHT IRON WORKERS (W545)	Long, Clem Pty. Ltd., 254 Toongabbie Rd., Girraween	375519	1970	Premise Match	20m	South East
4	Paint Anti Corrosive Mfrs &/or Imps &/or Dists	Lacnam Paints Australia, 78 Mandoon Rd., Girraween. 2145	56600	1991	Premise Match	20m	East
	FURNITURE FRAME MFRS.	Glenrod Industries Pty Ltd., 76 Mandoon Rd., Girraween 2145	37046	1986	Premise Match	20m	East
	PAINT – INDUSTRIAL PROTECTIVE COATING.	Lacnam Paints Australia 78-80 Mandoon Road, Girraween. 2145	71549	1986	Premise Match	20m	East
	PAINT – INDUSTRIAL PROTECTIVE COATING.	Lacnam Paints Australia, 78 Mandoon Rd., Girraween. 2145	71592	1986	Premise Match	20m	East
	PAINT - SOLVENT &/OR THINNER - MFRS. &/OR IMPS. &/OR SUPPLIERS.	Lacnam Paints Australia, 78 Mandoon Rd., Girraween. 2145	71693	1986	Premise Match	20m	East
	PAINT, ENAMEL, VARNISH, STAIN MFRS. &/OR DISTS.	Lecnam Paints Australia, 78 Mandoon Rd., Girraween. 2145	71513	1986	Premise Match	20m	East
	PAINT - INDUSTRIAL PROTECTIVECOATING. (P0400)	Lacquer & Enamel Supplies Aust. Pty. Ltd., 78 Mandoon Rd., Girraween. 2145.	62449	1982	Premise Match	20m	East
	PAINT, ENAMEL, VARNISH, STAIN MFRS.&/OR DISTS. (P0360)	Lacquer & Enamel Supplies Aust. Pty. Ltd., 78 Mandoon Rd., Girraween. 2145.	62394	1982	Premise Match	20m	East
	PAINT-SOLVENT THINNER- MFRS.&/OR W/SALERS. (P0700)	Lacquer & Enamel Supplies Aust. Pty. Ltd., 78 Mandoon Rd., Girraween. 2145.	62522	1982	Premise Match	20m	East
	RAILWAY EQUIPMENT MFRS. &/OR DISTS.	Plasser Australia Pty. Ltd. 74-78 Mandoon Road., Girraween. 2145	61219	1978	Premise Match	20m	East
	RAILWAY EQUIPMENT MFRS. &/OR DISTS.	Plasser Australia Pty. Ltd., 74-78 Mandoon Rd., Girraween. 2145	61230	1978	Premise Match	20m	East
	MOTOR CAR &/OR TRUCK DEALERS- NEW &/OR USED.	Park Farm Motors., 80 Mandoon Rd., Girraween. 2145.	57347	1975	Premise Match	20m	East
5	Engineers General	Nevco Engineering Pty Ltd, 95 Mandoon Rd., Girraween 2145	44231	1991	Premise Match	20m	North East

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
5	Mining Machinery &/or Equipment Mfrs &/or Imps &/or Dists	Sinclair Equipment Pty. Ltd., 95 Mandoon Rd., Girraween. 2145	96253	1991	Premise Match	20m	North East
	MOTOR BODY BUILDERS.	Sinclair Equipment Pty. Ltd. Cnr. Toongabbie & Mandoon Roads, Girraween. 2145	61252	1986	Premise Match	20m	North East
	MOTOR BODY BUILDERS. (M5020)	Sinclair Equipment Pty. Ltd., Cnr. Toongabbie & Mandoon Rds., Girraween. 2145.	54216	1982	Premise Match	20m	North East
6	Motor Spare Parts Mfrs &/or Imps &/or W/salers	Sportscar Spares Pty. Ltd., 204 Toongabbie Rd., Girraween 2145	55115	1991	Premise Match	20m	East
	MOTOR SPARE PARTS MFRS. &/OR IMPS. &/OR W/SALERS.	Sportscar Spares, 204 Toongabbie Rd., Girraween. 2145	67643	1986	Premise Match	20m	East
	MOTOR SPARE PARTS DEALERS-RETAIL.	Sportscar Spares, 204 Toongabbie Rd, Girraween 2145	52832	1978	Premise Match	20m	East
	MOTOR PANEL BEATERS (M680)	Olive, Jack Pty. Ltd., 204 Toongabbie Rd., Girraween	340299	1970	Premise Match	20m	East
7	CIGARETTE & CIGAR MFRS. &/OR IMPS. &/OR DISTS.	Ecusta Roth & Co., 250 Toongabbie Rd., Girraween. 2145	15316	1986	Premise Match	20m	South East
	CIGARETTE & CIGAR MFRS. &/OR IMPS. &/OR DISTS. (C4608)	Roth, H. & Co. Pty. Ltd., 250 Toongabbie Rd., Girraween. 2145.	16136	1982	Premise Match	20m	South East
	CIGARETTE MFRS. &/OR W/SALERS.	Roth. H. & Co. Pty. Ltd., 250 Toongabbie Rd., Girraween. 2145	14280	1978	Premise Match	20m	South East
8	ROOF TRUSSES MFRS. &/OR DISTS.	Walltruss NSW, (A Division of Bowwater Scott), 230 Toongabbie Rd., Girraween. 2145	83597	1986	Premise Match	20m	South East
	EARTH MOVING MACHINERYHIRERS. (E0270)	Armstrong Mal Plant Hire Pty. Ltd., 224 Toongabbie Rd., Girraween. 2145.	24321	1982	Premise Match	20m	South East
	CARRIERS &/OR CARTAGE CONTRACTORS. (C2115)	Supa Tilt Transporter Pty. Ltd., 224 Toongabbie Rd., Girraween. 2145.	13836	1982	Premise Match	20m	South East
	EARTH MOVING MACHINERY HIRERS.	Armstrong Mal Plant Hire Pty. Ltd., 224 Toongabbie Rd., Girraween. 2145	21375	1978	Premise Match	20m	South East
	EARTH MOVING MACHINERY HIRERS	Armstrong Mal Plant Hire Pty. Ltd., 224 Toongabbie Rd., Girraween, 2145	24825	1975	Premise Match	20m	South East
	EARTH MOVING MACHINERY HIRERS.	Armstrong Mal Plant Hire Pty. Ltd., 224 Toongabbie Rd., Girraween. 2145	24832	1975	Premise Match	20m	South East
	EARTH-MOVING MACHINERY HIRERS(E025)	Armstrong, Mal. Plant Hire Pty. Ltd., 224 Toongabbie Rd., Girraween	293218	1970	Premise Match	20m	South East
9	Material Handling Equipment Mfrs &/or Imps &/or Dists	Western Truck Equipment Pty Ltd, 194 Toongabbie Rd., Girraween 2145	51432	1991	Premise Match	26m	North East
	PRINTERS - LETTERPRESS.	K.B. Printing, 194 Toongabbie Rd., Girraween. 2145	76232	1986	Premise Match	26m	North East
	PRINTERS - LITHOGRAPHIC.	K.B. Printing, 194 Toongabbie Rd., Girraween. 2145	76708	1986	Premise Match	26m	North East
	MATERIAL HANDLING EQUIPMENT MFRS. &/OR IMPS. &/OR DISTS.	Western Truck Equipment Pty. Ltd., 194 Toongabbie Rd., Girraween. 2145	53174	1986	Premise Match	26m	North East
	TRAILER &/OR SEMI-TRAILER EQUIPMENT &/OR SPARE PARTS MFRS. &/OR IMPS. &/OR DISTS.	Western Truck Equipment Pty. Ltd., 194 Toongabbie Rd., Girraween. 2145	94954	1986	Premise Match	26m	North East
	AGRICULTURAL CHEMICALS MFRS. &/OR DISTS.	Kurteff Bros., 194 Toongabbie Rd., Girraween. 2145	1598	1978	Premise Match	26m	North East
	FERTILIZER MFRS. &/OR SUPPLIERS.	Kurteff Bros., 194 Toongabbie Rd., Girraween. 2145	27322	1978	Premise Match	26m	North East
	GARDEN SUPPLIES-W/SALE.	Kurteff Bros., 194 Toongabbie Rd., Girraween. 2145	32359	1978	Premise Match	26m	North East
10	BRICKLAYERS. (B6260)	Solway, A. H, 234 Metella Rd., Prospect. 2149.	8936	1982	Premise Match	26m	North West
11	WEAVERS.	Nunn. W. T. (Weaving) Pty. Ltd., 176 Toongabbie Rd., Girraween.2145	74068	1978	Premise Match	26m	North East
12	Builders &/or Building Contractors	Colsten Constructions Pty. Ltd, 188 Toongabbie Rd, Girraween 2145	36781	1991	Premise Match	31m	North East
	BUILDERS &/OR BUILDING CONTRACTORS.	Colsten Constructions, 188 Toongabbie Rd., Girraween. 2145	8046	1986	Premise Match	31m	North East

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
12	FENCE &/OR GATE MFRS. (F0725)	Direct Timber & Fencing, 188 Toongabbie Rd., Toongabbie. 2146.	30125	1982	Premise Match	31m	North East
	FENCING CONTRACTORS. (F0775)	Direct Timber & Fencing, 188 Toongabbie Rd., Toongabbie. 2146.	30181	1982	Premise Match	31m	North East
	FENCING CONTRACTORS. (F0775)	Toongabbie Fencing Service, 188 Toongabbie Rd., Toongabbie. 2146.	30200	1982	Premise Match	31m	North East
	FENCE &/OR GATE MFRS.	Direct Timber & Fencing, 188 Toongabbie Rd, Toongabbie. 2146	27221	1978	Premise Match	31m	North East
	FENCING CONTRACTORS.	Direct Timber & Fencing, 188 Toongabbie Rd., Toongabbie. 2146	27267	1978	Premise Match	31m	North East
	TIMBER MERCHANTS.	T. & R. Timbers, 188 Toongabbie Rd, Toongabbie.2146	70992	1978	Premise Match	31m	North East
	FENCING CONTRACTORS.	Toongabbie Fencing Service, 188 Toongabbie Rd., Toongabbie. 2146	27288	1978	Premise Match	31m	North East
	FENCING CONTRACTORS.	Direct Timber & Fencing 188 Toongabbie Rd., Toongabbie. 2146	31454	1975	Premise Match	31m	North East
	FENCE &/OR GATE MFRS.	Direct Timber & Fencing, 188 Toongabbie Rd, Toongabbie. 2146.	31423	1975	Premise Match	31m	North East
	FENCING CONTRACTORS.	Direct Timber & Fencing, 188 Toongabbie Rd., Toongabbie. 2146.	31464	1975	Premise Match	31m	North East
	TIMBER MERCHANTS.	T & R. Timbers, 188 Toongabbie Rd., Toongabbie. 2146	83518	1975	Premise Match	31m	North East
	FENCING CONTRACTORS.	Toongabbie Fencing Service, 188 Toongabbie Rd., Girraween. 2145.	31479	1975	Premise Match	31m	North East
13	Plastic Goods Mfrs &/or Imps &/or Dists	Unasco Pty. Ltd., 1 Amax Ave., Girraween. 2145	57955	1991	Premise Match	58m	South East
	PLASTIC GOODS MFRS. &/OR DISTS.	Unasco Pty. Ltd., 1 Amax Ave., Girraween. 2145	74509	1986	Premise Match	58m	South East
	PLASTIC GOODS MFRS. (P5860)	Unasco Pty. Ltd., 1 Amax Ave., Girraween. 2145.	64768	1982	Premise Match	58m	South East
	PLASTIC GOODS MFRS.	Unasco Shamban Pty. Ltd., 1 Amax Ave., Girraween. 2145	57715	1978	Premise Match	58m	South East
	PLASTIC GOODS MFRS.	Unasco Shamban Pty. Ltd., 1 Amax Avenue, Girraween. 2145	57633	1978	Premise Match	58m	South East
	PLASTIC GOODS MFRS.	Unasco Shamban Pty. Ltd., 1 Amax Ave., Girraween. 2145	67964	1975	Premise Match	58m	South East
14	Carriers &/or Cartage Contractors	Fast Freight Pty. Ltd., 93 Mandoon Rd., Girraween 2145	38371	1991	Premise Match	62m	East
	FURNITURE REMOVALISTS &/OR STORAGE.	Downard International Pty. Ltd. (Pettit & Sevitt International), 93 Mandoon Rd., Girraween. 2145	38028	1986	Premise Match	62m	East
	FURNITURE REMOVALISTS &/OR STORAGE.	Downard Pickfords Moving & Storage, 93 Mandoon Rd., Girraween. 2145	38029	1986	Premise Match	62m	East
	FURNITURE REMOVALISTS &/OR STORAGE. (F8900)	Downards Moving & Storage, 93 Mandoon Rd., Girraween. 2145.	35457	1982	Premise Match	62m	East
	TAXI TRUCK OPERATORS.	Downard Commercial Transport & Storage, 93 Mandoon Rd., Girraween. 2145	69791	1978	Premise Match	62m	East
	FURNITURE REMOVALISTS &/OR STORAGE.	Downard Moving & Storage, 93 Mandoon Rd., Girraween. 2145	32188	1978	Premise Match	62m	East
	ROOFING MATERIAL MFRS.&/OR DISTS.	Pillar Dimond Pty. Ltd., 93A Mandoon Rd., Girraween. 2145	63943	1978	Premise Match	62m	East
	STOCK FOODS MFRS. &/OR DISTS.	Drummond & Shirley Pty. Ltd., 93 Mandoon Rd, Girraween. 2145	80987	1975	Premise Match	62m	East
	MILLERS-GRISTERS.	Drummond & Shirley Pty. Ltd., 93 Mandoon Rd., Girraween. 2145	53997	1975	Premise Match	62m	East
	MILK PRODUCTS MFRS. (M350)	Drummond & Shirley Pty. Ltd., 93 Mandoon Rd., Girraween	330283	1970	Premise Match	62m	East
15	Wire Products Mfrs &/or Dists	L. B. Wire Ropes, 3 Amax Ave Girraween 2145	66420	1991	Premise Match	82m	South East
	Wire Rope &/or Accessories Mfrs &/or Dists	L.B. Wire Ropes, 3 Amax Ave Girraween 2145	66436	1991	Premise Match	82m	South East
	WIRE ROPE MERCHANTS.	L.B. Wire Ropes 3 Amax Avenue, Girraween. 2145	99805	1986	Premise Match	82m	South East
	WIRE ROPE MERCHANTS.	LB. Wire Ropes, 3 Amax Ave., Girraween. 2145	99814	1986	Premise Match	82m	South East

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
15	WIRE ROPE MERCHANTS. (W6760)	L. B. Wire Ropes, 3 Amax Ave., Girraween. 2145.	85202	1982	Premise Match	82m	South East
	WIRE ROPE MERCHANTS.	L.B. Wire Ropes, 3 Amax Ave., Girraween. 2145	75071	1978	Premise Match	82m	South East
	WIRE ROPE MFRS. &/OR SPLICERS.	L.B. Wire Ropes, 3 Amax Avenue, Girraween. 2145	75057	1978	Premise Match	82m	South East
	WIRE ROPE MERCHANTS.	La Blanc Wire Ropes Pty. Ltd., 3 Amax Ave., Girraween. 2145	87609	1975	Premise Match	82m	South East
	WIRE ROPE MFRS. &/OR SPLICERS.	Le Blanc Wire Ropes Pty. Ltd., 3 Amax Ave., Girraween. 2145	87592	1975	Premise Match	82m	South East
	WIRE ROPE MERCHANTS.	Le Blanc Wire Ropes Pty. Ltd., 3 Amax Avenue, Girraween. 2145	87600	1975	Premise Match	82m	South East
16	Shop &/or Office Fitters	Planned Shopfittings Industries Pty Ltd, 74A Mandoon Rd Girraween 2145	62369	1991	Premise Match	88m	East
	SHOP &/OR OFFICE FITTERS	Planned Shopfittings Industries Pty. Ltd., 74A Mandoon Rd., Girraween. 2145	86539	1986	Premise Match	88m	East
	SHOP &/OR OFFICE FITTERS. (S3060)	Planned Shopfittings Industries Pty. Ltd., 74A Mandoon Rd., Girraween. 2145.	74731	1982	Premise Match	88m	East
17	FURNITURE REMOVALISTS &/OR STORAGE. (F8900)	Downard International Pty. Ltd. (Pettit Sevitt International), 152 Magowar Rd., Girraween. 2148.	35456	1982	Premise Match	90m	North East
	BUILDERS SUPPLIERS.	Trimview Building Supplies, 152 Magowar Rd., Girraween. 2145.	9394	1975	Premise Match	90m	North East
18	Engineers General	C-Mac Engineering, 74 Mandoon Rd., Girraween 2145	43964	1991	Premise Match	106m	East
	PLUMBERS SUPPLIES.	Raymor West Pty. Ltd., 74 Mandoon Rd., Girraween. 2145	75186	1986	Premise Match	106m	East
	DRILLING CONTRACTORS. (D7905)	Dodd, A. M. & Co., 74 Mandoon Rd., Girraween. 2145.	23693	1982	Premise Match	106m	East
	PLUMBERS SUPPLIES. (P6700)	Raymor West Pty. Ltd., 74 Mandoon Rd., Girraween. 2145.	65377	1982	Premise Match	106m	East
	CONCRETE CONTRACTORS- CONSTRUCTIONAL.	Nepean Concrete Formwork Pty. Ltd., 74 Mandoon Rd., Girraween. 2145	15841	1978	Premise Match	106m	East
	PLUMBERS SUPPLIES.	Raymor West Pty. Ltd., 74 Mandoon Rd., Girraween. 2145	58368	1978	Premise Match	106m	East
	CONCRETE CONTRACTORS- CONSTRUCTIONAL	Nepean Concrete Formwork Pty. Ltd., 74 Mandoon Rd., Girraween. 2145	18370	1975	Premise Match	106m	East
19	Motor Engineers	Kleinig, Frank Motors, 5 Amax Ave, Girraween 2145	53266	1991	Premise Match	107m	South East
	PLASTIC CONTAINERS MFRS. &/OR DISTS.	M.G.M. Containers Pty. Ltd., 5 Amax Ave., Girraween. 2145	74197	1986	Premise Match	107m	South East
	PLASTIC CONTAINERS MFRS. &/OR DISTS.	MGM Containers Pty. Ltd. 5 Amax Avenue, Girraween. 2145	74178	1986	Premise Match	107m	South East
	PATTERNMAKERS- ENGINEERING. (P2240)	Cameron, A. W. Pty. Ltd., 5 Amax Ave., Girraween. 2145.	63132	1982	Premise Match	107m	South East
	PATTERNMAKERS- ENGINEERING.	Cameron, A. W. Pty. Ltd., 5 Amax Ave., Girraween. 2145	56215	1978	Premise Match	107m	South East
	PATTERNMAKERS- ENGINEERING.	Cameron, A. W. Pty. Ltd., 5 Amax Ave., Girraween 2145	66201	1975	Premise Match	107m	South East
20	Range Hoods Mfrs &/or Dists	Cahavelle Range Hoods, 91 Mandoon Rd Girraween 2145	60107	1991	Premise Match	111m	East
	Beds &/or Bedding Mfrs &/or Dists	Manhatten Brass, 91 Mandoon Rd, Girraween 2145	35870	1991	Premise Match	111m	East
	Petrol Pumps &/or Oil Storage Equipment /Installers	Petroleum Engineering, 91 Mandoon Rd., Girraween. 2145	57047	1991	Premise Match	111m	East
	RANGE HOODS MFRS. &/OR DISTS.	Chavelle Range Hoods, 91 Mandoon Rd., Girraween. 2145	78957	1986	Premise Match	111m	East
	BEDSTEAD MFRS.	Manhatten Brass, 91 Mandoon Rd, Girraween. 2145	5899	1986	Premise Match	111m	East
	PETROL PUMPS &/OR OIL STORAGE EQUIPMENT MFRS. &/OR INSTALLERS.	Petroleum Engineering, 91 Mandoon Rd., Girraween. 2145	72629	1986	Premise Match	111m	East
	ALUMINIUM FABRICATORS. (A5015)	Mehr-Low & Co. Pty. Ltd, 91 Mandoon Rd., Girraween. 2145.	2417	1982	Premise Match	111m	East

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
20	ALUMINIUM WINDOWS & DOORS MFRS. &/OR DISTS. (A5430)	Mehr-Low & Co. Pty. Ltd., 91 Mandoon Rd., Girraween. 2145.	2544	1982	Premise Match	111m	East
	FURNITURE - GARDEN &/OR ORNAMENTAL MFRS. &/OR DISTS. &/OR W/SALERS.	Trend Outdoor, 91 Mandoon Rd., Girraween. 2145	31533	1978	Premise Match	111m	East
	HAULAGE CONTRACTORS.	Bradshaw, J. A. (Haulage) Pty. Ltd., 91 Mandoon Rd., Girraween. 2145	41539	1975	Premise Match	111m	East
	FURNITURE-GARDEN &/OR ORNAMENTAL MFRS. &/OR W/SALERS.	Trend Outdoor, 91 Mandoon, Rd., Girraween. 2145	36632	1975	Premise Match	111m	East
21	Insurance Companies General	G.I.O. Assessment Depot, 148 Magowar Rd., Girraween. 2145	49545	1991	Premise Match	111m	North East
	INSURANCE COMPANIES ¬GENERAL.	G.I.O. Assessment Depot, 148 Magowar Rd., Girraween. 2145	48912	1986	Premise Match	111m	North East
22	Bricklayers	Cave, B. E., 201 Toongabbie Rd., Toongabbie 2146	36615	1991	Premise Match	121m	North East
	BRICKLAYERS.	Cave, B. E., 201 Toongabbie Rd., Toongabbie.2146	7694	1986	Premise Match	121m	North East
	BRICKLAYERS. (B6260)	Cave, B. E., 201 Toongabbie Rd., Toongabbie. 2146.	8542	1982	Premise Match	121m	North East
23	Sheet Metal Workers	C-Mac Sheet Metal, 72 Mandoon Rd Girraween 2145	62060	1991	Premise Match	130m	East
	Tank &/or Tankstand Mfrs &/or Dists	Parramatta Tank Works, 72 Mandoon Rd Girraween 2145	63843	1991	Premise Match	130m	East
	DUST COLLECTION &/OR FUME EXTRACTION EQUIPMENT MFRS. &/OR DISTS.	C-Mac Sheet Metal, 72 Mandoon Rd., Girraween. 2145	25636	1986	Premise Match	130m	East
	SHEET METAL WORKERS.	C-Mac Sheet Metal, 72 Mandoon Rd., Girraween. 2145	85995	1986	Premise Match	130m	East
	DUST COLLECTION &/OR FUME EXTRACTION EQUIPMENT MFRS.&/OR DISTS. (D9405)	C-Mac Sheet Metal, 72 Mandoon Rd., Girraween. 2145.	24185	1982	Premise Match	130m	East
	SHEET METAL WORKERS. (S2595)	C-Mac Sheet Metal, 72 Mandoon Rd., Girraween. 2145.	74254	1982	Premise Match	130m	East
	SHEET METAL WORKERS.	C-Mac Sheet Metal 72 Mandoon Road, Girraween. 2145	65668	1978	Premise Match	130m	East
	SHEET METAL WORKERS.	C-Mae Sheet Metal, 72 Mandoon Rd., Girraween. 2145	65720	1978	Premise Match	130m	East
	SHEET METAL WORKERS.	McMaster. C. & M. Pty. Ltd., 72 Mandoon Rd., Girraween. 2145	76896	1975	Premise Match	130m	East
24	TOWEL &/OR OVERALL SERVICES.	Initial Services (N.S.W.) Pty. Ltd., 7 Amax Ave., Girraween. 2145	94318	1986	Premise Match	131m	South East
	TOWEL &/OR OVERALL SERVICES.(T6100)	Initial Services (N.S.W.) Pty. Ltd., 7 Amax Ave., Girraween. 2145.	80983	1982	Premise Match	131m	South East
25	Builders Supplies	Prospect Timbers Pty. Ltd., 658 Great Western H'way., Pendle Hill 2145	37239	1991	Premise Match	132m	South
	TIMBER MERCHANTS.	Prospect Timbers Pty. Ltd., 658 Great Western H'way Pendle Hill. 2145	93600	1986	Premise Match	132m	South
	BUILDERS SUPPLIERS.	Prospect Timbers Pty. Ltd., 658 Great Western H'way., Pendle Hill. 2145	8740	1986	Premise Match	132m	South
	TIMBER MERCHANTS.	Prospect Timbers Pty. Ltd, 658 Western Highway, Pendle Hill.2145	70973	1978	Premise Match	132m	South
	BUILDERS SUPPLIERS.	Prospect Timbers Pty. Ltd., 658 Western H'way, Pendle Hill. 2145	8314	1978	Premise Match	132m	South
	FENCING CONTRACTORS.	Prospect Timbers Pty. Ltd., 658 Western H'way, Pendle Hill. 2145	27283	1978	Premise Match	132m	South
	BUILDERS SUPPLIERS.	Prospect Fencing & Timber Co. Pty. Ltd., 658 Western H'way, Pendle Hill. 2145	9346	1975	Premise Match	132m	South
	TIMBER MERCHANTS.	Prospect Fencing & Timber Co. Pty. Ltd., 658 Western H'Way., Pendle Hill. 2145	83498	1975	Premise Match	132m	South
	FENCING CONTRACTORS.	Prospect Fencing & Timber Co. Pty.Ltd., 658 Western H'way. Pendle Hill. 2145.	31475	1975	Premise Match	132m	South

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
25	FENCING CONTRACTORS (F095)	Fencing & Timber Co. Pty. Ltd., 658 Western Hghwy., Pendle Hill	302296	1970	Premise Match	132m	South
	BUILDERS' SUPPLIERS (B814)	Fencing & Timber Co. Pty. Ltd., 658 Western Highway., Pendle Hill	271340	1970	Premise Match	132m	South
	TIMBER MERCHANTS (T385)	Fencing & Timber Co. Pty. Ltd., 658 Western Highway., Pendle Hill	368957	1970	Premise Match	132m	South
26	GLASS MERCHANTS.	Goodwin Glass & A Division of Oliver- Davey Glass Company Pty. Ltd. (Inc. in Vic.) 142 Magowar Road, Girraween. 2145	33066	1978	Premise Match	139m	North East
	GLASS MERCHANTS.	Goodwin Glass, 142 Magowar Rd., Girraween. 2145	33093	1978	Premise Match	139m	North East
	GLAZIERS.	Goodwin Glass. 142 Magowar Rd., Girraween. 2145	33214	1978	Premise Match	139m	North East
	ENGINEERS - FABRICATING	Morgan Steel Pty. Ltd. 142 Magowar Rd, Girraween. 2145	28503	1975	Premise Match	139m	North East
	ENGINEERS-STRUCTURAL	Morgan Steel Pty. Ltd. 142 Magowar Rd. Girraween. 2145	30442	1975	Premise Match	139m	North East
	ENGINEERS-STRUCTURAL	Morgan Steel Pty. Ltd., 142 Magowar Rd, Girraween. 2145	30543	1975	Premise Match	139m	North East
	STEEL FABRICATORS.	Morgan Steel Pty. Ltd., 142 Magowar Rd., Girraween 2145	80438	1975	Premise Match	139m	North East
	STEEL FABRICATORS.	Morgan Steel Pty. Ltd., 142 Magowar Rd., Girraween. 2145	80576	1975	Premise Match	139m	North East
	BUILDERS & CONTRACTORS (B800)	Morgan Steel (Building Division) Pty. Ltd., 142 Magowar Rd., Girraween, 2145	270278	1970	Premise Match	139m	North East
	CRANESMOBILE- PROPRIETORS &/OR HIRERS (C737)	Morgan Steel Pty. Ltd., 142 Magowar Rd., Girraween	286329	1970	Premise Match	139m	North East
	ENGINEERS-FABRICATING (E580)	Morgan Steel Pty. Ltd., 142 Magowar Rd., Girraween	298572	1970	Premise Match	139m	North East
	ENGINEERS-STRUCTURAL (E165)	Morgan Steel Pty. Ltd., 142 Magowar Rd., Girraween	301147	1970	Premise Match	139m	North East
	STEEL FABRICATORS (S673)	Morgan Steel Pty. Ltd., 142 Magowar Rd., Girraween	365314	1970	Premise Match	139m	North East
	WELDERS-ELECTRIC &/OR OXY	Morgan Steel Pty. Ltd., 142 Magowar Rd., Girraween.	373838	1970	Premise Match	139m	North East
	BOILERMAKERS (B510)	Morgan Steel Pty. Ltd., 142 Magowar Rd., Girraween.,	267951	1970	Premise Match	139m	North East
	STEEL ERECTORS (S569)	organ Steel Pty. Ltd., 142 Magowar Rd., Girraween	365121	1970	Premise Match	139m	North East
27	Carriers &/or Cartage Contractors	Pierce, John L. Pty. Ltd, 170 Toongabbie Rd., Girraween 2145	38456	1991	Premise Match	141m	North East
	CONTAINER TRANSPORT SERVICES.	Pierce John L Pty. Ltd., 170 Toongabbie Rd., Girraween. 2145	20214	1986	Premise Match	141m	North East
	CARRIERS &/OR CARTAGE CONTRACTORS.	Pierce John L. Pty. Ltd. 170 Toongabbie Rd., Girraween. 2145	12959	1986	Premise Match	141m	North East
	HAULAGE CONTRACTORS.	Pierce John L. Pty. Ltd., 170 Toongabbie Rd., Girraween. 2145	44955	1986	Premise Match	141m	North East
	ROAD TRANSPORT SERVICES - INTRASTATE.	Pierce John L. Pty. Ltd., 170 Toongabbie Rd., Girraween. 2145	83451	1986	Premise Match	141m	North East
	ROAD TRANSPORT SERVICES-INTERSTATE.	Pierce John L. Pty. Ltd., 170 Toongabbie Rd., Girraween. 2145	83355	1986	Premise Match	141m	North East
	HAULAGE CONTRACTORS.	Trek Transport Pty. Ltd., 170 Toongabbie Rd., Girraween. 2145	44974	1986	Premise Match	141m	North East
	ROAD TRANSPORT SERVICES-INTERSTATE.	Trek Transport Pty. Ltd., 170 Toongabbie Rd., Girraween. 2145	83380	1986	Premise Match	141m	North East
	ROAD TRANSPORT SERVICES - INTERSTATE, (R5810)	Pierce John L Pty. Ltd., 170 Toongabbie Rd., Toongabbie. 2145.	72078	1982	Premise Match	141m	North East
	CARRIERS &/OR CARTAGE CONTRACTORS. (C2115)	Pierce John L. Pty. Ltd., 170 Toongabbie Rd., Toongabbie. 2145.	13782	1982	Premise Match	141m	North East
	HAULAGE CONTRACTORS. (H2750)	Pierce John L. Pty. Ltd., 170 Toongabbie Rd., Toongabbie. 2145.	39440	1982	Premise Match	141m	North East

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
27	ROAD TRANSPORT SERVICES - INTERSTATE, (R5845)	Pierce John L. Pty. Ltd., 170 Toongabbie Rd., Toongabbie. 2145.	72171	1982	Premise Match	141m	North East
	HAULAGE CONTRACTORS. (H2750)	Trek Transport Pty. Ltd., 170 Toongabbie Rd., Girraween. 2145.	39447	1982	Premise Match	141m	North East
	ROAD TRANSPORT SERVICES - INTERSTATE, (R5810)	Trek Transport Pty. Ltd., 170 Toongabbie Rd., Girraween. 2145.	72104	1982	Premise Match	141m	North East
	ROAD TRANSPORT SERVICES- INTERSTATE.	Pierce John L. Pty. Ltd, 170 Toongabbie Rd, Toongabbie. 2145	63665	1978	Premise Match	141m	North East
	ROAD TRANSPORT SERVICES- NSW	Pierce John L. Pty. Ltd., 170 Toongabbie Rd., Toongabbie. 2145	63765	1978	Premise Match	141m	North East
	HAULAGE CONTRACTORS.	Trek Transport Pty. Ltd., 170 Toongabbie Rd., Girraween. 2145	35156	1978	Premise Match	141m	North East
	ROAD TRANSPORT SERVICES- INTERSTATE.	Trek Transport Pty. Ltd., 170 Toongabbie Rd., Girraween. 2145	63685	1978	Premise Match	141m	North East
	ROAD TRANSPORT SERVICES-INTERSTATE	Pierce John L. Pty. Ltd., 170 Toongabbie Rd., Toongabbie. 2145	74373	1975	Premise Match	141m	North East
	ROAD TRANSPORT SERVICES-NSW.	Pierce John L. Pty. Ltd., 170 Toongabbie Rd., Toongabbie. 2145	74482	1975	Premise Match	141m	North East
	ROAD TRANSPORT SERVICES-INTERSTATE	Trek Transport Pty. Ltd., 170 Toongabbie Rd., Girraween. 2145	74394	1975	Premise Match	141m	North East
28	MOTOR PANEL BEATERS &/OR SPRAY PAINTERS. (M7360)	Prospect Smash Repairs, 607 Great Western H'way., Prospect. 2149.	58624	1982	Premise Match	143m	South
	MOTOR PAINTERS.	Prospect Smash Repairs, 607 Great Western H'way, Prospect. 2149	51617	1978	Premise Match	143m	South
	MOTOR PANEL BEATERS	Prospect Smash Repairs, 607 Great Western H'way, Prospect. 2149	52287	1978	Premise Match	143m	South
	MOTOR PANEL BEATERS.	Prospect Smash Repairs., 607 Great Western H'way, Prospect.	61056	1975	Premise Match	143m	South
	MOTOR PAINTERS.	Prospect Smash Repairs., 607 Great Western H'way., Prospect. 2149	60366	1975	Premise Match	143m	South
	Motor Panel Beaters	Spraying Service Pendle Hill, 607 Western Highway., Pendle Hill	125029	1965	Premise Match	143m	South
	Motor Painters	Spraying Service Pendle Hlil, 607 Western Highway, Pendle Hill	124257	1965	Premise Match	143m	South
	MOTOR PAINTERS	Auto Spraying Service, 607 Western Highway., Pendle Hill	348626	1961	Premise Match	143m	South
	MOTOR PANEL BEATERS	Auto Spraying Service, 607 Western Highway., Pendle Hill	349354	1961	Premise Match	143m	South

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# **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
29	Bricklayers	McDonald Bros. & Co. (Lidcombe) Pty. Ltd., Great Western H'way, Girraween 2145	36689	1991	Road Match	0m
	BUILDERS EQUIPMENT HIRES.	Macbro Rentals, Great Western H'way., Girraween. 2145	8341	1986	Road Match	0m
	HIRING SERVICES.	Macbro Rentals, Great Western H'way., Girraween. 2145	45847	1986	Road Match	0m
	MOTOR TRUCK HIRERS.	Macbro Truck Rental, Great Western H'way., Girraween. 2145	68304	1986	Road Match	0m
	BRICKLAYERS.	McDonald Bros. & Co. (Lidcombe) Pty. Ltd., Great Western H'way., Girraween, 2145	7840	1986	Road Match	0m
	MOTOR TRUCK HIRERS. (M8300)	MacBro Rental Pty. Ltd., Great Western H'way., Girraween. 2145.	59857	1982	Road Match	0m
	HIRING SERVICES. (H4200)	Macbro Rental, Great Western H'way., Girraween. 2145.	40087	1982	Road Match	0m
	BUILDERS EQUIPMENT HIRERS. (B6960)	Macbro Rental. Great Western H'way, Girraween. 2145.	9520	1982	Road Match	0m
	BRICKLAYERS. (B6260)	McDonald Bros. & Co. (Lidcombe) Pty. Ltd., Great Western H'way., Girraween. 2145.	8757	1982	Road Match	0m
	HIRING SERVICES.	Macbro Hire. Great Western H'way., Girraween. 2145	35607	1978	Road Match	0m
	MOTOR SERVICE STATIONS - PETROL, OIL	Caltex Service Station., Great Western H'way., Pendle Hill, 2145	61603	1975	Road Match	0m
	HAULAGE CONTRACTORS.	Hackett W.J. Son Pty. Ltd., Great Western H'way, Girraween. 2145	41557	1975	Road Match	0m
	DOG &/OR CAT BOARDING KENNELS.	Maher, R. V., Great Western H'way., Prospect. 2149	22252	1975	Road Match	0m
	MIXED BUSINESSES.	Portelli, C., 688 Great Western H'way., Girraween. 2146	55475	1975	Road Match	0m
	MIXED BUSINESSES (M408)	Portelli, C., 688 Great Western Highway., Girraween	333616	1970	Road Match	0m
	GOVERNMENT DEPTS C'WEALTH (G490)	Sheep Biology Laboratory (Division of Animal Health & Protection)., Great Western Highway., Pendle Hill	311655	1970	Road Match	0m
	Poultry Dealers - Retail	Baiada, C., 686 Great Western Highway., Pendle Hill	135420	1965	Road Match	0m
	Motor Body Repairs/Converters	Baiada, C., Great Western Highway., Pendle Hill	120078	1965	Road Match	0m
	Motor Garages & Engineers	Baiada's Service Station, 689 Great Western Highway. Pendle Hill	123202	1965	Road Match	0m
	Motor Panel Beaters	Golden Fleece Prospect Service Station, Great Western Highway., Prospect	124664	1965	Road Match	0m
	Mixed Businesses	Portelli, A., Great Western Highway., & Greystanes Rd., Girraween	118383	1965	Road Match	0m
	Govt. DeptsC'Wealth	Sheep Biology Laboratory (Division of Animal Health & Protection), Great Western Hghwy., Pendle Hill	95704	1965	Road Match	0m
	MOTOR BODY REPAIRS/CONVERTERS	Baiada, C., Great Western Highway., Pendle Hill	344283	1961	Road Match	0m
	MOTOR SERVICE STATIONS—PETROL, OIL, Etc.	Balada, C., Great Western Hghwy., PENDLE HILL	350340	1961	Road Match	0m
	MIXED BUSINESS	Portelli, A., Great Western Highway.	342127	1961	Road Match	0m
	GOVT. DEPTSC'WEALTH	Sheep Biology Laboratory (Division of Animal Health & Protection)., Great Western Highway., Pendle Hill	319657	1961	Road Match	0m

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
29	POULTRY DEALERS- WHOLESALE	Balada, C., Great Western Hghwy., Pendle Hill	93818	1950	Road Match	0m
	DOGS &/OR DOGS' SUPPLIES	Burbank Kennels, Great Western Highway., Pendle Hill	33220	1950	Road Match	0m
	POULTRY FARMERS	Gilbert, C. R., Main Western Highway., Pendle Hill	94026	1950	Road Match	0m
	GROCERS-RETAIL	Kenyon Bros., Great Western Rd., Pendle Hill	57951	1950	Road Match	0m
	MIXED BUSINESSES & GENERAL STORES	Porteill, A., Great Western Highway., Pendle Hill	80784	1950	Road Match	0m
	GROCERS-RETAIL	Portelli, A., Great Western Highway., Pendle Hill	58756	1950	Road Match	0m
	MOTOR GARAGES &/OR ENGINEERS	Roberts Garage, Western Rd., Pendle Hill	84296	1950	Road Match	0m
	MOTOR SERVICE STATIONS- PETROL, Etc.	Roberts Garage, Western Rd., Pendle Hill	86347	1950	Road Match	0m
	BUTCHERS-RETAIL	Ryan Bros., Great Western Rd., Pendle Hill	14257	1950	Road Match	0m
	GROCERS-RETAIL	Spotted Dog (The) (D. Davison, Propr.), Great Western Rd., Pendle Hill.	55744	1950	Road Match	0m
	VETERINARY SURGEONS & HOSPITALS	Stewart, J. and Sons, Great Western Rd., Pendle Hill	111995	1950	Road Match	0m
	CARRIERS & CARTAGE CONTRACTORS	Tabone, C., Western Rd., Pendle Hill	19904	1950	Road Match	0m
	MIXED BUSINESSES & GENERAL STORES	Williams, E. J., Great Western Highway., Pendle	81272	1950	Road Match	0m
30	MOTOR GARAGES & SERVICE STATIONS.	BP Fox Hills Service Station, Toongabbie Rd., Girraween. 2145	64147	1986	Road Match	0m
	BOX & CASE MFRS. &/OR MERCHANTS.	Camillo Box CO., Toongabbie Rd., Toongabbie. 2146	7538	1986	Road Match	0m
	PALLET MFRS. &/OR HIRERS.	Camillo Box Co., Toongabbie Rd., Toongabbie. 2146	71959	1986	Road Match	0m
	HIRING SERVICES.	Macbro Rental Pty. Ltd., Toongabbie Rd., Girraween, 2145	45845	1986	Road Match	0m
	ENGINEERS – GENERAL &/ OR MANUFACTURING &/ OR MECHANICAL.	Nevcov Engineering Pty, Ltd., Toongabbie Rd., Girraween., 2145	30194	1986	Road Match	0m
	ENGINEERS – FABRICATING.	Nevcov Engineering Pty. Ltd., Toongabbie Rd., Girraween. 2145	29491	1986	Road Match	0m
	MOTOR TRUCK ACCESSORIES &/OR SPARE PARTS.	Nevcov Engineering Pty. Ltd., Toongabbie Rd., Girraween. 2145	68292	1986	Road Match	0m
	STEEL FABRICATORS.	Nevcov Engineering Pty. Ltd., Toongabbie Rd., Girraween. 2145	89014	1986	Road Match	0m
	MINING MACHINERY &/OR EQUIPMENT MFRS. &/OR IMPS. &/OR DISTS.	Sinclair Equipment Pty. Ltd., Toongabbie Rd., Girraween. 2145	59698	1986	Road Match	0m
	MOTOR BODY BUILDERS.	Sinclair Equipment Pty. Ltd., Toongabbie Rd., Girraween. 2145	61320	1986	Road Match	0m
	TRAILER &/OR SEMI-TRAILER EQUIPMENT &/OR SPARE PARTS MFRS. &/OR IMPS. &/OR DISTS.	Sinclair Equipment Pty. Ltd., Toongabbie Rd., Girraween. 2145	94940	1986	Road Match	0m
	TRAILER &/OR TRAILER EQUIPMENT MFRS. &/OR DISTS. &/OR HIRERS.	Sinclair Equipment Pty. Ltd., Toongabbie Rd., Girraween. 2145	94988	1986	Road Match	0m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS. (M6860)	BP Fox Hills Service Station, Toongabbie Rd., Girraween. 2145.	56218	1982	Road Match	0m
	BOX & CASE MFRS. &/OR MERCHANTS. (B5390)	Camillo Box Co., Toongabbie Rd., Toongabbie. 2146.	8353	1982	Road Match	0m
	MINING MACHINERY &/OR EQUIPMENT IMPS. &/OR DISTS.&/OR MFRS. (M3960)	Sinclair Equipment Pty. Ltd., Toongabbie Rd., Girraween. 2145	52773	1982	Road Match	0m
	TRAILER &/OR TRAILER EQUIPMENT MFRS. &/OR DISTS.&/OR HIRERS. (T6925)	Sinclair Equipment Pty. Ltd., Toongabbie Rd., Girraween. 2145	81572	1982	Road Match	0m
	TRANSPORT EQUIPMENT SPECIALISTS. (T7310)	Sinclair Equipment Pty. Ltd., Toongabbie Rd., Girraween. 2145	81708	1982	Road Match	0m

ld	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
30	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS. (M6860)	Toongabbie Garage & Service Station, Toongabbie Rd., Toongabbie. 2146.	57694	1982	Road Match	0m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Amoco Service Station, Toongabbie Rd., Toongabbie. 2146	49240	1978	Road Match	0m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	B.P. Fox Hills Service Station, Toongabbie Rd., Girraween. 2145	49340	1978	Road Match	0m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Toongabbie Garage & Service Station Pty. Ltd., Toongabbie Rd., Toongabbie. 2146	50950	1978	Road Match	0m
	MOTOR SERVICE STATIONS - PETROL, OIL	Amoco Service Station., Toongabbie Rd., Toongabbie. 2146	61368	1975	Road Match	0m
	WEAVERS.	Nunn, W. T. (Weaving) Pty. Ltd., Toongabbie Rd., Girraween. 2145	86718	1975	Road Match	0m
	MOTOR GARAGES &/OR ENGINEERS.	Toongabbie Garage & Service Station Pty. Ltd., Toongabbie Rd., Toongabbie. 2146	59643	1975	Road Match	0m
	MOTOR SERVICE STATIONS - PETROL, OIL	Toongabbie Garage & Service Station Pty. Ltd., Toongabbie Rd., Toongabbie. 2146	61986	1975	Road Match	0m
	BOX & CASE MERCHANTS &/OR MANUFACTURERS (B645)	Camillo Box Co., Toongabbie Rd., Toongabbie	269443	1970	Road Match	0m
	CARRIERS & CARTAGE CONTRACTORS (C150)	Hackett, W.J & Son Pty. Ltd., Toongabbie Rd., Girraween	278092	1970	Road Match	0m
	ALUMINIUM PRODUCTS MFRS. (A320)	Kawneer Company Pty. Ltd., Toongabbie Rd., Girraween	261246	1970	Road Match	0m
	ANODISERS (A385)	Kawneer Company Pty. Ltd., Toongabbie Rd., Girraween	261653	1970	Road Match	0m
	WELDERS-ELECTRIC &/OR OXY	Toongabbie Garage & Service Station Pty. Ltd., Toongabbie Rd, Toongabbie	374018	1970	Road Match	0m
	MOTOR GARAGES & ENGINEERS(M6S6)	Toongabbie Garage & Service Station Pty. Ltd., Toongabbie Rd., TOONGABBIE	338737	1970	Road Match	0m
	MOTOR PANEL BEATERS (M680)	Toongabbie Garage & Service Station Pty. Ltd., Toongabbie Rd., Toongabbie	340487	1970	Road Match	0m
	MOTOR PAINTERS (M672)	Toongabble Garage & Service Station Pty. Ltd., Toongabbie Rd., Toongabbie	339694	1970	Road Match	0m
	MOTOR SERVICE STATIONS- PETROL,OIL,Etc.	Toongabble Garage & Service Station Pty. Ltd., Toongabbie Rd., TOONGABBIE	341543	1970	Road Match	0m
	MOTOR TOWING SERVICES (M744)	Toongabble Garage & Service Station Pty. Ltd., Toongabbie Rd., Toongabbie	342581	1970	Road Match	0m
	Motor Garages & Engineers	Toongabbie Garage & Service Station Pty. Ltd., Toongabbie Rd., Toongabbie	123464	1965	Road Match	0m
	Motor Panel Beaters	Toongabbie Garage & Service Station Pty. Ltd., Toongabbie Rd., Toongabbie	125074	1965	Road Match	0m
	Motor Service Stations - Petrol, Oil, Etc.	Toongabbie Garage & Service Station Pty. Ltd., Toongabbie Rd., Toongabbie	126207	1965	Road Match	0m
	Motor Towing Services	Toongabbie Garage & Service Station Pty. Ltd., Toongabbie Rd., Toongabbie	127168	1965	Road Match	0m
	Welders - Electric &/or Oxy	Toongabbie Garage & Service Station Pty. Ltd., Toongabbie Rd., Toongabbie	156868	1965	Road Match	0m
	Motor Painters	Toongabble Garage & Service Station Pty. Ltd., Toongabbie Rd., Toongabbie	124304	1965	Road Match	0m
	MOTOR SERVICE STATIONS—PETROL, OIL, Etc.	Toongabbie Garage & Service Station Pty. Ltd., Toongabbie	351170	1961	Road Match	0m
	MOTOR GARAGES & ENGINEERS	Toongabbie Garage & Service Station Pty. Ltd., Toongabbie Rd., TOONGABBIE	348294	1961	Road Match	0m
	MOTOR PAINTERS	Toongabbie Garage & Service Station Pty. Ltd., Toongabbie Rd., Toongabbie	349231	1961	Road Match	0m
	MOTOR PANEL BEATERS	Toongabbie Garage & Service Station Pty. Ltd., Toongabbie Rd., Toongabbie	350025	1961	Road Match	0m
	MOTOR TOWING SERVICES	Toongabbie Garage & Service Station Pty. Ltd., Toongabbie Rd., Toongabbie	352204	1961	Road Match	0m
	WELDERS-ELECTRIC &/OR OXY	Toongabbie Garage & Service Station Pty. Ltd., Toongabbie Rd., Toongabbie	262512	1961	Road Match	0m
	POULTRY FARMERS	McMullen, Misses M. G. and I. M., Toongabbie Rd., Toongabbie	94173	1950	Road Match	0m

lap Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
31	DOG &/OR CAT BOARDING KENNELS.	Maher, R. V., Great Western H'way., Prospect. 2149	24502	1986	Road Match	0m
	HOTELS-LICENSED.	Prospect Hotel, Great Western H'way., Prospect. 2149	46944	1986	Road Match	0m
	DOG &/OR CAT BOARDINGKENNELS. (D5100)	Maher, R. V., Great Western H'way., Prospect. 2149.	21870	1982	Road Match	0m
	HOTELS - LICENSED. (H7150)	Prospect Hotel, Great Western H'way., Prospect. 2149.	40977	1982	Road Match	0m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Golden Fleece Prospect, Great Western H'way, Prospect. 2149	50108	1978	Road Match	0m
	HOTELS-LICENSED.	Hotel Prospect, Great Western H'way, Prospect. 2149	36201	1978	Road Match	0m
	DOG &/OR CAT BOARDING KENNELS.	Maher, R. V., Great Western H'way., Prospect. 2149	19311	1978	Road Match	0m
	MOTOR SERVICE STATIONS - PETROL, OIL	Golden Fleece Prospect., Great Western H'way. Prospect. 2149	61770	1975	Road Match	0m
	HOTELS-LICENCED	Hotel Prospect., Great Western H'way., Prospect. 2149	42943	1975	Road Match	0m
	NEWSAGENTS-GENERAL	Prospect Market & Newsagency., Great Western H'way., Prospect. 2149	63792	1975	Road Match	0m
	MIXED BUSINESSES.	Prospect Milk Bar., 33 Great Western H'way., Prospect. 2149	55491	1975	Road Match	0m
	HOTELS-LICENSED (H690)	Hotel Prospect., Great Western Highway., Prospect	317354	1970	Road Match	0m
	CLUBS & SPORTING BODIES (C487)	Prospect Golf Links., Great Western Highway., Prospect	284574	1970	Road Match	0m
	FRUITERERS/GREENGROCER S (F640)	Prospect Market & Newsagency., Great Western Hghwy., Prospect	307777	1970	Road Match	0m
	NEWSAGENTS (N100)	Prospect Market & Newsagency., Great Western Hghwy., Prospect	343781	1970	Road Match	0m
	MIXED BUSINESSES (M408)	Prospect Market & Newsagency., Great Western Highway., Prospect	333635	1970	Road Match	0m
	MILK, FRUIT JUICE BARS/CONFECTIONERS	Prospect Milk Bar., 33 Great Western Rd., Prospect	331105	1970	Road Match	0m
	MIXED BUSINESSES (M408)	Prospect Milk Bar., 33 Great Western Rd., Prospect	333636	1970	Road Match	0m
	DOG/CAT BOARDING KENNELS(D440)	Prospect. Boarding Kennels (Sybert)., 43 Great Western Highway., Prospect	290031	1970	Road Match	0m
	VETERINARY SURGEONS (V150)	Sybert, F.P., Great Western Rd., Prospect	372768	1970	Road Match	0m
	DOG/CAT BOARDING KENNELS(D440)	Windswept Kennels., Great Western Highway., Prospect	290039	1970	Road Match	0m
	Motor Garages & Engineers	Golden Fleece Prospect Service Station, Western Highway. Prospect	123229	1965	Road Match	0m
	Motor Service Stations - Petrol, Oil, Etc.	Honeys Road House & Service Station, Great Western Highway. Blacktown	125464	1965	Road Match	0m
	Cabarets, Dance Restaurants & Road Houses	Honeys Road House & Service Station., Great Western Highway., Blacktown	59852	1965	Road Match	0m
	MOTOR SERVICE STATIONS—PETROL, OIL, Etc.	Abaud & Godley, Great Western Hghwy., PROSPECT	350287	1961	Road Match	0m
	MIXED BUSINESS	Davis, L. & D. (& Service Station), Great Western Highway. (at Brown's Ave.), Prospect	340700	1961	Road Match	0m
	SANDWICH/LUNCHEON SHOPS	Ferry's Lunch Kiosk, Great Western Highway, Prospect	247474	1961	Road Match	0m
	MOTOR GARAGES & ENGINEERS	Golden Fleece Prospect Service Station, Western Hghwy., PROSPECT	347245	1961	Road Match	0m
	HOTELS—LICENSED	Hotel Prospect, Great Western Highway., Prospect	325429	1961	Road Match	0m
	MIXED BUSINESS	McDonald's, W. J. Post Office Store, Great Western Highway., Prospect	341724	1961	Road Match	0m
	MOTOR GARAGES & ENGINEERS	Prospect Garage & Service Station, Great Western Rd., PROSPECT	347946	1961	Road Match	0m
	MOTOR CAR/TRUCK DEALERS—NEW/USED	Prospect Garage & Service Station, Western Highway., Prospect	345314	1961	Road Match	0m
	CLUBS & SPORTS BODIES	Prospect Golf Links, Great Western Highway., Prospect	291735	1961	Road Match	0m

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
31	MOTOR SERVICE STATIONS—PETROL, OIL, Etc.	Williams & Partridge, Great Western Hghwy., PROSPECT	351293	1961	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL, Etc.	Abaud and Godley, Great Western Highway., Prospect	85731	1950	Road Match	0m
	GROCERS-RETAIL	Abaud and Godley., Great Western Hghwy., Prospect	56261	1950	Road Match	0m
	GROCERS-RETAIL	Boomerang Store (The) (C. Tennant, Propr.), Great Western Hghwy., Prospect	56485	1950	Road Match	0m
	CARRIERS & CARTAGE CONTRACTORS	Campbell, D., Great Western Highway., Prospect	18534	1950	Road Match	0m
	HOTELS-LICENSED	Hotel Prospect, Western Rd., Prospect	63164	1950	Road Match	0m
	GROCERS-RETAIL	McMahon, W. J., Great Western Hghwy., Prospect	58355	1950	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL, Etc.	Prospect Garage and Service Station (Williams and Partridge)., Great Western Hghwy., Prospect	86304	1950	Road Match	0m
	MOTOR GARAGES &/OR ENGINEERS	Prospect Garage and Service Station, Great Western Rd., Prospect	84237	1950	Road Match	0m
	CLUBS & SPORTS BODIES	Prospect Golf Links, Great Western Highway., Prospect	25414	1950	Road Match	0m
	POULTRY FARMERS	Pullen, B., Great Western Rd., Prospect	94232	1950	Road Match	0m
	JUSTICES OF THE PEACE	Rouston, J., "The Ranch", Western Rd., Prospect	66732	1950	Road Match	0m
	GROCERS-RETAIL	Sale, Mrs., 1 Great Western Rd., Pendle Hill	55554	1950	Road Match	0m
	HALLS	School of Arts., Great Western Hghwy., Prospect	60424	1950	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL, Etc.	Williams and Partridge, Great Western Highway., Prospect	86531	1950	Road Match	0m
32	MIXED BUSINESSES.	Prospect Market & Newsagency., Great Western H'way., Prospect. 2149	55490	1975	Road Match	0m
	Hotels - Licensed	Hotel Prospect, Great Western Hghwy., Prospect	101671	1965	Road Match	0m
	Clubs & Sporting Bodies	Prospect Golf Links, Great Western Highway., Prospect	69233	1965	Road Match	0m
	Dog/Cat Boarding Kennels	Stroud & Tatham, Great Western Highway., Prospect	74664	1965	Road Match	0m
	Mixed Businesses	Winton Wylee P.O. Store., Great Western Hghwy., Prospect	119061	1965	Road Match	0m
33	Bolt, Nut &/or Rivet Mfrs &/or Dists	Nevco Engineering Pty. Ltd., Mandoon Rd., Girraween 2145	36370	1991	Road Match	25m
	BOLT &/OR NUT MFRS. &/OR DISTS.	Nevco Engineering Pty. Ltd., Mandoon Rd., Girraween. 2145	6721	1986	Road Match	25m
	ENGINEERS - STRUCTURAL.	Nevco Engineering Pty. Ltd., Mandoon Rd., Girraween. 2145	31294	1986	Road Match	25m
	METAL PRESSERS &/OR STAMPERS.	Nevco Engineering Pty. Ltd., Mandoon Rd., Girraween. 2145	58805	1986	Road Match	25m
	STEEL FABRICATORS.	Nevco Engineering Pty. Ltd., Mandoon Rd., Girraween. 2145	89013	1986	Road Match	25m
	STEEL FABRICATORS, (S6105)	Nevco Engineering Pty. Ltd, Mandoon Rd., Toongabbie. 2146.	76962	1982	Road Match	25m
	BOLT &/OR NUT MFRS.&/OR DISTS. (B4200)	Nevco Engineering Pty. Ltd., Mandoon Rd., Toongabbie. 2146.	7571	1982	Road Match	25m
	ENGINEERS - STRUCTURAL. (E8340)	Nevco Engineering Pty. Ltd., Mandoon Rd., Toongabbie. 2146.	29355	1982	Road Match	25m
	METAL PRESSERS &/OR STAMPERS. (M2440)	Nevco Engineering Pty. Ltd., Mandoon Rd., Toongabbie. 2146.	51827	1982	Road Match	25m
	BOLT &/OR NUT MFRS.&/OR DISTS.	Nevco Industries Pty. Ltd., Mandoon Rd., Toongabbie. 2146	6598	1978	Road Match	25m
	ENGINEERS-STRUCTURAL.	Nevco Industries Pty. Ltd., Mandoon Rd.,	26451	1978	Road Match	25m
	METAL PRESSERS &/OR	Toongabbie. 2146  Nevco Industries Pty. Ltd., Mandoon Rd., Toongabbie. 2146	45594	1978	Road Match	25m
	STAMPERS. STEEL FABRICATORS.	Toongabbie. 2146  Nevco Industries Pty. Ltd., Mandoon Rd.,	68159	1978	Road Match	25m
		Toongabbie. 2146				

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
33	CLOTHING - SCHOOL UNIFORMS MFRS. &/OR W/SALERS.	Smooth Sheen Mfrg. Co., Mandoon Rd., Girraween. 2145	15258	1978	Road Match	25m
	AWNINGS-CANTILEVER MFRS.	Commercial Shop Awnings, Mandoon Rd., Girraween. 2145.	3728	1975	Road Match	25m
	BOLT &/OR NUT MFRS. &/OR DISTS.	Nevco Industries Pty. Ltd., Mandoon Rd., Toongabbie. 2146	7061	1975	Road Match	25m
	METAL PRESSERS &/OR STAMPERS.	Nevco Industries Pty. Ltd., Mandoon Rd., Toongabbie. 2146	52936	1975	Road Match	25m
	STEEL FABRICATORS.	Nevco Industries Pty. Ltd., Mandoon Rd., Toongabbie. 2146	80583	1975	Road Match	25m
	ENGINEERS-STRUCTURAL	Nevco Industries Pty. Ltd., Mandoon Rd., Toongabbie. 2146.	30548	1975	Road Match	25m
34	MOTOR PANEL BEATERS &/OR PAINTERS SUPPLIES.	T G Automotive Paint & Accessories Supplies, Lot 2 Amax Ave., Girraween. 2145	66966	1986	Road Match	26m
	MOTOR PANEL BEATERS &/OR PAINTERS SUPPLIES.	V. G. Automotive Paint & Panel Beating Supplies Lot 2 Amax Avenue, Girraween. 2145	66924	1986	Road Match	26m
	MOTOR CAR RADIO MFRS. &/OR IMPS. &/OR DISTS.	V.G. Automotive Paint & Accessories Supplies, Lot 2 Amax Ave., Girraween. 2145	61853	1986	Road Match	26m
	MOTOR CAR RADIO. SPECIALISTS, .	V.G. Automotive Paint & Accessories Supplies, Lot 2 Amax Ave., Girraween. 2145	61893	1986	Road Match	26m
	MOTOR PANEL BEATERS &/OR SPRAY PAINTERS.	V.G. Smash Repairs, Lot 2 Amax Ave., Girraween. 2145	66853	1986	Road Match	26m
	MOTOR PANEL BEATERS &/OR SPRAY PAINTERS. (M7360)	V.G. Smash Repairs, Amax Ave., Girraween. 2145.	58806	1982	Road Match	26m
	SCAFFOLDING ERECTORS &/OR HIRERS.	Cyclone Double Grip Scaffolding, Amax Ave., Girraween. 2145	64779	1978	Road Match	26m
	FOOD-FROZEN-MFRS &/OR IMPS &/OR DISTS.	Glitex Home-Freeze, Amax Ave., Girraween. 2145	33419	1975	Road Match	26m
35	NURSERYMEN	Eldridge, G. S. ("Oakwood Nursery"), 74 The Crescent, Toongabbie West	89081	1950	Road Match	69m
36	BRICK MFRS. &/OR DISTS.	Clark Brick Limited, Quarry Rd., Prospect.2149	7632	1986	Road Match	85m
	BRICK MFRS. &/OR DISTS. (B6120)	Clark Brick Limited, Quarry Rd., Prospect. 2149.	8452	1982	Road Match	85m
37	Glass Merchants &/or Glaziers	O'Brien Glass Industries Ltd., 398 Magowar Rd., Girraween. 2145	47767	1991	Road Match	120m
	GLASS MERCHANTS &/OR GLAZIERS.	O'Brien Glass Industries Ltd., 398 Magowar Rd., Girraween. 2145	39854	1986	Road Match	120m

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# **Dry Cleaners, Motor Garages & Service Stations**





#### **Historical Business Directories**

55 Fox Hills Crescent, Prospect, NSW 2148

# **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
1	MOTOR GARAGES & SERVICE STATIONS.	Chally's Car Surgery, Unit 4/200 Toongabbie Rd., Girraween. 2145	11420	1990	Premise Match	20m	East
	MOTOR GARAGES & SERVICE STATIONS.	Tur-Err Performance, Unit 1/200 Toongabbie Rd., Toongabbie. 2146	18349	1990	Premise Match	20m	East
	MOTOR GARAGE & SERVICE STATIONS.	Tur-Err Performance, 200 Toongabbie Rd., Toongabbie. 2146	5680	1989	Premise Match	20m	East
	MOTOR GARAGES & SERVICE STATIONS.	Tur-Err Performance Pty. Ltd., 200 Toongabbie Rd., Toongabbie. 2146	60093	1988	Premise Match	20m	East
	MOTOR GARAGES & SERVICE STATIONS.	Kleinig, F., 2/200 Toongabbie Rd., Girraween. 2145	64962	1986	Premise Match	20m	East
	MOTOR GARAGES & SERVICE STATIONS.	Tru-Err Head & Engine Services, 200 Toongabbie Rd., Toongabbie. 2146	65647	1986	Premise Match	20m	East
2	MOTOR GARAGES & SERVICE STATIONS.	Kleinig F., 196 Toongabbie Rd., Girraween. 2145	45065	1985	Premise Match	23m	North East
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Kleinig F., 196 Toongabbie Rd., Girraween. 2145	28563	1984	Premise Match	23m	North East
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Kleinig F., 196 Toongabbie Rd., Girraween 2145	14994	1983	Premise Match	23m	North East
3	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Western Truck Equipment., 194 Toongabbie Rd., Girraween 2145	21830	1983	Premise Match	26m	North East
4	MOTOR GARAGES & SERVICE STATIONS.	Kleinig Frank Motors, 5 Amax Av., Girraween. 2145	19057	1993	Premise Match	107m	South East
	MOTOR GARAGES & SERVICE STATIONS.	Kleinig, Frank Motors, 5 Amax Ave., Girraween. 2145	11757	1990	Premise Match	107m	South East
	MOTOR GARAGE & SERVICE STATIONS.	Kleinig Frank Motors., 5 Amax Ave., Girraween 2145	5155	1989	Premise Match	107m	South East
	MOTOR GARAGES & SERVICE STATIONS.	Kleinig Frank Motors, 5 Amax Ave., Girraween. 2145	59505	1988	Premise Match	107m	South East
5	Motor Garages & Service Stations	4L Performance Engines, 5M/64 Mandoon St, Girraween 2145	97269	1991	Premise Match	251m	East
	MOTOR GARAGES & SERVICE STATIONS.	4L Performance Engines, 5M/64 Mandoon St., Girraween. 2145	11619	1990	Premise Match	251m	East
	MOTOR GARAGE & SERVICE STATIONS.	4L Performance Engines, 5M/64 Mandoon St., Girraween. 2145	65083	1989	Premise Match	251m	East
	MOTOR GARAGES & SERVICE STATIONS.	4L Performance Engines, 5M/64 Mandoon St., Girraween. 2145	59308	1988	Premise Match	251m	East
6	MOTOR GARAGES & ENGINEERS.	Golden Fleece Prospect Service Station., Cnr Western Hghwy. & Blacktown Rd., Prospect	19815	1959	Road Intersection	263m	West
	MOTOR GARAGE/ENGINEERS.	Golden Fleece Prospect Service Station, Cnr. Western Hghwy & Blacktown Rd., Prospect	456	1958	Road Intersection	263m	West

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
7	DRY CLEANERS, PRESSERS &/OR DYERS.	Smartway Dry Cleaners., 630 Great Western H'way., Pendle Hill 2145	23811	1976	Premise Match	265m	South East
	DRY CLEANERS, PRESSERS &/OR DYERS.	Smart way Dry Cleaners, 630 Great Western H'way, Pendle Hill. 2145	24335	1975	Premise Match	265m	South East
	DRY CLEANERS, PRESSERS &/OR DYERS	Smartway Dry Cleaners Pty. Ltd., 632 Great Western Hghwy., Pendle Hill	55015	1971	Premise Match	265m	South East
	DRY CLEANERS,PRESSERS /DYERS (D710)	Smartway Dry Cleaners Pty. Ltd., 632 Great Western Hghwy., Pendle Hill	292509	1970	Premise Match	265m	South East
	DRY CLEANERS, PRESSERS/ DYERS	Smartway Dry Cleaners Pty. Ltd., 632 Great Western Hghwy., Pendle Hill	37318	1969	Premise Match	265m	South East
	DRY CLEANERS, PRESSERS/DYERS	Smartway Dry Cleaners Pty. Ltd., 632 Great Western Hghwy., Pendle Hill	20776	1968	Premise Match	265m	South East
	DRY CLEANERS, PRESSERS/ DYERS	Smartway Dry Cleaners Pty. Ltd., 632 Great Western Hghwy., Pendle Hill	6331	1967	Premise Match	265m	South East
	DRY CLEANERS, PRESSERS/ DYERS	Smartway Dry Cleaners Pty. Ltd., 632 Great Western Hghwy., Pendle Hill	55379	1966	Premise Match	265m	South East
	Dry Cleaners, Pressers/Dyers	Smartway Dry Cleaners Pty. Ltd., 632 Great Western Highway., Pendle Hill	76336	1965	Premise Match	265m	South East
	DRY CLEANERS, PRESSERS/ DYERS.	Smartway Dry Cleaners Pty. Ltd., 632 Great Western Highway Pendle Hill	43169	1964	Premise Match	265m	South East
	DRY CLEANERS, PRESSERS/DYERS.	Smartway Dry Cleaners., 632 Great Western Hghwy., Pendle Hill	24914	1962	Premise Match	265m	South East
	DRY CLEANERS, PRESSERS / DYERS	Smartway Dry Cleaners 632 Great Western Highway., Pendle Hill	299271	1961	Premise Match	265m	South East
	DRY CLEANERS, PRESSERS / DYERS	Smartway Dry Cleaners, 632 Great Western Highway., Pendle Hill	299272	1961	Premise Match	265m	South East
8	MOTOR GARAGE & SERVICE STATIONS.	Girraween Exhaust Centre And Mechanical Repairs, Unit 1, 25 Amax Ave., Girraween. 2145	65102	1989	Premise Match	410m	South East
	MOTOR GARAGES & SERVICE STATIONS.	Girraween Exhaust Centre And Mechanical Repairs, Unit 1, 25 Amax, Girraween. 2145	59331	1988	Premise Match	410m	South East
	MOTOR GARAGES & SERVICE STATIONS.	Girraween Exhaust Centre and Mechanical Repairs, Unit 1/25 Amax Ave., Girraween. 2145	64744	1986	Premise Match	410m	South East
	MOTOR GARAGES & SERVICE STATIONS.	Girraween Exhaust Centre And Mechanical Repairs, Unit 1/25 Amax Ave, Girraween. 2145	39747	1985	Premise Match	410m	South East
9	MOTOR GARAGES & SERVICE STATIONS.	SSS Automotive Pty. Ltd., 5/120 Gilba Rd., Girraween. 2145	45611	1985	Premise Match	427m	North East
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	SSS Automotive, 5/120 Gilba Rd., Girraween. 2145	34171	1984	Premise Match	427m	North East
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Springside Automotive., 5/120 Gilba Rd., Girraween 2145	21620	1983	Premise Match	427m	North East
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS. (M6860)	SSS Automotive, 5/120 Gilba Rd., Girraween. 2145.	57610	1982	Premise Match	427m	North East
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Gilba Auto Repairs., 10/120 Gilba Rd., Girraween. 2145	3361	1981	Premise Match	427m	North East
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Gilba Auto Repairs., 10/120 Gilba Rd., Girraween. 2145	58096	1980	Premise Match	427m	North East
10	MOTOR GARAGES & SERVICE STATIONS.	JSB Automotive Services, Unit 3/27 Amax Av., Girraween. 2145	19042	1993	Premise Match	454m	South East
	MOTOR GARAGES & SERVICE STATIONS.	JSB Automotive Services, Unit 3/27 Amax Ave., Girraween. 2145	11730	1990	Premise Match	454m	South East
	MOTOR GARAGE & SERVICE STATIONS.	JSB Automotive Services, Unit 3, 27 Amax Ave., Girraween. 2145	5127	1989	Premise Match	454m	South East
	MOTOR GARAGES & SERVICE STATIONS.	JSB Automotive Services, Unit 3, 27 Amax Ave., Girraween. 2145	59472	1988	Premise Match	454m	South East

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
10	MOTOR GARAGES & SERVICE STATIONS.	JSB Automotive Services, Unit 3/27 Amax Ave., Girraween. 2145	64925	1986	Premise Match	454m	South East
	MOTOR GARAGES & SERVICE STATIONS.	JSB Automotive Services., Unit 3/27 Amax Ave., Girraween. 2145	45026	1985	Premise Match	454m	South East
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	JSB Automotive Services, 3/27 Amax Ave., Girraween. 2145	28524	1984	Premise Match	454m	South East
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	JSB Automotive Services., 3/27 Amax Ave., Girraween 2145	14954	1983	Premise Match	454m	South East
11	MOTOR GARAGES & SERVICE STATIONS.	Abdo's Car Repairs, 12/114 Gilba Rd., Girraween. 2145	38862	1985	Premise Match	464m	North East
12	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	David. J. Automatic Transmissions, 614 Great Western H'way, Pendle Hill. 2145	49887	1978	Premise Match	477m	South East

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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
13	MOTOR GARAGE & SERVICE STATIONS.	BP Fox Hills Service Station, Toongabbie Rd., Girraween. 2145	64575	1989	Road Match	0m
	MOTOR GARAGES & SERVICE STATIONS.	BP Fox Hills Service Station, Toongabbie Rd., Girraween. 2145	53686	1988	Road Match	0m
	MOTOR GARAGES & SERVICE STATIONS.	BP Fox Hills Service Station, Toongabbie Rd., Girraween. 2145	64147	1986	Road Match	0m
	MOTOR GARAGES & SERVICE STATIONS.	BP Fox Hills Service Station, Toongabbie Rd., Girraween. 2145	39157	1985	Road Match	0m
	MOTOR GARAGES & SERVICE STATIONS.	Toongabbie Garage & Service Station, Toongabbie Rd., Toongabbie. 2146	45695	1985	Road Match	0m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	BP Fox Wills Service Station, Toongabbie Rd., Girraween. 2145	27761	1984	Road Match	Om
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Toongabbie Garage & Service Station, Toongabbie Rd., Toongabbie. 2146	34255	1984	Road Match	0m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	BP Fox Hills Service Station, Toongabbie Rd., Girraween 2145	9117	1983	Road Match	Om
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Toongabbie Garage & Service Station., Toongabbie Rd., Toongabbie 2146	21701	1983	Road Match	Om
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS. (M6860)	BP Fox Hills Service Station, Toongabbie Rd., Girraween. 2145.	56218	1982	Road Match	0m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS. (M6860)	Toongabbie Garage & Service Station, Toongabbie Rd., Toongabbie. 2146.	57694	1982	Road Match	0m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	BP Fox Hills Service Station., Toongabbie Rd., Girraween. 2145	63895	1981	Road Match	Om
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Toongabbie Garage & Service Station Pty. Ltd., Toongabbie Rd., Toongabbie 2146	8284	1981	Road Match	Om
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	BP Fox Hills Service Station., Toongabbie Rd., Girraween. 2145	51393	1980	Road Match	0m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Toongabbie Garage & Service Station Pty. Ltd., Toongabbie Rd., Toongabbie. 2146	58968	1980	Road Match	0m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	B.P. Fox Hills Service Station., Toongabbie Rd., Girraween. 2145.	40833	1979	Road Match	0m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Toongabbie Garage & Service Station Pty. Ltd., Toongabbie Rd., Toongabbie. 2146.	46471	1979	Road Match	0m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Amoco Service Station, Toongabbie Rd., Toongabbie. 2146	49240	1978	Road Match	0m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	B.P. Fox Hills Service Station, Toongabbie Rd., Girraween. 2145	49340	1978	Road Match	0m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Toongabbie Garage & Service Station Pty. Ltd., Toongabbie Rd., Toongabbie. 2146	50950	1978	Road Match	0m

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
13	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Amoco Service Station., Toongabbie Rd., Toongabbie 2146	23943	1976	Road Match	0m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Toongabbie Garage & Service Station Pty. Ltd., Toongabbie Rd., Toongabbie 2146	35027	1976	Road Match	0m
	MOTOR SERVICE STATIONS - PETROL, OIL	Amoco Service Station., Toongabbie Rd., Toongabbie. 2146	61368	1975	Road Match	0m
	MOTOR GARAGES &/OR ENGINEERS.	Toongabbie Garage & Service Station Pty. Ltd., Toongabbie Rd., Toongabbie. 2146	59643	1975	Road Match	0m
	MOTOR SERVICE STATIONS - PETROL, OIL	Toongabbie Garage & Service Station Pty. Ltd., Toongabbie Rd., Toongabbie. 2146	61986	1975	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Amoco Service Station., Toongabbie Rd Toongabbie	18230	1972	Road Match	0m
	MOTOR GARAGES &/OR ENGINEERS.	Toongabbie Garage & Service Station Pty. Ltd., Toongabbie Rd Toongabbie	13155	1972	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Toongabbie Garage & Service Station Pty. Ltd., Toongabbie Rd Toongabbie	18234	1972	Road Match	0m
	MOTOR GARAGES &/OR ENGINEERS.	Toongabbie Garage & Service Station Pty. Ltd., Toongabbie Rd Toongabbie	62810	1971	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Toongabbie Garage & Service Station Pty. Ltd., Toongabbie Rd., Toongabbie	2648	1971	Road Match	0m
	MOTOR GARAGES & ENGINEERS(M6S6)	Toongabbie Garage & Service Station Pty. Ltd., Toongabbie Rd., TOONGABBIE	338737	1970	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL,OIL,Etc.	Toongabble Garage & Service Station Pty. Ltd., Toongabble Rd., TOONGABBIE	341543	1970	Road Match	0m
	MOTOR GARAGES & ENGINEERS.	Toongabbie Garage & Service Station Pty. Ltd., Toongabbie Rd Toongabbie	47258	1969	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Toongabbie Garage & Service Station Pty. Ltd., Toongabbie Rd Toongabbie	50819	1969	Road Match	0m
	MOTOR GARAGES & ENGINEERS	Toongabbie Garage & Service Station Pty. Ltd., Toongabbie Rd Toongabbie	30684	1968	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Toongabbie Garage & Service Station Pty. Ltd., Toongabbie Rd Toongabbie	36906	1968	Road Match	0m
	MOTOR GARAGES & ENGINEERS.	Toongabbie Garage & Service Station Pty. Ltd., Toongabbie Rd Toongabbie	11107	1967	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Toongabbie Garage & Service Station Pty. Ltd., Toongabbie Rd Toongabbie	20370	1967	Road Match	0m
	MOTOR GARAGES & ENGINEERS.	Toongabbie Garage & Service Station Pty. Ltd., Toongabbie Rd Toongabbie	60832	1966	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Toongabbie Garage & Service Station Pty. Ltd., Toongabbie Rd., Toongabbie	1872	1966	Road Match	0m
	Motor Garages & Engineers	Toongabbie Garage & Service Station Pty. Ltd., Toongabbie Rd., Toongabbie	123464	1965	Road Match	0m
	Motor Service Stations - Petrol, Oil, Etc.	Toongabbie Garage & Service Station Pty. Ltd., Toongabbie Rd., Toongabbie	126207	1965	Road Match	0m
	MOTOR GARAGES & ENGINEERS	Toongabbie Garage & Service Station Pty. Ltd., Toongabbie Rd Toongabbie	48741	1964	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Toongabbie Garage & Service Station Pty. Ltd., Toongabbie Rd Toongabbie	52464	1964	Road Match	0m
	MOTOR GARAGES & ENGINEERS.	Toongabbie Garage & Service Station Pty. Ltd., Toongabbie Rd Toongabbie	33527	1962	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Toongabbie Garage & Service Station Pty. Ltd., Toongabbie Rd Toongabbie	42838	1962	Road Match	0m
	MOTOR SERVICE STATIONS—PETROL, OIL, Etc.	Toongabbie Garage & Service Station Pty. Ltd., Toongabbie	351170	1961	Road Match	0m
	MOTOR GARAGES & ENGINEERS	Toongabbie Garage & Service Station Pty. Ltd., Toongabbie Rd., TOONGABBIE	348294	1961	Road Match	0m

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
13	MOTOR GARAGES & ENGINEERS.	Toongabbie Garage & Service Station Pty Ltd., Toongabbie Rd., Toongabbie	20047	1959	Road Match	0m
	MOTOR GARAGES & ENGINEERS.	Toongabbie Garage & Service Station Pty. Ltd., Toongabbie Rd Toongabbie	20051	1959	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL,. OIL, ETC.	Toongabbie Garage & Service Station Pty. Ltd., Toongabbie Rd Toongabbie	24621	1959	Road Match	0m
14	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Golden Fleece Prospect., Great Western Highway., Prospect. 2149.	41570	1979	Road Match	0m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Golden Fleece Prospect, Great Western H'way, Prospect. 2149	50108	1978	Road Match	0m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Golden Fleece Prospect., Great Western H'way., Prospect 2149	30097	1976	Road Match	0m
	MOTOR SERVICE STATIONS - PETROL, OIL	Golden Fleece Prospect., Great Western H'way. Prospect. 2149	61770	1975	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Golden Fleece Prospect., Great Western Hghwy., Prospect	18066	1972	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Golden Fleece Prospect., Great Western Hghwy., Prospect	2507	1971	Road Match	0m
	MOTOR GARAGES & ENGINEERS	Golden Fleece Prospect Service Station., Western Hghwy., Prospect	26363	1968	Road Match	0m
	MOTOR GARAGES & ENGINEERS.	Golden Fleece Prospect Service Station., Western Hghwy., Prospect	10857	1967	Road Match	0m
	MOTOR GARAGES & ENGINEERS.	Golden Fleece Prospect Service Station., Western Hghwy., Prospect	60591	1966	Road Match	0m
	Motor Garages & Engineers	Golden Fleece Prospect Service Station, Western Highway. Prospect	123229	1965	Road Match	0m
	Motor Service Stations - Petrol, Oil, Etc.	Honeys Road House & Service Station, Great Western Highway. Blacktown	125464	1965	Road Match	0m
	MOTOR GARAGES & ENGINEERS	Golden Fleece Prospect Service Station., Western Hghwy., Prospect	48512	1964	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Aboud & Godley., Great Western Hghwy., Prospect	38572	1962	Road Match	0m
	MOTOR GARAGES & ENGINEERS.	Golden Fleece Prospect Service Station., Western Hghwy., Prospect	33246	1962	Road Match	0m
	MOTOR GARAGES & ENGINEERS.	Prospect Garage & Service Station., Great Western Rd., Prospect	33247	1962	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Williams & Partridge., Great Western Hghwy., Prospect	38573	1962	Road Match	0m
	MOTOR SERVICE STATIONS—PETROL, OIL, Etc.	Abaud & Godley, Great Western Hghwy., PROSPECT	350287	1961	Road Match	0m
	MOTOR GARAGES & ENGINEERS	Golden Fleece Prospect Service Station, Western Hghwy., PROSPECT	347245	1961	Road Match	0m
	MOTOR GARAGES & ENGINEERS	Prospect Garage & Service Station, Great Western Rd., PROSPECT	347946	1961	Road Match	0m
	MOTOR SERVICE STATIONS—PETROL, OIL, Etc.	Williams & Partridge, Great Western Hghwy., PROSPECT	351293	1961	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL,. OIL, ETC.	Aboud & Godley., Great Western Hghwy., Prospect	24469	1959	Road Match	0m
	MOTOR GARAGES & ENGINEERS.	Golden Fleece Prospect Service Station., Western Hghwy., Prospect	19816	1959	Road Match	0m
	MOTOR GARAGES & ENGINEERS.	Prospect Garage & Service Station., Great Western Rd Prospect	19817	1959	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL,. OIL, ETC.	Williams & Partridge., Great Western Hghwy., Prospect	24470	1959	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL, ETC.	Aboud & Godley., Great Western Hghwy., Prospect	9355	1958	Road Match	0m

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
14	MOTOR GARAGE/ENGINEERS.	Golden Fleece Prospect Service Station., Western Hghwy., Prospect	4179	1958	Road Match	0m
	MOTOR GARAGE/ENGINEERS.	Prospect Garage & Service Station., Great Western Rd Prospect	4790	1958	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL, ETC.	Williams And Partridge., Great Western Hghwy., Prospect	9925	1958	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL, ETC.	Aboud & Godley., Great Western Hghwy., Prospect	61762	1956	Road Match	0m
	MOTOR GARAGES &/OR ENGINEERS.	Prospect Garage & Service Station., Great Western Rd., Prospect	61318	1956	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL, ETC.	Williams And Partridge., Great Western Hghwy., Prospect	116	1956	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL, ETC.	Aboud & Godley., Great Western Hghwy., Prospect	54369	1954	Road Match	0m
	MOTOR GARAGES &/OR ENGINEERS.	Prospect Garage & Service Station., Great Western Rd Prospect	49879	1954	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL, ETC.	Williams And Partridge., Great Western Hghwy., Prospect	54729	1954	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL, ETC.	Aboud & Godley., Great Western Hghwy., Prospect	43991	1953	Road Match	0m
	MOTOR GARAGES &/OR ENGINEERS.	Prospect Garage & Service Station., Great Western Rd., Prospect	40531	1953	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL, ETC.	Williams And Partridge., Great Western Hghwy., Prospect	44257	1953	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL, ETC.	Abaud And Godley., Great Western Hghwy., Prospect	35758	1952	Road Match	0m
	MOTOR GARAGES &/OR ENGINEERS.	Prospect Garage & Service Station., Great Western Rd., Prospect	32107	1952	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL, ETC.	Williams And Partridge., Great Western Hghwy., Prospect	36041	1952	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL, Etc.	Abaud and Godley, Great Western Highway., Prospect	85731	1950	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL, Etc.	Prospect Garage and Service Station (Williams and Partridge)., Great Western Hghwy., Prospect	86304	1950	Road Match	0m
	MOTOR GARAGES &/OR ENGINEERS	Prospect Garage and Service Station, Great Western Rd., Prospect	84237	1950	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL, Etc.	Williams and Partridge, Great Western Highway., Prospect	86531	1950	Road Match	0m
	MOTOR GARAGES &/OR ENGINEERS.	Prospect Garage and Service Station., Great Western Rd Prospect	22759	1948-49	Road Match	0m
15	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Caltex Service Station., Great Western H'way., Pendle Hill 2145	25396	1976	Road Match	0m
	MOTOR SERVICE STATIONS - PETROL, OIL	Caltex Service Station., Great Western H'way., Pendle Hill, 2145	61603	1975	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Caltex Service Station., Great Western Hghwy., Pendle Hill	18045	1972	Road Match	0m
	MOTOR GARAGES & ENGINEERS.	Baiada's Service Station., 689 Great Western Hghwy., Pendle Hill	60559	1966	Road Match	0m
	Motor Garages & Engineers	Baiada's Service Station, 689 Great Western Highway. Pendle Hill	123202	1965	Road Match	0m
	MOTOR GARAGES & ENGINEERS	Baiada's Service Station., 689 Great Western Hghwy., Pendle Hill	48485	1964	Road Match	0m
	MOTOR GARAGES & ENGINEERS.	Baiada's Service Station., 689 Great Western Hghwy., Pendle Hill	33205	1962	Road Match	0m
	MOTOR SERVICE STATIONS—PETROL, OIL, Etc.	Balada, C., Great Western Hghwy., PENDLE HILL	350340	1961	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL,. OIL, ETC.	Baiada C., Great Western Hghwy., Pendle Hill	24459		Road Match	0m
	MOTOR GARAGES & ENGINEERS.	Baiada's Service Station., 689 Great Western Hghwy., Pendle Hill	19780	1959	Road Match	0m
	MOTOR GARAGES & ENGINEERS.	Baiada's Service Station., 689 Great Western Hghwy., Pendle Hill	19781	1959	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL, ETC.	Baiada C., Great Western Hghwy., Pendle Hill	9381	1958	Road Match	0m

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
15	MOTOR GARAGE/ENGINEERS.	Baiada. C., 689 Great Western Hwy Pendle Hill	581	1958	Road Match	0m
	MOTOR GARAGES &/OR ENGINEERS.	Roberts Garage., Western Rd Pendle Hill	61395	1956	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL, ETC.	Mclean W. H., 537 Great Western Hghwy., Wentworthville	54565	1954	Road Match	0m
	MOTOR GARAGES &/OR ENGINEERS.	Roberts Garage., Western Rd Pendle Hill	54013	1954	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL, ETC.	Mclean W. H., 537 Great Western Hghwy., Wentworthville	44135	1953	Road Match	0m
	MOTOR GARAGES &/OR ENGINEERS.	Roberts Garage., Western Rd Pendle Hill	40596	1953	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL, ETC.	Mclean W. H., 537 Great Western Hghwy., Wentworthville	35910	1952	Road Match	0m
	MOTOR GARAGES &/OR ENGINEERS.	Roberts Garage., Western Rd Pendle Hill	32166	1952	Road Match	0m
	MOTOR GARAGES &/OR ENGINEERS	Roberts Garage, Western Rd., Pendle Hill	84296	1950	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL, Etc.	Roberts Garage, Western Rd., Pendle Hill	86347	1950	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL, ETC.	Roberts Garage, Western Rd., Pendle Hill	26743	1948-49	Road Match	0m
	MOTOR GARAGES &/OR ENGINEERS.	Roberts Garage., Western Rd., Pendle Hill	22807	1948-49	Road Match	0m
16	MOTOR GARAGES & SERVICE STATIONS.	BP Fox Hills Service Station, Gilba Rd., Girraween. 2145	18644	1993	Road Match	463m
	Motor Garages & Service Stations	BP Fox Hills Service Station, Gilba Rd, Girraween 2145	66553	1991	Road Match	463m
	MOTOR GARAGES & SERVICE STATIONS.	BP Fox Hills Service Station, Gilba Rd., Girraween. 2145	6066	1990	Road Match	463m

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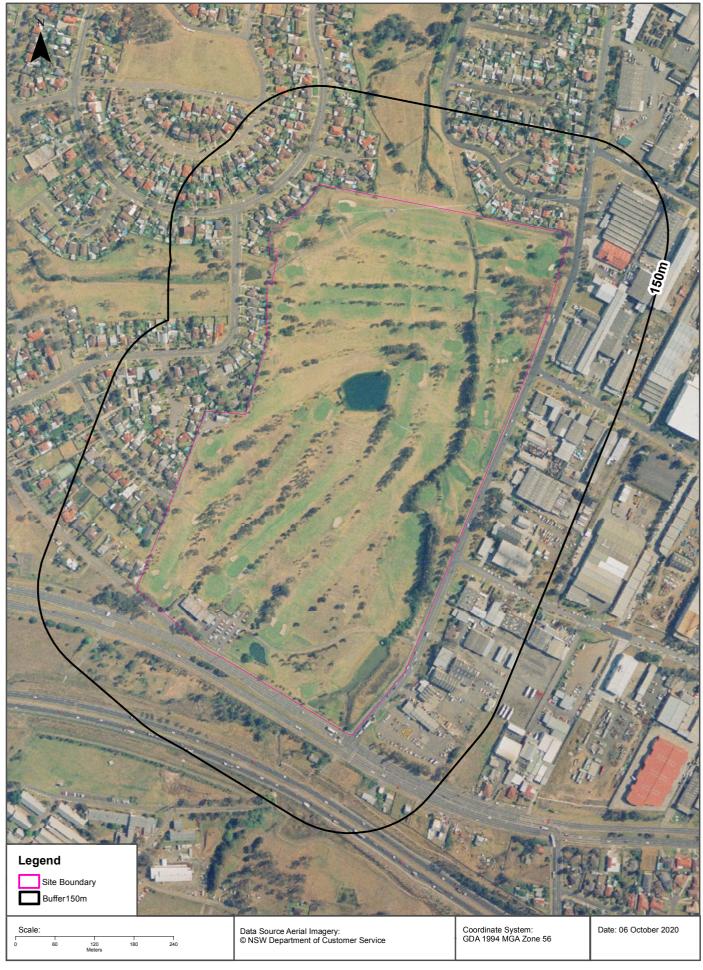








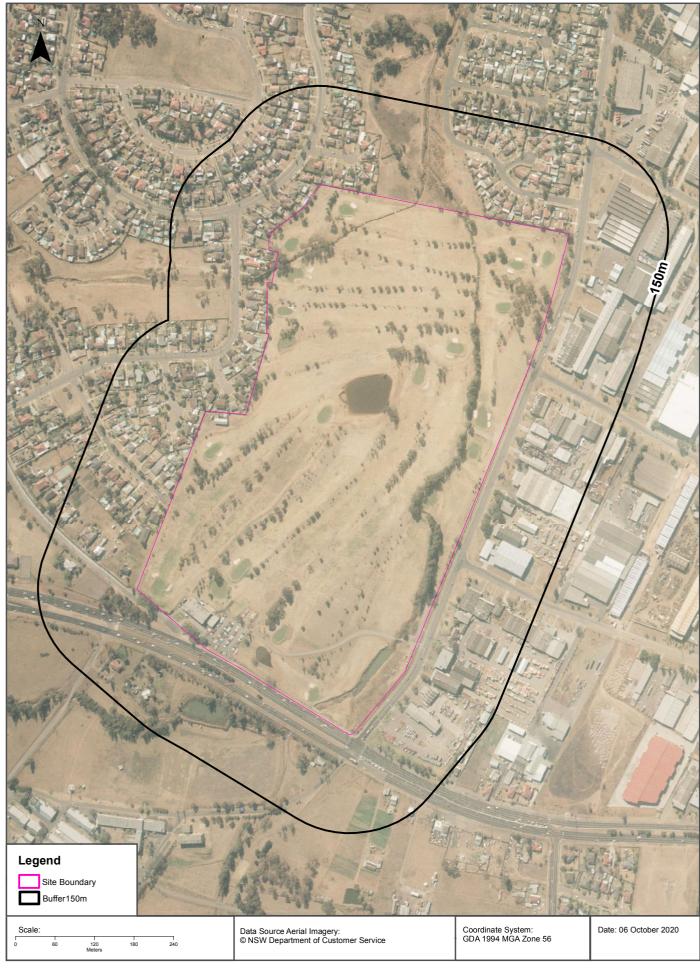




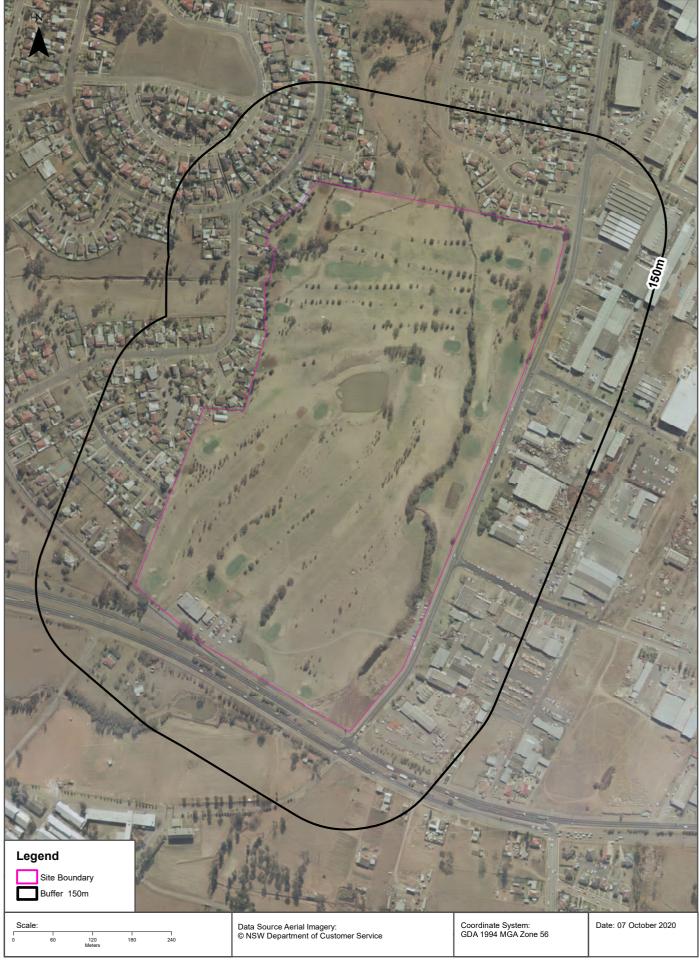




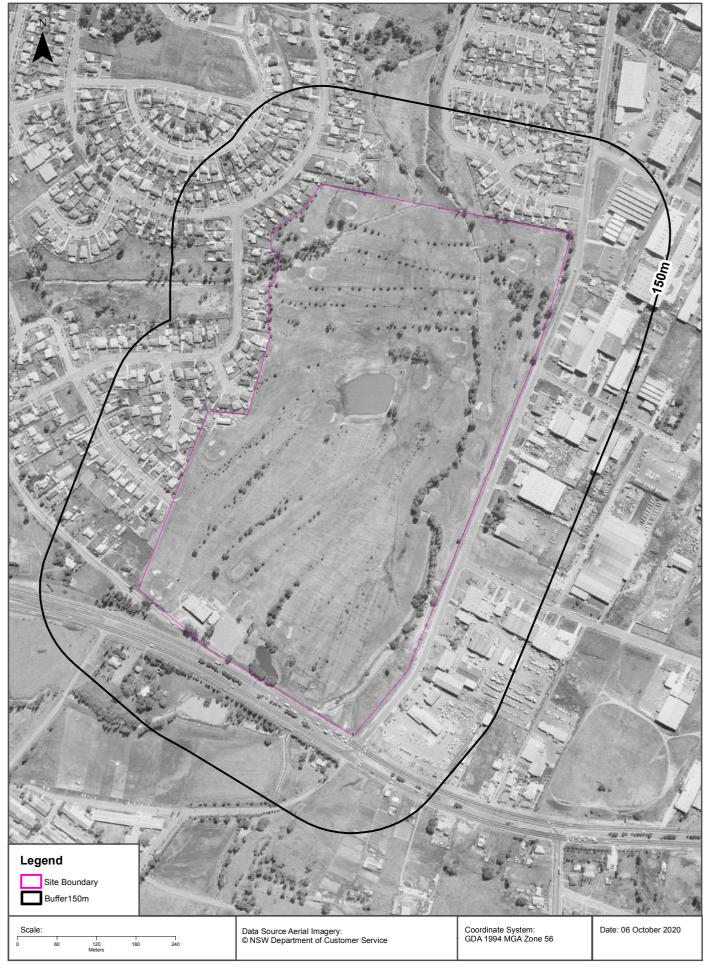










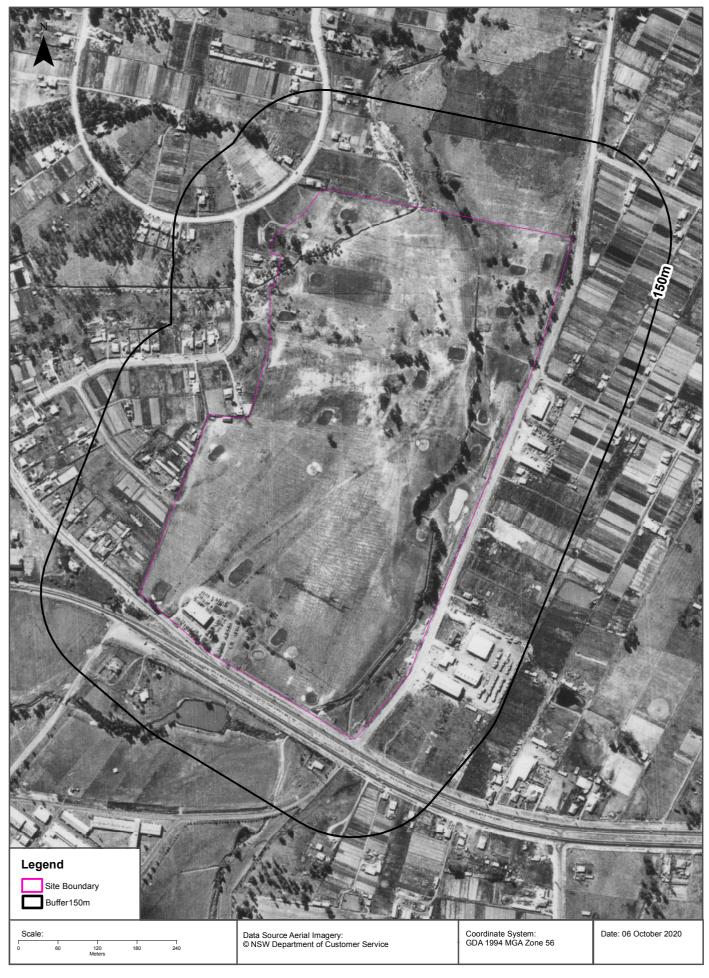


Aerial Imagery 1970
55 Fox Hills Crescent, Prospect, NSW 2148

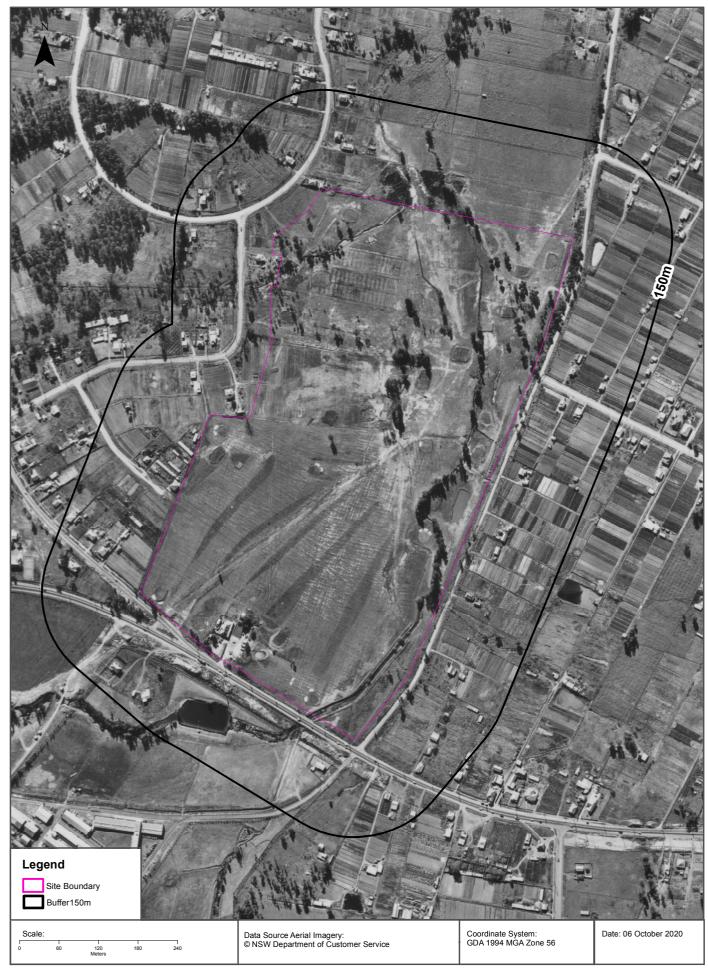




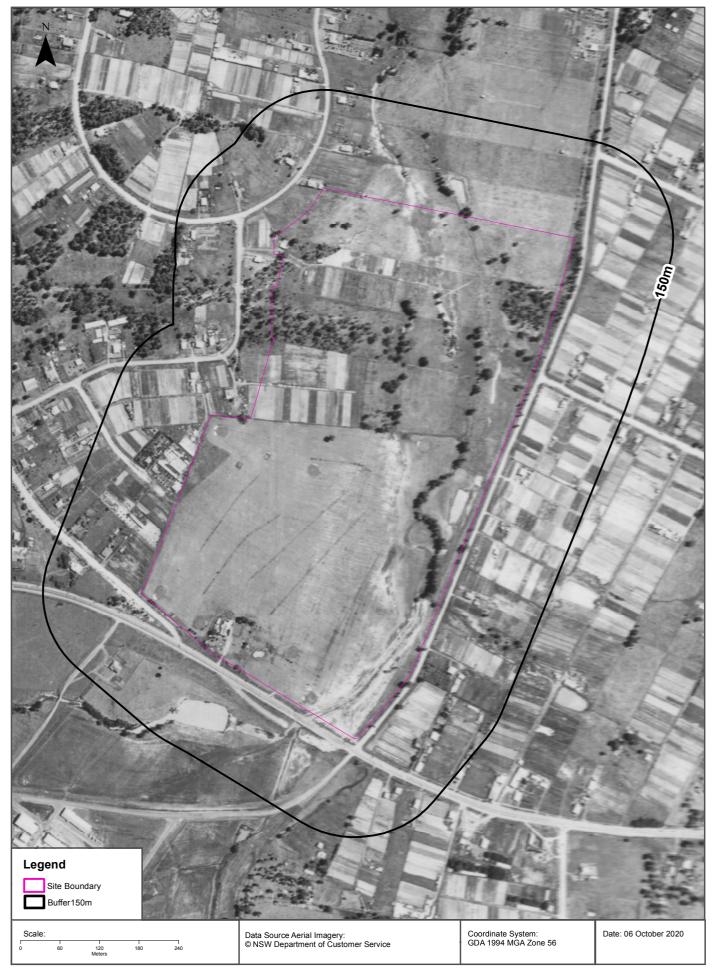
















Aerial Imagery 1943
55 Fox Hills Crescent, Prospect, NSW 2148





217-227 Koala Way, Horsley Park, NSW 2175





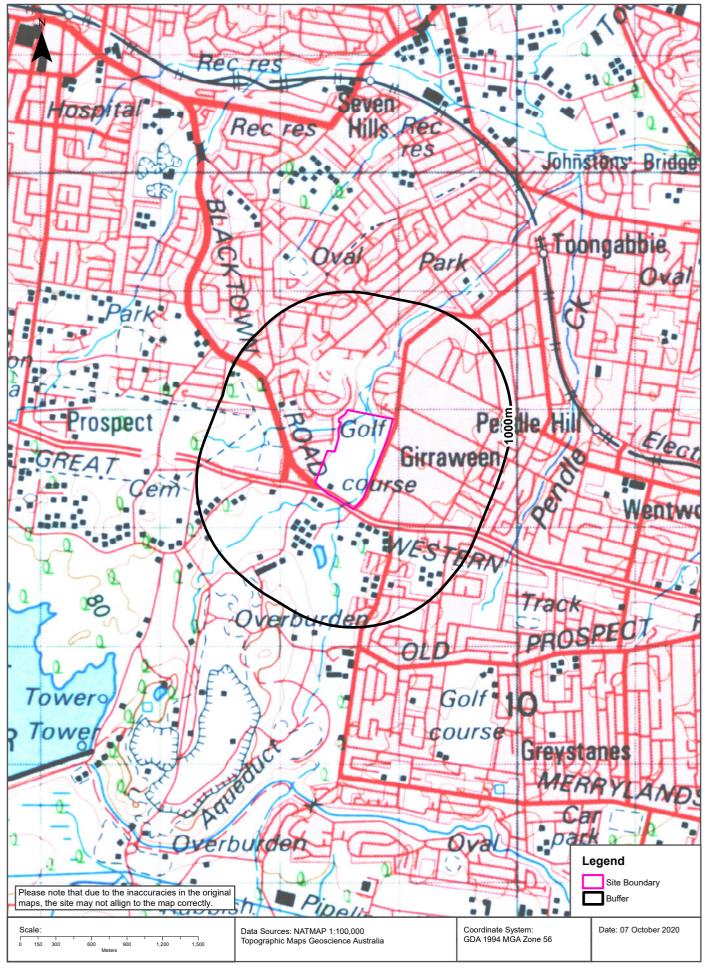
#### **Topographic Map 2015**





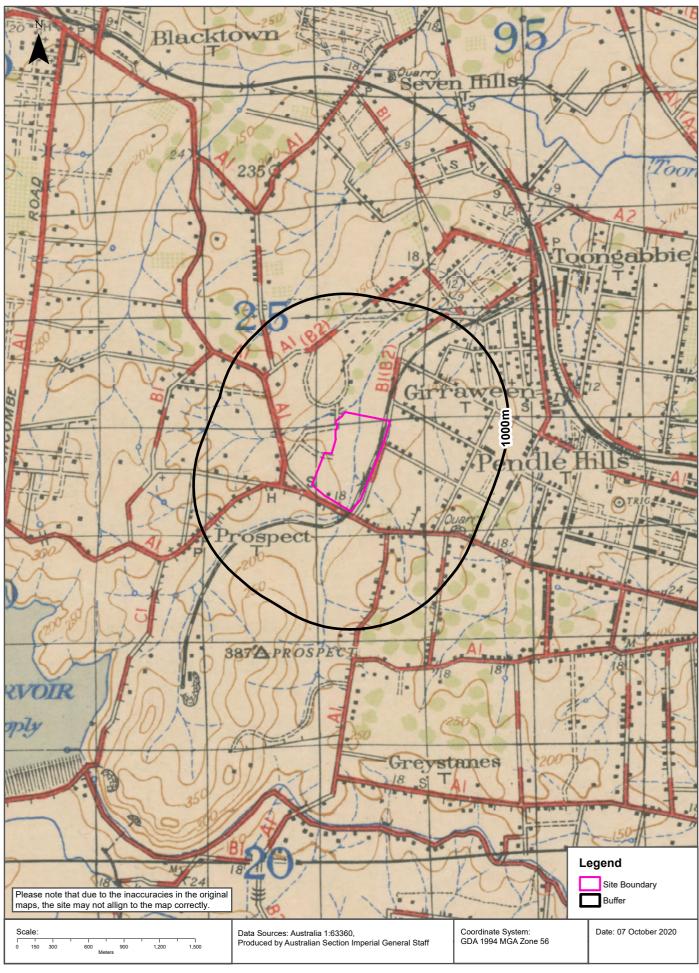
#### **Historical Map 1975**





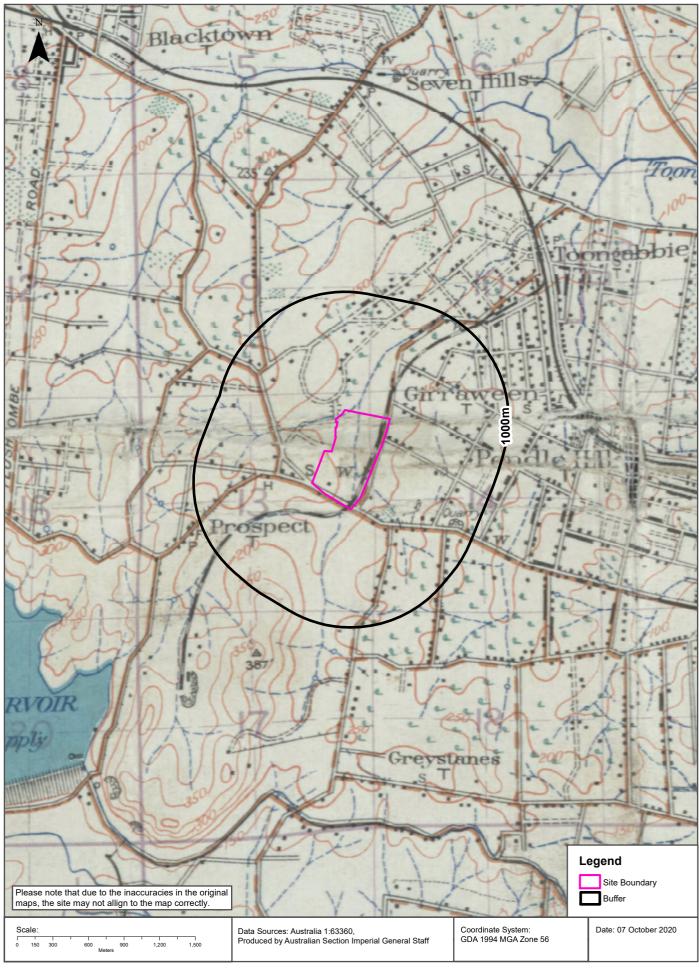
#### **Historical Map c.1942**





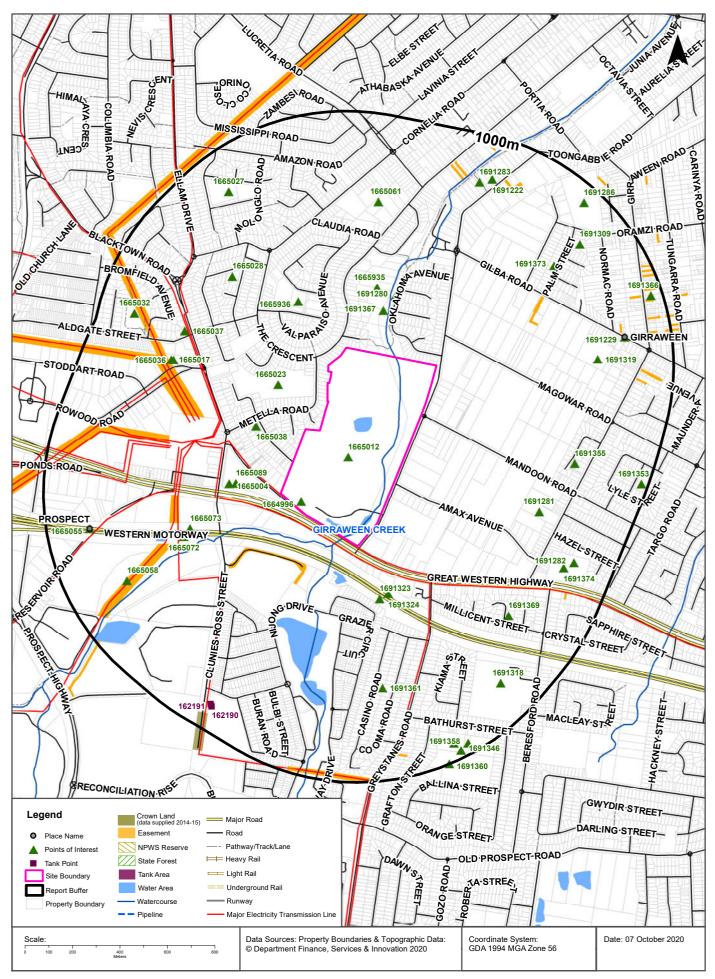
#### **Historical Map c.1929**





#### **Topographic Features**





# **Topographic Features**

55 Fox Hills Crescent, Prospect, NSW 2148

### **Points of Interest**

What Points of Interest exist within the dataset buffer?

Map Id	Feature Type	Label	Distance	Direction
1664996	Club	FOX HILLS GOLF CLUB	0m	Onsite
1665012	Golf Course	FOX HILL GOLF COURSE	0m	Onsite
1691367	Park	GREYSTANES CREEK RESERVE	184m	North
1665089	Combined Primary-Secondary School	EBENEZER CHRISTIAN COLLEGE	194m	West
1665038	Park	PARRAWEENA PARK	199m	West
1665023	Park	METELLA RESERVE	208m	North West
1665004	Place Of Worship	CHRISTIAN CITY CHURCH	220m	West
1691324	Roadside Emergency Telephone	354	238m	South
1691323	Roadside Emergency Telephone	353	242m	South
1691280	Park	JOHN SILVERTHORNE PARK	256m	North
1665935	Park	OKLAHOMA PARK	273m	North
1665936	Park	VALENCIA PARK	281m	North West
1665073	Roadside Emergency Telephone	356	409m	South West
1665072	Roadside Emergency Telephone	355	447m	South West
1665028	Park	VANCOUVER RESERVE	552m	North West
1691361	Park	COOMA ROAD PARK	609m	South
1691281	Park	HAROLD READ PARK	614m	East
1665037	Park	JAMES WATTS RESERVE	622m	North West
1665036	Park	PETER WINTER PARK	629m	North West
1665061	Primary School	METELLA ROAD PUBLIC SCHOOL	632m	North
1665017	Park	Park	638m	North West
1691373	Park	PALM STREET RESERVE	650m	North East
1691369	Park	HAYWOOD PLACE RESERVE	677m	South East
1691355	Park	MARDI STREET PARK	677m	East
1691319	High School	GIRRAWEEN HIGH SCHOOL	680m	East
1665058	Park	WARMULI RESERVE	745m	South West
1691309	Park	TOOGAGAL RESERVE	792m	North East
1691283	Park	TOONGABBIE ROAD RESERVE	796m	North East
1691374	Sports Field	CRICKET GROUND	798m	South East
1691229	Suburb	GIRRAWEEN	801m	East
1665055	Suburb	PROSPECT	818m	West

Map Id	Feature Type	Label	Distance	Direction
1691222	Place Of Worship	SEVENTH DAY ADVENTIST CHURCH	821m	North East
1665027	Park	SNOWY RESERVE	824m	North West
1691282	Park	PENDLE HILL PARK	830m	South East
1691318	High School	GREYSTANES HIGH SCHOOL	834m	South East
1665032	Park	PROSPECT PARK	845m	North West
1691340	Sports Court	TENNIS COURTS	927m	South
1691286	Park	C V KELLY PARK	928m	North East
1691366	Park	GIRRAWEEN ROAD PARK	950m	North East
1691358	Sports Court	NETBALL COURT	954m	South
1691346	Park	BATHURST STREET PARK	967m	South
1691353	Park	LINLEE STREET PARK	971m	East
1691360	Sports Field	SOCCER FIELD	997m	South

Topographic Data Source: © Land and Property Information (2015)
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#### **Topographic Features**

55 Fox Hills Crescent, Prospect, NSW 2148

#### Tanks (Areas)

What are the Tank Areas located within the dataset buffer?

Note. The large majority of tank features provided by LPI are derived from aerial imagery & are therefore primarily above ground tanks.

Map Id	Tank Type	Status	Name	Feature Currency	Distance	Direction
	No records in buffer					

### **Tanks (Points)**

What are the Tank Points located within the dataset buffer?

Note. The large majority of tank features provided by LPI are derived from aerial imagery & are therefore primarily above ground tanks.

Map Id	Tank Type	Status	Name	Feature Currency	Distance	Direction
162191	Water	Operational		13/07/2018	890m	South West
162190	Water	Operational		13/07/2018	896m	South West

Tanks Data Source: © Land and Property Information (2015)

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### **Major Easements**

What Major Easements exist within the dataset buffer?

Note. Easements provided by LPI are not at the detail of local governments. They are limited to major easements such as Right of Carriageway, Electrical Lines (66kVa etc.), Easement to drain water & Significant subterranean pipelines (gas, water etc.).

Map Id	Easement Class	Easement Type	Easement Width	Distance	Direction
157200548	Primary	Right of way		182m	South West
120115603	Primary	Undefined		420m	North West
120120556	Primary	Undefined		431m	South West
150547441	Primary	Right of way	variable	434m	North East
120119700	Primary	Undefined		520m	West
120115600	Primary	Undefined		674m	North West
120119483	Primary	Undefined		729m	North
161109499	Primary	Right of way	4m & Var.	788m	North East
120114267	Primary	Undefined		793m	North
150080255	Primary	Right of way		801m	North East
150080256	Primary	Right of way		803m	North East
120107722	Primary	Undefined		806m	West

Map Id	Easement Class	Easement Type	Easement Width	Distance	Direction
120118089	Primary	Undefined		808m	North
152427466	Primary	Right of way	4	845m	South East
171481973	Primary	Right of way	4 wide & variab	845m	East
179428303	Primary	Right of way	VAR	863m	East
167104964	Primary	Right of way	4.5 WIDE	864m	North East
172371884	Primary	Right of way	Var	895m	South
120114625	Primary	Undefined		909m	East
150166861	Primary	Right of way		909m	East
171181637	Primary	Right of way	4 wide and vari	913m	North East
120121868	Primary	Undefined		923m	North East
168762246	Primary	Right of way	4m & Variable	932m	North East
120119497	Primary	Undefined		939m	North West
120114175	Primary	Undefined		940m	North East
155856671	Primary	Right of way	4	948m	North East
179541260	Primary	Right of way	4M & VAR	954m	North East
174576842	Primary	Right of way		960m	North East
152497591	Primary	Electricity	18m	965m	South
163546862	Primary	Right of way	4 & VAR	976m	East
150294670	Primary	Right of way	4 and var.	986m	South West
175882657	Primary	Right of way	Variable	988m	East

Easements Data Source: © Land and Property Information (2015)
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### **Topographic Features**

55 Fox Hills Crescent, Prospect, NSW 2148

#### **State Forest**

What State Forest exist within the dataset buffer?

State Forest Number	State Forest Name	Distance	Direction
N/A	No records in buffer		

State Forest Data Source: © NSW Department of Finance, Services & Innovation (2018) Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

#### **National Parks and Wildlife Service Reserves**

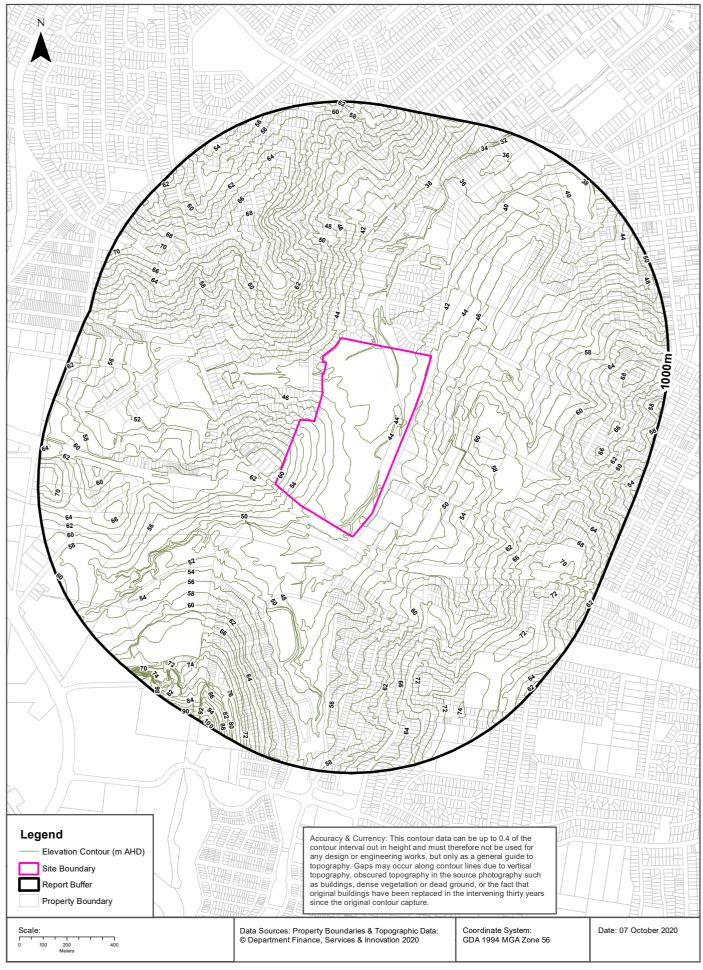
What NPWS Reserves exist within the dataset buffer?

1	Reserve Number	Reserve Type	Reserve Name	<b>Gazetted Date</b>	Distance	Direction
1	N/A	No records in buffer				

NPWS Data Source: © NSW Department of Finance, Services & Innovation (2018) Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

#### **Elevation Contours (m AHD)**





### **Hydrogeology & Groundwater**

55 Fox Hills Crescent, Prospect, NSW 2148

### Hydrogeology

Description of aquifers on-site:

Description	
Porous, extensive aquifers of low to moderate productivity	

Description of aquifers within the dataset buffer:

Description	
Porous, extensive aquifers of low to moderate productivity	

Hydrogeology Map of Australia : Commonwealth of Australia (Geoscience Australia)
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#### **Botany Groundwater Management Zones**

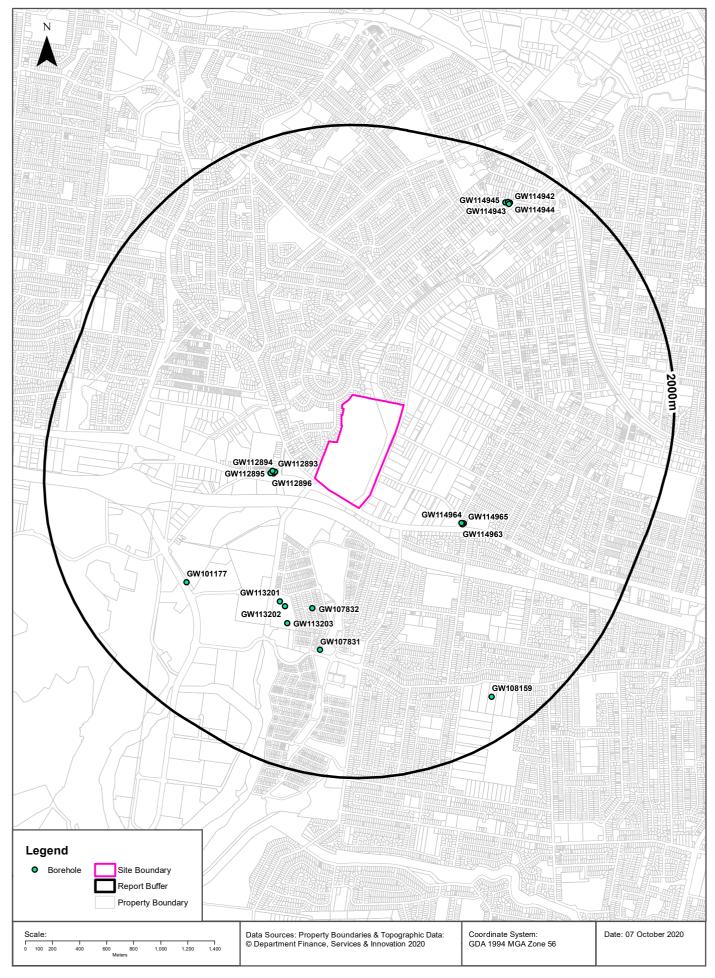
Groundwater management zones relating to the Botany Sand Beds aquifer within the dataset buffer:

Management Zone No.	Restriction	Distance	Direction
N/A	No records in buffer		

 ${\bf Botany\ Groundwater\ Management\ Zones\ Data\ Source: NSW\ Department\ of\ Primary\ Industries}$ 

#### **Groundwater Boreholes**





# **Hydrogeology & Groundwater**

55 Fox Hills Crescent, Prospect, NSW 2148

#### **Groundwater Boreholes**

Boreholes within the dataset buffer:

GW No.	Licence No	Work Type	Owner Type	Authorised Purpose	Intended Purpose	Name	Complete Date	Final Depth (m)	Drilled Depth (m)	Salinity (mg/L)	SWL (m bgl)		Elev (AHD)	Dist	Dir
GW112 893	10BL602 282	Bore	Private	Monitoring Bore	Monitoring Bore	Caltex	02/04/2007	16.00	16.00					294m	West
GW112 896	10BL602 282	Bore	Private	Monitoring Bore	Monitoring Bore	Caltex	04/04/2007	21.30	21.30					306m	West
GW112 894	10BL602 282	Bore	Private	Monitoring Bore	Monitoring Bore	Caltex	04/04/2007	20.00	20.00					314m	West
GW112 895	10BL602 282	Bore	Private	Monitoring Bore	Monitoring Bore	Caltex	04/04/2007	27.00	27.00					326m	West
GW114 964	10BL605 027			Monitoring Bore	Monitoring Bore		30/11/2011	2.10	2.10					707m	South East
GW114 963	10BL605 027			Monitoring Bore	Monitoring Bore		01/12/2011	12.00	12.00					719m	South East
GW114 965	10BL605 027			Monitoring Bore	Monitoring Bore		01/12/2011	12.00	12.00					723m	South East
GW107 832	10BL165 697	Bore		Monitoring Bore	Monitoring Bore		03/11/2005	4.00	4.00					818m	South
GW113 201	10BL600 583	Bore	Private	Monitoring Bore	Monitoring Bore	Stockland - CSIRO site	27/02/2007	21.30	21.30		13.8 4			894m	South West
GW113 202	10BL600 583	Bore	Private	Monitoring Bore	Monitoring Bore	Stockland - CSIRO site	27/02/2007	21.50	21.50		16.3 0			905m	South West
GW113 203	10BL600 583	Bore	Private	Monitoring Bore	Monitoring Bore	Stockland - CSIRO site	27/02/2007	19.20	19.20		14.9 8			1004m	South
GW107 831	10BL165 697	Bore		Monitoring Bore	Monitoring Bore		03/11/2005	7.40	7.40					1090m	South
GW101 177	10BL158 272, 10BL158 460	Bore	Private	Industrial, Test Bore	Industrial		14/01/1998	150.00	150.00	520	14.0 0	3.400		1221m	South West
GW114 945	10BL604 648			Monitoring Bore	Monitoring Bore		13/05/2011	2.20	2.20					1677m	North East
GW114 944	10BL604 648			Monitoring Bore	Monitoring Bore		13/05/2011	2.00	2.00					1679m	North East
GW114 943	10BL604 648	Bore	Private	Monitoring Bore	Monitoring Bore	7-ELEVEN TOONGAB BIE	20/07/2015	14.70	14.70					1688m	North East
GW114 942	10BL604 648			Monitoring Bore	Monitoring Bore		13/05/2011	20.70	20.70		7.90			1692m	North East
GW108 159	10BL164 883	Bore		Test Bore	Test Bore		23/02/2005	324.00	324.00	10100	66.0 0	1.120		1711m	South East

Borehole Data Source: NSW Department of Primary Industries - Office of Water / Water Administration Ministerial Corporation for all bores prefixed with GW. All other bores © Commonwealth of Australia (Bureau of Meteorology) 2015. Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

# **Hydrogeology & Groundwater**

55 Fox Hills Crescent, Prospect, NSW 2148

### **Driller's Logs**

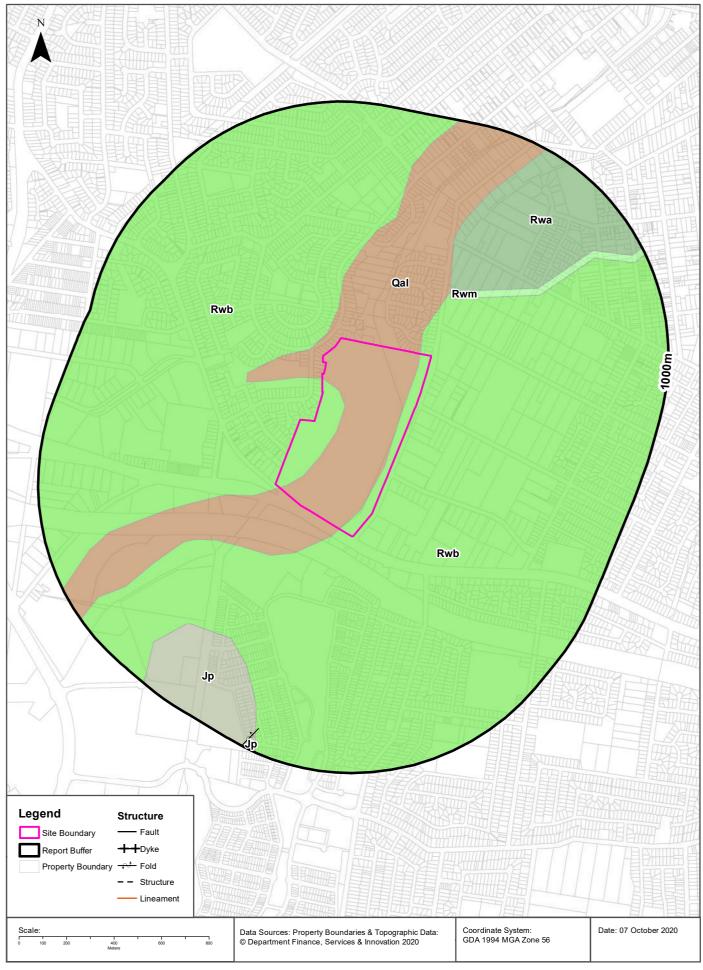
Drill log data relevant to the boreholes within the dataset buffer:

Groundwater No	Drillers Log	Distance	Direction
GW114964	0.00m-0.15m CONCRETE 0.15m-1.30m FILL, CLAYEY SAND,BROWN,MINOR CLAY	707m	South East
GW114963	0.00m-0.15m CONCRETE 0.15m-1.30m FILL, CLAYEY SAND, BROWN ,CLAY 1.30m-5.70m FILL, SAND,BROWN 5.70m-12.00m SHALE WEATHERED.GREY, SOFT TO HARD	719m	South East
GW114965	0.00m-0.15m CONCRETE 0.15m-1.30m FILL, CLAYEY SAND,BROWN, MINOR CLAY 1.30m-5.70m FILL, SAND, BROWN WET 5.70m-12.00m SHALE WEATHERED, GREY,SOFT TO HARD	723m	South East
GW107832	0.00m-0.20m BROWN SOIL 0.20m-1.30m RED BROWN CLAY 1.30m-3.00m BROWN SHALE 3.00m-4.00m GREY SHALE	818m	South
GW107831	0.00m-1.60m FILL BROWN/CLAY 1.60m-2.90m CLAY GRAVEL BROWN 2.90m-4.70m CLAY BROWN 4.70m-6.00m BLACK WEATHERED SHALE 6.00m-7.40m HARD BROWN CLAY	1090m	South
GW101177	0.00m-2.50m Overburden 2.50m-15.00m Weathered sandstone 15.00m-25.00m L/G (light grained) shale 25.00m-30.00m Dark grey shale (water bearing) 30.00m-56.00m D/brown shale 56.00m-60.00m Dark grey shale (water bearing) 60.00m-112.00m sandstone medium grained light grey 112.00m-125.00m white sandstone 125.00m-140.00m sandstone and quartz (water bearing) 140.00m-150.00m dark grey sandstone	1221m	South West
GW114945	0.00m-0.18m CONCRETE 0.18m-0.25m SILTY SANDY CLAY 0.25m-0.70m SILTY CLAY FIRM,MOIST 0.70m-2.20m SILTY CLAY,MINOR SHALE FRAGMENTS	1677m	North East
GW114944	0.00m-0.10m CONCRETE 0.10m-0.40m SILTY SANDY CLAY 0.40m-0.70m SILTY CLAY MINOR SHALE 0.70m-2.00m SILTY CLAY,MINOR SHALE FRAGMENTS	1679m	North East
GW114943	0.00m-0.20m CONCRETE 0.20m-0.50m SILTY SAND FINE GRAINED 0.50m-1.00m SILTY SAND, MINOR CLAY 1.00m-20.70m SILTY CLAY,MINOR WEATHERED SHALE	1688m	North East
GW114942	0.00m-0.20m CONCRETE 0.20m-0.50m SILTY SAND 0.50m-1.00m SILTY SAND MINOR CLAY 1.00m-20.70m SILTY CLAY WITH MINOR WEATHERED SHALE	1692m	North East
GW108159	0.00m-5.00m CLAY/ BROWN SHALE 5.00m-87.00m SHALE 87.00m-145.00m SANDSTONE 145.00m-188.00m SANDSTONE/SHALE 188.00m-231.00m SANDSTONE/SHALE 231.00m-242.00m SANDSTONE/QUARTZITE 242.00m-253.00m SANDSTONE/SHALE 253.00m-259.00m SANDSTONE 259.00m-272.00m SANDSTONE 259.00m-276.00m SANDSTONE/QUARTZITE 272.00m-276.00m SANDSTONE/QUARTZITE 272.00m-276.00m SANDSTONE/SHALE 276.00m-302.00m SANDSTONE/QUARTZITE 302.00m-324.00m SANDSTONE/QUARTZITE	1711m	South East

Drill Log Data Source: NSW Department of Primary Industries - Office of Water / Water Administration Ministerial Corp Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

**Geology 1:100,000** 55 Fox Hills Crescent, Prospect, NSW 2148





## Geology

55 Fox Hills Crescent, Prospect, NSW 2148

### **Geological Units**

What are the Geological Units onsite?

Symbol	Description	Unit Name	Group	Sub Group	Age	Dom Lith	Map Sheet	Dataset
Qal	Fine-grained sand, silt and clay				Quaternary		Penrith	1:100,000
Rwb	Shale, carbonaceous claystone, claystone, laminate, fine to medium- grained lithic sandstone, rare coal and tuff	Bringelly Shale	Wianamatta Group (undifferenti ated)		Middle Triassic		Penrith	1:100,000

What are the Geological Units within the dataset buffer?

Symbol	Description	Unit Name	Group	Sub Group	Age	Dom Lith	Map Sheet	Dataset
Jp	Picrite, dolerite, minor basalt				Jurassic		Penrith	1:100,000
Qal	Fine-grained sand, silt and clay				Quaternary		Penrith	1:100,000
Rwa	Dark-grey to black claystone-siltstone and fine sandstone -siltstone laminate	Ashfield Shale	Wianamatta Group (undifferenti ated)		Middle Triassic		Penrith	1:100,000
Rwb	Shale, carbonaceous claystone, claystone, laminate, fine to medium- grained lithic sandstone, rare coal and tuff	Bringelly Shale	Wianamatta Group (undifferenti ated)		Middle Triassic		Penrith	1:100,000
Rwm	Fine to medium-grained quartz-lithic sandstone	Minchinbury Sandstone	Wianamatta Group (undifferenti ated)		Middle Triassic		Penrith	1:100,000

## **Geological Structures**

What are the Geological Structures onsite?

Feature	Name	Description	Map Sheet	Dataset
No features				1:100,000

What are the Geological Structures within the dataset buffer?

Feature	Name	Description	Map Sheet	Dataset
Fold	Penrith Basin	Fold, position accurate	Penrith	1:100,000

Geological Data Source: NSW Department of Industry, Resources & Energy © State of New South Wales through the NSW Department of Industry, Resources & Energy

# **Naturally Occurring Asbestos Potential**

55 Fox Hills Crescent, Prospect, NSW 2148

### **Naturally Occurring Asbestos Potential**

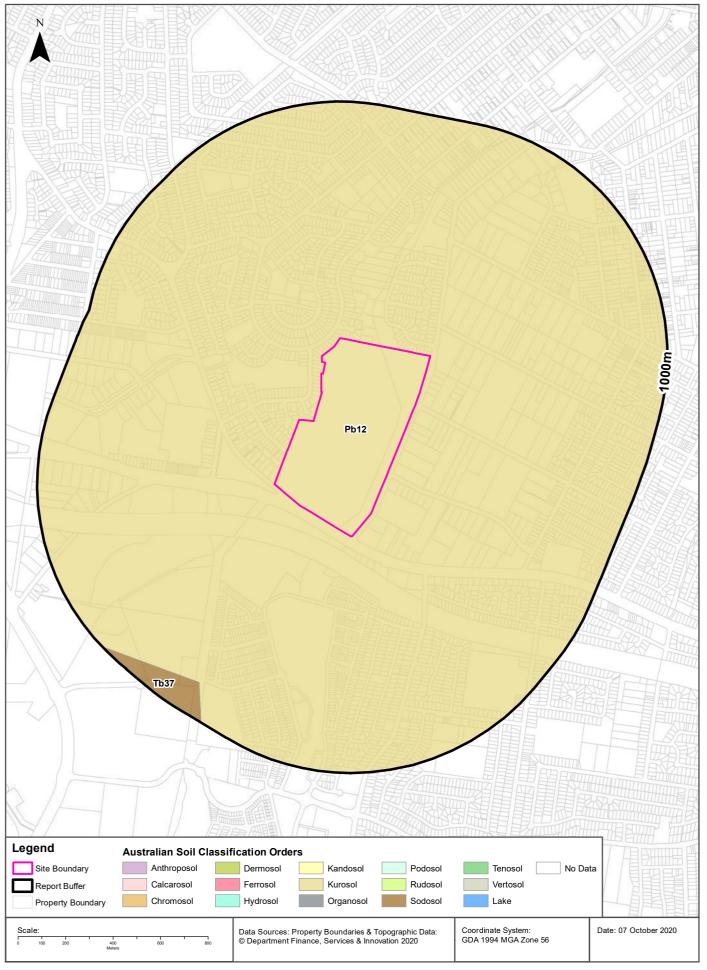
Naturally Occurring Asbestos Potential within the dataset buffer:

Potential	Sym	Strat Name	Group	Formation	Scale	Min Age	Max Age	Rock Type	Dom Lith	Description	Dist	Dir
No records in buffer												

Mining Subsidence District Data Source: © State of New South Wales through NSW Department of Industry, Resources & Energy

#### **Atlas of Australian Soils**





#### Soils

55 Fox Hills Crescent, Prospect, NSW 2148

#### **Atlas of Australian Soils**

Soil mapping units and Australian Soil Classification orders within the dataset buffer:

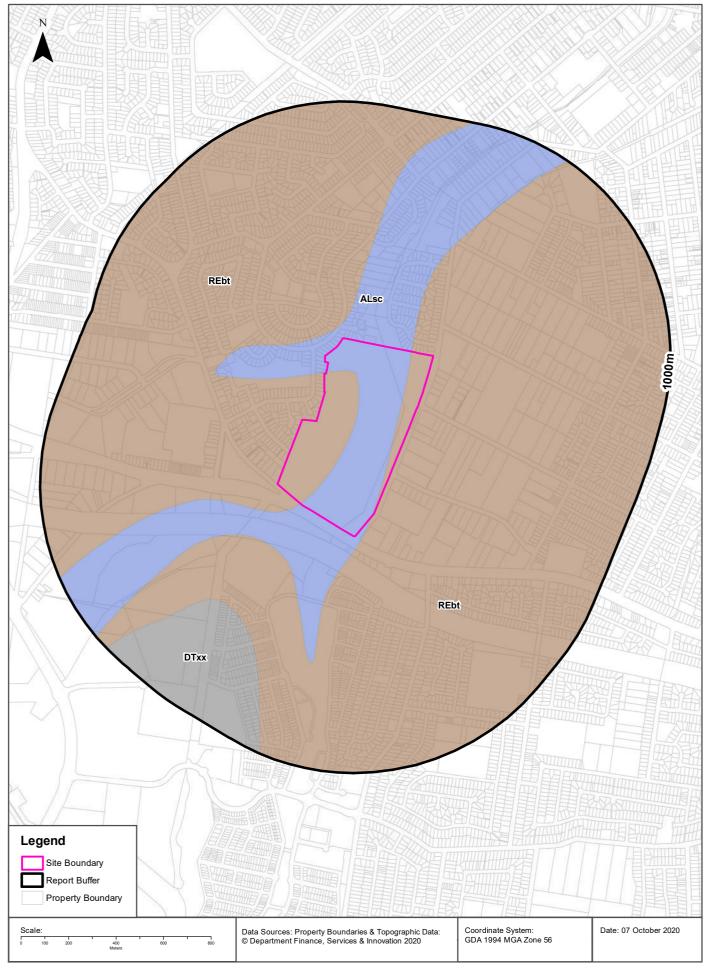
Map Unit Code	Soil Order	Map Unit Description	Distance
Pb12	Kurosol	Gently rolling to rounded hilly country with some steep slopes and broad valleys: chief soils are hard acidic red soils (Dr2.21) with hard neutral and acidic yellow mottled soils (Dy3.42 and Dy3.41) on lower slopes and in valleys. Associated are small areas of various soils including (Gn3.54) on some ridges, (Dr3.31) on some slopes; (Dr2.23) in saddles and some mid-slope positions, and some low- lying swampy areas of (Uf6) soils and (Uc1.2) soils with peaty surfaces. Small areas of other soils such as (Db1.2) are likely throughout.	Om
Tb37	Sodosol	Dome-like hills and their slopes (a complex area of dolerite and shale): chief soils are hard acidic yellow mottled soils (Dy3.41), shale areas; and dark cracking clays (Ug5.1), dolerite areas. These soils are members of two somewhat interlocking slope sequences as follows: (i) on shaleupper slopes of (Dr2.21) passing to mid slopes of (Dy3.41) and lower slopes of (Dy3.42 and Dy3.43); (ii) on dolerite crests of (Db3.12) and similar soils with steep slopes of (Um6) and/or (Uf6) soils and mid and lower slopes of dark cracking clays (Ug5.13, Ug5.14, Ug5.15, Ug5.16). Along the adjoining stream valleys are (Ug5.2), (Dd1.33), and (Dy3.43) soils. Buried soils are recorded from the area.	859m

Atlas of Australian Soils Data Source: CSIRO

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### **Soil Landscapes**





#### Soils

#### 55 Fox Hills Crescent, Prospect, NSW 2148

### **Soil Landscapes**

What are the onsite Soil Landscapes?

Soil Code	Name	Group	Process	Map Sheet	Scale
ALsc	SOUTH CREEK		ALLUVIAL	Penrith	1:100,000
REbt	BLACKTOWN		RESIDUAL	Penrith	1:100,000

#### What are the Soil Landscapes within the dataset buffer?

Soil Code	Name	Group	Process	Map Sheet	Scale
ALsc	SOUTH CREEK		ALLUVIAL	Penrith	1:100,000
DTxx	DISTURBED TERRAIN		DISTURBED TERRAIN	Penrith	1:100,000
REbt	BLACKTOWN		RESIDUAL	Penrith	1:100,000

Soils Landscapes Data Source : NSW Office of Environment and Heritage Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

#### **Acid Sulfate Soils**

55 Fox Hills Crescent, Prospect, NSW 2148

### **Environmental Planning Instrument - Acid Sulfate Soils**

What is the on-site Acid Sulfate Soil Plan Class that presents the largest environmental risk?

Soil Class	Description	EPI Name
N/A		

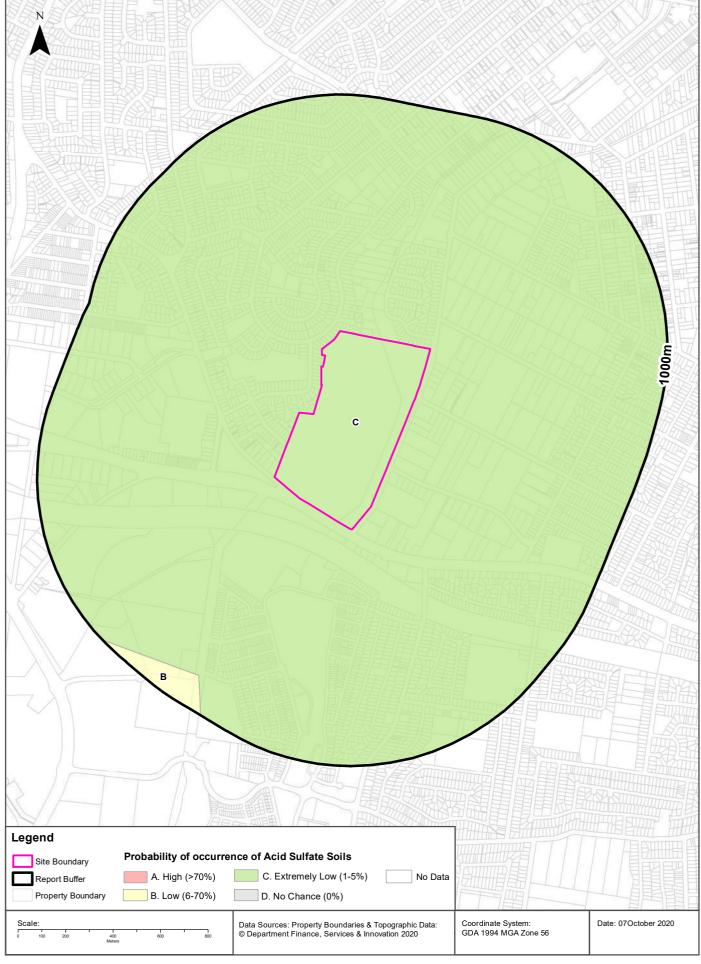
If the on-site Soil Class is 5, what other soil classes exist within 500m?

Soil Class	Description	EPI Name	Distance	Direction
N/A				

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#### **Atlas of Australian Acid Sulfate Soils**





#### **Acid Sulfate Soils**

55 Fox Hills Crescent, Prospect, NSW 2148

#### **Atlas of Australian Acid Sulfate Soils**

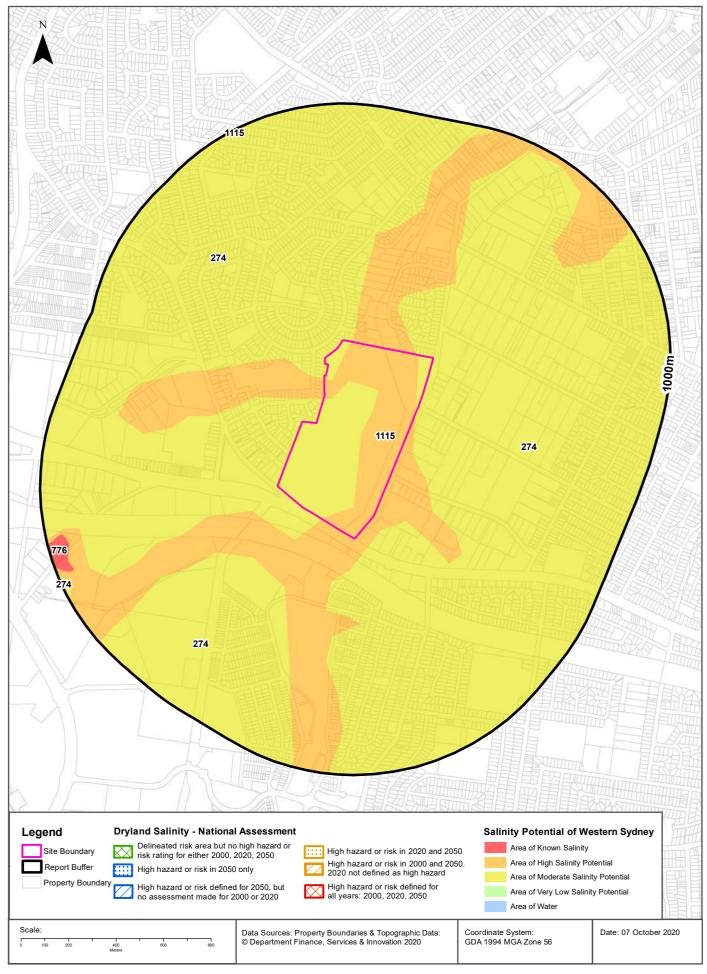
Atlas of Australian Acid Sulfate Soil categories within the dataset buffer:

Class	Description	Distance
С	Extremely low probability of occurrence. 1-5% chance of occurrence with occurrences in small localised areas.	0m
В	Low Probability of occurrence. 6-70% chance of occurrence.	860m

Atlas of Australian Acid Sulfate Soils Data Source: CSIRO Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

#### **Dryland Salinity**





#### **Dryland Salinity**

55 Fox Hills Crescent, Prospect, NSW 2148

#### **Dryland Salinity - National Assessment**

Is there Dryland Salinity - National Assessment data onsite?

No

Is there Dryland Salinity - National Assessment data within the dataset buffer?

No

What Dryland Salinity assessments are given?

Assessment 2000	Assessment 2020	Assessment 2050	Distance	Direction
N/A	N/A	N/A	N/A	N/A

Dryland Salinity Data Source: National Land and Water Resources Audit

The Commonwealth and all suppliers of source data used to derive the maps of "Australia, Forecast Areas Containing Land of High Hazard or Risk of Dryland Salinity from 2000 to 2050" do not warrant the accuracy or completeness of information in this product. Any person using or relying upon such information does so on the basis that the Commonwealth and data suppliers shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information. Any persons using this information do so at their own risk.

In many cases where a high risk is indicated, less than 100% of the area will have a high hazard or risk.

### **Dryland Salinity Potential of Western Sydney**

Dryland Salinity Potential of Western Sydney within the dataset buffer?

Feature Id	Classification	Description	Distance	Direction
274	MODERATE	Area of Moderate Salinity Potential	0m	Onsite
1115	HIGH	Area of High Salinity Potential	0m	Onsite
776	SALT	Area of Known Salinity	913m	West

Dryland Salinity Potential of Western Sydney Data Source: NSW Office of Environment and Heritage Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

# **Mining**

55 Fox Hills Crescent, Prospect, NSW 2148

### **Mining Subsidence Districts**

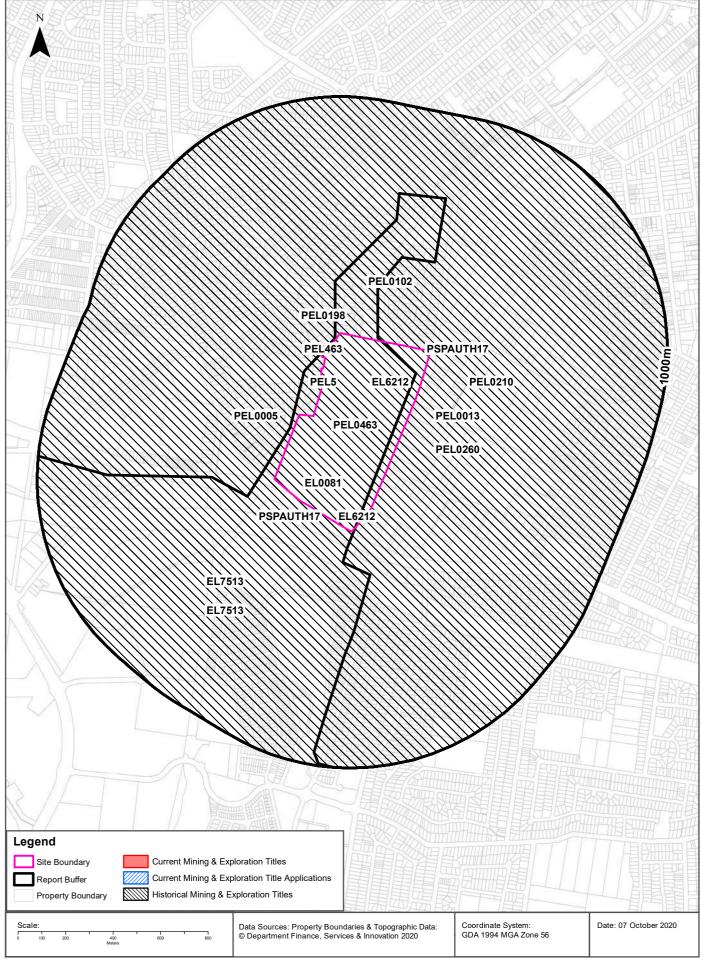
Mining Subsidence Districts within the dataset buffer:

District	Distance	Direction
There are no Mining Subsidence Districts within the report buffer		

Mining Subsidence District Data Source: © Land and Property Information (2016)
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#### **Mining & Exploration Titles**





### **Mining**

55 Fox Hills Crescent, Prospect, NSW 2148

#### **Current Mining & Exploration Titles**

Current Mining & Exploration Titles within the dataset buffer:

Title Ref	Holder	<b>Grant Date</b>	Expiry Date	Last Renewed	Operation	Resource	Minerals	Dist (m)	Dir'
N/A	No Records in Buffer								

Current Mining & Exploration Titles Data Source: © State of New South Wales through NSW Department of Industry

#### **Current Mining & Exploration Title Applications**

Current Mining & Exploration Title Applications within the dataset buffer:

Application Ref	n Applicant	Application Date	Operation	Resource	Minerals	Dist (m)	Dir'
N/A	No Records in Buffer						

Current Mining & Exploration Title Applications Data Source: © State of New South Wales through NSW Department of Industry

# **Mining**

55 Fox Hills Crescent, Prospect, NSW 2148

### **Historical Mining & Exploration Titles**

Historical Mining & Exploration Titles within the dataset buffer:

Title Ref	Holder	Start Date	End Date	Resource	Minerals	Dist (m)	Dir'
EL0081	CONTINENTAL OIL CO OF AUSTRALIA LIMITED	01 Feb 1967	01 Feb 1968	MINERALS		0m	Onsite
EL6212	HOT ROCK ENERGY PTY LTD,LONGREACH OIL LIMITED			MINERALS		0m	Onsite
EL6212	HOT ROCK ENERGY PTY LTD,LONGREACH OIL LIMITED	4 Mar 2004	3 Mar 2013	MINERALS	Geothermal	0m	Onsite
PEL0005	AGL UPSTREAM INVESTMENTS PTY LIMITED	11/11/1993	4/03/2015	PETROLEUM	Petroleum	0m	Onsite
PEL0013	AUSTRALIAN OIL AND GAS CORPORATION LTD			PETROLEUM	Petroleum	0m	Onsite
PEL0102	AUSTRALIAN OIL AND GAS CORPORATION LTD			PETROLEUM	Petroleum	0m	Onsite
PEL0198	JOHN STREVENS (TERRIGAL) NL			PETROLEUM	Petroleum	0m	Onsite
PEL0210	THE AUSTRALIAN GAS LIGHT COMPANY (AGL), NORTH BULLI COLLIERIES PTY LTD			PETROLEUM	Petroleum	0m	Onsite
PEL0260	NORTH BULLI COLLIERIES PTY LTD, AGL PETROLEUM OPERATIONS PTY LTD, THE AUSTRALIAN GAS LIGHT CO.	9/09/1981	8/03/1993	PETROLEUM	Petroleum	0m	Onsite
PEL0463	DART ENERGY (APOLLO) PTY LTD	22/10/2008	6/03/2015	PETROLEUM	Petroleum	0m	Onsite
PEL463	DART ENERGY (APOLLO) PTY LTD			MINERALS		0m	Onsite
PEL5	AGL UPSTREAM INVESTMENTS PTY LIMITED			MINERALS		0m	Onsite
PSPAUTH17	MACQUARIE ENERGY PTY LTD			MINERALS		0m	Onsite
PSPAUTH17	MACQUARIE ENERGY PTY LTD	8/03/2007	7/03/2008	PETROLEUM	Petroleum	0m	Onsite
EL7513	GRADIENT ENERGY LIMITED			MINERALS		0m	Onsite
EL7513	GRADIENT ENERGY LIMITED	7 Apr 2010	15 Apr 2011	MINERALS	Geothermal	0m	Onsite

 $Historical\ Mining\ \&\ Exploration\ Titles\ Data\ Source:\ \textcircled{@}\ State\ of\ New\ South\ Wales\ through\ NSW\ Department\ of\ Industry$ 

# **State Environmental Planning Policy**

55 Fox Hills Crescent, Prospect, NSW 2148

#### **State Significant Precincts**

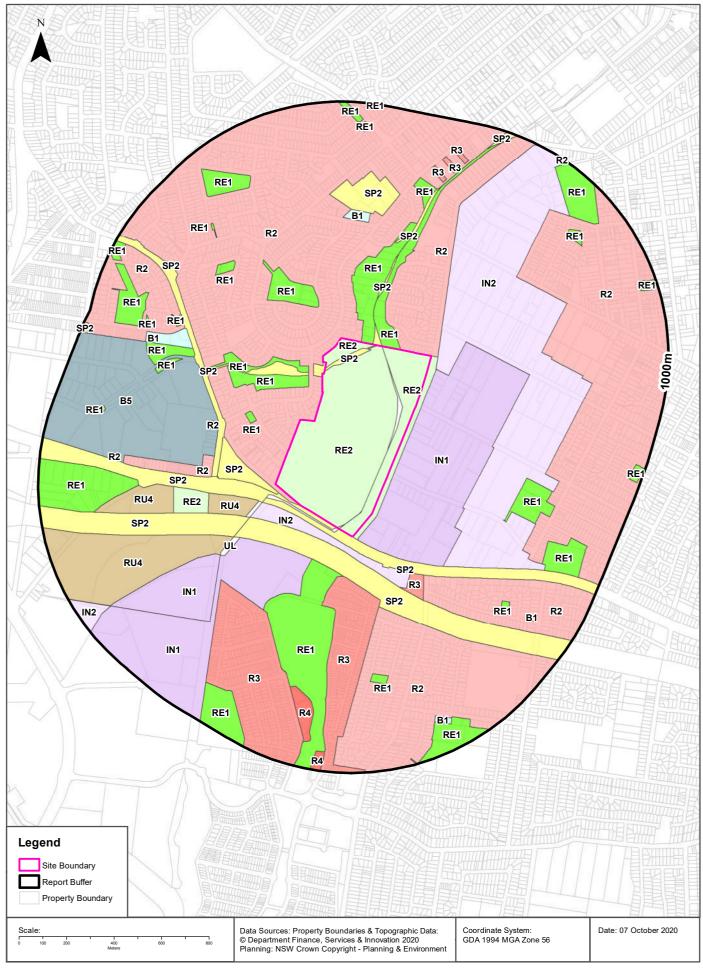
What SEPP State Significant Precincts exist within the dataset buffer?

Map Id	Precinct	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
N/A	No Records in Buffer							

State Environment Planning Policy Data Source: NSW Crown Copyright - Planning & Environment Creative Commons 4.0 © Commonwealth of Australia https://creativecommons.org/licenses/by/4.0/

### **EPI Planning Zones**





# **Environmental Planning Instrument**

55 Fox Hills Crescent, Prospect, NSW 2148

# **Land Zoning**

What EPI Land Zones exist within the dataset buffer?

Zone	Description	Purpose	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
RE2	Private Recreation		Blacktown Local Environmental Plan 2015	26/05/2015	07/07/2015	14/08/2020		0m	Onsite
RE2	Private Recreation		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		0m	Onsite
SP2	Infrastructure	Drainage	Blacktown Local Environmental Plan 2015	26/05/2015	07/07/2015	14/08/2020		0m	Onsite
R2	Low Density Residential		Blacktown Local Environmental Plan 2015	26/05/2015	07/07/2015	14/08/2020		0m	North
R2	Low Density Residential		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		0m	North East
RE1	Public Recreation		Blacktown Local Environmental Plan 2015	26/05/2015	07/07/2015	14/08/2020		0m	North
RE1	Public Recreation		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		0m	North
SP2	Infrastructure	Classified Road	Blacktown Local Environmental Plan 2015	26/05/2015	07/07/2015	14/08/2020		0m	West
SP2	Infrastructure	Classified Road	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		0m	South East
IN1	General Industrial		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		20m	East
SP2	Infrastructure	Educational Establishment & Place of Worship	Blacktown Local Environmental Plan 2015	26/05/2015	07/07/2015	14/08/2020		20m	West
IN2	Light Industrial		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		26m	North East
IN2	Light Industrial		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		45m	South
RE1	Public Recreation		Blacktown Local Environmental Plan 2015	26/05/2015	07/07/2015	14/08/2020		58m	North West
SP2	Infrastructure	Drainage	Blacktown Local Environmental Plan 2015	26/05/2015	07/07/2015	14/08/2020		58m	North West
SP2	Infrastructure	Classified Road	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		72m	South East
RU4	Primary Production Small Lots		Blacktown Local Environmental Plan 2015	26/05/2015	07/07/2015	14/08/2020		100m	South West
RE1	Public Recreation		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		162m	South
RE1	Public Recreation		Blacktown Local Environmental Plan 2015	26/05/2015	07/07/2015	14/08/2020		166m	North West
IN1	General Industrial		State Environmental Planning Policy (Western Sydney Employment Area) 2009	08/11/2013	08/11/2013	11/06/2020	Blacktown Local Environmental Plan Amendment (Western Sydney Employment Area) 2013	169m	South West
R3	Medium Density Residential		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		172m	South
RE1	Public Recreation		Blacktown Local Environmental Plan 2015	26/05/2015	07/07/2015	14/08/2020		173m	West
SP2	Infrastructure	Drainage	Blacktown Local Environmental Plan 2015	26/05/2015	07/07/2015	14/08/2020		190m	North
SP2	Infrastructure	Local Road	Blacktown Local Environmental Plan 2015	26/05/2015	07/07/2015	14/08/2020		241m	North West

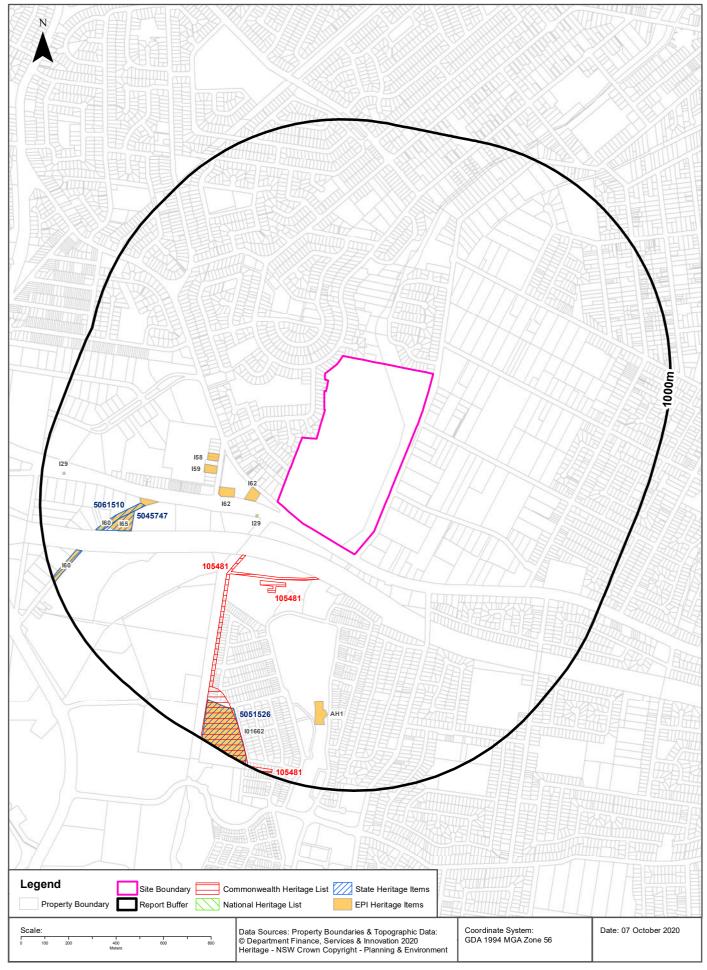
Zone	Description	Purpose	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
UL	Unzoned Land		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		268m	South West
R2	Low Density Residential		Blacktown Local Environmental Plan 2015	26/05/2015	07/07/2015	14/08/2020		272m	West
R3	Medium Density Residential		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		282m	South
RE2	Private Recreation		Blacktown Local Environmental Plan 2015	26/05/2015	07/07/2015	14/08/2020		283m	South West
RU4	Primary Production Small Lots		Blacktown Local Environmental Plan 2015	26/05/2015	07/07/2015	14/08/2020		283m	South West
B5	Business Development		Blacktown Local Environmental Plan 2015	26/05/2015	07/07/2015	14/08/2020		284m	West
R2	Low Density Residential		Blacktown Local Environmental Plan 2015	26/05/2015	07/07/2015	14/08/2020		309m	West
R2	Low Density Residential		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		315m	South East
R2	Low Density Residential		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		329m	South East
IN1	General Industrial		State Environmental Planning Policy (Western Sydney Employment Area) 2009	08/11/2013	08/11/2013	11/06/2020	Blacktown Local Environmental Plan Amendment (Western Sydney Employment Area) 2013	379m	South West
RU4	Primary Production Small Lots		Blacktown Local Environmental Plan 2015	26/05/2015	07/07/2015	14/08/2020		431m	West
SP2	Infrastructure	Drainage	Blacktown Local Environmental Plan 2015	26/05/2015	07/07/2015	14/08/2020		438m	North
R3	Medium Density Residential		Holroyd Local Environmental Plan 2013	15/09/2017	15/09/2017	14/08/2020	Amendment No 12	450m	South
R2	Low Density Residential		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		463m	East
B1	Neighbourhood Centre		Blacktown Local Environmental Plan 2015	26/05/2015	07/07/2015	14/08/2020		503m	North
RE1	Public Recreation		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		519m	East
RE1	Public Recreation		Blacktown Local Environmental Plan 2015	26/05/2015	07/07/2015	14/08/2020		522m	North West
RE1	Public Recreation		Blacktown Local Environmental Plan 2015	26/05/2015	07/07/2015	14/08/2020		525m	North West
SP2	Infrastructure	Educational Establishment	Blacktown Local Environmental Plan 2015	26/05/2015	07/07/2015	14/08/2020		541m	North
B1	Neighbourhood Centre		Blacktown Local Environmental Plan 2015	26/05/2015	07/07/2015	14/08/2020		544m	North West
RE1	Public Recreation		Blacktown Local Environmental Plan 2015	26/05/2015	07/07/2015	14/08/2020		558m	West
RE1	Public Recreation		Blacktown Local Environmental Plan 2015	26/05/2015	07/07/2015	14/08/2020		577m	West
RE1	Public Recreation		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		586m	South
R2	Low Density Residential		Blacktown Local Environmental Plan 2015	26/05/2015	07/07/2015	14/08/2020		593m	North West
RE1	Public Recreation		Blacktown Local Environmental Plan 2015	26/05/2015	07/07/2015	14/08/2020		601m	North
RE1	Public Recreation		Blacktown Local Environmental Plan 2015	26/05/2015	07/07/2015	14/08/2020		604m	North West
RE1	Public Recreation		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		659m	South East
R2	Low Density Residential		Blacktown Local Environmental Plan 2015	26/05/2015	07/07/2015	14/08/2020		668m	West
RE1	Public Recreation		Blacktown Local Environmental Plan 2015	26/05/2015	07/07/2015	14/08/2020		672m	North West
R4	High Density Residential		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		676m	South
RE1	Public Recreation		Blacktown Local Environmental Plan 2015	26/05/2015	07/07/2015	14/08/2020		728m	North West

Zone	Description	Purpose	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
R3	Medium Density Residential		Blacktown Local Environmental Plan 2015	26/05/2015	07/07/2015	14/08/2020		729m	North
RE1	Public Recreation		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		729m	South East
RE1	Public Recreation		Blacktown Local Environmental Plan 2015	26/05/2015	07/07/2015	14/08/2020		746m	North West
RE1	Public Recreation		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		764m	North East
RE1	Public Recreation		Blacktown Local Environmental Plan 2015	26/05/2015	07/07/2015	14/08/2020		776m	North West
R3	Medium Density Residential		Blacktown Local Environmental Plan 2015	26/05/2015	07/07/2015	14/08/2020		777m	North
RE1	Public Recreation		Blacktown Local Environmental Plan 2015	26/05/2015	07/07/2015	14/08/2020		783m	West
B1	Neighbourhood Centre		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		785m	South East
RE1	Public Recreation		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		822m	South West
R3	Medium Density Residential		Blacktown Local Environmental Plan 2015	26/05/2015	07/07/2015	14/08/2020		824m	North
RE1	Public Recreation		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		831m	North East
B1	Neighbourhood Centre		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		834m	South
RE1	Public Recreation		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		856m	South
IN2	Light Industrial		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		866m	South West
RE1	Public Recreation		Blacktown Local Environmental Plan 2015	26/05/2015	07/07/2015	14/08/2020		880m	North
SP2	Infrastructure	Drainage	Blacktown Local Environmental Plan 2015	26/05/2015	07/07/2015	14/08/2020		898m	North East
R4	High Density Residential		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		915m	South
RE1	Public Recreation		Blacktown Local Environmental Plan 2015	26/05/2015	07/07/2015	14/08/2020		917m	North
RE1	Public Recreation		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		924m	North East
RE1	Public Recreation		Blacktown Local Environmental Plan 2015	26/05/2015	07/07/2015	14/08/2020		939m	North West
RE1	Public Recreation		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		945m	East
SP2	Infrastructure	Drainage	Blacktown Local Environmental Plan 2015	26/05/2015	07/07/2015	14/08/2020		972m	West
RE1	Public Recreation		Blacktown Local Environmental Plan 2015	26/05/2015	07/07/2015	14/08/2020		978m	North

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#### **Heritage Items**





### Heritage

55 Fox Hills Crescent, Prospect, NSW 2148

#### **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
105481	CSIRO Division of Animal Production	Clunies Ross St, Prospect NSW	1/14/015/0006	Historic	Ineligible Place		166m	South West

Heritage Data Source: Australian Government Department of the Environment and Energy - Heritage Branch Creative Commons 3.0 © Commonwealth of Australia https://creativecommons.org/licenses/by/3.0/au/deed.en

#### **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
N/A	No records in buffer							

Heritage Data Source: Australian Government Department of the Environment and Energy - Heritage Branch Creative Commons 3.0 © Commonwealth of Australia https://creativecommons.org/licenses/by/3.0/au/deed.en

### **State Heritage Register - Curtilages**

What are the State Heritage Register Items located within the dataset buffer?

Map Id	Name	Address	LGA	Listing Date	Listing No	Plan No	Distance	Direction
5061510	Former Great Western Road,Prospect	Reservoir Road, Prospect	Blacktown	27/06/2014	01911	2535	557m	West
5045747	Prospect Post Office (former)	23 Tarlington Place Prospect	Blacktown	02/04/1999	01385	2267	604m	West
5051526	Prospect Hill	Clunies Ross Street, Prospect	Holroyd	17/10/2003	01662	1907	822m	South West

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### **Environmental Planning Instrument - Heritage**

What are the EPI Heritage Items located within the dataset buffer?

Map Id	Name	Classification	Significance	EPI Name	Published Date	Commenced Date	Currency Date	Distance	Direction
162	House and original school building	Item - General	Local	Blacktown Local Environmental Plan 2015	07/07/2015	07/07/2015	07/07/2015	80m	South West

Map Id	Name	Classification	Significance	EPI Name	Published Date	Commenced Date	Currency Date	Distance	Direction
129	Seven Milestones	Item - General	Local	Blacktown Local Environmental Plan 2015	07/07/2015	07/07/2015	07/07/2015	98m	South West
162	House and original school building	Item - General	Local	Blacktown Local Environmental Plan 2015	07/07/2015	07/07/2015	07/07/2015	184m	West
159	Electricity substation	Item - General	Local	Blacktown Local Environmental Plan 2015	07/07/2015	07/07/2015	07/07/2015	284m	West
158	Electricity substation	Item - General	Local	Blacktown Local Environmental Plan 2015	07/07/2015	07/07/2015	07/07/2015	295m	West
160	Great Western Highway (former alignment)	Item - General	Local	Blacktown Local Environmental Plan 2015	07/07/2015	07/07/2015	07/07/2015	501m	West
165	Old post office cottage	Item - General	State	Blacktown Local Environmental Plan 2015	07/07/2015	07/07/2015	07/07/2015	604m	West
AH1	Aboriginal scarred tree and Aboriginal flaked stone artefacts	Conservation Area - Aboriginal	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	637m	South
101662	Prospect Hill	Item - General	State	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	822m	South
160	Great Western Highway (former alignment)	Item - General	State	Blacktown Local Environmental Plan 2015	07/07/2015	07/07/2015	07/07/2015	849m	South West
129	Seven Milestones	Item - General	Local	Blacktown Local Environmental Plan 2015	07/07/2015	07/07/2015	07/07/2015	902m	West

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### **Natural Hazards**

55 Fox Hills Crescent, Prospect, NSW 2148

#### **Bush Fire Prone Land**

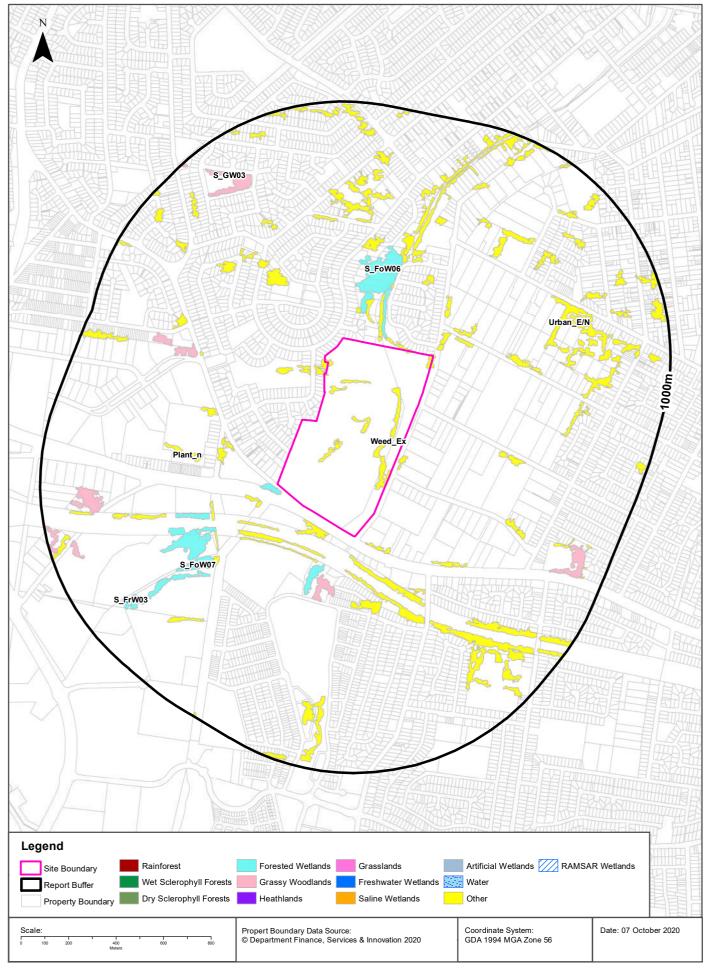
What are the nearest Bush Fire Prone Land Categories that exist within the dataset buffer?

Bush Fire Prone Land Category	Distance	Direction
No records within buffer		

NSW Bush Fire Prone Land - © NSW Rural Fire Service under Creative Commons 4.0 International Licence

### **Ecological Constraints - Native Vegetation & RAMSAR Wetlands**





## **Ecological Constraints**

55 Fox Hills Crescent, Prospect, NSW 2148

### **Native Vegetation**

What native vegetation exists within the dataset buffer?

Map ID	Map Unit Name	Threatened Ecological Community NSW	Threatened Ecological Community EPBC Act	Understorey	Disturbance	Disturbance Index	Dominant Species	Dist	Direction
Urban_E/N	Urban_E/N: Urban Exotic/Native			00: Not assessed	00: Not assessed	0: Not assessed	Urban Exotic/Native	0m	Onsite
Weed_Ex	Weed_Ex: Weeds and Exotics			00: Not assessed	00: Not assessed	0: Not assessed	Constructed drainage channels	0m	Onsite
S_FoW06	S_FoW06: Cumberland Riverflat Forest	River Flat Eucalypt Forest		15: Grassy natives and exotics	31: Parkland open understorey	4: Very high	E.tereticornis/E.a mplifolia/A.floribu nda	12m	South West
S_FoW07	S_FoW07: Cumberland Swamp Oak Riparian Forest	River Flat Eucalypt Forest		15: Grassy natives and exotics	20: Previously cleared 1943	3: High	C.glaucaEucalypt s	32m	North
S_GW03	S_GW03: Cumberland Shale Plains Woodland	Cumberland Plain Woodland	Cumberland Plain Woodland/ Shale Gravel Forest (possible)	13: Dry shrubs and grasses	28: Bare earth	2: Moderate	E.tereticornis/E.m olucannaE.crebra /E.eugeinioides	204m	South
Plant_n	Plant_n: Plantation (native and/or exotic)			00: Not assessed	00: Not assessed	0: Not assessed	Native or Exotic Plantations	335m	West
S_FrW03	S_FrW03: Coastal Freshwater Wetland	Freshwater Wetlands on Coastal Floodplains		18: Swampy sedges, shrubs, ferns and herbs	13: Weeds	3: High	T.orientalis/fresh water sedges	764m	South West

Native Vegetation of the Sydney Metropolitan Area : NSW Office of Environment and Heritage Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

#### **Ramsar Wetlands**

What Ramsar Wetland areas exist within the dataset buffer?

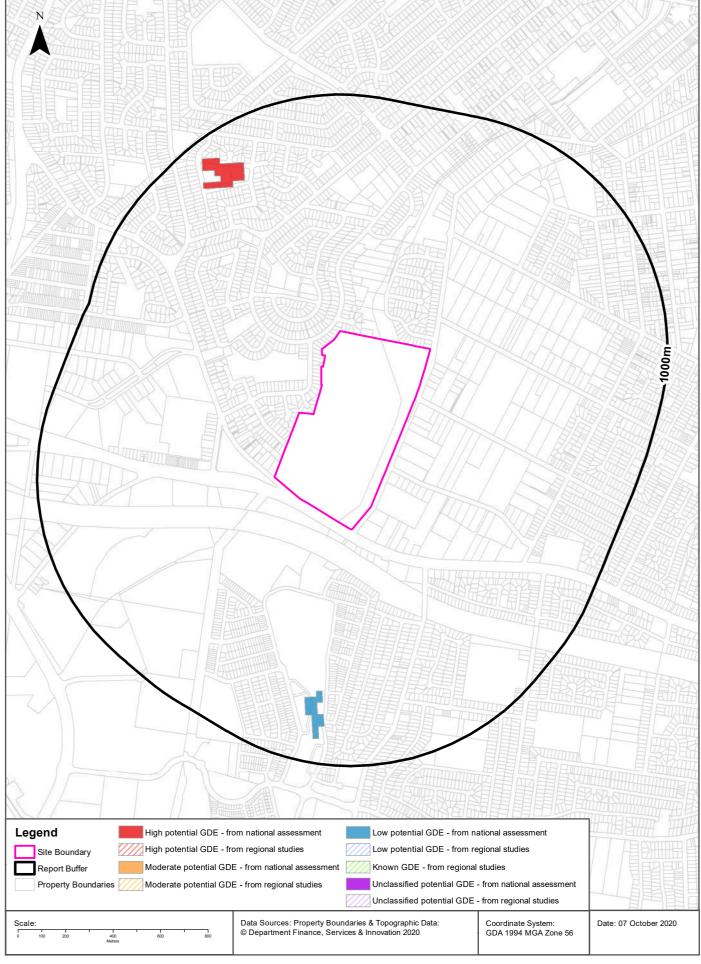
Map Id	Ramsar Name	Wetland Name	<b>Designation Date</b>	Source	Distance	Direction
N/A	No records in buffer					

Ramsar Wetlands Data Source: © Commonwealth of Australia - Department of Environment

# **Ecological Constraints - Groundwater Dependent Ecosystems Atlas**

55 Fox Hills Crescent, Prospect, NSW 2148





# **Ecological Constraints**

55 Fox Hills Crescent, Prospect, NSW 2148

# **Groundwater Dependent Ecosystems Atlas**

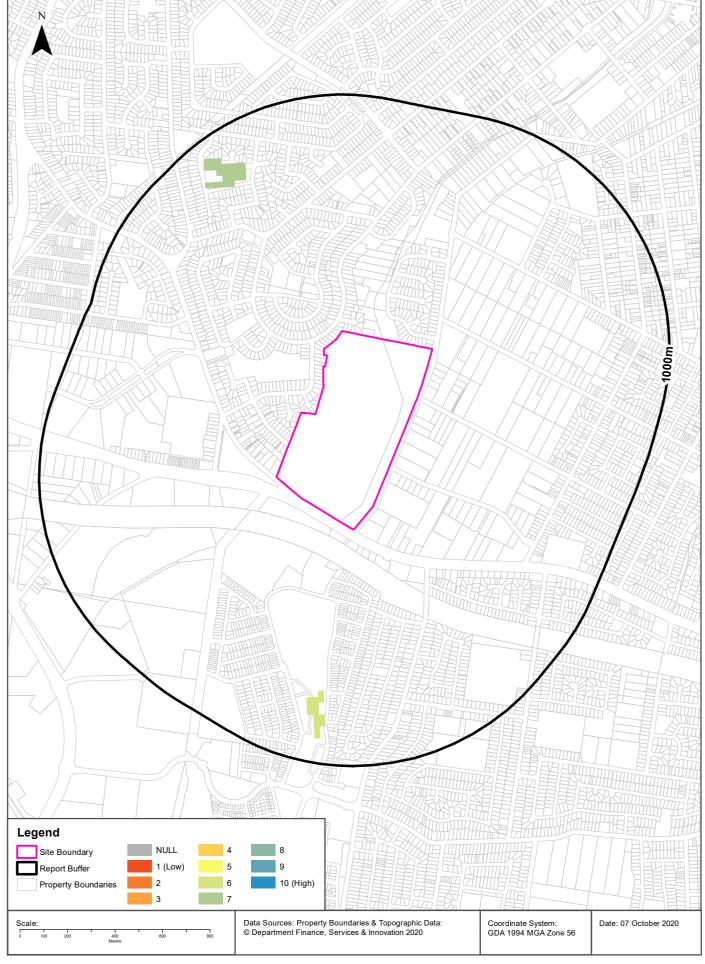
Туре	GDE Potential	Geomorphology	Ecosystem Type	Aquifer Geology	Distance
Terrestrial	Low potential GDE - from national assessment	Undulating to low hilly country, mainly on shale.	. 3	Consolidated sedimentary	691m
Terrestrial	High potential GDE - from national assessment	Undulating to low hilly country, mainly on shale.	Vegetation	Consolidated sedimentary	753m

 $Groundwater\ Dependent\ Ecosystems\ Atlas\ Data\ Source:\ The\ Bureau\ of\ Meteorology$   $Creative\ Commons\ 3.0\ \ \ \ Commonwealth\ of\ Australia\ http://creativecommons.org/licenses/by/3.0/au/deed.en$ 

# **Ecological Constraints - Inflow Dependent Ecosystems Likelihood**

55 Fox Hills Crescent, Prospect, NSW 2148





# **Ecological Constraints**

55 Fox Hills Crescent, Prospect, NSW 2148

# **Inflow Dependent Ecosystems Likelihood**

Туре	IDE Likelihood	Geomorphology	<b>Ecosystem Type</b>	Aquifer Geology	Distance
Terrestrial	6	Undulating to low hilly country, mainly on shale.	Vegetation	Consolidated sedimentary	691m
Terrestrial	7	Undulating to low hilly country, mainly on shale.	Vegetation	Consolidated sedimentary	753m

Inflow Dependent Ecosystems Likelihood Data Source: The Bureau of Meteorology Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

# **Ecological Constraints**

55 Fox Hills Crescent, Prospect, NSW 2148

## **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	Migratory Species Agreements
Animalia	Amphibia	Litoria aurea	Green and Golden Bell Frog	Endangered	Not Sensitive	Vulnerable	
Animalia	Amphibia	Pseudophryne australis	Red-crowned Toadlet	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Anseranas semipalmata	Magpie Goose	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Anthochaera phrygia	Regent Honeyeater	Critically Endangered	Not Sensitive	Critically Endangered	
Animalia	Aves	Apus pacificus	Fork-tailed Swift	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Ardenna tenuirostris	Short-tailed Shearwater	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Artamus cyanopterus cyanopterus	Dusky Woodswallow	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Botaurus poiciloptilus	Australasian Bittern	Endangered	Not Sensitive	Endangered	
Animalia	Aves	Burhinus grallarius	Bush Stone- curlew	Endangered	Not Sensitive	Not Listed	
Animalia	Aves	Callocephalon fimbriatum	Gang-gang Cockatoo	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Calyptorhynchus banksii samueli	Red-tailed Black- Cockatoo (inland subspecies)	Vulnerable	Category 2	Not Listed	
Animalia	Aves	Calyptorhynchus lathami	Glossy Black- Cockatoo	Vulnerable	Category 2	Not Listed	
Animalia	Aves	Daphoenositta chrysoptera	Varied Sittella	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Falco subniger	Black Falcon	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Gallinago hardwickii	Latham's Snipe	Not Listed	Not Sensitive	Not Listed	ROKAMBA;JAMBA
Animalia	Aves	Glossopsitta pusilla	Little Lorikeet	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Haematopus fuliginosus	Sooty Oystercatcher	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Haliaeetus leucogaster	White-bellied Sea-Eagle	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Hieraaetus morphnoides	Little Eagle	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Hirundapus caudacutus	White-throated Needletail	Not Listed	Not Sensitive	Vulnerable	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Ixobrychus flavicollis	Black Bittern	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Lathamus discolor	Swift Parrot	Endangered	Category 3	Critically Endangered	
Animalia	Aves	Lophochroa leadbeateri	Major Mitchell's Cockatoo	Vulnerable	Category 2	Not Listed	
Animalia	Aves	Lophoictinia isura	Square-tailed Kite	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Neophema pulchella	Turquoise Parrot	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Ninox connivens	Barking Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Ninox strenua	Powerful Owl	Vulnerable	Category 3	Not Listed	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Aves	Onychoprion fuscata	Sooty Tern	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Pandion cristatus	Eastern Osprey	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Petroica boodang	Scarlet Robin	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Petroica phoenicea	Flame Robin	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Petroica rodinogaster	Pink Robin	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Pezoporus wallicus wallicus	Eastern Ground Parrot	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Phaethon lepturus	White-tailed Tropicbird	Not Listed	Not Sensitive	Not Listed	CAMBA;JAMBA
Animalia	Aves	Pluvialis squatarola	Grey Plover	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Poephila cincta cincta	Black-throated Finch (southern subspecies)	Presumed Extinct	Not Sensitive	Endangered	
Animalia	Aves	Polytelis swainsonii	Superb Parrot	Vulnerable	Category 3	Vulnerable	
Animalia	Aves	Thalasseus bergii	Crested Tern	Not Listed	Not Sensitive	Not Listed	JAMBA
Animalia	Aves	Todiramphus chloris	Collared Kingfisher	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Tyto novaehollandiae	Masked Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Tyto tenebricosa	Sooty Owl	Vulnerable	Category 3	Not Listed	
Animalia	Gastropoda	Meridolum corneovirens	Cumberland Plain Land Snail	Endangered	Not Sensitive	Not Listed	
Animalia	Gastropoda	Pommerhelix duralensis	Dural Land Snail	Endangered	Not Sensitive	Endangered	
Animalia	Mammalia	Cercartetus nanus	Eastern Pygmy- possum	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Chalinolobus dwyeri	Large-eared Pied Bat	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	Dasyurus maculatus	Spotted-tailed Quoll	Vulnerable	Not Sensitive	Endangered	
Animalia	Mammalia	Falsistrellus tasmaniensis	Eastern False Pipistrelle	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Micronomus norfolkensis	Eastern Coastal Free-tailed Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Miniopterus australis	Little Bent-winged Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Miniopterus orianae oceanensis	Large Bent- winged Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Myotis macropus	Southern Myotis	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Petaurus norfolcensis	Squirrel Glider	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Petrogale penicillata	Brush-tailed Rock-wallaby	Endangered	Not Sensitive	Vulnerable	
Animalia	Mammalia	Phascolarctos cinereus	Koala	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	Pteropus poliocephalus	Grey-headed Flying-fox	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Scoteanax rueppellii	Greater Broad- nosed Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Vespadelus troughtoni	Eastern Cave Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Reptilia	Antaresia stimsoni	Stimson's Python	Vulnerable	Not Sensitive	Not Listed	
Animalia	Reptilia	Aspidites ramsayi	Woma	Vulnerable	Not Sensitive	Not Listed	
Animalia	Reptilia	Caretta caretta	Loggerhead Turtle	Endangered	Not Sensitive	Endangered	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Reptilia	Chelonia mydas	Green Turtle	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Reptilia	Lucasium stenodactylum	Crowned Gecko	Vulnerable	Not Sensitive	Not Listed	
Animalia	Reptilia	Pseudonaja modesta	Ringed Brown Snake	Endangered	Not Sensitive	Not Listed	
Animalia	Reptilia	Tiliqua occipitalis	Western Blue- tongued Lizard	Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Acacia pubescens	Downy Wattle	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Callistemon linearifolius	Netted Bottle Brush	Vulnerable	Category 3	Not Listed	
Plantae	Flora	Dillwynia tenuifolia		Endangered Population, Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Dillwynia tenuifolia		Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Epacris purpurascens var. purpurascens		Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Eucalyptus leucoxylon subsp. pruinosa	Yellow Gum	Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Eucalyptus nicholii	Narrow-leaved Black Peppermint	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Eucalyptus scoparia	Wallangarra White Gum	Endangered	Not Sensitive	Vulnerable	
Plantae	Flora	Grammitis stenophylla	Narrow-leaf Finger Fern	Endangered	Category 3	Not Listed	
Plantae	Flora	Grevillea juniperina subsp. juniperina	Juniper-leaved Grevillea	Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Hibbertia superans		Endangered	Not Sensitive	Not Listed	
Plantae	Flora	Isotoma fluviatilis subsp. fluviatilis		Not Listed	Not Sensitive	Extinct	
Plantae	Flora	Macadamia integrifolia	Macadamia Nut	Not Listed	Not Sensitive	Vulnerable	
Plantae	Flora	Macadamia tetraphylla	Rough-shelled Bush Nut	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Marsdenia viridiflora subsp. viridiflora	Native Pear	Endangered Population	Not Sensitive	Not Listed	
Plantae	Flora	Persoonia hirsuta	Hairy Geebung	Endangered	Category 3	Endangered	
Plantae	Flora	Persoonia nutans	Nodding Geebung	Endangered	Not Sensitive	Endangered	
Plantae	Flora	Pilularia novae- hollandiae	Austral Pillwort	Endangered	Category 3	Not Listed	
Plantae	Flora	Pimelea curviflora var. curviflora		Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Pimelea spicata	Spiked Rice- flower	Endangered	Not Sensitive	Endangered	
Plantae	Flora	Pomaderris prunifolia	Plum-leaf Pomaderris	Endangered Population	Not Sensitive	Not Listed	
Plantae	Flora	Pterostylis gibbosa	Illawarra Greenhood	Endangered	Category 2	Endangered	
Plantae	Flora	Pterostylis saxicola	Sydney Plains Greenhood	Endangered	Category 2	Endangered	
Plantae	Flora	Pultenaea parviflora		Endangered	Not Sensitive	Vulnerable	
Plantae	Flora	Pultenaea pedunculata	Matted Bush-pea	Endangered	Not Sensitive	Not Listed	
Plantae	Flora	Rhodamnia rubescens	Scrub Turpentine	Critically Endangered	Not Sensitive	Not Listed	
Plantae	Flora	Syzygium paniculatum	Magenta Lilly Pilly	Endangered	Not Sensitive	Vulnerable	
Plantae	Flora	Tetratheca glandulosa		Vulnerable	Not Sensitive	Not Listed	

Kingdom	Class	Scientific	Common	NSW Conservation Status		Federal Conservation Status	Migratory Species Agreements
Plantae	Flora	Triplarina imbricata	Creek Triplarina	Endangered	Not Sensitive	Endangered	
Plantae	Flora	Wilsonia backhousei	Narrow-leafed Wilsonia	Vulnerable	Not Sensitive	Not Listed	

Data does not include NSW category 1 sensitive species. NSW BioNet: © State of NSW and Office of Environment and Heritage

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

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**Land Title Records** 



Level 14, 135 King Street, Sydney Sydney 2000 GPO Box 4103 Sydney NSW 2001 DX 967 Sydney

#### **Summary of Owners Report**

Address: - Fox Hills Golf Course

Description: - Lot 100 D.P. 834672

#### As regards the part numbered (1) on the attached copy of D.P. 834672

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
27.12.1923 (1923 to 1936)	The Emu and Prospect Gravel and Road Metal Company Limited	Vol 3543 Fol 249 Now Vol 4768 Fol 78
02.11.1936 (1936 to 1938)	Eileen Hilda McGrath (Married Woman)	Vol 4768 Fol 78 Now Vol 4817 Fol 103
11.08.1938 (1938 to 1939)	Eileen Hilda McGrath (Married Woman) Gordon Taylor (Merchant)	Vol 4817 Fol 103 Now Vol 4978 Fol's 159 & 160
14.02.1939 (1939 to 1958)	Richard Cooper Booth (Storekeeper)	Vol 4978 Fol's 159 & 160 Now Vol 5026 Fol 233
16.01.1958 (1958 to 2000)	Fox Hills Golf Club Limited	Vol 5026 Fol 233 Now 100/834672

## As regards the part numbered (2) on the attached copy of D.P. 834672

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
23.06.1925 (1925 to 1943)	The Haymarket Land and Building Company Limited	Vol 3743 Fol 46 Now Vol 5378 Fol 200
19.08.1943 (1943 to 1955)	Joseph Henty Matthews (Labourer)	Vol 5378 Fol 200 Now Vol 5393 Fol 160
02.02.1955 (1955 to 1955)	Mabel Evaline Ruby Hickman (Married Woman) (Transmission Application not investigated)	Vol 5393 Fol 160
02.02.1955 (1955 to 1960)	Anthony Galea (Market Gardener)	Vol 5393 Fol 160
24.05.1960 (1960 to 2000)	Fox Hills Golf Club Limited	Vol 5393 Fol 160 Now 100/834672



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## As regards the part numbered (3) on the attached copy of D.P. 834672

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
23.06.1925 (1925 to 1928)	The Haymarket Land and Building Company Limited	Vol 3743 Fol 46
37.10.1928 (1928 to 1928)	Jack Elger (Motor Driver)	Vol 3743 Fol 46 Now Vol 4225 Fol 64
14.11.1928 (1928 to 1943)	Gordon Harold Annett (Law Clerk)	Vol 4225 Fol 64
29.10.1943 (1943 to 1957)	Harold Lucas Pyrke (Boot Repairer)	Vol 4225 Fol 64
18.07.1957 (1957 to 2000)	Fox Hills Golf Club Limited	Vol 4225 Fol 64 Now 100/834672

## As regards the part numbered (4) on the attached copy of D.P. 834672

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
23.06.1925 (1925 to 1938)	The Haymarket Land and Building Company Limited	Vol 3743 Fol 46
19.01.1938 (1938 to 1942)	Octavius Williams (Farmer)	Vol 3743 Fol 46 Now Vol 4928 Fol 168
02.07.1942 (1942 to 1946)	Ellen Parkes (Married Woman)	Vol 4928 Fol 168
03.09.1946 (1946 to 1948)	Frederick Parkes (Market Gardener) James Parkes (Market Gardener)	Vol 4928 Fol 168 Now Vol 5650 Fol's 151 & 152
07.12.1948 (1948 to 1969)	Frederick Parkes (Market Gardener)	Vol 5650 Fol's 151 & 152 Now Vol 9396 Fol's 96 & 97
29.01.1969 (1969 to 2000)	Fox Hills Golf Club Limited	Vol 9396 Fol's 96 & 97 Now 100/834672

## As regards the part numbered (5) on the attached copy of D.P. 834672

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
23.06.1925 (1925 to 1938)	The Haymarket Land and Building Company Limited	Vol 3743 Fol 46
19.01.1938 (1938 to 1942)	Octavius Williams (Farmer)	Vol 3743 Fol 46 Now Vol 4928 Fol 168
02.07.1942 (1942 to 1946)	Ellen Parkes (Married Woman)	Vol 4928 Fol 168
03.09.1946 (1946 to 1948)	Frederick Parkes (Market Gardener) James Parkes (Market Gardener)	Vol 4928 Fol 168 Now Vol 5650 Fol's 151 & 152



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#### Continued as regards the part numbered (5) on the attached copy of D.P. 834672

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available  Reference to Title Acquisition and so			
07.12.1948 (1948 to 1952)	James Parkes (Market Gardener)	Vol 5650 Fol's 151 & 152 Now Vol 6017 Fol 42		
20.05.1952 (1952 to 1955)	Frank Farrugia (Storeman & Packer)	Vol 6017 Fol 42		
26.08.1955 (1955 to 1958)	Lorry Mizzi (Iron Worker)	Vol 6017 Fol 42		
08.11.1958 (1958 to 2000)	Fox Hills Golf Club Limited	Vol 6017 Fol 42 Now 100/834672		

#### As regards the part numbered (6) on the attached copy of D.P. 834672

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale		
23.06.1925 (1925 to 1935)	The Haymarket Land and Building Company Limited	Vol 3743 Fol 46		
03.10.1935 (1935 to 1935)	Ivess Beryl Redman (Married Woman)	Vol 3743 Fol 46 Now Vol 4721 Fol 241		
04.10.1935 (1935 to 1945)	Ernest Widmer (Farmer)	Vol 4721 Fol 241		
09.01.1045 (1945 to 1958)	Harold Lucas Pyrke (Boot Repairer)	Vol 4721 Fol 241		
09.11.1958 (1958 to 2000)	Fox Hills Golf Club Limited	Vol 4721 Fol 241 Now 100/834672		

## As regards the part numbered (7) on the attached copy of D.P. 834672

Date of Acquisition and term held  Registered Proprietor(s) & Occupations where available		Reference to Title at Acquisition and sale
16.06.1936	The N.S.W. Associated Blue Metal Quarries Limited Now	Vol 4768 Fol 84 Now
(1936 to 1966)	The N.S.W. Associated Blue Metal Quarries Pty Limited	Vol 9967 Fol 43
08.09.1966 (1966 to 2000)	Fox Hills Golf Club Limited	Vol 9967 Fol 43 Now 100/834672



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## As regards the part numbered (8) on the attached copy of D.P. 834672

Date of Acquisition and term held  Registered Proprietor(s) & Occupations where available		Reference to Title at Acquisition and sale		
30.03.1933 (1933 to 1966)	The N.S.W. Associated Blue Metal Quarries Limited Now The N.S.W. Associated Blue Metal Quarries Pty Limited	Vol 3066 Fol 8 Now Vol 9967 Fol 44		
08.09.1966 (1966 to 2000)	Fox Hills Golf Club Limited	Vol 9967 Fol 44 Now 100/834672		

## As regards the part numbered (9) on the attached copy of D.P. 834672

Date of Acquisition and term held  Registered Proprietor(s) & Occupations where available		Reference to Title at Acquisition and sale
30.03.1933 (1933 to 1966)	The N.S.W. Associated Blue Metal Quarries Limited Now The N.S.W. Associated Blue Metal Quarries Pty Limited	Vol 3066 Fol 8 Now Vol 9967 Fol 45
08.09.1966 (1966 to 2000)	Fox Hills Golf Club Limited	Vol 9967 Fol 45 Now 100/834672

#### As regards the part numbered (10) on the attached copy of D.P. 834672

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
30.03.1933 (1933 to 1966)	The N.S.W. Associated Blue Metal Quarries Limited  Now The N.S.W. Associated Blue Metal Quarries Pty Limited  Vol Vol	
08.09.1966 (1966 to 2000)	Fox Hills Golf Club Limited	Vol 9967 Fol 46 Now 100/834672

#### As regards the part numbered (11) on the attached copy of D.P. 834672

Date of Acquisition and term heldRegistered Proprietor(s) & Occupations where available30.03.1933 (1933 to 1966)The N.S.W. Associated Blue Metal Quarries Limited Now The N.S.W. Associated Blue Metal Quarries Pty Limited		Reference to Title at Acquisition and sale		
		Vol 3066 Fol 8 Now Vol 9967 Fol 47		
08.09.1966 (1966 to 2000)	Fox Hills Golf Club Limited	Vol 9967 Fol 47 Now 100/834672		



Level 14, 135 King Street, Sydney Sydney 2000 GPO Box 4103 Sydney NSW 2001 DX 967 Sydney

## Continued as regards the whole of the subject land

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
19.05.2000 (2000 to date)	# Seven Hills – Toongabbie R.S.L. Cub Limited	100/834672

#### # Denotes Current Registered Proprietor

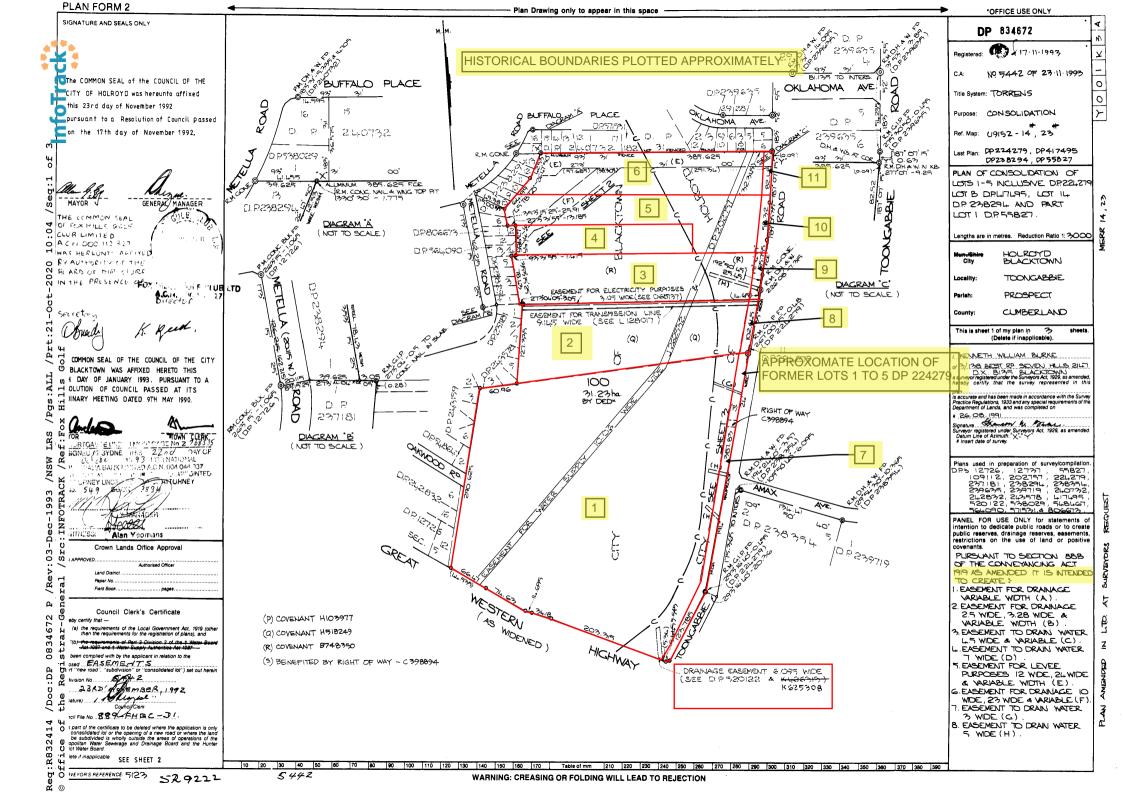
#### Easements: -

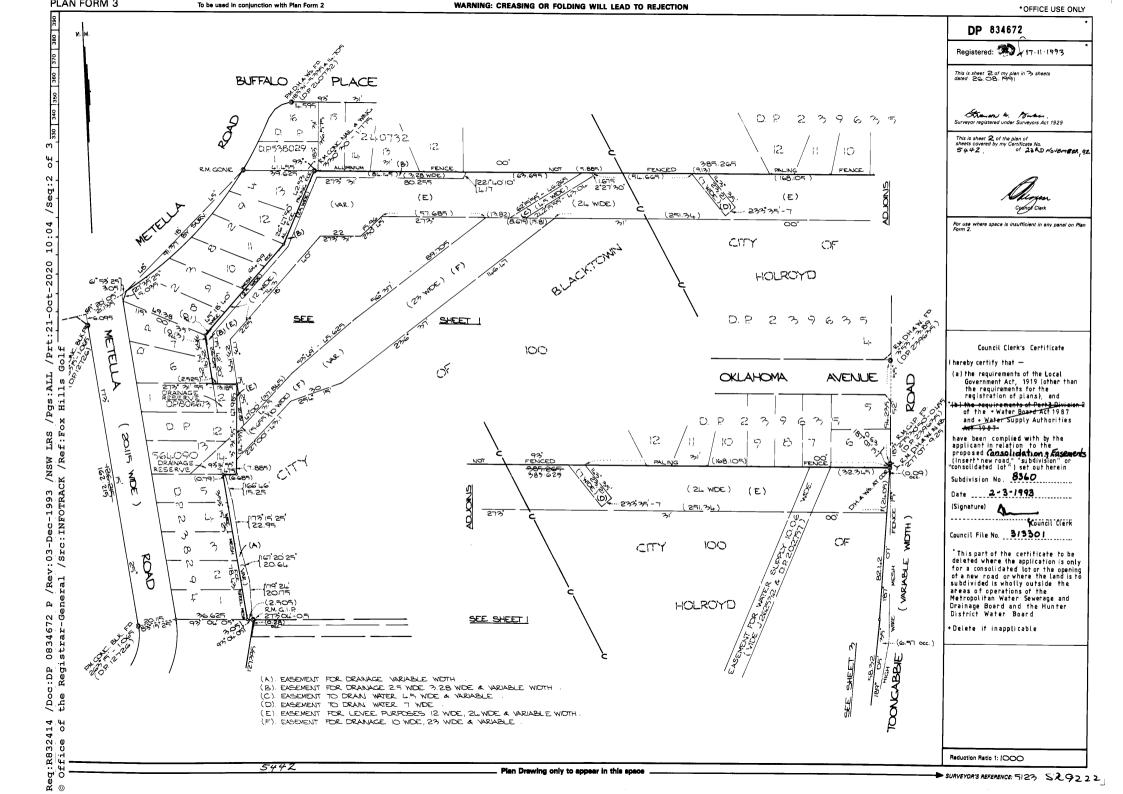
- 28.08.1941 (D 68737) Easement for Electricity Purposes 3.05 wide
- 12.12.1962 (J 262532) Easement for Water Supply 10.06 wide
- 19.04.1967 (K 652308) Easement to Drain Water See D.P. 520122, Omitted from title
- 14.06.1967 (L 128017) Easement for Transmission Line 9.145 wide
- 17.11.1993 (D.P. 834672) Easement for Drainage variable width
- 17.11.1993 (D.P. 834672) Easement for Drainage 2.5, 3.28 wide and variable
- 17.11.1993 (D.P. 834672) Easement to Drain Water 4.5 wide and variable
- 17.11.1993 (D.P. 834672) Easement Drain Water 7 wide
- 17.11.1993 (D.P. 834672) Easement for Levee purposes 12, 24 wide and variable
- 17.11.1993 (D.P. 834672) Easement for Drainage 10, 23 wide and variable
- 17.11.1993 (D.P. 834672) Easement to Drain Water 3 wide (G)
- 17.11.1993 (D.P. 834672) Easement to Drain Water 3 wide (H)

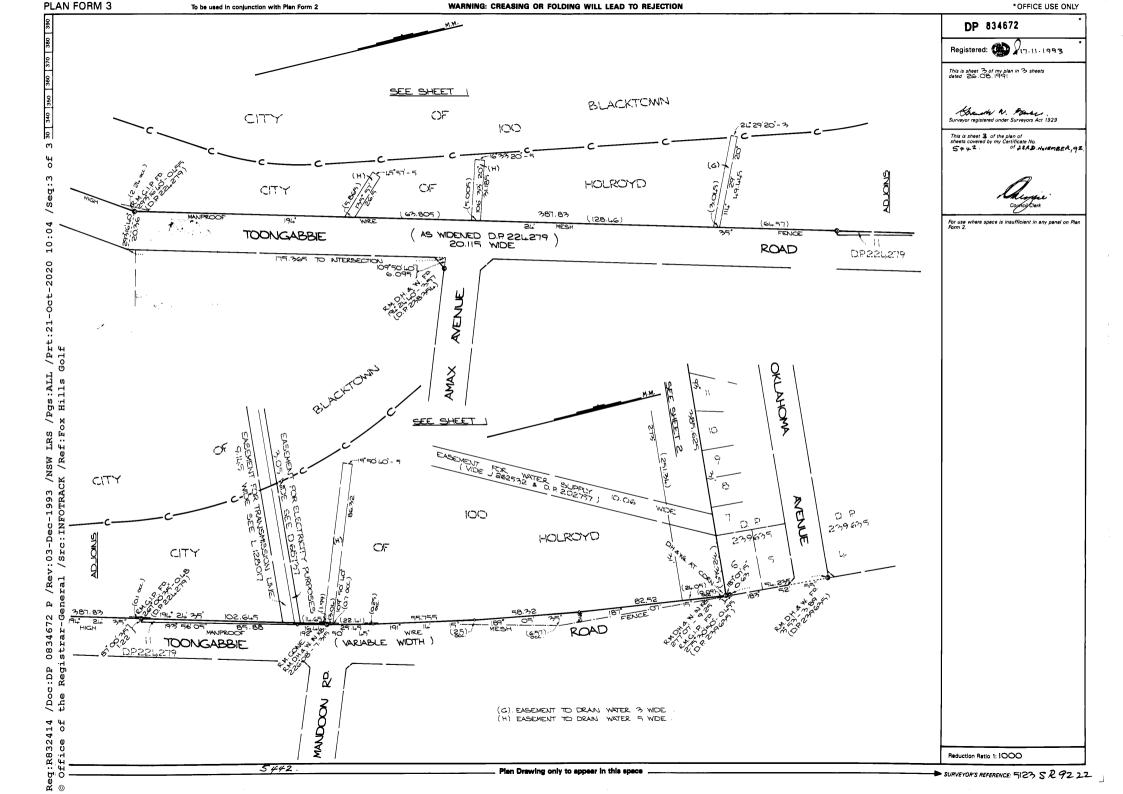
#### Leases: -

- 23.01.1953 to Fox Hills Golf Club Limited (of the part numbered 1) expired 20.05.1955
- 10.03.1955 to Fox Hills Golf Club Limited (of the part numbered 1) surrendered 06.02.1958

Yours Sincerely Mark Groll 21 October 2020







Req:R838003 © Office of

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orm I(a)	D.P. 520122	OFFICE USE ONLY.
PLAN Showing easement to	be acquired	D P 520122
within R. P. A. 5827.		1 M15/7/166.
		Registered Algorithms (CA
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Parish PROSPECT	***************************************	Ref. Maps C.C.C. 391 14
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ACKTOWN RD 301 57 50.		AND AND HIGHWAY
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Signatures, Seals and Statements of Dedi	ications and Easements.	I, John Maurice Paine of Department of Main Bands, Sydnay o surveyor replayed wider the Surveyor Act, 1923, or consold, heavy certif hat the survey respected in this
• •	. معرف	plan  is exceptle and ion been node *(1) by ms (2) and many is exceptled as specified in a except node with the Survey Protein Regulation, 1930 god was completed as  13-11-1965. —  Surveyor regillary state Surveyor Act, 1722, at anomales.  Datum line of Jahmb, 45 F. R. B. 430.
·		T. J. G. 17
	A- More	Approved by Council, I hereby curilly that the revier- monis of the Local Government Act, 13th (other than the requirements for registration of pleas), here been com- piled with by the applicant in relation to the proposed subdivision and/or new roads set out herein.
20102	Deputy Frincipal Land Surveyor  and Property Officer, Department of Main Roads,  D.M.R. PLAN No. 5 6862	Subdivision No
· ·		REF.PLAN Nº : 5 862 FILE : 205,1597

CONVERSION TABLE ADDED IN REGISTRAR GENERAL'S DEPARTMENT DP 520122 FEET INCHES METRES - 2 1/2
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I, Jack Hayward Watson, Registrar General for New South Wales, certify that this negative is a photograph made as a permanent record of a document in my custody this 23rd day of April, 1976.





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DIAGRAM

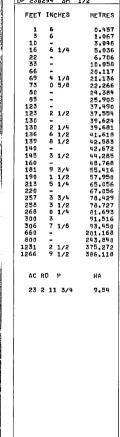
Not to Scale

(73'05%")

Mun. Blacktow Title System: Torrens

CA. Nos 4410 x 4411 of 18-10-1961

А



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A J Purposo: Subdivision 4 Rof. Mon: CCC 391 1 0 N DP12727 Last Plan: DP213074 PLAN OF SUBDIVISION OF : LOTS 13 AND 15 SEC 6, D.P. 12727 AND LOT 2 +# - OF 2/8074 + 07 + IN D.P. 534117 Scale: 200 feet to an inch Mun./6hire Blacktown# Holroyd 5388 Prospect Prospect Parish: Cumberland County: 9 This is sheet 1 of my plan in 2 sheets John William Menzles Vincent Kaye Exlay 200 Sept 22, 1961 Council Clark's Certificat hu contifu that

> A.C.C (GUNERAL FINANCE) LIMITED by its Attorneya

implied with by the applicant in relation to the

SURVEYOR'S REFERENCE, 342

proposed SUBDIVISION Subdivision No. 4411 Dole 18th OCTOBER, 1961

WARNING. Plan Drawing only to appear in this space.

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Wefells Bq.

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Plan

1231'21/2"

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2)

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Plan Form 2—This form must NOT be used where it is intended to dedicate public reads or public reserves or create drainage reserves, easements, or reatrictions as to user—See Form 3.

The Crescent

R.M. O.L.P. Id. 93° 31' 1'6° to G.I. noil Id.

8 M. 0.1 P. 93 - 03 - 40

The Crescent

PM. C.B. fd. 163 - 15 - 3'5"

P.M. L.B. Fd. 263° 15' 3'5' 10 COC

AMENDMENTS OR ADDITIONS NOTED ON PLAN IN REGISTRAR GENERAL'S OFFICE.

etella

I, Bruce Richard Davies, Registrar General for New South Wales, cartify that this negative is a photograph mode as a personant record of a document in my custody this 26th day of July, 1977

of /Seq:1 :28 10 -2020 , /Prt:21-Oct Golf /Pgs:ALL ox Hills G /Ref:Fox LRS 11-Jun-1992 /NSW Src:INFOTRACK /Re /Rei General Д 4 023829 strar-Regi /Doc:DP the Regi Req:R832732 © Office of

2 3 2 702

DP238294 WARRING: CREASING OR FOLDING WILL LEAD TO REJECTION. Form No. 4 - To be used in conjunction with Forms 2 or 3. DP 238294 ets covered by my Certificate No The Crescent P.M. (.B. 1d. 290 Metella 105 48 324. 29 P. 14000 150;115/80 Ó. g only to appear in 99) 10t 1 feet DP 5736 23 AC. 38. 7/4P 31' 241/4P. Road 3 2 241/4P 1266'91/2" Scale: 60 feet to an inch RM. G.I.P. 93" 93'40" WARMING. Plan Drawing only to appear in this space.

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L /Prt:21-Golf

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LRS

CONVERSION TABLE ADDED IN REGISTRAR GENERAL'S DEPARTMENT DP 238294 SH 2/2 FEET INCHES METRES 0.457 3.048 10 16 5.036 6.096 7.322 20 24 40 40 12,433 9 1/2 42 43 45 45 13.183 13.729 13.735 0 1/2 15.240 15.246 15.437 15.742 15.761 50 50 50 51 51 55 55 55 55 56 67 78 85 0 1/4 7 3/4 7 3/4 8 1/2 4 1/4 4 1/2 7 3/4 16.262 16.269 17.374 20.117 21.136 22.098 22.187 9 1/2 9 1/2 25.988 39.681 128 130 130 139 140 1 1/2 2 1/4 8 1/2 42.583 42.672 43.053 44.761 45.206 141 10 1/4 3 3/4 6 3/4 5 1/8 146 148 156 157 160 162 213 257 300 47.720 48.768 49.178 65.056 5 1/4 3 3/4 78.429 91.516 3 660 1266 9 1/2 386.118 SQ M AC RD P 607 613.4 645 663.9 - - 24 1/4 - - 25 1/2 - 26 1/4 - 27 - 28 1/4 682.9 714.5 733.5 - - 29 3/4 752.5 AC RD P HA 23 2 11 3/4 9.54

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I, Bruce Richard Davies, Registrar General for New South Wales, certify that this negative is a photograph made as a permanent record of a document in my custody this 26th day of July, 1977

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AMENDMENTS OR ADDITIONS NOTED ON PLAN IN REGISTRAR GENERAL'S OFFICE. οĘ

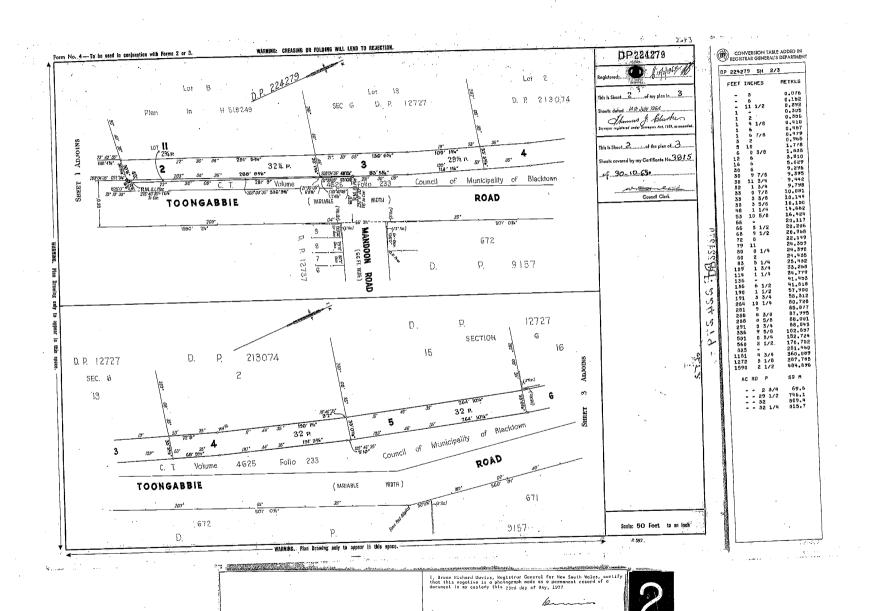
Form 3 -TO BE USED WHERE DEDIDATIONS, DRAINAGE RESERVES AND PUBLIC CARDEN AND RECREATION SPACES ARE PROVIDED. DP224279 gistered: 15/2/1965 CA. 3815 of 30:10:63.. Title Systems....Torrens.... Purposei Subdivision & Proposed... Ref. Map. COC 37,0 6,391..... Last PlanCCC 370 £ 391) Appn 5827 Appn 56566 £ 21013 PLAN OF Subdivision of part of land in DIAGRAM B C.T. Volume 4768 Folio 84 and C.T. Volume 5794 Folio 4. DIAGRAM A Scaler 120 Feet to an Inch Mun./Shire ony. Blacklown. Localitys Prospect 04' 35' 288'8%' 2.74 P. 11 36' 05' 281'9' Parishs...Prospect... 35' 1272'3% FOR County: Cumberland 22° 36° 05° 768° 9 C.T. Volume 4625 Folto 233 Standard Council of Municipality of Blacktown WIDSHING TOONGABBIE THOMAS JOHN CLARKE ... J.T.S. RYAN & Co., 907 Pacific, Highway, GORDON TOONGABBIE ROAD SEE DIAGRAM A SEE DIAGRAM 1 A. I R. 32½ P. Statements of Dodications, Easements. AIRENING (VASIABLE WIDTH) TOONGABBIE It is intended to dedicate the Strip for Road Widening of Variable width shown harron to the Public for Road Purposes. 682 Se. H 9157 It, is Intended that Lots 10 and 17 shown hereon be transferred to the Council of the Municipality of Blacktown for future road GREAT widening purposes. 52.50 G 09.23.40 I Drill lighte Wing Id Surveyors REFERENCE P. 582 WARMING. Plan Drawing only to appear in this space. ..

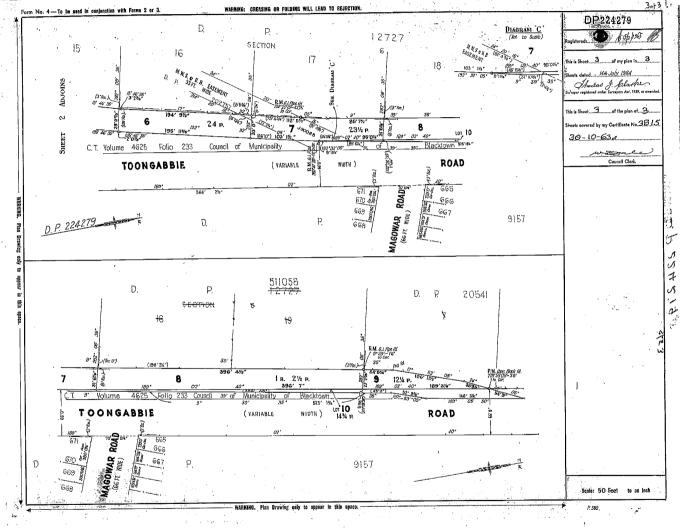
CONVERSION TABLE ADDED IN REGISTRAR GENERAL'S DEPARTMENT SIGNATURES AND SEALS ONLY. Carrie Associatico Buia Matal Guiages Pr honorow was toward affined by the Robins TO REJECTION. The Common Seul of GUNGRIGES PTY LIMITED Was hereunto affirmed by the authority of its Board of 8 Subdivision No. 3815 Милите 3717, 1963

DPI 224279 SH 1/3 METRES PEET INCHES 0.191 0.457 0.460 0.464 1.057 1.219 3.708 5.810 3.940 6 1/8 6 1/4 6 5.029 5.540 5.544 6.172 8.160 9.296 9.395 10.912 12.087 13.138 14.373 14.694 15.154 15.154 20.117 50.156 30.448 54.179 48.543 74.520 85.877 87.995 87.995 88.001 88.845 99.665 180.340 112.836 117.869 123.787 123.911 199,377 251,460 360,089 387,785 484,696 492,322 492,401 AC RO P SQ M - - 2 3/4 69.6 1 1 32 1/2 5881

1, Bruce Richard Davies, Registror General for New South Males, certify that this negative is a photograph made as a permanent record of a document in my custody this 23rd day of May, 1977

WILL LEAD





I, Bruce Richard Davies, Registrar General for New South Wales, certify that this negative is a photograph made as a permanent record of a document in my custody this 23rd day of May, 1977

CONVERSION TABLE ADDED IN

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DP: 224279 SH 3/5

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# Historical Title



NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE

21/10/2020 10:27AM

FOLIO: B/417495

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First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 8064 FOL 151

Recorded	Number	Type of Instrument	C.T. Issue
31/8/1989		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
12/10/1989		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
17/11/1993	DP834672	DEPOSITED PLAN	FOLIO CANCELLED

\*\*\* END OF SEARCH \*\*\*

Fox Hills Golf

PRINTED ON 21/10/2020

/Prt:21-Oct-2020 10:4 office of the Registrar-General /Src:INFOTRACK /Ref:Fox Hills Golf rificate of title M ERTY ACT, 1900, as anionded. NEW SOUTH WALES (For Grant and title reference prior to first edition see Deposited Plan.) 1st Edition issued 22-3-1963. Fol I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule. Witness Registrar-General PLAN SHOWING LOCATION OF LAND (Page 1) Vol ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON  $^{\circ}$ 15 13951 11/4" 2 £90'115% 8.0. In 324p. 2730 13 ESTATE AND LAND REFERRED TO. Estate in Fee Simple in Lot 1 in Deposited Plan 213074s at Prospect in the Municipality of Blacktown Parish of Prospect and County of Cumberland. PERSONS ARE CAUTIONED AGAINST FIRST SCHEDULE (Continued overleaf)

Registrar General.

SECOND SCHEDULE (Continued overleaf)

1. Reservations and conditions, if any, contained in the Crown Grant(s) referred to in the said Deposited Plan.

Registrar General.

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR-GENERAL ARE CANCELLED.

REMOVED FROM THE LAND TITLES OFFICE

FIRST SCHEDULE (continued)								
REGISTERED PROPRIETOR				INSTRUMENT		ENTERED	Signature of	
			NATURE	NUMBER	DATE	1	Registrar-Gener	
Tox Hills Golf blut Limited of that part of Lot 2 in comprised in this bertificate of Lette and Frederi Market Gordener of the residue	Associated of	Plan No 534117	i ka da sa sa sa		No. 1886 Co. 18 September 1997			
o is comprised in this bertificate of Lette and Frederi	ch Parker	of Girrawan						
Market Gardener of the residue.			Transfer	1348319	29-1-1969	16-4-1969	James Carro	
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		* **		SECOND SCHEDU	JLE (continued)				
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WARNING: THIS DOCUMENT MUST NOT BE REMOVED FROM THE LAND TITLES OFFICE

NEW SOUTH WALES

(For Grant and title reference prior to first edition see Deposited Plan.)

TRICATE OF TITLE ERTY ACT, 1900, as amended.



let Edition issued 22-3-1963.

I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

Witness

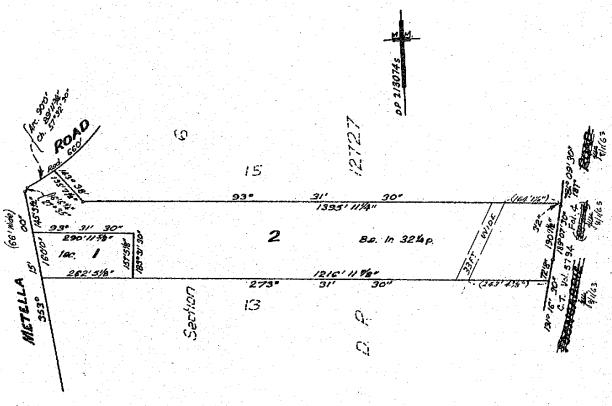
(Page 1) Vol.

PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

Bailey

PLAN SHOWING LOCATION OF LAND

Registrar-General



#### ESTATE AND LAND BEFERRED TO.

Estate in Fee Simple in Lot 2 in Deposited Plan 213074s at Prospect in the Municipality of Blacktown Parish of Prospect and County of Cumberland.

#### FIRST SCHEDULE (Continued overleaf)

that part of the land above described formerly comprised in Certificate FOX HILLS COLF CLUB LIMITED, of Title Volume 6017 Folio 42 CEREDERICK PARKES, of Cirrewson, Market Gardener, as to the part formerly comprised in Cortificate of Title Volume 6017 Folio 58.

SECOND SCHEDULE (Continued overleaf)

1. Reservations and conditions, if any, contained in the Crown Grant(s) referred to in the said Deposited

Registrar General

FIRST SCHEDULE (continued)						701
REGISTERED PROPRIETOR	NATURE	INSTRUMENT NUMBER	1 DATE	ENTERED	Signature of Registrar-General	J.
Fox Hills Golf Club Limited	Dramfer	J314416.		18-4-1963	Januar - Seneral	J.
This applies cancelled as to the whole				1 1		1
New Servidants of Thio have issued on 2-5-1969						
for foca in Associated Plan No. 534117 as follows:					************	$\int \mathcal{J}^{\mu}$
10-5 142 Vol. 1/039 Fol 5,239,4240 respectively.						K
Soulation (19)						20
Broisphar General						
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SECOND SCHEDULE (continued)							
NATURE	INSTRUMENT NUMBER	) DATE	PARTICULARS	ENTERED	Signature of Registrar-General		CANCELLATION
transfer	J262532	12-12-1962	Easement for water supply Jasmore fully set out in the early Intrument Jafferting				
ontgaze	J334284	5 5 1962	the fiere of land 33 fortwiste show in the flan hereon.	20-6-1963	January		
Morigoge	1 2 45/1821	. <del>वेशः । त्रिक</del>	to Cape and Turana Ply Limber	27-12-1963	faulther	DISCHARGE?	1227494 Julian
Mortgage			to a. g. C. ( General 7 inound Similar	22-2-966	pulatarn	N. SCHOOL	4229495 Junitary
mortgage	K426313	4-8-1966	to Commonwealth hading Bank of Australia	31-8-1966	Joulston		
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	No. 1944					Valence Control	





Applications Nos.9352 and 21013
Prior Titles Volume 9396 Folios 96



Vol. 11039 Fol. 240

CANCELLED

Edition issued 2-5-1969

I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

Witness

(Page 1) Vol.

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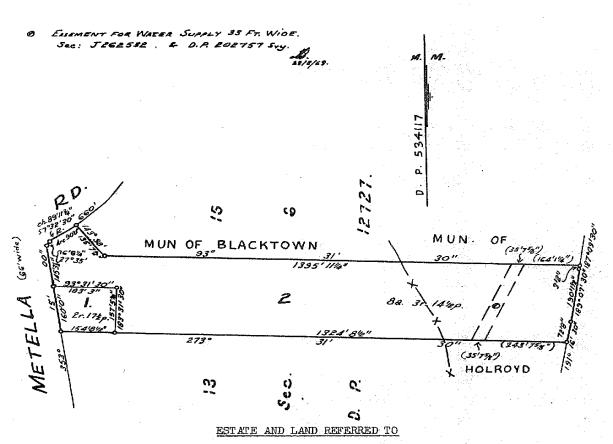
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Aculation Registrar General.



WARNING: THIS DOCUMENT MUST NOT BE REMOVED FROM THE LAND TITLES OFFICE

#### PLAN SHOWING LOCATION OF LAND



Estate in Fee Simple in Lot 2 in Deposited Plan 534117 at Prospect in the Municipalities of Blacktown and Holroyd Parish of Prospect and County of Cumberland being part of Portion 35 granted to John Silverthorn on 22-2-1792, part of Portion 36 granted to John O'Craft on 29-9-1792, part of Portion 98 granted to Robert Bolton on 16-8-1819 and part of Portion 99 granted to Samuel Freeman on 17-8-1819.

#### FIRST SCHEDULE

#### FOX HILLS GOLF CLUB LIMITED.

#### SECOND SCHEDULE

- 1. Reservations and conditions, if any, contained in the Crown Grants above referred to.
- 2. Easement for Water Supply created by Transfer No. J262532 affecting the piece of land shown as "Easement for Water Supply 33 ft. wide" in the plan hereon.
- 3. Mortgage No. K229496 as to the part of the land above described formerly comprised in Certificate of Title Volume 9396 Folio 97 to A.G.C. (General Finance) Limited Entered 22-2-1966.
- 4. Mortgage No. K426313 as to the part formerly comprised in Certificate of Title Volume 9396 Folio 97 to Commonwealth Trading Bank of Australia Entered 31-8-1966.

Registrar General

FIRST SCHEDULE (continued)					
REGISTERED PROPRIETOR		INSTRUMENT	ENTERED	Signature of Registrar Gener	
	NATURE	NUMBER	DATE	1 CHICKED	Registrar Gener
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New Certificates of Title have issued on 28-10-1969					
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Januaren (19					
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SECOND SCHEDULE (continued)									
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**NEW SOUTH WALES** 

Appln. Nos.9352 and 21013

Prior Titles Vol. 4225 Fol. Vol. 4721 Fol.241 Vol.11039 Fol.240



CDS Edition issued 28-10-1969

I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

Witness

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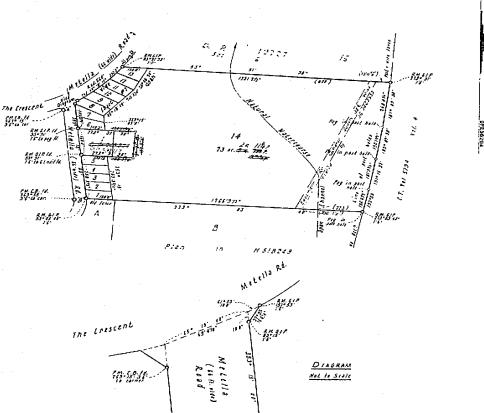


Registrar General.



## PLAN SHOWING LOCATION OF LAND

SEE AUTO FOLIO



#### ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 14 in Deposited Plan 238294 at Prospect in the Municipalities of Blacktown and Holroyd Parish of Prospect and County of Cumberland being part of Portion 35 granted to John Silverthorn on 22-2-1792, part of Portion 36 granted to John O'Craft on 29-9-1792, part of Portion 98 granted to Robert Bolton on 16-8-1819 and part of Portion 99 granted to Samuel Freeman on 17-8-1819.

FIRST SCHEDULE

FOX HILLS GOLF CLUB LIMITED.

#### SECOND SCHEDULE

- Reservations and conditions, if any, contained in the Crown Grant above referred to.
- Covenant created by Transfer No. B748350Pas regards part
- Easement for Water Supply created by Transfer affecting the piece of land No.J262532 33 feet wide shown in the plan hereon.
- Mortgage No. K229496 of the part of the Tand Certificate of Title Volume 9396 Police D to A.G.C. <del>(General Finance)</del> Entered 22-2-1966.
- Mortgage No.K426313 of the part of the -land formerly comprised in Certificate Title Voting 9396 Folio 97 1966. DISCHARGED L 62763

Registrar General

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED.

PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON GRY  $CV_{j}$ 

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NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED



# Historical Title



NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE

21/10/2020 10:41AM

FOLIO: 14/238294

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 11170 FOL 131

Recorded	Number	Type of Instrument	C.T. Issue
5/6/1987		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
1/3/1988		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
22/10/1993		AMENDMENT: LOCAL GOVT AREA	
17/11/1993	DP834672	DEPOSITED PLAN	FOLIO CANCELLED
1/8/2015	AJ701431	DEPARTMENTAL DEALING	

\*\*\* END OF SEARCH \*\*\*

Fox Hills Golf

PRINTED ON 21/10/2020

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(Page 1) Vol.

BRIAT

Appln. No. 5827 Prior Title Vol. 4768 Fol.

NEW SOUTH WALES



FICATE OF TITLE

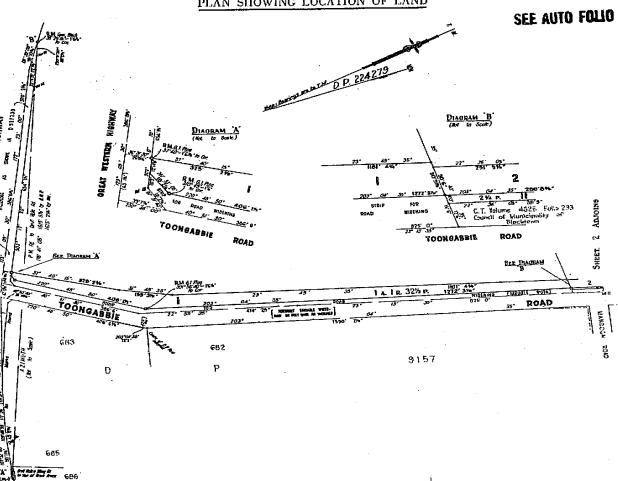
1st Edition issued 29-3-1965.

I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

Witness

Registrar General.

#### PLAN SHOWING LOCATION OF LAND



ESTATE AND LAND REFERRED TO.

2 Estate in Fee Simple in Lot 1 in Deposited Plan 224279 at Prospect in the Municipality of Blacktown Parish of Prospect and County of Cumberland being part of Portion 33 granted to John Nicholls on 22-2-1792 and part of Portion 34 granted to Thomas Martin on 22-2-1792.

FIRST SCHEDULE (Continued overleaf)

BLUE METAL QUARRIES PTY. LIMITED.

General

SECOND SCHEDULE (Continued overleaf)

GRY1. Reservations and conditions, if any, contained in the Crown Grants above referred to.

Mortgage No. 6506739 to Blue Metal & Gravel Limited.

Entered 18-6-1937. Suchanged K62729 Mortgage No. 6511685 to Querries Limited. Entered 18-6-1937.

Covenant created by Transfer No. H103977. ho

	* ••					IT 1609 V. C N. PLIGH	T. GOVERNMENT PRINTER
	FIR	ST SCHEDULE (continued)				·	Signature of Registrar General
			NATURE	INSTRUMENT I NUMBER	I DATE	ENTERED	Signature of Registrar General
	REGISTERED PROPRIETOR		NATURE	<u> </u>			in whater war
			7 0.	16575021	8-9-1966	7 - 2 - 1967	
Jose Hills Golf Club Limited	L		Transfer				
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	SEE AUTO FOLIO						
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# Historical Title



NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE

21/10/2020 5:40PM

FOLIO: 1/224279

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First Title(s): SEE PRIOR TITLE(S)

Prior Title(s): VOL 9967 FOL 43

Recorded	Number	Type of Instrument	C.T. Issue
5/6/1987		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
26/4/1988		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
22/7/1991	Z768535	MORTGAGE	EDITION 1
22/10/1993		AMENDMENT: LOCAL GOVT AREA	
17/11/1993	DP834672	DEPOSITED PLAN	FOLIO CANCELLED

\*\*\* END OF SEARCH \*\*\*

Fox Hills Golf

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(Page 1) Vol

Appln. No. 21013

:3

PERTY ACT, 1900, as amended.



1st Edition issued 29-3-1965.

I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second-Schedule.

Witness

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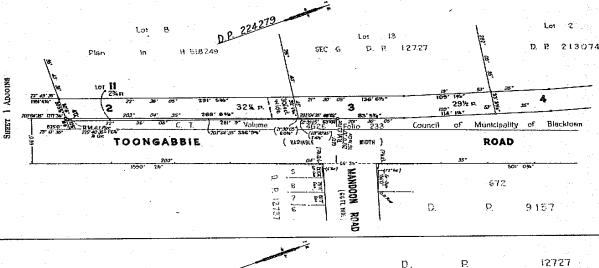
Prior Title Vol. 5794 Fol.

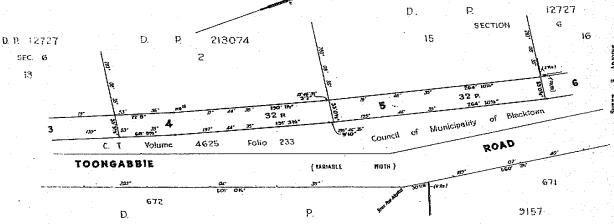
Registrar General.



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PLAN SHOWING LOCATION OF LAND





ESTATE AND LAND REFERRED TO.

in Deposited Plan 224279 at Prospect in the Municipality of Blacktown Estate in Fee Simple in Lot Parish of Prospect and County of Cumberland being part of Portion 35 granted to John Silverthorn on 22-2-1792.

FIRST SCHEDULE (Continued overleaf)

SECOND SCHEDULE (Continued overleaf)

- GRY 1. Reservations and conditions, if any, contained in the Crown Grant above referred to.
  - C506739 to Blue Metal & Gravel Limited:
  - Descharged K62729 <u>-C511685 to Quarries</u>

General.

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED.

PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

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FIRST SCHEDULE (continued)			
REGISTERED PROPRIETOR	INSTRUMENT   NATURE   NUMBER	DATE ENTERED	Signature of Registrar Genera
ne Hillo Golf Club. Limited	Transfer 15750218.	9-1966 7-2-1967	Janualare .
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NATURE	INSTRUMENT	DATE	PARTICULARS	ENTERED	Signature of Registrar General	CANCELLATION	
			Easement for transmission line as more fully set out in the said instrument, affecting that hart of the land within described, shown as 30 feet wrote.				
runger		A. Landau de Maria	in the said instrument affecting that hast of				
			the land within described shown as 30 feet wide.				
			in the plan hereon.	19-9-1968	famelian		

FORM No. 62

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED



# Historical Title



NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE

21/10/2020 5:40PM

FOLIO: 2/224279

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 9967 FOL 44

Recorded	Number	Type of Instrument	C.T. Issue
5/6/1987		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
6/5/1988		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
22/7/1991	Z768535	MORTGAGE	EDITION 1
22/10/1993		AMENDMENT: LOCAL GOVT AREA	
17/11/1993	DP834672	DEPOSITED PLAN	FOLIO CANCELLED

\*\*\* END OF SEARCH \*\*\*

Fox Hills Golf

NEW SOUTH WALES

FICATE OF TITLE ERTY ACT, 1900, as amended.

/NSW LRS



Appln. No. 21013 Prior Title Vol. 5794 Fol. 4

the Registrar-General /Src:INFOTRACK /Ref:Fox Hills Golf



/Prt:21-0ct-2020

I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

Witness

Office of

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PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

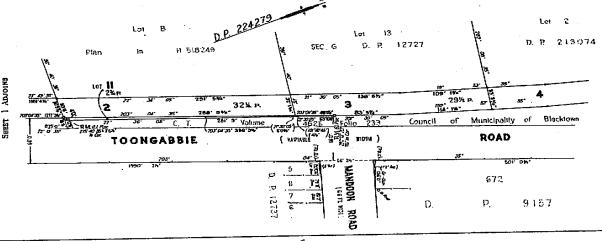
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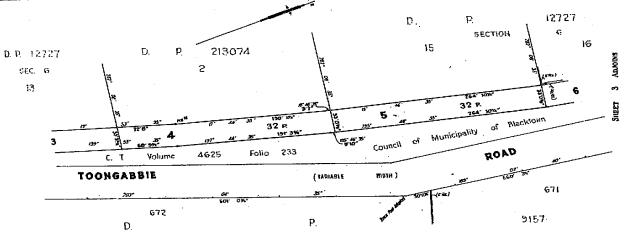
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Registrar General.

# PLAN SHOWING LOCATION OF LAND

# SEE AUTO FOLIO





ESTATE AND LAND REFERRED TO.

in Deposited Plan 224279 at Prospect in the Municipality of Blacktown Parish of Prospect and County of Cumberland being part of Portion 35 granted to John Silverthorn on 22-2-1792.

FIRST SCHEDULE (Continued overleaf)

ASSOCIATED BLUE METAL QUARRIES PTY. LIMITED

SECOND SCHEDULE (Continued overleaf)

1. Reservations and conditions, if any, contained in the Crown Grant above referred to

2. Mertgage No. C506739 to Blue Metal & Gravel Limited. 18-6-1937. Desclarged K62729

3. Mortgago No. C511685 to Quarries

ſ	FIRST SCHEDU	LE (continued)				
	REGISTERED PROPRIETOR	NATURE	INSTRUMENT I NUMBER	) DATE	ENTERED	Signature of Registrar General
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SECOND SCHEDULE (continued)							
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# Historical Title



NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE -----21/10/2020 5:40PM

FOLIO: 3/224279

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First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 9967 FOL 45

Recorded	Number	Type of Instrument	C.T. Issue
5/6/1987		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
26/4/1988		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
22/7/1991	Z768535	MORTGAGE	EDITION 1
22/10/1993		AMENDMENT: LOCAL GOVT AREA	
17/11/1993	DP834672	DEPOSITED PLAN	FOLIO CANCELLED

\*\*\* END OF SEARCH \*\*\*

Fox Hills Golf

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LAND TITLES OFFICE

(Page 1) Vol

PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

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13

1st Edition issued 29-3-1965

I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

Witness

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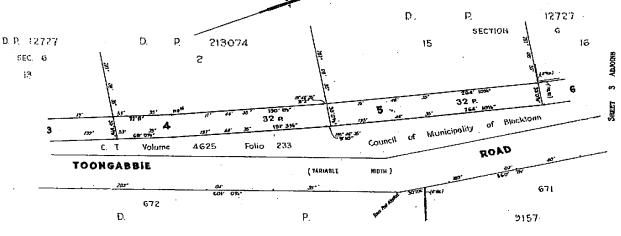
Prior Title Vol. 5794 Fol. 4

Appln. No. 21013

Registrar General.

PLAN SHOWING LOCATION OF LAND

SEE AUTO FOLIO Plen H 518/249 12727 213074 1 ADJOINE 32% P 29% p. 114: PA: Council σſ Municipality Blacktow ROAD **\$72** D, 9157



ESTATE AND LAND REFERRED TO.

Estate in Fee Simple in Lot in Deposited Plan 224279 at Prospect in the Municipality of Blacktown Parish of Prospect and County of Cumberland being part of Portion 35 granted to John Silverthorn on 22-2-1792.

FIRST SCHEDULE (Continued overleaf)

Registrar General.

SECOND SCHEDULE (Continued overleaf)

- 1. Reservations and conditions, if any, contained in the Crown Grant above referred to.
- Mortgage, No. C506739 to Blue Metal & Gravel Limited. -Entered
- Swalniged K62729 3. Mortgago No

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	• "		SECOND SCHEDULE (continued)			
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# Historical Title



NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE -----21/10/2020 5:40PM

FOLIO: 4/224279

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First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 9967 FOL 46

Recorded	Number	Type of Instrument	C.T. Issue
5/6/1987		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
26/4/1988		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
22/7/1991	Z768535	MORTGAGE	EDITION 1
22/10/1993		AMENDMENT: LOCAL GOVT AREA	
17/11/1993	DP834672	DEPOSITED PLAN	FOLIO CANCELLED

\*\*\* END OF SEARCH \*\*\*

Fox Hills Golf



Appln. No. 21013

Prior Title Vol. 5794 Fol. 4

1st Edition issued 29-3-1965.

I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

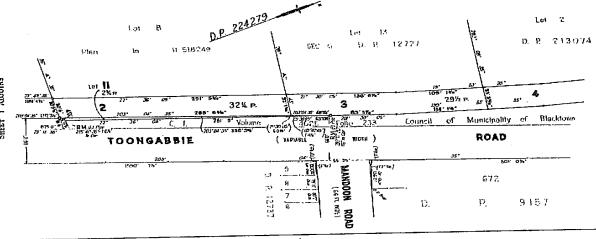
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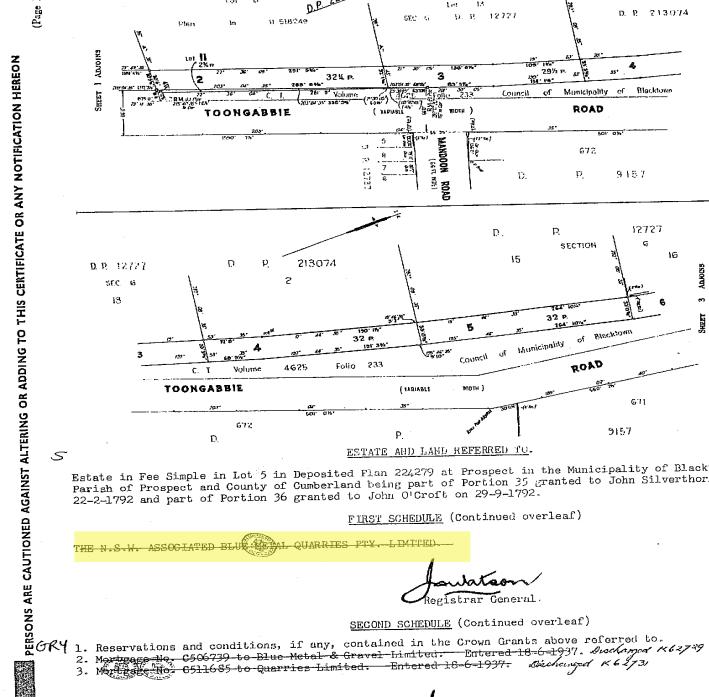
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Registrar General.

PLAN SHOWING LOCATION OF LAND

SEE AUTO FOLIO





Estate in Fee Simple in Lot 5 in Deposited Flan 224279 at Prospect in the Municipality of Blacktown Parish of Prospect and County of Cumberland being part of Portion 35 granted to John Silverthorn on 22-2-1792 and part of Portion 36 granted to John O'Croft on 29-9-1792.

Entered 18-6-1937: C511685 to Quarries Limited.

RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED.

WARNING: THIS DOCUMENT MUST NOT BE REMOVED FROM THE LAND TITLES OFFICE.

FIRST SCHED	ULE (continued)				
REGISTERED PROPRIETOR		INSTRUMENT		ENTERED	Signature o Registrar Gene
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oc Jalls Jof Club Limited	Inansfer	K 575021	8-9-1966	7 -2-1967	Soulation
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·	INSTRUMENT	<del></del>	SECOND SCHEDULE (c	ontinued)  ENTERED	Signature of Registrar General	CANCELLATIO	
NATURE	INSTRUMENT 1 NUMBER 1	DATE	PARTICULARS	ENTERED	Registrar General	CARCLLEATION	
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47



# Historical Title



NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE

21/10/2020 5:40PM

FOLIO: 5/224279

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First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 9967 FOL 47

Recorded	Number	Type of Instrument	C.T. Issue
5/6/1987		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
26/4/1988		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
22/7/1991	Z768535	MORTGAGE	EDITION 1
22/10/1993		AMENDMENT: LOCAL GOVT AREA	
17/11/1993	DP834672	DEPOSITED PLAN	FOLIO CANCELLED

\*\*\* END OF SEARCH \*\*\*

Fox Hills Golf



# Historical Title



NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE

21/10/2020 10:17AM

FOLIO: 100/834672

\_\_\_\_\_

First Title(s): OLD SYSTEM

Prior Title(s): 1-5/224279 14/238294

B/417495 VOL 8483 FOL 46

Recorded	Number	Type of Inst	rument	C.T. Iss	sue
30/11/1993	DP834672	DEPOSITED PL	 AN	FOLIO CF	
14/7/1998	5125491	DEPARTMENTAL	DEALING		
28/5/1999	5858665	DEPARTMENTAL	DEALING		
19/5/2000	6795055	DISCHARGE OF	MORTGAGE		
19/5/2000	6795056	TRANSFER		EDITION	2
1/6/2001	7659962	MORTGAGE		EDITION	3
12/9/2005	AB661051	REQUEST			
15/6/2016	AK509587	DEPARTMENTAL	DEALING		
27/4/2017	AM332072	DISCHARGE OF	MORTGAGE	EDITION	4

\*\*\* END OF SEARCH \*\*\*

Fox Hills Golf

Req:R838013 /Doc:DL AB661051 /Rev:15-Sep-2005 /NSW LRS /Pgs:ALL /Prt:21-Oct-2020 18:15 /Seq:1 of 1 © Office of the Registrar-General /Src:INFOTRACK /Ref:Fox Hills Golf

Form: 11R Release: 1.1 www.lpi.nsw.gov.au

# REQUEST



New South Wales Real Property Act 1900 AB661051Q

A) STAMP DUTY	PRIVACY NOTE: this information is legally required and will become part of the public record  If applicable. Office of State Revenue use only
B) LAND	Torrens Title Folio Identifier 2/802794 Now BEING 1008/1081608
C) REGISTERED DEALING	Number Torrens Title
) LODGED BY	Delivery Name, Address or DX and Telephone BOX 302G LegalStream
	3020 LPN: 123824 M   Tel: 92310122 Fax: 9233 6411   Reference (optional): 9700KLANOS: SWAOS: KY: RM
) APPLICANT	Stockland Development Pty Limited ACN 000 064 835
NATURE OF REQUEST	Application to cancel recording of easement C398894 due to abandonment
	Section 49 Real Property Act 1900  OFF DWI
G) TEXT OF	C 39889

The Applicant applies to have the recording of easement C398894 cancelled from FI 2/802974 as:

- 1. The title was consolidated for Volume 10417 Folio 92 for the Commonwealth of Australia (CSIRO); and
- 2. The right of way is now cut by the resumption of land by the RTA for the M4 motorway and (by dealing Z107688) no access is allowed over that boundary effectively frustrating any original purpose of such right of way; and
- 3. The Applicant now owns Lots 1, 2 & 3 DP 802794 which includes the land from certificate of title Volume 3543 Folio 249 to the south of the M4 motorway and to the east of the public road known as Clunies Ross Street; and

4. The easement has no practical utility.

DATE 27 JULY 2005

Certified for the purposes of the Real Property Act 1900 by the person whose signature appears below.

Signature:

Signatory's name:

Richard J G Hale

Signatory's capacity: applicant's solicitor

All handwriting must be in block capitals.

Page 1 of 1

LAND AND PROPERTY INFORMATION NSW

approved by leg 12 9/9/2005



NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 100/834672

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LAND

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LOT 100 IN DEPOSITED PLAN 834672
AT TOONGABBIE
LOCAL GOVERNMENT AREA CUMBERLAND
PARISH OF PROSPECT COUNTY OF CUMBERLAND

TITLE DIAGRAM DP834672

FIRST SCHEDULE

SEVEN HILLS-TOONGABBIE R.S.L. CLUB LIMITED

(T 6795056)

#### SECOND SCHEDULE (5 NOTIFICATIONS)

\_\_\_\_\_

- 1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
- 2 B748350 COVENANT AFFECTING THE PART SHOWN SO BURDENED IN THE TITLE DIAGRAM.
- 3 H103977 COVENANT AFFECTING THE PART SHOWN SO BURDENED IN THE TITLE DIAGRAM.
- 4 H518249 COVENANT AFFECTING THE PART SHOWN SO BURDENED IN THE TITLE DIAGRAM.
- 5 EASEMENT(S) AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM CREATED BY:

D68737 EASEMENT FOR ELECTRICITY PURPOSES 3.05 WIDE

J262532 EASEMENT FOR WATER SUPPLY 10.06 WIDE

L128017 EASEMENT FOR TRANSMISSION LINE 9.145 WIDE

DP834672 EASEMENT FOR DRAINAGE VARIABLE WIDTH (A)

DP834672 EASEMENT FOR DRAINAGE 2.5, 3.28 WIDE AND

VARIABLE (B)

DP834672 EASEMENT TO DRAIN WATER 4.5 WIDE AND VARIABLE (C)

DP834672 EASEMENT TO DRAIN WATER 7 WIDE (D)

DP834672 EASEMENT FOR LEVEE PURPOSES 12, 24 WIDE AND

VARIABLE (E)

DP834672 EASEMENT FOR DRAINAGE 10, 23 WIDE AND VARIABLE

(F)

DP834672 EASEMENT TO DRAIN WATER 3 WIDE (G)

DP834672 EASEMENT TO DRAIN WATER 5 WIDE (H)

#### NOTATIONS

\_\_\_\_\_

UNREGISTERED DEALINGS: NIL

\*\*\* END OF SEARCH \*\*\*

Fox Hills Golf

<sup>\*</sup> Any entries preceded by an asterisk do not appear on the current edition of the Certificate of Title. Warning: the information appearing under notations has not been formally recorded in the Register. InfoTrack an approved NSW Information Broker hereby certifies that the information contained in this document has been provided electronically by the Registrar General in accordance with Section 96B(2) of the Real Property Act 1900.



**Section 10.7 Certificates** 



# **Applicant Details**

Your reference E33524PA MMP

JK ENVIRONMENTS JK ENVIRONMENTS PO BOX 976 NSW 1670

# **Certificate Details**

**Certificate no.** PL2020/12838 **Fee: \$133.00** 

Date issued 06 October 2020 Urgency fee: N/A

**Receipt no.** ePay Ref 104341

# **Property information**

**Property ID** 316153 **Land ID** 316153

**Legal description** LOT 100 DP 834672

Address 55 FOX HILLS CRESCENT TOONGABBIE NSW 2146

County CUMBERLAND Parish PROSPECT

# PLANNING CERTIFICATE (Section 10.7(2 & 5))

Blacktown City Council prepared this Planning Certificate under Section 10.7 of the *Environmental Planning and Assessment Act 1979*. The form and content of the Certificate is consistent with *Environmental Planning and Assessment Regulation 2000*.

# Disclaimer

Blacktown City Council gives notice and points out to all users of the information supplied herein, that the information herein has been compiled by Council from sources outside of Council's control. While the information herein is provided with all due care and in good faith, it is provided on the basis that Council will not accept any responsibility for and will not be liable for its contents or for any consequence arising from its use, and every user of such information is advised to make all necessary enquiries from the appropriate organisations, institutions and the like. Blacktown City Council also gives notice to all users of the information supplied herein, wherever any particular enquiry herein remains unanswered or has not been elaborated upon, such silence should not be interpreted as meaning or inferring either a negative or a positive response as the case may be.

# **Section 10.7(2)**

The following information is provided under Section 10.7(2) of the *Environmental Planning and Assessment Act 1979*. The information relates to the subject land at the date of this Certificate.

# Names of relevant planning instruments and development control plans

# 1.1 Environmental Planning Instrument

Blacktown Local Environmental Plan 2015 applies to the subject land.

# 1.2 Proposed Local Environmental Plans

Not applicable.

# 1.3 Other Applicable State Environmental Planning Policies

Attachment 1 contains a list of State Environmental Planning Policies that may apply to the carrying out of development on the subject land.

# 1.4 Proposed State Environmental Planning Policies

Council is not aware of any proposed State Environmental Planning Policy that is or has been the subject of community consultation or on public exhibition under the Act, applying to the subject land.

# 1.5 Development control plans

Blacktown Development Control Plan 2015 applies to the subject land.

# 2. Zoning and land use under relevant environmental planning instruments

The following information will assist in determining how the subject land may be developed. It is recommended that you read this section in conjunction with a full copy of any relevant environmental planning instrument as there may be additional provisions that affect how the land may be developed.

# 2.1 Zoning

Under Blacktown Local Environmental Plan 2015, the land is zoned:

#### Zone RE2 Private Recreation

The following is an extract from Blacktown Local Environmental Plan 2015 outlining the types of development that may or may not be carried out in the above zone

### 1 Objectives of zone

- To enable land to be used for private open space or recreational purposes.
- To provide a range of recreational settings and activities and compatible land uses.
- To protect and enhance the natural environment for recreational purposes.

#### 2 Permitted without consent

Nil

#### 3 Permitted with consent

Aquaculture; Building identification signs; Business identification signs; Centre-based child care facilities; Community facilities; Educational establishments; Environmental facilities; Environmental protection works; Flood mitigation works; Function centres; Hotel or motel accommodation; Information and education facilities; Kiosks; Pubs; Recreation areas; Recreation facilities (indoor); Recreation facilities (major); Recreation facilities (outdoor); Registered clubs; Respite day care centres; Restaurants or cafes; Roads; Water reticulation systems

#### 4 Prohibited

Any development not specified in item 2 or 3

#### Zone SP2 Infrastructure

The following is an extract from Blacktown Local Environmental Plan 2015 outlining the types of development that may or may not be carried out in the above zone

# 1 Objectives of zone

- To provide for infrastructure and related uses.
- To prevent development that is not compatible with or that may detract from the provision of infrastructure.
- To ensure that development does not have an adverse impact on the form and scale of the surrounding neighbourhood.

#### 2 Permitted without consent

Environmental protection works; Flood mitigation works

# 3 Permitted with consent

Aquaculture; Roads; Signage; The purpose shown on the Land Zoning Map, including any development that is ordinarily incidental or ancillary to development for that purpose

#### 4 Prohibited

Any development not specified in item 2 or 3

The SP2 Infrastructure zone applicable to this site is for the purposes of: SP2 - Infrastructure-Drainage

# 2.2 Minimum land dimensions for the erection of a dwelling house

Not applicable

#### 2.3 Critical habitat

The land does not include or comprise a critical habitat.

Note: Critical habitat registers are kept by the National Parks and Wildlife Service under the *Threatened Species Conservation Act 1995* and the Department of Fisheries under the *Fisheries Management Act 1994*.

# 2.4 Conservation areas

The land is not within a conservation area.

# 2.5 Environmental Heritage

The land does not contain an item of environmental heritage under the protection of Blacktown Local Environmental Plan 2015

# 3. Complying development

Complying development may or may not be carried out on the subject land under an Environmental Planning Policy. Council does not have sufficient information to determine the extent to which specific complying development may or may not be carried out.

# 4. Coastal protection

The subject land is not affected by the operation of Sections 38 or 39 of the *Coastal Protection Act, 1979*.

# 5. Mine subsidence

The subject land has not been proclaimed to be a mine subsidence district within the meaning of Section 15 of the *Mine Subsidence Compensation Act 1961*.

# 6. Road widening and road realignment

The subject land is not affected by road widening or road realignment under an environmental planning instrument.

# 7. Council and other public authority policies on hazard risk restrictions

# 7.1 Contaminated Lands Policy and Asbestos Policy Schedule 6

Council has adopted a Contaminated Lands Policy and an Asbestos Policy which may restrict development on the subject land.

The Land Contamination Policy applies when zoning or land use changes are proposed on land which has previously been used for certain purposes or has the potential to be affected by such purposes undertaken on nearby lands. The Asbestos Policy applies where land contains, or is likely to have contained in the past, buildings or structures that were erected prior to the banning of asbestos. Both policies should be considered in the context of relevant State legislation and guidelines.

Council's records may not be sufficient to determine all previous uses on the land, or determine activities that may have taken place on this land.

# 7.2 Other policies on hazard risk restrictions

Council has not adopted any other policies to restrict the development of the subject land by reason of the likelihood of landslip, bushfire, tidal inundation, subsidence or the occurrence of acid sulphate soils.

Note: Although Council has not adopted a specific policy to restrict development bushfire prone land, it is bound by state-wide bushfire legislation that may restrict development on the subject land. Additional information relating to bushfire prone land is provided at point 11 below.

# 7a. Flood related development controls information

Council has adopted a Floodplain Management Policy which may restrict the development of the land subject to this Certificate, including development for the purposes of dwelling houses, dual occupancies, multi-dwelling housing, residential flat buildings and any other purpose that requires the placement or erection of any structure on the land. The Flood Risk Precinct Maps prepared under the policy are based on the results of Engineering Flood Studies commissioned by Government Authorities and Council. These maps indicate that the land subject to this Certificate lies partly or wholly within the High Flood Risk Precinct. The term High Flood Risk Precinct is defined as the area of land below the 100-year flood event that is either subject to a high hydraulic hazard or where there are significant evacuation difficulties. Further details are provided in the NSW Government's Floodplain Development Manual and are available from Council. Council does not warrant that the information provided or made available to you is complete. Council strongly recommends that, in all cases, you seek independent professional advice to supplement your enquiries.

Council has adopted a Floodplain Management Policy which may restrict the development of the land subject to this Certificate, including development for the purposes of dwelling houses, dual occupancies, multi-dwelling housing, residential flat buildings and any other purpose that requires the placement or erection of any structure on the land. The Flood Risk

Precinct Maps prepared under the policy are based on the results of Engineering Flood Studies commissioned by Government Authorities and Council. These maps indicate that the land subject to this Certificate lies partly or wholly within the Medium Flood Risk Precinct. The term Medium Flood Risk Precinct is defined as land below the 100-year flood level that is not within a High Flood Risk Precinct. This is land that is not subject to a high hydraulic hazard or where there are no significant evacuation difficulties. Further details are provided in the NSW Government's Floodplain Development Manual and are available from Council. Council does not warrant that the information provided or made available to you is complete. Council strongly recommends that, in all cases, you seek independent professional advice to supplement your enquiries.

# 8. Land reserved for acquisition

Blacktown Local Environmental Plan 2015 makes provision for land included on the Land Reservation Acquisition Map to be acquired by a public authority.

# 9. Contributions plans

Council currently levies contributions under Section 7.11 of the *Environmental Planning & Assessment Act 1979* for facilities and services. The further development of the subject land may incur such contributions.

Contributions Plan No. 19 - Blacktown Growth Precinct applies to the subject land.

Contributions Plan No. 3 - Open Space in Established Residential Areas applies to the subject land.

# 9a. Biodiversity certified land

The land is not biodiversity certified land as defined by Part 7AA of the *Threatened Species Conservation Act 1995*.

# 10. Biobanking agreements

The land is not subject to any biobanking agreement under Part 7A of the *Threatened Species Conservation Act 1995*.

# 11. Bushfire prone land

The Rural Fires and Environmental Assessment Legislation Amendment Act 2002, which came into force on 1 August 2002, introduced development provisions for bush fire prone land as shown on a Bush Fire Prone Land Map. "Bush fire prone land" is land that has been designated by the Commissioner of the NSW Rural Fire Service as being bush fire prone due to characteristics of vegetation and topography. The land the subject of this certificate has been identified on Council's Bush Fire Prone Land Map as being:

Clear of any bush fire prone land

On land that is bush fire prone, certain development may require further consideration under Section 4.14 or Section 4.46 of the *Environmental Planning & Assessment Act 1979* and under Section 100B of the *Rural Fires Act 1997*.

# 12. Property vegetation plans

The subject land is not affected by a property vegetation plan under the *Native Vegetation Act 2003*. The Blacktown local government area is excluded from the operation of the *Native Vegetation Act 2003* (refer Schedule 1 Part 3 of that Act).

# 13. Orders under Trees (Disputes Between Neighbours) Act 2006

No. Council has not been notified of any order made under the *Trees (Disputes Between Neighbours) Act 2006* in relation to the subject land.

# 14. Site compatibility certificates and conditions for seniors housing

Land to which this Certificate applies is not subject to the above.

# 15. Site compatibility certificates for infrastructure

Land to which this Certificate applies is not subject to the above.

# 16. Site compatibility certificates and conditions for affordable rental housing

Land to which this Certificate applies is not subject to the above.

# 17. Paper subdivision information

Not applicable

# 18. Site verification certificates

Council is not aware of any site verification certificate applying to the subject land.

Under the Contaminated Land Management Act 1997 and Contaminated Land Management Amendment Act 2008

- (a) The land to which this certificate relates has not been declared to be significantly contaminated land at the date when the certificate was issued
- (b) The land to which the certificate relates is not subject to a management order at the date when the certificate was issued
- (c) The land to which this certificate relates is not the subject of an approved voluntary management proposal at the date when the certificate was issued

- (d) The land to which this certificate relates is not subject to an ongoing maintenance order as at the date when the certificate was issued
- (e) The land to which this certificate relates is not the subject of a site audit statement provided to the Council.

# 19. Affected building notices and building product rectification orders

# 19.1 Affected building notices

Council is not aware of any affected building notice in force for the subject land.

# 19.2 Building product rectification orders

- (a) Council is not aware of any building product rectification order in force for the subject land.
- (b) Council is not aware of any notice of intention to make a building product rectification order being given for the subject land.

# **Section 10.7(5)**

The following information is provided under Section 10.7(5) of the *Environmental Planning & Assessment Act 1979*. As per section 10.7(6) of the Act, Council shall not incur any liability in respect of any advice provided in good faith under section 10.7(5). The absence of any reference to any matter affecting the land shall not imply that the land is not affected by any matter not referred to in this Certificate.

# **Planning Instruments and Covenants**

The provisions of any covenant, agreement or instrument applying to this land that restrict or prohibit certain development may be inconsistent with the provisions of an environmental planning instrument. In such cases, the provisions of any such covenant, agreement or instrument may be overridden.

#### **Loose-filled Asbestos Insulation**

Some residential homes located in the Blacktown Local Government Area may potentially contain loose-fill asbestos insulation, for example in the roof space. NSW Fair Trading maintains a Register of homes that are affected by loose-fill asbestos insulation.

You should make your own enquiries as to the age of the buildings on the land to which this certificate relates and, if it contains a building constructed prior to 1980, the council strongly recommends that any potential purchaser obtain advice from a licensed asbestos assessor to determine whether loose-fill asbestos is present in any building on the land and, if so, the health risks (if any) this may pose for the building's occupants.

Contact NSW Fair Trading for further information

# **Biodiversity and Threatened Species Conservation**

The land is affected by a tree preservation control under Clause 5.9 of the Blacktown Local Environmental Plan 2015. A person shall not ringbark, cut down, lop, top, remove, injure or wilfully destroy any tree, or cause any tree to be ringbarked, cut down, topped, lopped, injured or wilfully destroyed, except with the consent of the Council.

The provisions of any covenant, agreement or instrument applying to this land purporting to restrict or prohibit certain development may be inconsistent with the provisions of a Regional Environmental Plan, State Environmental Planning Policy or Blacktown Local Environmental Plan 2015, in which case the provisions of any such covenant, agreement or instrument may be overridden.

The *Threatened Species Conservation Act 1995* provides for the conservation of threatened species, populations and ecological communities of animals and plants.

The *Threatened Species Conservation Act 1995* amended the *Environmental Planning and Assessment Act 1979* to require, amongst other things, that:

- (a) A critical habitat (as defined in the *Threatened Species Conservation Act 1995*) be identified in environmental planning instruments, and
- (b) Consent authorities and determining authorities must, when considering proposed development or an activity, assess whether it is likely to significantly affect threatened species, populations and ecological communities, or their habitats, and, if a significant effect is likely, to require the preparation of a species impact statement in accordance with the requirements of the *Threatened Species Conservation Act 1995*, and
- (c) Consent authorities and determining authorities must, when considering proposed development or an activity, have regard to the relevant recovery plans and threat abatement plans.

The *Environment Protection and Biodiversity Conservation Act 1999* provides protection for items of national significance. Items of national environmental significance include nationally threatened animal and plant species and ecological communities.

The Act requires a separate Commonwealth approval to be obtained where an action is likely to have significant impacts on items of national environmental significance.

For further information on this matter, please contact the Australian Government's Department of the Environment.

# Attachment 1 – State Environmental Planning Policies

In addition to the principal environmental planning instrument identified in section 2.1 of this Certificate, the following State Environmental Planning Policies may also affect development on the subject land.

# SEPP (Affordable Rental Housing) 2009

This policy aims to facilitate the increased supply and diversity of affordable rental and social housing in NSW and covers housing types including in-fill affordable housing, along with secondary dwellings (granny flats), boarding houses, group homes, social housing and supportive accommodation. Part 3 of the policy provides for the retention of existing affordable rental housing stock. Development applications to demolish, alter or add, change the use of, or strata subdivide existing low cost rental dwellings may require a contribution towards the provision of alternative affordable housing.

#### SEPP (Building Sustainability Index: BASIX) 2004

This policy aims to ensure consistency in the implementation of the BASIX scheme throughout the State by overriding provisions of other environmental planning instruments and development control plans that would otherwise add to, subtract from or modify any obligations arising under the BASIX scheme.

# SEPP (Exempt and Complying Development Codes) 2008

This policy is also known as the Codes SEPP and includes a number of Codes that allow for certain types of development to be undertaken without the need for council approval as either Exempt Development or approved under a fast track system known as Complying Development, if the relevant standards are met.

# **SEPP (Sydney Region Growth Centres) 2006**

This policy provides for the coordinated release of land for residential, employment and other urban development in the North West Growth Centre, the South West Growth Centre and the Wilton Growth Area. It provides development controls to enable the establishment of vibrant, sustainable and liveable neighbourhoods that provide for community well-being and high quality local amenity.

#### SEPP (Housing for Seniors or People with a Disability) 2004

This policy is also known as Seniors Housing SEPP and encourages the development of high quality and well-designed housing for older people and people with disabilities, while ensuring that it is in keeping with neighbourhood character. In October 2018, an amendment was made to change some

rules for site compatibility certificates and to make the relevant planning panel the determining authority for site compatibility certificates issued under the Seniors Housing SEPP.

#### SEPP (Infrastructure) 2007

This policy assists the NSW Government, private infrastructure providers, local councils and the communities they support by simplifying the process for providing infrastructure like hospitals, roads, railways, emergency services, water supply and electricity delivery, while ensuring appropriate levels of environmental assessment and consultation are undertaken. Recent changes introduce new provisions for correctional services, emergency and police services facilities and bushfire hazard reduction, ports and roads infrastructure, including facilities for electric vehicles, and other operational and housekeeping improvements.

#### **SEPP (Miscellaneous Consent Provisions) 2007**

This policy contains provisions for the erection of temporary structures, subdivision, the demolition of a building or work, certain change of use and fire alarm communication links.

#### **SEPP (State Significant Precincts) 2005**

The purpose of this Policy is to facilitate the development, redevelopment or protection of important urban, coastal and regional sites of economic, environmental or social significance to the State so as to facilitate the orderly use, development or conservation of those State significant precincts for the benefit of the State. It also aims to facilitate service delivery outcomes for a range of public services and to provide for the development of major sites for a public purpose or redevelopment of major sites no longer appropriate or suitable for public purposes.

#### SEPP (Mining, Petroleum Production and Extractive Industries) 2007

This policy is also known as the Mining SEPP and governs the way that mining, petroleum production and extractive material resource proposals are assessed and developed in NSW.

### **SEPP No 1 - Development Standards**

This policy provides flexibility in the application of development standards and allows Council to approve a development that does not comply with a development standard where it can be shown that the development standard is unreasonable or unnecessary.

#### SEPP No 19 - Bushland in Urban Areas

This policy protects and preserves bushland within urban areas because of its natural heritage, its aesthetic value and its value for recreational, educational or scientific purposes. The policy aims to protect bushland areas in public open space zones and reservations and ensures that bushland

preservation is given priority when local environmental plans are prepared.

#### SEPP No 21 - Caravan Parks

This policy applies to development for the purpose of caravan parks and camping grounds. The policy ensures that development consent is required for new caravan parks and camping grounds and for additional long term sites in existing caravan parks. It also requires that development consent be obtained from Council for the subdivision of land for lease purposes under the Local Government Act.

# **SEPP No. 30 - Intensive Agriculture**

Requires development consent for cattle feedlots having a capacity of 50 or more cattle or piggeries having a capacity of 200 or more pigs. The policy sets out information and public notification requirements to ensure there are effective planning control over this export-driven rural industry. The policy does not alter if, and where, such development is permitted, or the functions of the consent authority.

#### SEPP No. 32 - Urban Consolidation

States the Government's intention to ensure that urban consolidation objectives are met in all urban areas throughout the State. The policy focuses on the redevelopment of urban land that is no longer required for the purpose it is currently zoned or used, and encourages local councils to pursue their own urban consolidation strategies to help implement the aims and objectives of the policy. Councils will continue to be responsible for the majority of rezonings. The policy sets out guidelines for the Minister to follow when considering whether to initiate a regional environmental plan (REP) to make particular sites available for consolidated urban redevelopment. Where a site is rezoned by an REP, the Minister will be the consent authority.

### SEPP No 33 - Hazardous and Offensive Development

This policy applies to development defined as 'potentially hazardous industry' or 'potentially offensive industry'. The policy ensures that in determining whether a development is a hazardous or offensive industry, any measures proposed to be employed to reduce the impact of the development are taken into account.

#### SEPP No 55 - Remediation of Land

This policy promotes the remediation of contaminated land for the purpose of reducing risk of harm to human health. The policy includes considerations that are relevant in rezoning land and in determining development applications where remediation of land is required.

## SEPP No. 62 - Sustainable Aquaculture

Encourages the sustainable expansion of the industry in NSW. The policy implements the regional strategies already developed by creating a simple approach to identity and categorise aquaculture development on the basis of its potential environmental impact. The SEPP also identifies aquaculture development as a designated development only where there are potential environmental risks.

## SEPP No 64 - Advertising and Signage

This policy sets out planning controls for advertising and signage in NSW and requires signage to be compatible with the future character of an area, provide effective communication in suitable locations and be of high quality design and finish. The policy also bans advertisements on parked trailers on roads, road shoulders, footpaths and nature strips, excluding advertising associated with the primary use of the trailer.

# SEPP No 65 - Design Quality of Residential Apartment Development

This policy aims to improve the design quality of residential apartment development through the application of 9 design quality principles. The policy also provides requirements for a constituted design review panel to provide independent expert advice to council on the merit of residential flat developments. A design review panel is not mandatory.

## Sydney Regional Environmental Plan No 30 - St Marys

This plan provides the planning framework for the planning and development of land known as Australian Defence Industries (ADI) site at St Marys.

# SEPP (Western Sydney Employment Area) 2009

This policy aims to protect and enhance land in the Western Sydney Employment Area for employment purposes and to promote economic development and the creations of employment opportunities in Western Sydney. The policy provides for a coordinated approach to the planning, development and rezoning of land within the Western Sydney Employment Area and includes controls to ensure that development occurs in a logical, environmentally sensitive and cost-effective manner.

#### SEPP (Western Sydney Parklands) 2009

This policy provides the framework to enable the Western Sydney Parklands Trust to develop the Western Parklands into a multi-use urban parkland to meet a range of community needs and interests, including those that promote health and well-being in the community for Western Sydney.

# **SEPP (Western Sydney Recreation Area)**

This policy enables development to be carried out for recreational, sporting and cultural purposes within the Western Sydney Recreation Area, including the development of a recreation area of state significance.

Authorised by Blacktown City Council Proforma ID: 855692

**End of Certificate** 



**SafeWork NSW Records** 

Locked Bag 2906, Lisarow NSW 2252

Customer Experience 13 10 50

ABN 81 913 830 179 | www.safework.nsw.gov.au

Our Ref: D20/218850

17 January 2021

Mr Anthony Barkway

JK Environments Pty Ltd

abarkway@jkenvironments.com.au

Dear Mr Barkway

# RE SITE: 55 Fox Hills Cres, Prospect NSW 2148

I refer to your site search request received by SafeWork NSW on 12 October 2020 requesting information on Storage of Hazardous Chemicals for the above site.

Enclosed are copies of the documents that SafeWork NSW holds on record number 35/017087 relating to the storage of Hazardous Chemicals at the above-mentioned premises.

For further information or if you have any questions, please call us on 13 10 50 or email <a href="mailto:licensing@safework.nsw.gov.au">licensing@safework.nsw.gov.au</a>

Yours sincerely

ame

**Customer Service Officer** 

**Customer Experience - Operations** 

SafeWork NSW



Licence No. 35/017087

GRD-2

RECEIVED SERVICE CENTRE 28 UST 2003 WORKCOVER NEW SOUTH WALLS

### APPLICATION FOR RENEWAL NEW SOUTH WALL

### OF LICENCE TO KEEP DANGEROUS GOODS

ISSUED UNDER AND SUBJECT TO THE PROVISIONS OF THE DANGEROUS GOODS ACT, 1975 AND REGULATION THEREUNDER

DECLARATION: Please renew licence number 35/017087 to 10/12/2004. I confirm that all the licence details shown below are correct (amend if necessary).

....*K.V.VVIV.* (Signature) ANGIE MOULAKAS (Please print name)

27/10/03

for: SEVEN HILLS/TOONGABBIE RSL LTD

THIS SIGNED DECLARATION SHOULD BE RETURNED TO:

WorkCover New South Wales
Dangerous Goods Licensing Section

Enquiries:ph (02) 43215500 fax (02) 92875500

LOCKED BAG 2906 LISAROW NSW 2252

Details of licence on 24 October 2003

Licence Number 35/017087

Expiry Date 10/12/2003

Licensee

SEVEN HILLS/TOONGABBIE RSL LTD ACN 000 112 327 FOX HILLS GOLF CLUB

Postal Address: FOX HILLS GOLF CLUB 55 FOX HILLS CRES PROSPECT NSW 2148

ANGIE MOULIKAS Licensee Contact BRAD-HARDING Ph. 9631 3390 Fax. 9896 3309

Premises Licensed to Keep Dangerous Goods

SEVEN HILLS/TOONGABBIE RSL LTD FOX HILLS GOLF CLUB 55 FOX HILLS CRES PROSPECT 2148

Nature of Site GOLF CLUBS

Major Supplier of Dangerous Goods VARIOUS

Emergency Contact for this Site KENTON BOYD 0419 015 862 Ph. 9631 9803

Site staffing 8 HRS 5 DAYS

**Details of Depots** 

Depot No. Depot Type

Goods Stored in Depot

Qty

C1

**ROOFED STORE** 

Class 6.1 200 L

UN 2777 MERCURY BASED PESTICIDE, SOLID, TOXIC 50 L UN 2903 PESTICIDE, LIQUID, TOXIC, FLAMMABLE, N.O.S. 50 L

UN 3017 ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC, FL 25 L

P1

ABOVE-GROUND TANK

Class 3

1000 L

UN 1203 PETROL

1000 L





# \*\* REMINDER NOTICE \*\* APPLICATION FOR RENEWAL

### OF LICENCE TO KEEP DANGEROUS GOODS

ISSUED UNDER AND SUBJECT TO THE PROVISIONS OF THE DANGEROUS GOODS ACT, 1975 AND REGULATION THEREUNDER TOXIC, FL  $\,$  25 L

Class 3

P1

ABOVE-GROUND TANK

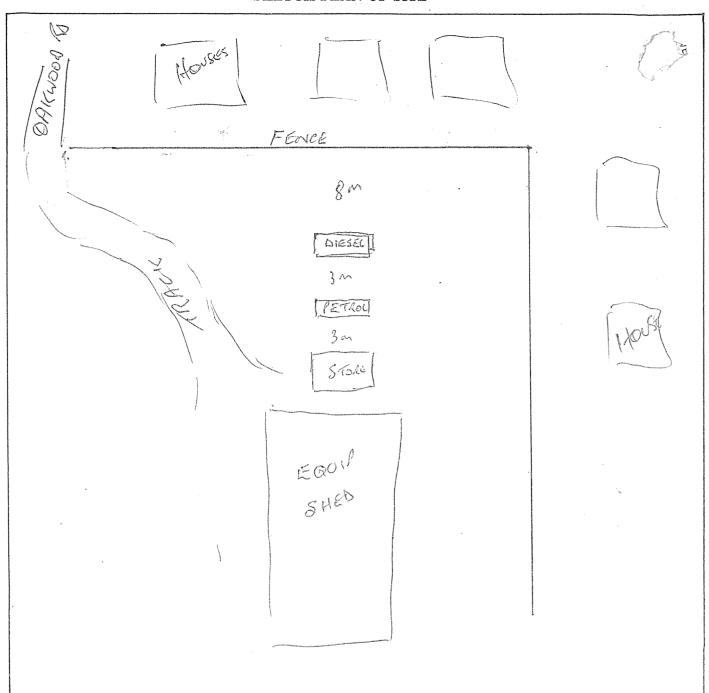
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1000 L

UN 1203 PETROL

1000 L

### SKETCH PLAN OF SITE



Show positions of Depot(s) with:-

- (1) distances from public places and protected works;
- (2) street names;
- (3) nature and details of adjacent properties.

40.0" x 7.0" BESSER BRICK WALL 525GALLON TANK OPEN Jack

000

TANK PLAN FOX HILLS GOLFCLUBATO.



**Appendix C: Laboratory Results Summary Tables** 



#### ABBREVIATIONS AND EXPLANATIONS

#### **Abbreviations used in the Tables:**

ABC: Ambient Background Concentration PCBs: Polychlorinated Biphenyls

ACM: Asbestos Containing Material PCE: Perchloroethylene (Tetrachloroethylene or Teterachloroethene)

ADWG: AustralianDrinking Water Guidelines pH<sub>KCL</sub>: pH of filtered 1:20, 1M KCL extract, shaken overnight AF: Asbestos Fines pH of filtered 1:20 1M KCl after peroxide digestion

ANZG Australian and New Zealand Guidelines PQL: Practical Quantitation Limit

**B(a)P:** Benzo(a)pyrene **RS:** Rinsate Sample

CEC: Cation Exchange Capacity RSL: Regional Screening Levels
CRC: Cooperative Research Centre RSW: Restricted Solid Waste
CT: Contaminant Threshold SAC: Site Assessment Criteria

ElLs: Ecological Investigation Levels SCC: Specific Contaminant Concentration

ESLs:Ecological Screening LevelsScr.:Chromium reducible sulfurFA:Fibrous AsbestosSpos:Peroxide oxidisable SulfurGIL:Groundwater Investigation LevelsSSA:Site Specific Assessment

GSW: General Solid Waste SSHSLs: Site Specific Health Screening Levels

HILS: Health Investigation Levels TAA: Total Actual Acidity in 1M KCL extract titrated to pH6.5

HSLs: Health Screening Levels TB: Trip Blank

HSL-SSA: Health Screening Level-SiteSpecific Assessment TCA: 1,1,1 Trichloroethane (methyl chloroform)

kg/L kilograms per litre TCE: Trichloroethylene (Trichloroethene)

NA: Not Analysed TCLP: Toxicity Characteristics Leaching Procedure

TCAL Potential Asidity 1M KCL perceide direct

NC: Not Calculated TPA: Total Potential Acidity, 1M KCL peroxide digest NEPM: National Environmental Protection Measure TS: Trip Spike

NHMRC: National Health and Medical Research Council TRH: Total Recoverable Hydrocarbons
NL: Not Limiting TSA: Total Sulfide Acidity (TPA-TAA)

NSL: No Set Limit UCL: Upper Level Confidence Limit on Mean Value OCP: Organochlorine Pesticides USEPA United States Environmental Protection Agency

OPP: Organophosphorus Pesticides VOCC: Volatile Organic Chlorinated Compounds

PAHs: Polycyclic Aromatic Hydrocarbons WHO: World Health Organisation

weight per weight

Parts per million

%w/w:

ppm:

#### **Table Specific Explanations:**

#### **HIL Tables:**

- The chromium results are for Total Chromium which includes Chromium III and VI. For initial screening purposes, we have assumed that the samples contain only Chromium VI unless demonstrated otherwise by additional analysis.
- Carcinogenic PAHs is a toxicity weighted sum of analyte concentrations for a specific list of PAH compounds relative to B(a)P. It is also referred to as the B(a)P Toxic Equivalence Quotient (TEQ).
- Statistical calculations are undertaken using ProUCL (USEPA). Statistical calculation is usually undertaken using data from fill samples.

#### **EIL/ESL Table:**

- ABC Values for selected metals have been adopted from the published background concentrations presented in Olszowy et. al., (1995), Trace Element Concentrations in Soils from Rural and Urban New South Wales (the 25th percentile values for old suburbs with high traffic have been quoted).

#### **Waste Classification and TCLP Table:**

- Data assessed using the NSW EPA Waste Classification Guidelines, Part 1: Classifying Waste (2014).
- The assessment of Total Moderately Harmful pesticides includes: Dichlorovos, Dimethoate, Fenitrothion, Ethion, Malathion and Parathion.
- Assessment of Total Scheduled pesticides include: HBC, alpha-BHC, gamma-BHC, beta-BHC, Heptachlor, Aldrin, Heptachlor Epoxide, gamma-Chlordane, alpha-chlordane, pp-DDE, Dieldrin, Endrin, pp-DDD, pp-DDT, Endrin Aldehyde.

#### QA/QC Table:

- Field blank, Inter and Intra laboratory duplicate results are reported in mg/kg.
- Trip spike results are reported as percentage recovery.
- Field rinsate results are reported in μg/L.



TABLE S1

SOIL LABORATORY RESULTS COMPARED TO NEPM 2013.

HIL-A: 'Residential with garden/accessible soils; children's day care centers; preschools; and primary schools'

						HEAVY I	METALS					PAHs			ORGANOCHLO	ORINE PESTI	CIDES (OCPs)			OP PESTICIDES (OPPs)		
All data in mg/kg unles	ss stated otherv	vise	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Total	Carcinogenic	НСВ	Endosulfan	Methoxychlor	Aldrin &	Chlordane	DDT, DDD	Heptachlor	Chlorpyrifos	TOTAL PCBs	ASBESTOS FIBRES
			7566	Caaman	C.III C.IIII.	оорре.	2000	c. ca. y	- Trioner	20	PAHs	PAHs				Dieldrin		& DDE				
PQL - Envirolab Service	es		4	0.4	1	1	1	0.1	1	1	-	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	100
Site Assessment Criter	ria (SAC)		100	20	100	6000	300	40	400	7400	300	3	10	270	300	6	50	240	6	160	1	Detected/Not Detected
Sample Reference	Sample Depth	Sample Description																				
BH1	0-0.2	F: sandy clay	7	<0.4	16	14	25	0.2	11	48	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH1 - [LAB_DUP]	0-0.2	Lab Duplicate	7	<0.4	14	14	23	0.2	9	47	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH1	0.5-0.7	F: silty clay	4	<0.4	12	11	11	<0.1	2	10	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH1 - [LAB_DUP]	0.5-0.7	Lab Duplicate	9	<0.4	18	12	14	<0.1	3	12	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH1 - [TRIPLICATE]	0.5-0.7	Lab Triplicate	7	<0.4	15	10	13	<0.1	3	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH2	0-0.4	F: silty sand	6	<0.4	16	18	22	<0.1	8	36	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
вн3	0-0.2	F: sandy clay	8	<0.4	13	24	19	0.6	14	64	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
вн3	0.5-0.7	F: silty clay	6	<0.4	10	18	12	<0.1	4	23	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH4	0-0.2	F: clayey sand	7	<0.4	15	20	25	0.2	14	51	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH4	0.5-0.7	F: silty clay	<4	<0.4	11	15	27	0.1	11	31	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
вн5	0-0.4	F: sandy clay	14	<0.4	14	15	32	<0.1	9	59	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
вн6	0-0.2	F: sandy clay	13	<0.4	23	15	30	<0.1	9	43	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
вн7	0-0.2	F: clayey sand	6	<0.4	39	21	19	<0.1	31	45	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
вн7	0.5-0.95	F: clayey sand	5	<0.4	18	16	15	<0.1	16	57	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
вн8	0-0.3	F: clayey sand	16	<0.4	20	12	31	<0.1	6	38	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
вн9	0-0.3	F: clayey silty sand	<4	<0.4	29	14	10	<0.1	10	13	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
вн9	0.55-0.85	F: clayey sand	5	<0.4	26	11	10	<0.1	20	15	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH10	0-0.3	F: silty sand	13	<0.4	24	23	28	<0.1	15	89	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH10 - [LAB_DUP]	0-0.3	Lab Duplicate	11	<0.4	20	26	25	<0.1	13	94	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
SDUP1	-	Field Duplicate	6	<0.4	13	22	15	<0.1	7	29	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SDUP6	-	Field Duplicate	11	<0.4	22	10	22	<0.1	5	16	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Number of San	mples		21	21	21	21	21	21	21	21	20	20	18	18	18	18	18	18	18	18	18	7
Maximum Value			16	<pql< td=""><td>39</td><td>26</td><td>32</td><td>0.6</td><td>31</td><td>94</td><td><pql< td=""><td><pql< td=""><td>Not Detected</td></pql<></td></pql<></td></pql<></td></pql<></td></pql<></td></pql<></td></pql<></td></pql<></td></pql<></td></pql<></td></pql<></td></pql<>	39	26	32	0.6	31	94	<pql< td=""><td><pql< td=""><td>Not Detected</td></pql<></td></pql<></td></pql<></td></pql<></td></pql<></td></pql<></td></pql<></td></pql<></td></pql<></td></pql<></td></pql<>	<pql< td=""><td><pql< td=""><td><pql< td=""><td><pql< td=""><td><pql< td=""><td><pql< td=""><td><pql< td=""><td><pql< td=""><td><pql< td=""><td><pql< td=""><td>Not Detected</td></pql<></td></pql<></td></pql<></td></pql<></td></pql<></td></pql<></td></pql<></td></pql<></td></pql<></td></pql<>	<pql< td=""><td><pql< td=""><td><pql< td=""><td><pql< td=""><td><pql< td=""><td><pql< td=""><td><pql< td=""><td><pql< td=""><td><pql< td=""><td>Not Detected</td></pql<></td></pql<></td></pql<></td></pql<></td></pql<></td></pql<></td></pql<></td></pql<></td></pql<>	<pql< td=""><td><pql< td=""><td><pql< td=""><td><pql< td=""><td><pql< td=""><td><pql< td=""><td><pql< td=""><td><pql< td=""><td>Not Detected</td></pql<></td></pql<></td></pql<></td></pql<></td></pql<></td></pql<></td></pql<></td></pql<>	<pql< td=""><td><pql< td=""><td><pql< td=""><td><pql< td=""><td><pql< td=""><td><pql< td=""><td><pql< td=""><td>Not Detected</td></pql<></td></pql<></td></pql<></td></pql<></td></pql<></td></pql<></td></pql<>	<pql< td=""><td><pql< td=""><td><pql< td=""><td><pql< td=""><td><pql< td=""><td><pql< td=""><td>Not Detected</td></pql<></td></pql<></td></pql<></td></pql<></td></pql<></td></pql<>	<pql< td=""><td><pql< td=""><td><pql< td=""><td><pql< td=""><td><pql< td=""><td>Not Detected</td></pql<></td></pql<></td></pql<></td></pql<></td></pql<>	<pql< td=""><td><pql< td=""><td><pql< td=""><td><pql< td=""><td>Not Detected</td></pql<></td></pql<></td></pql<></td></pql<>	<pql< td=""><td><pql< td=""><td><pql< td=""><td>Not Detected</td></pql<></td></pql<></td></pql<>	<pql< td=""><td><pql< td=""><td>Not Detected</td></pql<></td></pql<>	<pql< td=""><td>Not Detected</td></pql<>	Not Detected

Concentration above the SAC Concentration above the PQL

VALUE Bold



TABLE S2

SOIL LABORATORY RESULTS COMPARED TO HSLs

All data in mg/kg unless stated otherwise

					C <sub>6</sub> -C <sub>10</sub> (F1)	>C <sub>10</sub> -C <sub>16</sub> (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	Field PID Measurement
PQL - Envirolab Serv	ices				25	50	0.2	0.5	1	1	1	ppm
NEPM 2013 HSL Lan	d Use Categor	у					HSL-A/B: LO	OW/HIGH DENSITY	RESIDENTIAL			
Sample Reference	Sample Depth	Sample Description	Depth Category	Soil Category								
BH1	0-0.2	F: sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH1 - [LAB_DUP]	0-0.2	Lab Duplicate	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	-
BH1	0.5-0.7	F: silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH1 - [LAB_DUP]	0.5-0.7	Lab Duplicate	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	-
BH2	0-0.4	F: silty sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH3	0-0.2	F: sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH3	0.5-0.7	F: silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH4	0-0.2	F: clayey sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH4	0.5-0.7	F: silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH5	0-0.4	F: sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH6	0-0.2	F: sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH7	0-0.2	F: clayey sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH7	0.5-0.95	F: clayey sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0.2
BH8	0-0.3	F: clayey sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH9	0-0.3	F: clayey silty sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0.1
BH9	0.55-0.85	F: clayey sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH10	0-0.3	F: silty sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH10 - [LAB_DUP]	0-0.3	Lab Duplicate	0m to <1m	Sand	<25	51	<0.2	<0.5	<1	<3	<1	-
BH10	0.5-0.7	Silty clay	0m to <1m	Sand	<25	<50	NA	NA	NA	NA	NA	7.6
SDUP1	-	Field Duplicate	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	-
SDUP6	-	Field Duplicate	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	-
Total Number of S	amnles				21	21	20	20	20	20	20	16
Maximum Value	up.c3				<pql< td=""><td>51</td><td><pql< td=""><td><pql< td=""><td><pql< td=""><td><pql< td=""><td><pql< td=""><td>7.6</td></pql<></td></pql<></td></pql<></td></pql<></td></pql<></td></pql<>	51	<pql< td=""><td><pql< td=""><td><pql< td=""><td><pql< td=""><td><pql< td=""><td>7.6</td></pql<></td></pql<></td></pql<></td></pql<></td></pql<>	<pql< td=""><td><pql< td=""><td><pql< td=""><td><pql< td=""><td>7.6</td></pql<></td></pql<></td></pql<></td></pql<>	<pql< td=""><td><pql< td=""><td><pql< td=""><td>7.6</td></pql<></td></pql<></td></pql<>	<pql< td=""><td><pql< td=""><td>7.6</td></pql<></td></pql<>	<pql< td=""><td>7.6</td></pql<>	7.6

Concentration above the SAC

Concentration above the POI

Bold

The guideline corresponding to the concentration above the SAC is highlighted in grey in the Site Assessment Criteria Table below

#### HSL SOIL ASSESSMENT CRITERIA

Sample Reference	Sample Depth	Sample Description	Depth Category	Soil Category	C <sub>6</sub> -C <sub>10</sub> (F1)	>C <sub>10</sub> -C <sub>16</sub> (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene
BH1	0-0.2	F: sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH1 - [LAB_DUP]	0-0.2	Lab Duplicate	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH1	0.5-0.7	F: silty clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH1 - [LAB_DUP]	0.5-0.7	Lab Duplicate	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH2	0-0.4	F: silty sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH3	0-0.2	F: sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH3	0.5-0.7	F: silty clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH4	0-0.2	F: clayey sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH4	0.5-0.7	F: silty clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH5	0-0.4	F: sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH6	0-0.2	F: sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH7	0-0.2	F: clayey sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH7	0.5-0.95	F: clayey sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH8	0-0.3	F: clayey sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH9	0-0.3	F: clayey silty sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH9	0.55-0.85	F: clayey sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH10	0-0.3	F: silty sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH10 - [LAB_DUP]	0-0.3	Lab Duplicate	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH10	0.5-0.7	Silty clay	0m to <1m	Sand	45	110	NA	NA	NA	NA	NA
SDUP1	-	Field Duplicate	0m to <1m	Sand	45	110	0.5	160	55	40	3
SDUP6	-	Field Duplicate	0m to <1m	Sand	45	110	0.5	160	55	40	3

Concentration above the SAC

Concentration above the PQL



			C <sub>6</sub> -C <sub>10</sub> (F1) plus	>C <sub>10</sub> -C <sub>16</sub> (F2) plus	>C <sub>16</sub> -C <sub>34</sub> (F3)	>C <sub>34</sub> -C <sub>40</sub> (F4)
			BTEX	napthalene	1 016 034 (1 0)	34 040 (1.1)
PQL - Envirolab Se	rvices		25	50	100	100
NEPM 2013 Land	Use Category		RE	SIDENTIAL, PARKLAND	& PUBLIC OPEN SP.	ACE
Sample Reference	Sample Depth	Soil Texture				
BH1	0-0.2	Coarse	<25	<50	<100	<100
BH1 - [LAB_DUP]	0-0.2	Coarse	<25	<50	<100	<100
BH1	0.5-0.7	Coarse	<25	<50	<100	<100
BH1 - [LAB_DUP]	0.5-0.7	Coarse	<25	<50	<100	<100
BH2	0-0.4	Coarse	<25	<50	<100	<100
BH3	0-0.2	Coarse	<25	<50	<100	<100
вн3	0.5-0.7	Coarse	<25	<50	<100	<100
BH4	0-0.2	Coarse	<25	<50	<100	<100
BH4	0.5-0.7	Coarse	<25	<50	<100	<100
BH5	0-0.4	Coarse	<25	<50	<100	<100
BH6	0-0.2	Coarse	<25	<50	<100	<100
BH7	0-0.2	Coarse	<25	<50	<100	<100
BH7	0.5-0.95	Coarse	<25	<50	<100	<100
BH8	0-0.3	Coarse	<25	<50	<100	<100
вн9	0-0.3	Coarse	<25	<50	<100	<100
вн9	0.55-0.85	Coarse	<25	<50	<100	<100
BH10	0-0.3	Coarse	<25	<50	220	160
BH10 -	0-0.3	Coarse	<25	51	270	240
BH10	0.5-0.7	Coarse	<25	<50	<100	<100
SDUP1	-	Coarse	<25	<50	<100	<100
SDUP6	-	Coarse	<25	<50	<100	<100
	·	-	· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·	
Total Number of S	Samples		21	21	21	21
Maximum Value			<pql< td=""><td>51</td><td>270</td><td>240</td></pql<>	51	270	240

#### MANAGEMENT LIMIT ASSESSMENT CRITERIA

VALUE

Bold

Sample Reference	Sample Depth	Soil Texture	C <sub>6</sub> -C <sub>10</sub> (F1) plus BTEX	>C <sub>10</sub> -C <sub>16</sub> (F2) plus napthalene	>C <sub>16</sub> -C <sub>34</sub> (F3)	>C <sub>34</sub> -C <sub>40</sub> (F4)
BH1	0-0.2	Coarse	700	1000	2500	10000
BH1 - [LAB_DUP]	0-0.2	Coarse	700	1000	2500	10000
BH1	0.5-0.7	Coarse	700	1000	2500	10000
BH1 - [LAB_DUP]	0.5-0.7	Coarse	700	1000	2500	10000
BH2	0-0.4	Coarse	700	1000	2500	10000
BH3	0-0.2	Coarse	700	1000	2500	10000
BH3	0.5-0.7	Coarse	700	1000	2500	10000
BH4	0-0.2	Coarse	700	1000	2500	10000
BH4	0.5-0.7	Coarse	700	1000	2500	10000
BH5	0-0.4	Coarse	700	1000	2500	10000
BH6	0-0.2	Coarse	700	1000	2500	10000
BH7	0-0.2	Coarse	700	1000	2500	10000
BH7	0.5-0.95	Coarse	700	1000	2500	10000
BH8	0-0.3	Coarse	700	1000	2500	10000
вн9	0-0.3	Coarse	700	1000	2500	10000
вн9	0.55-0.85	Coarse	700	1000	2500	10000
BH10	0-0.3	Coarse	700	1000	2500	10000
BH10 -	0-0.3	Coarse	700	1000	2500	10000
BH10	0.5-0.7	Coarse	700	1000	2500	10000
SDUP1	-	Coarse	700	1000	2500	10000
SDUP6	-	Coarse	700	1000	2500	10000



TABLE S4
SOIL LABORATORY RESULTS COMPARED TO DIRECT CONTACT CRITERIA
All data in mg/kg unless stated otherwise

Analyte		C <sub>6</sub> -C <sub>10</sub>	>C <sub>10</sub> -C <sub>16</sub>	>C <sub>16</sub> -C <sub>34</sub>	>C <sub>34</sub> -C <sub>40</sub>	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	PID
PQL - Envirolab Service	es	25	50	100	100	0.2	0.5	1	1	1	
CRC 2011 -Direct cont	act Criteria	4,400	3,300	4,500	6,300	100	14,000	4,500	12,000	1,400	
Site Use				RESIDE	NTIAL WITH AC	CESSIBLE SOIL-	DIRECT SOIL CO	NTACT			
Sample Reference	Sample Depth										
BH1	0-0.2	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH1 - [LAB_DUP]	0-0.2	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	-
BH1	0.5-0.7	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH1 - [LAB_DUP]	0.5-0.7	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	-
BH2	0-0.4	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH3	0-0.2	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH3	0.5-0.7	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH4	0-0.2	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH4	0.5-0.7	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH5	0-0.4	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH6	0-0.2	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH7	0-0.2	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH7	0.5-0.95	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0.2
BH8	0-0.3	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH9	0-0.3	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0.1
BH9	0.55-0.85	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH10	0-0.3	<25	<50	220	160	<0.2	<0.5	<1	<3	<1	0
BH10 - [LAB_DUP]	0-0.3	<25	51	270	240	<0.2	<0.5	<1	<3	<1	-
BH10	0.5-0.7	<25	<50	<100	<100	NA	NA	NA	NA	NA	7.6
SDUP1	-	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	-
SDUP6	-	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	-
Total Number of Sam	ples	21	21	21	21	20	20	20	20	20	16
Maximum Value		<pql< td=""><td>51</td><td>270</td><td>240</td><td><pql< td=""><td><pql< td=""><td><pql< td=""><td><pql< td=""><td><pql< td=""><td>7.6</td></pql<></td></pql<></td></pql<></td></pql<></td></pql<></td></pql<>	51	270	240	<pql< td=""><td><pql< td=""><td><pql< td=""><td><pql< td=""><td><pql< td=""><td>7.6</td></pql<></td></pql<></td></pql<></td></pql<></td></pql<>	<pql< td=""><td><pql< td=""><td><pql< td=""><td><pql< td=""><td>7.6</td></pql<></td></pql<></td></pql<></td></pql<>	<pql< td=""><td><pql< td=""><td><pql< td=""><td>7.6</td></pql<></td></pql<></td></pql<>	<pql< td=""><td><pql< td=""><td>7.6</td></pql<></td></pql<>	<pql< td=""><td>7.6</td></pql<>	7.6

Concentration above the SAC Concentration above the PQL

VALUE Bold



TABLE SS
ASBESTOS QUANTIFICATION - FIELD OBSERVATIONS AND LABORATORY RESULTS
HSL-A: Residential with garden/accessible soils; children's day care centers; preschools; and primary schools

							FIELD DATA										LABORA	ATORY DATA						
	Sample reference	Sample Depth	ACM in	Approx. Soil Soil Mass (g	) Mass ACM (g)	Mass Asbestos in ACM (g)	[Asbestos from ACM in soil] (%w/w)	Mass ACM <7mm (g)	Mass Asbestos in ACM <7mm (g)	[Asbestos from ACM <7mm in soil] (%w/w)	Mass FA (g)	[Asbestos from FA in soil] (%w/w)	Lab Report Number	Sample refeference	Sample Depth	Sample Mass (g)	Asbestos ID in soil (AS4964) >0.1g/kg	Trace Analysis	Total Asbestos (g/kg)	Asbestos ID in soil <0.1g/kg	ACM >7mm Estimation (g)	FA and AF Estimation (g)	ACM >7mm Estimation %(w/w)	
SAC			No				0.01			0.001		0.001											0.01	0.001
9/11/2020	BH1	0.1-0.6	No	- 5,000	No ACM observed			No ACM <7mm observed			No FA observed	 					-							
9/11/2020	BH1	0.6-1.0	No	- 6,500	No ACM observed			No ACM <7mm observed			No FA observed	 					-							
9/11/2020	BH1	1.0-1.5	No	- 3,500	No ACM observed			No ACM <7mm observed			No FA observed	 					-							
9/11/2020	BH2	0.0-0.4	No	- 9,400	No ACM observed			No ACM <7mm observed			No FA observed	 	255513	BH2	0.0-0.4	858.53	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres  detected	No asbestos detected	<0.1	No visible asbestos detected	-	-	<0.01	<0.001
9/11/2020	вн3	0.0-0.2	No	- 2,500	No ACM observed			No ACM <7mm observed			No FA observed	 	255513	BH3	0.0-0.2	666.24	No asbestos detected at reporting limit of U.1g/kg: Organic fibres	No asbestos detected	<0.1	No visible asbestos detected	-	-	<0.01	<0.001
9/11/2020	вн3	0.2-0.85	No	- 7,000	No ACM observed			No ACM <7mm observed			No FA observed	 					-							
9/11/2020	BH4	0.0-0.2	No	- 5,250	No ACM observed			No ACM <7mm observed			No FA observed	 	255513	BH4	0.0-0.2	836.08	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres	No asbestos detected	<0.1	No visible asbestos detected	-	-	<0.01	<0.001
9/11/2020	BH4	0.2-0.7	No	- 7,450	No ACM observed			No ACM <7mm observed			No FA observed	 					-							
9/11/2020	BH5	0.0-0.4	No	- 4,500	No ACM observed			No ACM <7mm observed			No FA observed	 					-							
10/11/2020	вн6	0.0-0.2	No	- 9,450	No ACM observed			No ACM <7mm observed			No FA observed	 					-							
10/11/2020	BH7	0.0-0.2	No	- 7,400	No ACM observed			No ACM <7mm observed			No FA observed	 	255513	BH7	0.0-0.2	834.63	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres  detected	No asbestos detected	<0.1	No visible asbestos detected	-	-	<0.01	<0.001
10/11/2020	BH7	0.2-1.2	No	- 1,050	No ACM observed			No ACM <7mm observed			No FA observed	 					-							
10/11/2020	вн8	0.0-0.3	No	- 7,500	No ACM observed			No ACM <7mm observed			No FA observed	 	255513	BH8	0.0-0.3	733.99	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres	No asbestos detected	<0.1	No visible asbestos detected	-	-	<0.01	<0.001
10/11/2020	вн9	0.0-0.3	No	- 9,450	No ACM observed			No ACM <7mm observed			No FA observed	 	255513	BH9	0.0-0.3	763.75	No asbestos detected at reporting limit of U.1g/kg: Organic fibres	No asbestos detected	<0.1	No visible asbestos detected	-	-	<0.01	<0.001
10/11/2020	вн9	0.55-0.85	No	- 2,500	No ACM observed			No ACM <7mm observed			No FA observed	 					-							
10/11/2020	вн9	0.85-2.5	No	- 10,000	No ACM observed			No ACM <7mm observed			No FA observed	 					-							
10/11/2020	BH10	0.0-0.3	No	- 8,000	No ACM observed			No ACM <7mm observed			No FA observed	 	255513	BH10	0.0-0.3	489.41	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres	No asbestos detected	<0.1	No visible asbestos detected	-	-	<0.01	<0.001



TABLE S6
SOIL LABORATORY RESULTS COMPARED TO NEPM 2013 EILs AND ESLs
All data in mg/kg unless stated otherwise

Controlling   (N. City)   Controlling   (N. City)   Controlling   (N. City)   Controlling   Contro		
PQL Emirodus Services		
Sample Reference   Sample Description   Sample De	e Total Xylenes	B(a)P
Sample Reference   Sample Depth   Sample Description   Soil Texture   Sample Description   Soil Texture   Sample Description   Soil Texture   1	0.05	
Sample Reference   Opeth   Sample Description   S	NSL	NSL
BH1   [AB, DUP]   0-0.2   Lab Duplicate   Coarse   NA   NA   NA   NA   7   14   14   23   9   47   <1   0.0.1   <2.5   <5.0   <1.00   <1.00   <0.0   <0.0   <0.0   <0.0   <1.00   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0   <0.0		
BHI	<3	<0.05
BH1_[TRPLICATE]	<3	<0.05
BH1   TIRPICATE    0.5-0.7   Lab Triplicate   Coarse   NA   NA   NA   NA   NA   NA   NA   N	<3	<0.05
BH2	<3	<0.05
BH3   0-0.2   F; sandy clay   Coarse   NA   NA   NA   NA   NA   NA   NA   N	NA	NA
BH3	<3	<0.05
BH4 0-0-2 F: clayey sand Coarse NA NA NA NA NA NA NA NA NA NA NA NA NA	<3	<0.05
BH4 0.5-0.7 F; siftyclay Coarse NA NA NA NA NA NA NA NA NA NA NA NA NA	<3	<0.05
BH5 0-0.4 F: sandy clay Coarse NA NA NA NA 14 14 15 32 9 59 <1 <0.1 <0.1 <0.5 <5 <50 <100 <100 <0.2 <0.5 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	<3	<0.05
BH6 0-0.2 F: sandy clay Coarse NA NA NA NA NA NA NA NA NA NA NA NA NA	<3	<0.05
BH7 0-0.2 F: clayey sand Coarse NA NA NA NA NA NA NA NA NA NA NA NA NA	<3	<0.05
BH7 0.5-0.95 F: clayey sand Coarse NA NA NA NA 16 20 12 31 6 38 <1 <0.1 <0.1 <0.25 <50 <100 <100 <0.2 <0.5 <1 <1 <1 <0.1 <0.25 <50 <100 <100 <100 <0.2 <0.5 <1 <1 <1 <1 <0.1 <0.25 <1 <1 <1 <1 <0.1 <0.1 <0.25 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	<3	<0.05
BH8 0-0.3 F: clayey sand Coarse NA NA NA NA NA NA NA NA NA NA NA NA NA	<3	<0.05
BH9 0-0.3 F: clayey silty sand Coarse NA NA NA NA NA NA S 29 14 10 10 10 13 <1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <	<3	<0.05
BH9 0.55-0.85 F: clayey sand Coarse NA NA NA NA NA S 26 11 10 20 15 <1 <0.1 <0.1 <0.25 <50 <100 <100 <0.2 <0.5 <1 <0.5 <1 <0.5 <1 <0.5 <1 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5	<3	<0.05
BH10 0-0.3 F: silty sand Coarse NA NA NA NA NA 13 24 23 28 15 89 <1 <0.1 <0.1 <0.2 <0.5 <0.5 <0.1 <0.1 <0.2 <0.5 <0.5 <0.5 <0.2 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5	<3	<0.05
BH10 - [LAB_DUP]	<3	<0.05
BH10 0.5-0.7 Silty clay Coarse NA NA NA NA NA NA NA NA NA NA NA NA NA	<3	<0.05
SDUP1         Field Duplicate         Coarse         NA         NA         NA         6         13         22         15         7         29         <1         NA         <25         <50         <100         <100         <0.2         <0.5         <1           SDUP6         Field Duplicate         Coarse         NA         NA         NA         11         22         10         22         5         16         <1	<3	<0.05
SDUP1 Field Duplicate Coarse NA NA NA NA NA NA NA NA NA NA NA NA NA	NA	NA
SDUPO FIELD DUDICATE COAISE INA INA INA INA INA INA INA INA INA INA	<3	<0.05
Tatal Number of Countles	<3	<0.05
	20	20
Total Number of Samples 0 0 0 21 21 21 21 21 21 21 20 18 21 21 21 21 21 20 20 20  Maximum Value NA NA NA NA 16 39 26 32 31 94 <pql 240="" 270="" 51="" <pql="" <pql<="" td=""><td>20 <pql< td=""><td>20 <pql< td=""></pql<></td></pql<></td></pql>	20 <pql< td=""><td>20 <pql< td=""></pql<></td></pql<>	20 <pql< td=""></pql<>

Concentration above the SAC

VALUE Bold

Concentration above the PQL

The guideline corresponding to the elevated value is highlighted in grey in the EIL and ESL Assessment Criteria Table below

#### EIL AND ESL ASSESSMENT CRITERIA

Sample Reference	Sample Depth	Sample Description	Soil Texture	рН	CEC (cmolc/kg)	Clay Content (% clay)	Arsenic	Chromium	Copper	Lead	Nickel	Zinc	Naphthalene	DDT	C <sub>6</sub> -C <sub>10</sub> (F1)	>C <sub>10</sub> -C <sub>16</sub> (F2) plus napthalene	>C <sub>16</sub> -C <sub>34</sub> (F3)	>C <sub>34</sub> -C <sub>40</sub> (F4)	Benzene	Toluene	Ethylbenzene	Total Xylenes	B(a)P
BH1	0-0.2	F: sandy clay	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH1 - [LAB_DUP]	0-0.2	Lab Duplicate	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH1	0.5-0.7	F: silty clay	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH1 - [LAB_DUP]	0.5-0.7	Lab Duplicate	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH1 - [TRIPLICATE]	0.5-0.7	Lab Triplicate	Coarse	NA	NA	NA	100	200	90	1300	35	190											
BH2	0-0.4	F: silty sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH3	0-0.2	F: sandy clay	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH3	0.5-0.7	F: silty clay	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH4	0-0.2	F: clayey sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH4	0.5-0.7	F: silty clay	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH5	0-0.4	F: sandy clay	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH6	0-0.2	F: sandy clay	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH7	0-0.2	F: clayey sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH7	0.5-0.95	F: clayey sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH8	0-0.3	F: clayey sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH9	0-0.3	F: clayey silty sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH9	0.55-0.85	F: clayey sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH10	0-0.3	F: silty sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH10 - [LAB_DUP]	0-0.3	Lab Duplicate	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH10	0.5-0.7	Silty clay	Coarse	NA	NA	NA									180	120	300	2800					
SDUP1	-	Field Duplicate	Coarse	NA	NA	NA	100	200	90	1300	35	190	170		180	120	300	2800	50	85	70	105	20
SDUP6	-	Field Duplicate	Coarse	NA	NA	NA	100	200	90	1300	35	190	170		180	120	300	2800	50	85	70	105	20

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TABLE S	S7 A/QC SUMI	MARY																																																															
			TRH C6 - C10	TRH >C10-C16	TRH >C16-C34	TRH >C34-C40	Benzene	Toluene	Ethylbenzene	m+p-xylene	o-Xylene	Naphthalene	Acenaphthylene	Acenaph-thene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(a)anthracene	Chrysene	Benzo(b.i+k)fluoranthene	Benzo(a)bvrene	Indeno(1,2,3-c,d)pyrene	Dihenzo(a h)anthra-cene	Banzo(a h ibandana	HOB	a true	O Hard	garina- pro	Heotachlor	O He et et	Aldrin	Heptachlor Epoxide	Gamma- Chlordane	alpha- chlordane	Endosulfan I	pp- DDE	Dieldrin	Endrin	DDD -dd	Endosulfan II	рр- ООТ	Endrin Aldehyde	Endosulfan Sulphate	Methoxychlor	Azinphos-methyl (Guthion	Bromophos-ethyl	Chlorpyriphos	Chlorpyriphos-methyl	Diazinon	o di di di di di di di di di di di di di	Ethion	Fenitrothion	Malathion	Parathion	Ronnel	Total PCBS	Arsenic	Cadmium	Chromium	Lead	Mercury	Nickel	Zinc
		nvirolab SYD		50					1	2																						1 0.:	1 0.1	0.1																			1 0.1						4		1 1	1	0.1		1
	PQL E	nvirolab VIC	25	50	100	100	0.2	0.5	1.0	2.0	1.0	0.1	0.1	0.1	0.1	0.1	1 0.	1 0.1	. 0.1	0.1	0.1	0.2	2 0.1	1 0.1	1 0	1 0.	1 0.1	. 0.	1 0.	.1 0	1 0.1	1 0	1 0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1 0	0.1 0.	1 0.	1 0.1	0.1	0.1	0.1	0.1	0.1	4.0	0.4	1.0 1.0	0 1.0	0.1	1.0	1.0
Intra laborator duplicate Intra laborator duplicate	RPD % BH8 ry SDUP6	0-0.4	<25 nc nc nc <25 <25 nc	<50 <50 nc nc <50 <50 nc	<100 nc nc <100 <100 nc	0 <100 nc nc 0 <100 0 <100 nc	0 <0.2 nc nc	<0.5 <0.5 nc nc <0.5 <0.5 nc	<1 <1 nc nc <1 <1 nc nc	<2 <2 nc nc nc c c c c c c c c c c c c c c c	<1 <1 nc nc <1 <1 nc nc nc <1 <1 nc nc nc	<0.1 <0.1 nc nc <0.1 <0.1 nc	<0.1 nc nc <0.1 <0.1 nc	<0.1 nc nc <0.1 <0.1 nc	<0.1 nc nc	<0 nc nc	.1 <0 c n	1.1 <0.1	1 <0. 1 <0. 1 no 1 <0. 1 <0. 1 <0. 1 <0. 1 <0. 1 no 1 no 1 no	1 <0 nc nc	1 <0.1 nc nc 1 <0.1 1 <0.1	1 <0. no no 1 <0. 1 <0. 1 <0. 1 <0.	2 <0.0 c no c no 2 <0.0 2 <0.0 c no	05 <0. : no	.1 <0 .1 <0	.1 <0 c n c n .1 <0 .1 <0	.1 <0. .1 NA	1 <0	A N c n c n c n A N c n C n C n C n C N C n C n C n C n C n C	0.1 <0 IA N	1 <0.	A Na	A NA c nc c nc	NA nc	NA nc	NA nc nc NA NA nc	<0.1 NA nc nc <0.1 NA nc	NA nc	<0.1 NA nc nc <0.1 NA nc	<0.1 NA nc nc nc <0.1 NA nc	<0.1 NA nc nc <0.1 NA nc	NA nc	NA nc	NA nc	<0.1 NA nc nc <0.1 NA nc cnc	NA nc nc NA NA nc	NA nc nc	<0.1 < NA I nc nc nc <0.1 < NA I nc	0.1 < NA nc nc 0.1 < NA nc nc	(0.1 < NA ! nc   nc   1	0.1 <0 NA N nc n nc n 0.1 <0 NA N nc n nc n	0.1 <0 A N c n c n c n 0.1 <0 A N c n	1.1 <0.:1 A NA c nc c nc l.1 <0.:1 A NA c nc c nc	<0.1 NA nc nc nc . <0.1 NA nc	<0.1 NA nc nc <0.1 NA nc	NA nc nc	<0.1 NA nc nc <0.1 NA nc	<0.1 NA nc nc nc <0.1 NA nc nc	6 < 6 0% 16 < 11 < 13.5	<0.4 <0.4 nc	16 14 13 2: 4.5 20 1% 20 20 1: 22 10 21 1: 0% 18	2 31 0 22 1 26.5	onc <0.1 <0.1	7 7.5 13% 6 5 5.5	36 29 32.5 22% 38 16 27 81%
										_												-																																											
Field Blank	TB-S1 10/11/2	20	<25	NA	NA	NA	<0.2	<0.5	<1	<2	<1	NA	NA	NA	NA	NA	A N	A NA	A NA	A NA	NA.	N/	A NA	A NA	A N	A N	A NA	N.	A N	IA N	A NA	A N	A NA	NA	NA.	NA	NΑ	NA.	NΑ	NΑ	NΑ	NA	NA	NA	NA	NA	NA	NA I	NA	NA I	NA N	A N	A NA	NA	NA	NA	NΑ	NA	NA	NA I	NA N	n NA	NA	NA	NA .
Trip Spike	TS-S1 10/11/2	20	-	-		-	1039	101%	103%	103%	104%	-	-	-	-	-		-		-	-	-		-			-					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			-	-	-	-	-	-	-	-		-	-	-	-
Field	FR-S1 S	PT μg/L	NA	NA	NA	NA	<1	<1	<1	<2	<1	NA	NA	NA	NA	NA	A N	A NA	A NA	A NA	NA.	N/	A NA	N/	A N	A N.	A NA	N.	A N	IA N	A NA	A N	A NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA I	NA	NA I	NA N	A N	A NA	NA	NA	NA	NA	NA	NA	NA I	NA N	A NA	NA	NA	NA
Field Rinsate	10/11/2	20																																																															
	Result	outside of QA/Q	QC accepta	tance crit	eria																																																												

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#### ABBREVIATIONS AND EXPLANATIONS

#### **Abbreviations used in the Tables:**

CRC:

ADWG: AustralianDrinking Water Guidelines **PCBs:** Polychlorinated Biphenyls

ANZG Australian and New Zealand Guidelines PCE: Perchloroethylene (Tetrachloroethylene or Tetrachloroethene)

RS:

B(a)P: Benzo(a)pyrene PQL: **Practical Quantitation Limit** 

Cooperative Research Centre Rinsate Sample **Ecological Screening Levels** ESLs: RSL: **Regional Screening Levels** GIL: **Groundwater Investigation Levels** SAC: Site Assessment Criteria HILs: **Health Investigation Levels** SSA: Site Specific Assessment

HSLs: **Health Screening Levels SSHSLs**: Site Specific Health Screening Levels

 $\textbf{HSL-SSA:} \ \ \textbf{Health Screening Level-SiteSpecific Assessment}$ TB: Trip Blank

NA: Not Analysed TCA: 1,1,1 Trichloroethane (methyl chloroform) NC: Not Calculated TCE: Trichloroethylene (Trichloroethene)

**NEPM:** National Environmental Protection Measure TS: Trip Spike

NHMRC: National Health and Medical Research Council TRH: **Total Recoverable Hydrocarbons** 

NL: **Not Limiting** UCL: Upper Level Confidence Limit on Mean Value No Set Limit **USEPA** United States Environmental Protection Agency NSL: OCP: Organochlorine Pesticides **VOCC:** Volatile Organic Chlorinated Compounds

OPP: Organophosphorus Pesticides WHO: World Health Organisation

PAHs: Polycyclic Aromatic Hydrocarbons ppm: Parts per million



TABLE G1 SUMMARY OF GROUNDWATER LABORATORY RESULTS COMPARED TO ECOLOGICAL GILs SAC All results in  $\mu g/L$  unless stated otherwise.

	Envirolab	2018	MW1	MW1 - [LAB_DUP]	MW3	MW3 - [LAB_DUP]	MW8	WDUP
Metals and Metalloids	Services	Fresh Waters	1					
Arsenic (As III)	1	24	<1	NA	<1	<1	<1	<1
admium	0.1	0.2	<0.1	NA NA	<0.1	<0.1	<0.1	<0.1
Chromium (SAC for Cr III adopted)	1	3.3	<1	NA	<1	<1	<1	<1
Copper	1	1.4	2	NA	2	2	<1	2
ead	1	3.4	<1	NA	<1	<1	<1	<1
otal Mercury (inorganic)	0.05	0.06	<0.05	NA	<0.05	<0.05	< 0.05	<0.05
lickel	1	11	13	NA	2	2	6	13
linc	1	8	16	NA	6	7	12	15
Nonocyclic Aromatic Hydrocarbons (BTEX C	Compounds)							
Benzene	1	950	<1	<1	<1	NA	<1	<1
oluene	1	180	<1	<1	<1	NA	<1	<1
thylbenzene	1	80	<1	<1	<1	NA	<1	<1
n+p-xylene	2	75	<2	<2	<2	NA	<2	<2
-xylene	1	350	<1	<1	<1	NA	<1	<1
otal xylenes	2	NSL	<2	<2	<2	NA	<2	<2
olatile Organic Compounds (VOCs), includ	ing chlorinated V		1					
ichlorodifluoromethane	10	NSL	<10	<10	<10	NA	<10	NA
hloromethane	10	NSL	<10	<10	<10	NA	<10	NA
inyl Chloride	10	100	<10	<10	<10	NA	<10	NA
romomethane	10	NSL	<10	<10	<10	NA	<10	NA
hloroethane	10	NSL	<10	<10	<10	NA	<10	NA
richlorofluoromethane	10	NSL	<10	<10	<10	NA	<10	NA
,1-Dichloroethene	1	700	<1	<1	<1	NA	<1	NA
rans-1,2-dichloroethene	1	NSL	<1	<1	<1	NA	<1	NA
,1-dichloroethane	1	90	1	1	<1	NA	<1	NA
is-1,2-dichloroethene	1	NSL	<1	<1	<1	NA	<1	NA
romochloromethane	1	NSL	<1	<1	<1	NA	<1	NA
hloroform	1	370	<1	<1	<1	NA	<1	NA
,2-dichloropropane	1	NSL	<1	<1	<1	NA	<1	NA
,2-dichloroethane	1	1900	<1	<1	<1	NA	<1	NA
,1,1-trichloroethane	1	270	<1	<1	<1	NA	<1	NA
,1-dichloropropene	1	NSL	<1	<1	<1	NA	<1	NA
yclohexane	1	NSL	<1	<1	<1	NA	<1	NA
arbon tetrachloride	1	240	<1	<1	<1	NA	<1	NA
enzene	1	950	<1	<1	<1	NA	<1	NA
ibromomethane	1	NSL	<1	<1	<1	NA	<1	NA
,2-dichloropropane	1	900	<1	<1	<1	NA	<1	NA
richloroethene	1	330	<1	<1	<1	NA	<1	NA
romodichloromethane	1	NSL	<1	<1	<1	NA	<1	NA
rans-1,3-dichloropropene	1	NSL	<1	<1	<1	NA	<1	NA
is-1,3-dichloropropene	1	NSL	<1	<1	<1	NA	<1	NA
,1,2-trichloroethane	1	6500	<1	<1	<1	NA	<1	NA
oluene	1	180	<1	<1	<1	NA	<1	NA
,3-dichloropropane	1	1100	<1	<1	<1	NA	<1	NA
ibromochloromethane	1	NSL	<1	<1	<1	NA	<1	NA
,2-dibromoethane	1	NSL	<1	<1	<1	NA	<1	NA
etrachloroethene	1	70	<1	<1	<1	NA	<1	NA
,1,1,2-tetrachloroethane	1	NSL	<1	<1	<1	NA	<1	NA
Chlorobenzene	1	55	<1	<1	<1	NA	<1	NA
thylbenzene	1	80	<1	<1	<1	NA	<1	NA
romoform	1	NSL	<1	<1	<1	NA	<1	NA
n+p-xylene	2	75	<2	<2	<2	NA	<2	NA
tyrene	1	NSL	<1	<1	<1	NA	<1	NA
,1,2,2-tetrachloroethane	1	400	<1	<1	<1	NA NA	<1	NA
-xylene	1	350	<1	<1	<1	NA NA	<1	NA
,2,3-trichloropropane	1	NSL	<1	<1	<1	NA NA	<1	NA
sopropylbenzene	1	30	<1	<1	<1	NA NA	<1	NA NA
romobenzene	1	NSL	<1	<1	<1	NA NA	<1	NA NA
-propyl benzene	1	NSL	<1	<1	<1	NA NA	<1	NA NA
	1	NSL	<1	<1	<1			NA NA
-chlorotoluene -chlorotoluene	1	NSL	<1	<1	<1	NA NA	<1 <1	NA NA
,3,5-trimethyl benzene	1	NSL	<1	<1	<1	NA NA	<1	NA NA
ert-butyl benzene	1	NSL	<1	<1	<1	NA NA	<1	NA NA
,2,4-trimethyl benzene	1	NSL	<1	<1	<1	NA NA	<1	NA NA
			î .					
,3-dichlorobenzene	1	260 NSI	<1	<1	<1	NA NA	<1	NA NA
ec-butyl benzene	1	NSL	<1	<1	<1	NA NA	<1	NA NA
,4-dichlorobenzene	1	60 NSI	<1	<1	<1	NA NA	<1	NA NA
-isopropyl toluene	1	NSL 160	<1	<1	<1	NA NA	<1	NA NA
,2-dichlorobenzene	1	160	<1	<1	<1	NA NA	<1	NA
-butyl benzene	1	NSL	<1	<1	<1	NA NA	<1	NA
,2-dibromo-3-chloropropane	1	NSL	<1	<1	<1	NA NA	<1	NA
,2,4-trichlorobenzene	1	85 NGI	<1	<1	<1	NA NA	<1	NA
exachlorobutadiene	1	NSL	<1	<1	<1	NA	<1	NA
,2,3-trichlorobenzene	1	3	<1	<1	<1	NA	<1	NA
olycyclic Aromatic Hydrocarbons (PAHs)								
aphthalene	0.2	16	<0.2	<0.2	<0.2	NA	<0.2	<0.2
cenaphthylene	0.1	NSL	<0.1	<0.1	<0.1	NA	<0.1	<0.1
cenaphthene	0.1	NSL	<0.1	<0.1	<0.1	NA	<0.1	<0.1
uorene	0.1	NSL	<0.1	<0.1	<0.1	NA	<0.1	<0.1
henanthrene	0.1	0.6	<0.1	<0.1	<0.1	NA	<0.1	<0.1
nthracene	0.1	0.01	<0.1	<0.1	<0.1	NA	<0.1	<0.1
uoranthene	0.1	1	<0.1	<0.1	<0.1	NA	<0.1	<0.1
yrene	0.1	NSL	<0.1	<0.1	<0.1	NA	<0.1	<0.1
enzo(a)anthracene	0.1	NSL	<0.1	<0.1	<0.1	NA	<0.1	<0.1
hrysene	0.1	NSL	<0.1	<0.1	<0.1	NA	<0.1	<0.1
enzo(b,j+k)fluoranthene	0.2	NSL	<0.2	<0.2	<0.2	NA	<0.2	<0.2
enzo(a)pyrene	0.1	0.1	<0.1	<0.1	<0.1	NA	<0.1	<0.1
ndeno(1,2,3-c,d)pyrene	0.1	NSL	<0.1	<0.1	<0.1	NA	<0.1	<0.1
ibenzo(a,h)anthracene	0.1	NSL	<0.1	<0.1	<0.1	NA NA	<0.1	<0.1
ipenzo(a.n)anthracene				~U.1	~U.1			~U.1

Concentration above the SAC

Concentration above the PQL

GIL >PQL

Red



TABLE G2
SUMMARY OF GROUNDWATER LABORATORY RESULTS COMPARED TO HUMAN CONTACT GILS
All results in µg/L unless stated otherwise.

	Envirolab Services	(10 x NHMRC ADWG)	MW1	MW1 - [LAB_DUP]	MW3	MW3 - [LAB_DUP]	MW8	WDUP1
Metals and Metalloids			1					
Arsenic (As III)	1	100	<1	NA	<1	<1	<1	<1
Cadmium	0.1	20	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Chromium (total)	1	500	<1	NA	<1	<1	<1	<1
Copper	1	20000	2	NA	2	2	<1	2
Lead	1	100	<1	NA	<1	<1	<1	<1
Total Mercury (inorganic)	0.05	10	<0.05	NA NA	<0.05	<0.05	<0.05	<0.05
Nickel	1	200	13	NA NA	2	2	6	13
Zinc	1	30000	16	NA	6	7	12	15
Monocyclic Aromatic Hydrocarbons (BTEX Compo		10	<1	-1	<1	NA	<1	<1
Benzene Toluene	1	8000	<1	<1 <1	<1	NA NA	<1	<1
Ethylbenzene	1	3000	<1	<1	<1	NA NA	<1	<1
m+p-xylene	2	NSL	<2	<2	<2	NA NA	<2	<2
o-xylene	1	NSL	<1	<1	<1	NA NA	<1	<1
Total xylenes	2	6000	<2	<2	<2	NA NA	<2	<2
Volatile Organic Compounds (VOCs), including ch			12	~2	12	IVA	12	\2
Dichlorodifluoromethane	10	NSL	<10	<10	<10	NA	<10	NA
Chloromethane	10	NSL	<10	<10	<10	NA	<10	NA
Vinyl Chloride	10	3	<10	<10	<10	NA NA	<10	NA
Bromomethane	10	NSL	<10	<10	<10	NA NA	<10	NA
Chloroethane	10	NSL	<10	<10	<10	NA NA	<10	NA
Trichlorofluoromethane	10	NSL	<10	<10	<10	NA NA	<10	NA NA
			i e					
1,1-Dichloroethene	1 1	300	<1	<1	<1	NA NA	<1	NA NA
Trans-1,2-dichloroethene		600 NSI	<1	<1	<1	NA NA	<1	NA NA
1,1-dichloroethane	1	NSL 600	1	1	<1	NA NA	<1	NA NA
Cis-1,2-dichloroethene	1	600	<1	<1	<1	NA NA	<1	NA NA
Bromochloromethane	1	2500	<1	<1	<1	NA NA	<1	NA NA
Chloroform	1	N.C.	<1	<1	<1	NA NA	<1	NA NA
2,2-dichloropropane	1	NSL	<1	<1	<1	NA	<1	NA
1,2-dichloroethane	1	30	<1	<1	<1	NA	<1	NA
1,1,1-trichloroethane	1	NSL	<1	<1	<1	NA	<1	NA
1,1-dichloropropene	1	NSL	<1	<1	<1	NA	<1	NA
Cyclohexane	1	NSL	<1	<1	<1	NA	<1	NA
Carbon tetrachloride	1	30	<1	<1	<1	NA	<1	NA
Benzene	1	10	<1	<1	<1	NA	<1	NA
Dibromomethane	1	NSL	<1	<1	<1	NA	<1	NA
1,2-dichloropropane	1	NSL	<1	<1	<1	NA	<1	NA
Trichloroethene	1	NSL	<1	<1	<1	NA	<1	NA
Bromodichloromethane	1	NSL	<1	<1	<1	NA	<1	NA
trans-1,3-dichloropropene	1	1000	<1	<1	<1	NA	<1	NA
cis-1,3-dichloropropene	1	1000	<1	<1	<1	NA	<1	NA
1,1,2-trichloroethane	1	NSL	<1	<1	<1	NA	<1	NA
Toluene	1	8000	<1	<1	<1	NA	<1	NA
1,3-dichloropropane	1	NSL	<1	<1	<1	NA	<1	NA
Dibromochloromethane	1	NSL	<1	<1	<1	NA	<1	NA
1,2-dibromoethane	1	NSL	<1	<1	<1	NA	<1	NA
Tetrachloroethene	1	500	<1	<1	<1	NA	<1	NA
1,1,1,2-tetrachloroethane	1	NSL	<1	<1	<1	NA	<1	NA
Chlorobenzene	1	3000	<1	<1	<1	NA	<1	NA
Ethylbenzene	1	3000	<1	<1	<1	NA	<1	NA
Bromoform	1	NSL	<1	<1	<1	NA	<1	NA
m+p-xylene	2	NSL	<2	<2	<2	NA	<2	NA
Styrene	1	300	<1	<1	<1	NA	<1	NA
1,1,2,2-tetrachloroethane	1	NSL	<1	<1	<1	NA	<1	NA
o-xylene	1	NSL	<1	<1	<1	NA	<1	NA
1,2,3-trichloropropane	1	NSL	<1	<1	<1	NA	<1	NA
Isopropylbenzene	1	NSL	<1	<1	<1	NA	<1	NA
Bromobenzene	1	NSL	<1	<1	<1	NA	<1	NA
n-propyl benzene	1	NSL	<1	<1	<1	NA NA	<1	NA
2-chlorotoluene	1	NSL	<1	<1	<1	NA NA	<1	NA
4-chlorotoluene	1	NSL	<1	<1	<1	NA NA	<1	NA
1,3,5-trimethyl benzene	1	NSL	<1	<1	<1	NA NA	<1	NA
Tert-butyl benzene	1	NSL	<1	<1	<1	NA NA	<1	NA
1,2,4-trimethyl benzene	1	NSL	<1	<1	<1	NA NA	<1	NA
1,3-dichlorobenzene	1	200	<1	<1	<1	NA NA	<1	NA
Sec-butyl benzene	1	NSL	<1	<1	<1	NA NA	<1	NA
1,4-dichlorobenzene	1	400	<1	<1	<1	NA NA	<1	NA
4-isopropyl toluene	1	NSL	<1	<1	<1	NA NA	<1	NA NA
1,2-dichlorobenzene	1	15000	<1	<1	<1	NA NA	<1	NA NA
	1	NSL	<1	<1	<1	NA NA	<1	
n-butyl benzene			1					NA NA
1,2-dibromo-3-chloropropane	1	NSL	<1	<1	<1	NA NA	<1	NA NA
1,2,4-trichlorobenzene	1	300	<1	<1	<1	NA NA	<1	NA NA
1,2,3-trichlorobenzene	1	-	<1	<1	<1	NA NA	<1	NA NA
Hexachlorobutadiene	1	7	<1	<1	<1	NA	<1	NA
Polycyclic Aromatic Hydrocarbons (PAHs)		A/=-				***		
Naphthalene	0.2	NSL	<0.2	<0.2	<0.2	NA NA	<0.2	<0.2
Acceptables	0.1	NSL	<0.1	<0.1	<0.1	NA NA	<0.1	<0.1
Acenaphthene	0.1	NSL	<0.1	<0.1	<0.1	NA NA	<0.1	<0.1
Fluorene	0.1	NSL	<0.1	<0.1	<0.1	NA	<0.1	<0.1
Phenanthrene	0.1	NSL	<0.1	<0.1	<0.1	NA	<0.1	<0.1
Anthracene	0.1	NSL	<0.1	<0.1	<0.1	NA	<0.1	<0.1
Fluoranthene	0.1	NSL	<0.1	<0.1	<0.1	NA	<0.1	<0.1
Pyrene	0.1	NSL	<0.1	<0.1	<0.1	NA	<0.1	<0.1
Benzo(a)anthracene	0.1	NSL	<0.1	<0.1	<0.1	NA	<0.1	<0.1
Chrysene	0.1	NSL	<0.1	<0.1	<0.1	NA	<0.1	<0.1
Benzo(b,j+k)fluoranthene	0.2	NSL	<0.2	<0.2	<0.2	NA	<0.2	<0.2
Benzo(a)pyrene	0.1	0.1	<0.1	<0.1	<0.1	NA	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	0.1	NSL	<0.1	<0.1	<0.1	NA	<0.1	<0.1
Dibenzo(a,h)anthracene	0.1	NSL	<0.1	<0.1	<0.1	NA	<0.1	<0.1

Concentration above the SAC Concentration above the PQL GIL >PQL VALUE Bold



TABLE G3 GROUNDWATER LABORATORY RESULTS COMPARED TO SITE SPECIFIC HSLs - RISK ASSESSMENT All results in  $\mu$ g/L unless stated otherwise.

	PQL	NHMRC	WHO 2008	USEPA RSL		SAMPL	ES		
	Envirolab	ADWG 2011		Tapwater	MW1	MW1 - [LAB_DUP]	MW3	MW8	WDUP1
	Services	(v3.5 2018)		2017					
Total Recoverable Hydrocarbons (TRH)		_							
C <sub>6</sub> -C <sub>9</sub> Aliphatics (assessed using F1)	10	-	15000	-	<10	<10	<10	<10	<10
>C <sub>9</sub> -C <sub>14</sub> Aliphatics (assessed using F2)	50	-	100	-	<50	<50	<50	<50	<50
Monocyclic Aromatic Hydrocarbons (BTEX Compo	ınds)								
Benzene	1	1	-	-	<1	<1	<1	<1	<1
Toluene	1	800	-	-	<1	<1	<1	<1	<1
Ethylbenzene	1	300	-	-	<1	<1	<1	<1	<1
Total xylenes	2	600	-	-	<2	<2	<2	<2	<2
Polycyclic Aromatic Hydrocarbons (PAHs)									
Naphthalene	1	-	-	6.1	<1	<1	<1	<1	<1
Volatile Organic Compounds (VOCs), including chlo	orinated VOCs	_							
Dichlorodifluoromethane	10	-	-	-	<10	<10	<10	<10	NA
Chloromethane	10	-	-	-	<10	<10	<10	<10	NA
Vinyl Chloride	10	0.3	-	-	<10	<10	<10	<10	NA
Bromomethane	10	-	-	-	<10	<10	<10	<10	NA
Chloroethane	10	-	-	-	<10	<10	<10	<10	NA
Trichlorofluoromethane	10	-	-	-	<10	<10	<10	<10	NA
1,1-Dichloroethene	1	30	-	-	<1	<1	<1	<1	NA
Trans-1,2-dichloroethene	1	60	-	-	<1	<1	<1	<1	NA
1,1-dichloroethane	1	-	-	-	1	1	<1	<1	NA
Cis-1,2-dichloroethene	1	60	-	-	<1	<1	<1	<1	NA
Bromochloromethane	1		-	-	<1	<1	<1	<1	NA
Chloroform	1	250	-	-	<1	<1	<1	<1	NA
2,2-dichloropropane	1	-	-	-	<1	<1	<1	<1	NA
1,2-dichloroethane	1	3	-	-	<1	<1	<1	<1	NA
1,1,1-trichloroethane	1	_	-	-	<1	<1	<1	<1	NA
1,1-dichloropropene	1	-	-	-	<1	<1	<1	<1	NA
Cyclohexane	1	_	-	_	<1	<1	<1	<1	NA
Carbon tetrachloride	1	3	_	_	<1	<1	<1	<1	NA
Benzene	1	1	_	_	<1	<1	<1	<1	NA
Dibromomethane	1	_	_		<1	<1	<1	<1	NA
1,2-dichloropropane	1	_	_		<1	<1	<1	<1	NA
Trichloroethene	1	_	_		<1	<1	<1	<1	NA
Bromodichloromethane	1	_	_		<1	<1	<1	<1	NA
		100					<1		NA NA
trans-1,3-dichloropropene	1		-	-	<1	<1		<1	
cis-1,3-dichloropropene	1	100	-	-	<1	<1	<1	<1	NA
1,1,2-trichloroethane	1	-	-	-	<1	<1	<1	<1	NA
Toluene	1	800	-	-	<1	<1	<1	<1	NA
1,3-dichloropropane	1	-	-	-	<1	<1	<1	<1	NA
Dibromochloromethane	1	-	-	-	<1	<1	<1	<1	NA
1,2-dibromoethane	1	-	-	-	<1	<1	<1	<1	NA
Tetrachloroethene	1	50	-	-	<1	<1	<1	<1	NA
1,1,1,2-tetrachloroethane	1	-	-	-	<1	<1	<1	<1	NA
Chlorobenzene	1	300	-	-	<1	<1	<1	<1	NA
Ethylbenzene	1	300	-	-	<1	<1	<1	<1	NA
Bromoform	1	-	-	-	<1	<1	<1	<1	NA
m+p-xylene	2	-	-	-	<2	<2	<2	<2	NA
Styrene	1	30	-	-	<1	<1	<1	<1	NA
1,1,2,2-tetrachloroethane	1	-	-	-	<1	<1	<1	<1	NA
o-xylene	1	-	-	-	<1	<1	<1	<1	NA
1,2,3-trichloropropane	1	-	-	-	<1	<1	<1	<1	NA
Isopropylbenzene	1	-	-	-	<1	<1	<1	<1	NA
Bromobenzene	1	-	-	-	<1	<1	<1	<1	NA
n-propyl benzene	1	-	-	-	<1	<1	<1	<1	NA
2-chlorotoluene	1	-	-	-	<1	<1	<1	<1	NA
4-chlorotoluene	1	-	-	-	<1	<1	<1	<1	NA
1,3,5-trimethyl benzene	1	-	-	-	<1	<1	<1	<1	NA
Tert-butyl benzene	1	-	-	-	<1	<1	<1	<1	NA
1,2,4-trimethyl benzene	1	-	-	-	<1	<1	<1	<1	NA
1,3-dichlorobenzene	1	20	-	-	<1	<1	<1	<1	NA
Sec-butyl benzene	1	-	-	-	<1	<1	<1	<1	NA
1,4-dichlorobenzene	1	40	-	-	<1	<1	<1	<1	NA
4-isopropyl toluene	1	-	-	-	<1	<1	<1	<1	NA
1,2-dichlorobenzene	1	1500	-	-	<1	<1	<1	<1	NA
n-butyl benzene	1	-	-	-	<1	<1	<1	<1	NA
1,2-dibromo-3-chloropropane	1	-	-	-	<1 <1	<1 <1	<1 <1	<1 <1	NA NA
	1							T	INA
1,2,4-trichlorobenzene 1,2,3-trichlorobenzene	1	30	-	-	<1	<1	<1	<1	NA

Concentration above the SAC Concentration above the PQL GIL >PQL VALUE Bold Red



TABLE G4 GROUNDWATER QA/QC	SUMMARY																															
		TRH C6 - C10	TRH >C10-C16	TRH >C16-C34	TRH >C34-C40	Benzene	Toluene	Ethylbenzene	m+p-xylene	o-Xylene	Naphthalene	Acenaphthylene	Acenaph-thene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(a)anthracene	Chrysene	Benzo(b,j+k)fluoranthene	Benzo(a)pyrene	Indeno(1,2,3-c,d)pyrene	Dibenzo(a,h)anthra-cene	Benzo(g, h,i)perylene	Arsenic	Cadmium	Chromium VI	Copper	Lead	Mercury	Nickel
	PQL Envirolab SYD	10	50	100	100	1	1	1	2	1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	1	0.1	1	1	1	0.05	1
	PQL Envirolab VIC	10	50	100	100	1.0	1.0	1.0	2.0	1.0	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	1	0.1	1	1	1	0.05	1
Intra	MW1	<10	<50	<100	<100	<1	<1	<1	<2	<1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<1	2	<1	<0.05	13
laboratory	WDUP1	<10		<100	<100	<1	<1	<1	<2	<1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<1	2	<1	<0.05	13
duplicate	MEAN	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	2	nc	nc	13
	RPD %	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc		0%	nc	nc	0%
Trip Spike	TS-W1 23/11/2020	-	-	-	-	104%	109%	106%	97%	108%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Field Blank	TB-W1 23/11/2020	NA	0	0	0	<1	<1	<1	<2	<1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



**Appendix D: Borehole Logs** 



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### **ENVIRONMENTAL LOG**

Log No.

Environmental logs are not to be used for geotechnical purposes

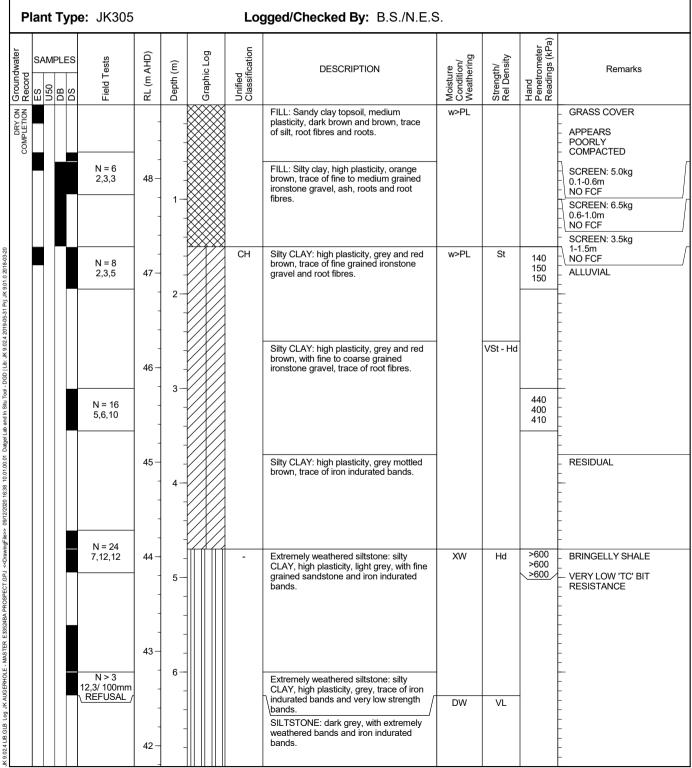
EASTING: 308579.496 NORTHING: 6257503.54

Client: INTEGRATED PROJECTS

Project: PROPOSED SENIORS LIVING DEVELOPMENT

Location: 55 FOX HILLS CRESCENT, FOX HILLS GOLF CLUB, PROSPECT, NSW

Job No.: E33524BA Method: SPIRAL AUGER R.L. Surface: 48.78 m





# **ENVIRONMENTAL LOG**

Log No.

2 / 2

Environmental logs are not to be used for geotechnical purposes

EASTING: 308579.496 NORTHING: 6257503.54

Client: INTEGRATED PROJECTS

Project: PROPOSED SENIORS LIVING DEVELOPMENT

Location: 55 FOX HILLS CRESCENT, FOX HILLS GOLF CLUB, PROSPECT, NSW

Job No.: E33524BA Method: SPIRAL AUGER R.L. Surface: 48.78 m

D	ate	: 9	/11	/20						D	atum:	AHD	
P	lan	t T	ype	: JK305				Lo	gged/Checked By: B.S./N.E.S	S.			
Groundwater	SA	MPL	ES SQ	Field Tests	RL (m AHD)	Depth (m)	 Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
ON 10/11/20	1 1					- 1		-	SILTSTONE: dark grey, with extremely weathered bands and iron indurated bands. (continued)	DW - XW	VL - Hd		-
1					41	8 — - - - - 9 —			END OF ENVIRONMENTAL HOLE AT 7.50 m				GROUNDWATER MONITORING WELL INSTALLED TO 7.5m. CLASS 18 MACHINE SLOTTED 50mm DIA. PVC STANDPIPE 7.5m TO 2.0m. CASING 2.5m TO 0.2m. 2mm SAND FILTER PACK 7.5m TO 2.0m. BENTONITE SEAL 2.0m TO 1.0m. BACKFILLED WITH SAND TO THE SURFACE. COMPLETED WITH A CONCRETED GATIC COVER.
					39 — - -	- - 10 — -							
					38	- 11 — -							- - - - - - - -
					37 — - - -	- 12- - -							- - - - - - - -
, D					36	- 13 — - -							-
					35 –	-							



### **ENVIRONMENTAL LOG**

Log No.

EASTING:

2

NORTHING: 6257604.282

**1 / 2** 308513.926

Environmental logs are not to be used for geotechnical purposes

Client: INTEGRATED PROJECTS

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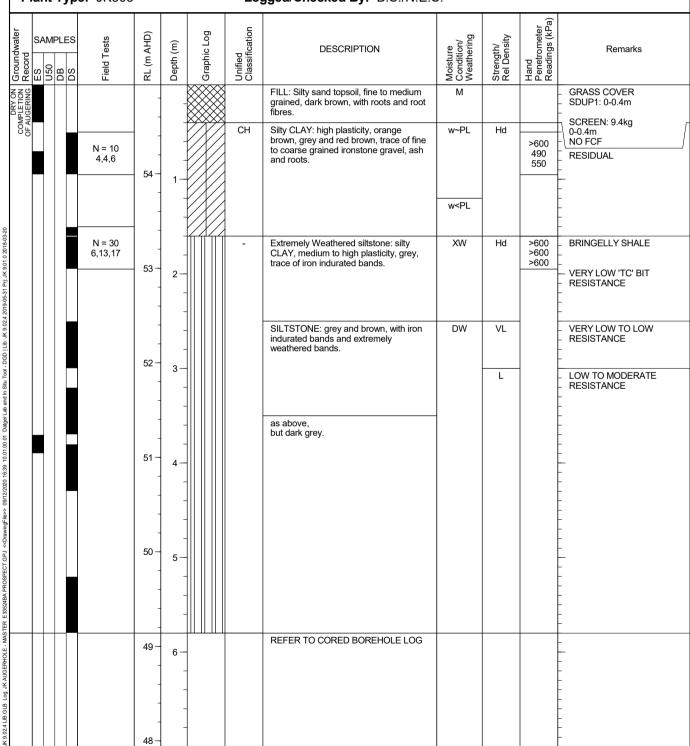
Project: PROPOSED SENIORS LIVING DEVELOPMENT

Location: 55 FOX HILLS CRESCENT, FOX HILLS GOLF CLUB, PROSPECT, NSW

Job No.: E33524BA Method: SPIRAL AUGER R.L. Surface: 54.94 m

**Date:** 9/11/20 **Datum:** AHD

Plant Type: JK305 Logged/Checked By: B.S./N.E.S.





# **CORED ENVIRONMENTAL LOG**

Log No.

2 / 2

EASTING: 308513.926 NORTHING: 6257604.282

Environmental logs are not to be used for geotechnical purposes

Client: INTEGRATED PROJECTS

Project: PROPOSED SENIORS LIVING DEVELOPMENT

Location: 55 FOX HILLS CRESCENT, FOX HILLS GOLF CLUB, PROSPECT, NSW

Job No.: E33524BA Core Size: NMLC R.L. Surface: 54.94 m

Date: 9/11/20 Inclination: VERTICAL Datum: AHD

Plant Type: JK305 Bearing: N/A Logged/Checked By: B.S./N.E.S.

1 -			. ·	11303	Dearing. N	,,,				gged/Onecked by. D.O.M.L.O	•
Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION  Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX I <sub>s</sub> (50)	SPACING (mm)	DEFECT DETAILS  DESCRIPTION  Type, orientation, defect shape and roughness, defect coatings and seams, openness and thickness  Specific General	Formation
		- - -	- - - - -		START CORING AT 5.80m						
		49 -	6-		NO CORE 0.09m  SILTSTONE: dark grey, bedded at 0-5°, with iron indurated bands.	HW	VL M	0.70		(6.00m) Fractured Zone, 0°, 210 mm.t 	
		-	- - - - -					1.1		. — (6.48m) Be, 0°, Un, S, Cn (6.52m) XWS, 0°, 3 mm.t — (6.66m) Be, 0°, Un, R, Clay Ct	
100% RETURN		48	7-					•0.60 			Bringelly Shale
		- - 47 –	- - -		SILTSTONE: dark grey and grey, bedded	HW	L - M	0.70		(7.58m) Jh, 70° (7.74m) Fractured Zone, 0°, 140 mm.t (7.90m) J, 90°, Un, S, Cn	"
		- -	8-		at 0-5°.			•0.20     	280 — — — — — — — — — — — — — — — — — — —		
		46 -	9-		END OF ENVIRONMENTAL HOLE AT 8.64 m					(8.56m) J, 75 - 90°, Ir, S, Clay FILLED, 2 mm.t 	
		- - 45 — -	10 —							- - - - - - -	
100% RETURN		- - 44 - -	11 —								
		43 <u>-</u>	- - - -						- 6000	DEPEN TO BE DRILLING AND HANDLING BRI	



1 / 2

# **ENVIRONMENTAL LOG**

Log No.

EASTING: 308594.571 NORTHING: 6257643.677

Environmental logs are not to be used for geotechnical purposes

Client: INTEGRATED PROJECTS

Project: PROPOSED SENIORS LIVING DEVELOPMENT

Location: 55 FOX HILLS CRESCENT, FOX HILLS GOLF CLUB, PROSPECT, NSW

Job No.: E33524BA Method: SPIRAL AUGER R.L. Surface: 50.62 m

**Date:** 9/11/20 TO 10/11/20 **Datum:** AHD

		pe: JK305		/20		Lo	gged/Checked By: B.S./N.E.S		atum:	АНИ	
Groundwater Record	SAMPLES		RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION		N = 7 3,3,4	50 — - - -	. 1-			FILL: Silty clay topsoil, medium plasticity, dark brown and red brown, trace of root fibres.  FILL: Silty clay, medium plasticity, red brown, brown and grey, trace of fine to coarse grained ironstone gravel.  FILL: Silty clay, medium plasticity, dark brown, with fine gained sand, trace of ash and root fibres.	w~PL			GRASS COVER  SCREEN: 2.5kg 0-0.2m NO FCF  APPEARS MODERATELY COMPACTED  SCREEN: 7.0kg 0.2-0.85m NO FCF
		N = 11 4,4,7	49	2-		СН	Silty CLAY: high plasticity, grey and red brown, trace of fine to coarse grained ironstone gravel and roots.	w~PL	VSt	310 350 340	RESIDUAL
		N > 41 7,16,25/ 140mm REFUSAL	47 —	4-		-	Extremely Weathered siltstone: silty CLAY, high plasticity, grey, trace of iron indurated bands.  SILTSTONE: dark grey, with iron indurated bands and extremely weathered bands.	DW	Hd VL	>600 >600 >600	BRINGELLY SHALE  VERY LOW TO LOW 'TC' BIT RESISTANCE
	PYRIGHT			6-		-	SANDSTONE: fine grained, grey and brown, with iron indurated bands, extremely weathered bands and siltstone bands.	DW	L-M		LOW TO MODERATE RESISTANCE



2 / 2

# **ENVIRONMENTAL LOG**

Log No.

EASTING: 308594.571 NORTHING: 6257643.677

Environmental logs are not to be used for geotechnical purposes

Client: INTEGRATED PROJECTS

Project: PROPOSED SENIORS LIVING DEVELOPMENT

Location: 55 FOX HILLS CRESCENT, FOX HILLS GOLF CLUB, PROSPECT, NSW

Job No.: E33524BA Method: SPIRAL AUGER R.L. Surface: 50.62 m

**Date:** 9/11/20 TO 10/11/20 **Datum:** AHD

Plant Type: JK305 Logged/Checked By: B.S./N.E.S.

39 - 1 - 12 - 13 - 13 - 13 - 13 - 13 - 14 - 15 - 15 - 15 - 15 - 15 - 15 - 15	1	lant	ıy	<b>pe:</b> JK305				Lo	gged/Checked By: B.S./N.E.S	S.			
SANDSTONE: fine grained, grey and brown, with to indurate bands and shown, with to indurate bands and shown with the indurate bands and shown with the indurate bands and shown beats (confirmed).   43 -	Groundwater Record	MAS U50	IPLE:	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
7.50 m  MONITORING WELL INSTALLED TO 7.5m. CLASS 18 MACHNE SUTTER SIGNING DAY 2.0m. CASING 2.0m TO 0m. 2mm SAND FILTER PACK 7.5m TO 1.5m. BENTONITE SEAL 1.5m. TUTION MONOTHED WITH A CONCRETED GATIC COVER.  411 —  10 —  11 —  38 —  12 —  38 —  13 —  37 —  37 —  37 —  47 —  48 —  49 —  40 —  40 —  40 —  41 —  40 —  40 —  41 —  40 —  41 —  40 —  41 —  40 —  41 —  40 —  41 —  40 —  41 —  40 —  41 —  40 —  41 —  40 —  41 —  40 —  41 —  40 —  41 —  40 —  41 —  40 —  41 —  40 —  41 —  40 —  41 —  40 —  41 —  40 —  41 —  41 —  42 —  43 —  44 —  44 —  44 —  45 —  46 —  47 —  47 —  47 —  48 —  48 —  48 —  49 —  40 —  40 —  40 —  41 —  40 —  40 —  40 —  41 —  40 —  40 —  41 —  40 —  41 —  40 —  40 —  41 —  40 —  40 —  40 —  41 —  40 —  40 —  40 —  40 —  40 —  40 —  41 —  40	ON 10/11/20	-			-	-			brown, with iron indurated bands, extremely weathered bands and		L-M		_ MODERATE TO HIGH
	AN 9/024 LBIGIEL LOG SIT AUGEFRHÜLE - MAN TEK ESSERBA PROSPECT, ISPJ. «CURMINGE Res» UR 7/2/20/0 1939 1/0/1/0/00 1/0/998 LBC BIRD IN 00 - LIGU. LIGU. AN 9/024 ZUIS-GEST 1P7 JAN 9/01/0 ZUIS-GEST 1P				42								MONITORING WELL INSTALLED TO 7.5m. CLASS 18 MACHINE SLOTTED 50mm DIA. PVC STANDPIPE 7.5m TO 2.0m. CASING 2.0m TO 0m. 2mm SAND FILTER PACK 7.5m TO 1.5m. BENTONITE SEAL 1.5m TO 1.0m. BACKFILLED WITH SAND TO THE SURFACE. COMPLETED WITH A CONCRETED

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# **ENVIRONMENTAL LOG**

Log No.

1 / 2

Environmental logs are not to be used for geotechnical purposes

EASTING: 308500.243 NORTHING: 6257685.932

Client: INTEGRATED PROJECTS

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Project: PROPOSED SENIORS LIVING DEVELOPMENT

Location: 55 FOX HILLS CRESCENT, FOX HILLS GOLF CLUB, PROSPECT, NSW

Job No.: E33524BA Method: SPIRAL AUGER R.L. Surface: 56.70 m

1	ale. 9								D.	atuiii.	ALID	
P	lant T	ype:	JK305				Log	gged/Checked By: B.S./N.E.S	<b>S</b> .			
Groundwater Record	SAMPL C20 C20	$\top$	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION				-	-			FILL: Clayey sand, fine to medium grained, dark brown, trace of silt fines and root fibres.  FILL: Silty sand, fine to medium grained, forward, trace of concrete fragments, root	M w~PL	Hd	-	GRASS COVER SDUP2: 0-0.2m SCREEN: 5.25kg 0-0.2m
			N = 21 8,9,12	56 - -	1 <del></del> 1 -		CH	fibres and clay nodules.  FILL: Silty clay, medium plasticity, grey and brown, trace of fine to medium grained igneous gravel and concrete fragments.  Silty CLAY: high plasticity, red brown, brown and grey, trace of fine to medium grained ironstone gravel and root fibres.	w <pl< td=""><td>Hd</td><td>&gt;600 &gt;600 &gt;600 &gt;600</td><td>NO FCF SCREEN: 7.45kg 0.2-0.7m NO FCF RESIDUAL</td></pl<>	Hd	>600 >600 >600 >600	NO FCF SCREEN: 7.45kg 0.2-0.7m NO FCF RESIDUAL
			N = 32 7,13,19	55 –	-		-	Extremely Weathered siltstone: silty CLAY, high plasticity, grey, with iron indurated bands.	XW	Hd	>600 >600 >600	BRINGELLY SHALE  VERY LOW TO LOW 'TC' BIT RESISTANCE
				54	2 - - 3 -			SILTSTONE: grey, with extremely weathered bands and iron indurated bands.	DW	VL		
				52 —	4			SILTSTONE: dark grey and grey.		M - H	-	LOW TO MODERATE RESISTANCE  MODERATE TO HIGH RESISTANCE  LOW RESISTANCE
מי מיניים ביינים ביא מיניים ביא מיניים ביא מיניים ביא מיניים ביא מיניים ביא מיניים ביא ביא ביא ביא ביא ביא ביא	NAME OF THE PROPERTY OF THE PR			51	- - 6 - -			SILTSTONE: dark grey.		L - M	-	LOW TO MODERATE RESISTANCE



2 / 2

# **ENVIRONMENTAL LOG**

Log No.

4

EASTING: 308500.243 NORTHING: 6257685.932

Environmental logs are not to be used for geotechnical purposes

Client: INTEGRATED PROJECTS

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Project: PROPOSED SENIORS LIVING DEVELOPMENT

Location: 55 FOX HILLS CRESCENT, FOX HILLS GOLF CLUB, PROSPECT, NSW

Job No.: E33524BA Method: SPIRAL AUGER R.L. Surface: 56.70 m

	Da	ate:	9/	11/2	20						Da	atum:	AHD	
	ΡI	ant	Ty	/pe:	JK305				Lo	gged/Checked By: B.S./N.E.S	S.			
Croundwater	Record	MAS 020	IPLE BQ	DS SG	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
						-	-		-	SILTSTONE: dark grey. (continued)	DW	M - H		MODERATE TO HIGH RESISTANCE
AN YOLK LIGHTON BY ANGERFRONDER. MAKEN BY EASTERN FROMFILL ISPO. *CURRINGF 1855* USFLIZZED 1639* TOTATION TORGEL LIB BIRDH 150 - CUCH LIB. IN SUCH ZOTE-SUB-SUCH 120 - CUCH LIB. IN SUCH ZOTE-SUB-SUCH 120 - CUCH LIB. IN SUCH ZOTE-SUB-SUCH 120 - CUCH LIB. IN SUCH ZOTE-SUB-SUCH IN SUCH ZOTE-SUB-SUCH IN SUCH ZOTE-SUB-SUCH IN SUCH ZOTE-SUB-SUCH IN SUCH ZOTE-SUB-SUCH IN SUCH ZOTE-SUB-SUCH IN SUCH ZOTE-SUB-SUCH IN SUCH ZOTE-SUB-SUCH IN SUCH ZOTE-SUB-SUCH IN SUCH ZOTE-SUB-SUCH IN SUCH ZOTE-SUB-SUCH IN SUCH ZOTE-SUB-SUCH IN SUCH ZOTE-SUB-SUCH IN SUCH ZOTE-SUB-SUB-SUCH IN SUCH ZOTE-SUB-SUB-SUCH IN SUCH ZOTE-SUB-SUB-SUB-SUB-SUB-SUB-SUB-SUB-SUB-SUB						49				END OF ENVIRONMENTAL HOLE AT 7.50 m				



1 / 2

### **ENVIRONMENTAL LOG**

Log No. 5

Environmental logs are not to be used for geotechnical purposes

EASTING: 308573.032 NORTHING: 6257697.725

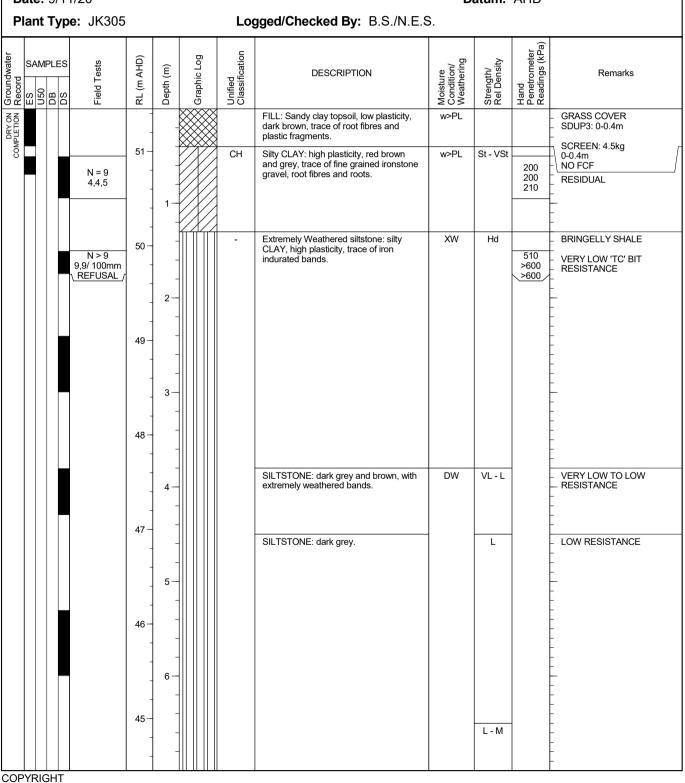
Client: INTEGRATED PROJECTS

Datgel Lab and In Situ Tool - DGD | Lib: JK 9.02.4 2019-05-31 Prj; JK 9.01.0 2018-03-20

Project: PROPOSED SENIORS LIVING DEVELOPMENT

Location: 55 FOX HILLS CRESCENT, FOX HILLS GOLF CLUB, PROSPECT, NSW

Job No.: E33524BA Method: SPIRAL AUGER R.L. Surface: 51.45 m





# **ENVIRONMENTAL LOG**

Log No. 5

EASTING: 308573.032 NORTHING: 6257697.725

2 / 2

Environmental logs are not to be used for geotechnical purposes

Client: INTEGRATED PROJECTS

Project: PROPOSED SENIORS LIVING DEVELOPMENT

Location: 55 FOX HILLS CRESCENT, FOX HILLS GOLF CLUB, PROSPECT, NSW

Job No.: E33524BA Method: SPIRAL AUGER R.L. Surface: 51.45 m

Dete: 0/44/20						_	.4		J 1. 10 III
<b>Date:</b> 9/11/20				_	W <b>a</b> l		atum:	AHD	
Plant Type: JK305				Lo	gged/Checked By: B.S./N.E.S	э. 			
Groundwater Record ES	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
	44 –	-		-	SILTSTONE: dark grey. (continued)	DW	L - M		LOW RESISTANCE
	44 - - - 43 - - - - - - -	8-			END OF ENVIRONMENTAL HOLE AT 7.50 m				
	- - 41 — -	10-							- - - - - - - - - - - - - -
	40 — - -	12—							- - - - - - -
	39 — - - -	13 —							- - - - - -
COPYRIGHT	38 -	-							- - - -

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1 / 2

### **ENVIRONMENTAL LOG**

Log No.

Environmental logs are not to be used for geotechnical purposes

EASTING: 308650.157 NORTHING: 6257720.194

Client: INTEGRATED PROJECTS

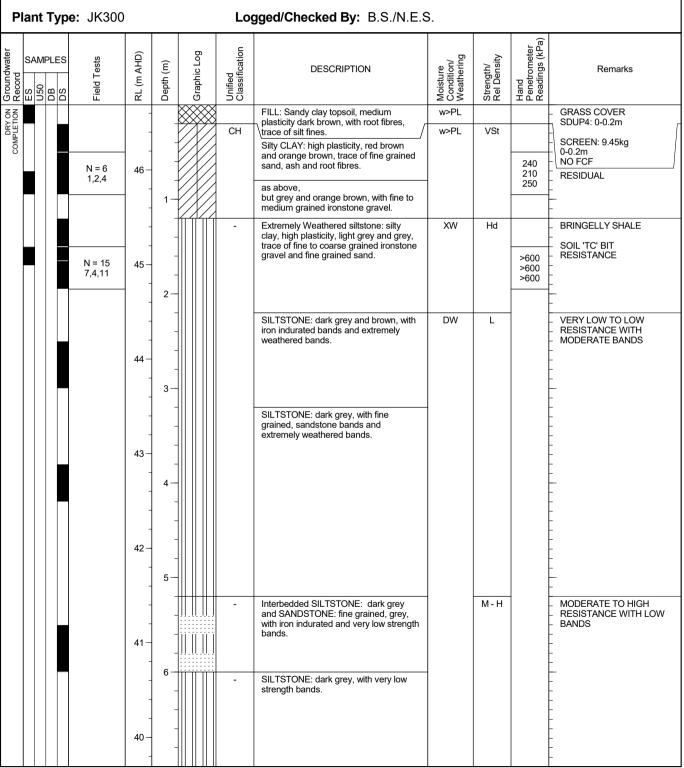
Datgel Lab and In Situ Tool - DGD | Lib: JK 9.02.4 2019-05-31 Pri; JK 9.01.0 2018-03-20

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Project: PROPOSED SENIORS LIVING DEVELOPMENT

Location: 55 FOX HILLS CRESCENT, FOX HILLS GOLF CLUB, PROSPECT, NSW

Job No.: E33524BA Method: SPIRAL AUGER R.L. Surface: 46.69 m





2 / 2

# **ENVIRONMENTAL LOG**

Log No. 6

Environmental logs are not to be used for geotechnical purposes

EASTING: 308650.157 NORTHING: 6257720.194

Client: INTEGRATED PROJECTS

Project: PROPOSED SENIORS LIVING DEVELOPMENT

Location: 55 FOX HILLS CRESCENT, FOX HILLS GOLF CLUB, PROSPECT, NSW

Job No.: E33524BA Method: SPIRAL AUGER R.L. Surface: 46.69 m

**Date:** 10/11/20 **Datum:** AHD

	<b>ate:</b> 10/								atum:	AHD	
P	lant Typ	e: JK300	)			Lo	gged/Checked By: B.S./N.E.S	S.			
Groundwater Record	SAMPLES 090 090	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
			-	-		-	SILTSTONE: dark grey, with very low strength bands. (continued)	DW	M - H		-
N SIGNATE LOS AN ACCEPTACLE. INVASTEN. EXCHANGING THE CONTRACTOR OF TRACES IN CONTRACTOR OF THE CONTRA			39 – 38 – 37 – 33 – 33 – 33 – 33 – 33 – 33	8- 8- 9- 10- 11- 12- 13-			END OF ENVIRONMENTAL HOLE AT 7.50 m				
000	YRIGHT										

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### **ENVIRONMENTAL LOG**

Log No.

EASTING:

7

NORTHING: 6257744.343

1 / 2 308572.324

Environmental logs are not to be used for geotechnical purposes

Client: INTEGRATED PROJECTS

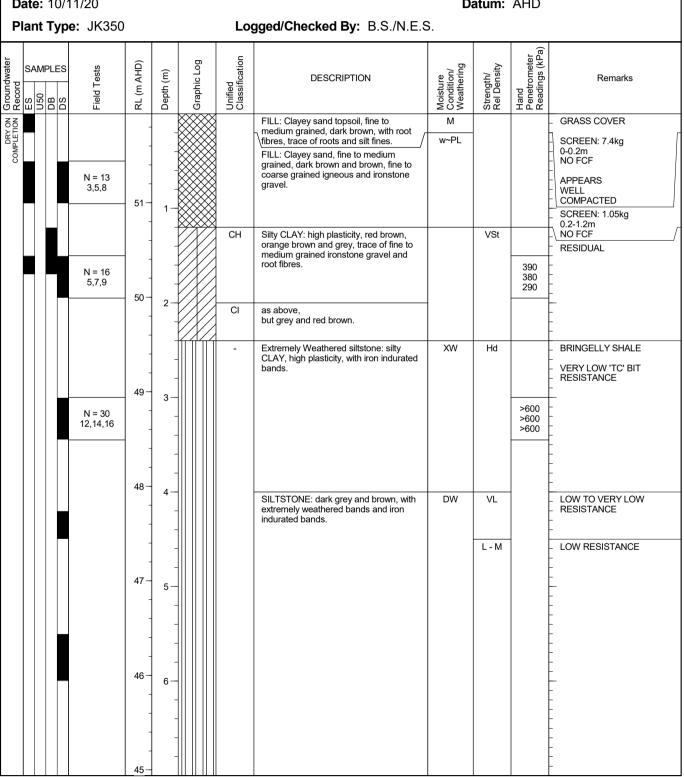
Datgel Lab and In Situ Tool - DGD | Lib: JK 9.02.4 2019-05-31 Prj; JK 9.01.0 2018-03-20

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**Project:** PROPOSED SENIORS LIVING DEVELOPMENT

55 FOX HILLS CRESCENT, FOX HILLS GOLF CLUB, PROSPECT, NSW Location:

Job No.: E33524BA Method: SPIRAL AUGER **R.L. Surface:** 51.94 m





# **ENVIRONMENTAL LOG**

Log No.

7

EASTING: 308572.324 NORTHING: 6257744.343

2 / 2

Environmental logs are not to be used for geotechnical purposes

Client: INTEGRATED PROJECTS

Project: PROPOSED SENIORS LIVING DEVELOPMENT

Location: 55 FOX HILLS CRESCENT, FOX HILLS GOLF CLUB, PROSPECT, NSW

Job No.: E33524BA Method: SPIRAL AUGER R.L. Surface: 51.94 m

י ו	ate:	10/1	1/20						D	atum:	AHD	
Р	lant	Тур	e: JK350				Lo	gged/Checked By: B.S./N.E.S	3.			
Groundwater Record	MAS N20	PLES BQ SQ	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
				-	-	-	-	SILTSTONE: dark grey and brown, with extremely weathered bands and iron indurated bands. (continued)	DW	L - M		-
				-	-	-		END OF ENVIRONMENTAL HOLE AT				_
				-	-	_		7.50 m				<del>-</del> -
				44	8-	-						
				_	-							_
3				_	-							<u>-</u>
and a superior of the superior and the s				-								<del>-</del> - -
				43 -	9-							_
				-	-	-						_
				-	-	-						- - -
					-	1						<u>-</u> -
3				42 -	-							_
5					10 –							<del>-</del> -
				-								
				-		_						_
				-	-	-						<del>-</del>
				41 -	11 –							
				-	-	1						_ -
					-							<u>-</u> -
				-	-							<del>-</del> - -
				40	12 –							_
				-								_
				-	-	-						<u>-</u>
				-	-							_ - -
				39 -	-							_
				39 -	13 –	1						<u> </u>
פיניביי בוניסים המל פו ערססיבות וסדבר, ווערס ובין המסקבות ו ויססו ביס ו ביסו				-	-							<b>-</b> - -
8				-								_
201				-	-	_						_
ś	VPI	Ш		38_								-



### **ENVIRONMENTAL LOG**

Log No.

NORTHING: 6257765.555

EASTING:

**1 / 2** 308648.472

Environmental logs are not to be used for geotechnical purposes

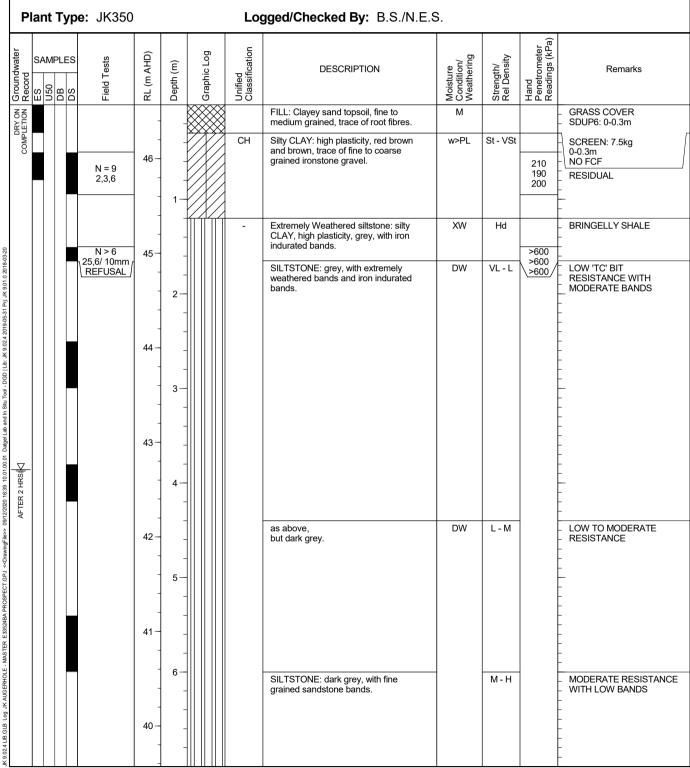
Client: INTEGRATED PROJECTS

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Project: PROPOSED SENIORS LIVING DEVELOPMENT

Location: 55 FOX HILLS CRESCENT, FOX HILLS GOLF CLUB, PROSPECT, NSW

Job No.: E33524BA Method: SPIRAL AUGER R.L. Surface: 46.57 m





# **ENVIRONMENTAL LOG**

Log No. 8

EASTING: 308648.472 NORTHING: 6257765.555

Environmental logs are not to be used for geotechnical purposes

Client: INTEGRATED PROJECTS

Project: PROPOSED SENIORS LIVING DEVELOPMENT

Location: 55 FOX HILLS CRESCENT, FOX HILLS GOLF CLUB, PROSPECT, NSW

Job No.: E33524BA Method: SPIRAL AUGER R.L. Surface: 46.57 m

[	Dat	e:	10/1	1/20						Da	atum:	AHD	
F	Pla	nt <sup>-</sup>	Гуре	: JK350				Lo	gged/Checked By: B.S./N.E.S	3.			
Groundwater	Record S	AMP	LES SQ	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
					-	-	-	-	SILTSTONE: dark grey, with fine grained sandstone bands. (continued)	DW	M - H		- - -
AN SULFA LIGALE US OF A AUGENTICE. IMAS IEN ESSEABA PROPERTIENT STATEMENT PROPERTIES IN 100 TO 100 IN 100 IN 100 TO 100 IN 100 TO 100 IN 100 TO 100 IN 100 TO 100 IN 100 TO 100 IN 100 TO 100 IN 100 I					39	8 —			END OF ENVIRONMENTAL HOLE AT 7.50 m				GROUNDWATER MONITORING WELL INSTALLED TO 7.5m. CLASS 18 MACHINE SLOTTED 50mm DIA. PVC STANDPIPE 7.5m TO 1.5m. CASING 1.5m TO 0m. 2mm SAND FILTER PACK 7.5m TO 1.0m. BENTONITE SEAL 1.0m TO 0.5m. BACKFILLED WITH SAND TO THE SURFACE. COMPLETED WITH A CONCRETED GATIC COVER.



1 / 2

# **ENVIRONMENTAL LOG**

Log No. 9

Environmental logs are not to be used for geotechnical purposes

EASTING: 308709.322 NORTHING: 6257840.175

Client: INTEGRATED PROJECTS

Project: PROPOSED SENIORS LIVING DEVELOPMENT

Location: 55 FOX HILLS CRESCENT, FOX HILLS GOLF CLUB, PROSPECT, NSW

Job No.: E33524BA Method: SPIRAL AUGER R.L. Surface: 43.40 m

<b>Date:</b> 10/11/20						atum:	AHD	
Plant Type: JK300			Log	gged/Checked By: B.S./N.E.S	S.			
Groundwater Record LES SS DB SS DB SS Field Tests	RL (m AHD)	Depth (m) Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
N = 12 1,4,8  N = 11 2,5,6  N = 20 5,7,13	43 - 42 - 41 - 40 - 39	3-4-4-5	다. CH '	FILL: Clayey sand topsoil, fine to medium grained, dark brown, trace of fine to medium grained ironstone gravel, clay nodules and root fibres.  FILL: Silty clay, medium plasticity, red brown, orange brown and grey, trace of fine grained sand, fine grained ironstone gravel, root fibres and ash.  FILL: Clayey sand, fine to medium grained, dark brown, with silt fines, root fibres, trace of fine to medium grained ironstone gravel.  FILL: Silty clay, medium plasticity, red brown, grey and brown, with fine to coarse grained ironstone gravel, trace of root fibres, clayey sand bands.  FILL: Clayey sandy gravel, fine to coarse grained igneous and ironstone gravel, dark brown and grey, fine to medium grained sand, trace of silt fines land ash.  Silty CLAY: high plasticity, light grey and red brown, with fine to coarse grained ignostone gravel.  SILTSTONE: dark grey and grey, with iron indurated bands and extremely weathered bands.	M w>PL M w>PL M w>PL DW	(Hd)	H A & B	GRASS COVER  SCREEN: 9.45kg 0-0.3m NO FCF  APPEARS WELL COMPACTED  SCREEN: 2.5kg 0.55-0.85m NO FCF  SCREEN: 10.0kg 0.85-2.5m NO FCF  SCREEN: 13.kg 2.5-3.0m NO FCF  SCREEN: 1.3kg 3.0-3.3m NO FCF  RESIDUAL  BRINGELLY SHALE  LOW 'TC' BIT RESISTANCE WITH MODERATE BANDS
	37 -	6	-	Interbedded SANDSTONE: fine grained, grey and SILTSTONE: dark grey, with very low strength iron indurated bands. / REFER TO CORED BOREHOLE LOG		L		- MODERATE RESISTANCE - WITH LOW BANDS
 COPYRIGHT								-

# **JK**Environments



# **CORED ENVIRONMENTAL LOG**

Log No. 9 2 / 2

Environmental logs are not to be used for geotechnical purposes

EASTING: 308709.322 NORTHING: 6257840.175

Client: INTEGRATED PROJECTS

Project: PROPOSED SENIORS LIVING DEVELOPMENT

Location: 55 FOX HILLS CRESCENT, FOX HILLS GOLF CLUB, PROSPECT, NSW

Job No.: E33524BA Core Size: NMLC R.L. Surface: 43.40 m

Date: 10/11/20 Inclination: VERTICAL Datum: AHD

Plant Type: JK300 Bearing: N/A Logged/Checked By: B.S./N.E.S.

CORE DESCRIPTION   Proper pair characteristics colour, leading and minor components   Property		pe. ultuoo	Dearing. N	// \				gged/Checked by. D.O./N.L.O	•
38	Nater Loss\Level Sarrel Lift RL (m AHD)	Depth (m) Graphic Log	Rock Type, grain characteristics, colour, texture and fabric, features, inclusions	Neathering	Strength	STRENGTH INDEX I <sub>s</sub> (50)	SPACING (mm)	DESCRIPTION  Type, orientation, defect shape and roughness, defect coatings and seams, openness and thickness	Formation
- 6			START CORING AT 5.85m						
36 END OF ENVIRONMENTAL HOLE AT 7.37 m (6.32m) J. 50°. P. S. Con (7.35m) J. 50°. P. S. Con (7.35		6	grey and SILTSTONE: grey and brown,		М	•0.060     		(6.10m) XWS, 0°, 100 mm.t	Bringelly Shale
35		1 1111111				-0.60		(7.02m) J, 60°, P, S, Cn	Bring
34- 33- 33- 31- 31- 32- 32- 33- 33- 33- 33- 33- 33- 33- 33		8-							
33-1	34 -	9-							
32	33 -	10-					I ⊢		
	32 -	1 1							

# **JK**Environments



## **ENVIRONMENTAL LOG**

Log No.

1 / 2

Environmental logs are not to be used for geotechnical purposes

EASTING: 308648.547 NORTHING: 6257874.577

10

Client: INTEGRATED PROJECTS

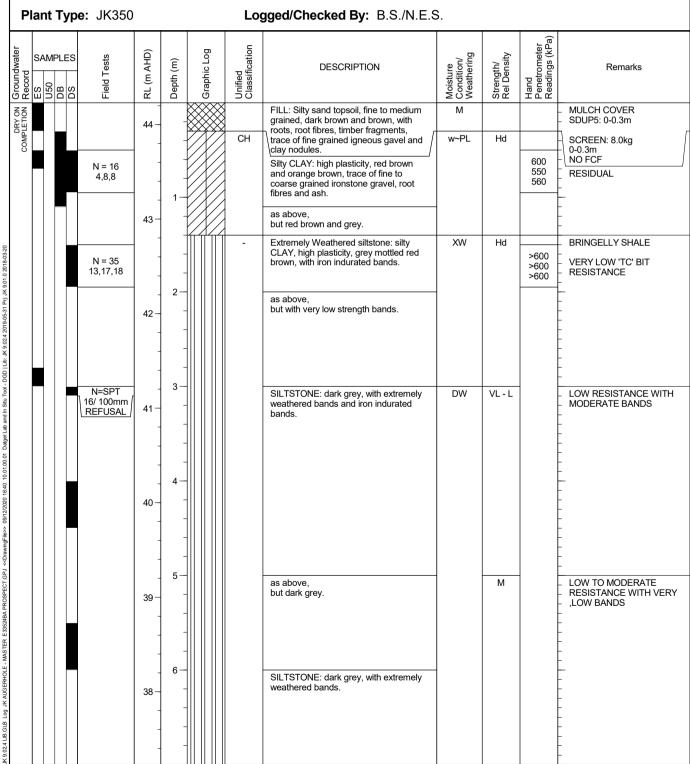
COPYRIGHT

Project: PROPOSED SENIORS LIVING DEVELOPMENT

Location: 55 FOX HILLS CRESCENT, FOX HILLS GOLF CLUB, PROSPECT, NSW

Job No.: E33524BA Method: SPIRAL AUGER R.L. Surface: 44.23 m

**Date:** 10/11/20 **Datum:** AHD



# **JK**Environments



# **ENVIRONMENTAL LOG**

Log No. 10

2 / 2

Environmental logs are not to be used for geotechnical purposes

EASTING: 308648.547 NORTHING: 6257874.577

Client: INTEGRATED PROJECTS

Project: PROPOSED SENIORS LIVING DEVELOPMENT

Location: 55 FOX HILLS CRESCENT, FOX HILLS GOLF CLUB, PROSPECT, NSW

Job No.: E33524BA Method: SPIRAL AUGER R.L. Surface: 44.23 m

**Date:** 10/11/20 **Datum:** AHD

Date: 10/11/20							
Plant Type: JK350		Lo	gged/Checked By: B.S./N.E.	S.			
Groundwater Record ES 90 U50 DB 77 DS 60 Field Tests	RL (m AHD) Depth (m)	Graphic Log Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
	37 –		SILTSTONE: dark grey, with extremely weathered bands. (continued)	DW	М		
AR 9024 LB ISEL TOG 31A AUGERTULE - TARS TER ESSOABA PROSPEL ISEV ROMIZZAZO 1940 100100001 Dagget LB and 1961-100   LBC. AR 9024 2019-40-51 Pri 5-N 901 0 Zin 6-05-20	36 - 8 - 36 - 9 - 35 - 10 - 34 - 11 - 33 - 12 - 32 - 13 - 31 - 13 - 31 - 13 - 31 - 13 - 31 - 13	- - -	END OF ENVIRONMENTAL HOLE AT 7.50 m				
COPYRIGHT							



### **ENVIRONMENTAL LOGS EXPLANATION NOTES**

#### INTRODUCTION

These notes have been provided to amplify the environmental report in regard to classification methods, field procedures and certain matters relating to the logging of soil and rock. Not all notes are necessarily relevant to all reports.

Where geotechnical borehole logs are utilised for environmental purpose, reference should also be made to the explanatory notes included in the geotechnical report. Environmental logs are not suitable for geotechnical purposes.

The ground is a product of continuing natural and man-made processes and therefore exhibits a variety of characteristics and properties which vary from place to place and can change with time. Environmental studies include gathering and assimilating limited facts about these characteristics and properties in order to understand or predict the behaviour of the ground on a particular site under certain conditions. This report may contain such facts obtained by inspection, excavation, probing, sampling, testing or other means of investigation. If so, they are directly relevant only to the ground at the place where and time when the investigation was carried out.

#### **DESCRIPTION AND CLASSIFICATION METHODS**

The methods of description and classification of soils and rocks used in this report are based on Australian Standard 1726:2017 *'Geotechnical Site Investigations'*. In general, descriptions cover the following properties—soil or rock type, colour, structure, strength or density, and inclusions. Identification and classification of soil and rock involves judgement and the Company infers accuracy only to the extent that is common in current geoenvironmental practice.

Soil types are described according to the predominating particle size and behaviour as set out in the attached soil classification table qualified by the grading of other particles present (eg. sandy clay) as set out below:

Soil Classification	Particle Size
Clay	< 0.002mm
Silt	0.002 to 0.075mm
Sand	0.075 to 2.36mm
Gravel	2.36 to 63mm
Cobbles	63 to 200mm
Boulders	> 200mm

Non-cohesive soils are classified on the basis of relative density, generally from the results of Standard Penetration Test (SPT) as below:

Relative Density	SPT 'N' Value (blows/300mm)
Very loose (VL)	<4
Loose (L)	4 to 10
Medium dense (MD)	10 to 30
Dense (D)	30 to 50
Very Dense (VD)	>50

Cohesive soils are classified on the basis of strength (consistency) either by use of a hand penetrometer, vane shear, laboratory testing and/or tactile engineering examination. The strength terms are defined as follows.

Classification	Unconfined Compressive Strength (kPa)	Indicative Undrained Shear Strength (kPa)	
Very Soft (VS)	≤25	≤ 12	
Soft (S)	> 25 and ≤ 50	> 12 and ≤ 25	
Firm (F)	> 50 and ≤ 100	> 25 and ≤ 50	
Stiff (St)	> 100 and ≤ 200	> 50 and ≤ 100	
Very Stiff (VSt)	> 200 and ≤ 400	> 100 and ≤ 200	
Hard (Hd)	> 400	> 200	
Friable (Fr)	Strength not attainable – soil crumbles		

Rock types are classified by their geological names, together with descriptive terms regarding weathering, strength, defects, etc. Where relevant, further information regarding rock classification is given in the text of the report. In the Sydney Basin, 'shale' is used to describe fissile mudstone, with a weakness parallel to bedding. Rocks with alternating inter-laminations of different grain size (eg. siltstone/claystone and siltstone/fine grained sandstone) are referred to as 'laminite'.

### **INVESTIGATION METHODS**

1

The following is a brief summary of investigation methods currently adopted by the Company and some comments on their use and application. All methods except test pits, hand auger drilling and portable Dynamic Cone Penetrometers require the use of a mechanical rig which is commonly mounted on a truck chassis or track base.

**Test Pits:** These are normally excavated with a backhoe or a tracked excavator, allowing close examination of the insitu soils and 'weaker' bedrock if it is safe to descend into the pit. The depth of penetration is limited to about 3m for a backhoe and up to 6m for a large excavator. Limitations of test pits are the problems associated with disturbance and difficulty of reinstatement and the consequent effects on close-by structures. Care must be taken if construction is to be carried out near test pit locations to either properly recompact the backfill during construction or to design and construct the



structure so as not to be adversely affected by poorly compacted backfill at the test pit location.

**Hand Auger Drilling:** A borehole of 50mm to 100mm diameter is advanced by manually operated equipment. Refusal of the hand auger can occur on a variety of materials such as obstructions within any fill, tree roots, hard clay, gravel or ironstone, cobbles and boulders, and does not necessarily indicate rock level.

Continuous Spiral Flight Augers: The borehole is advanced using 75mm to 115mm diameter continuous spiral flight augers, which are withdrawn at intervals to allow sampling and insitu testing. This is a relatively economical means of drilling in clays and in sands above the water table. Samples are returned to the surface by the flights or may be collected after withdrawal of the auger flights, but they can be very disturbed and layers may become mixed. Information from the auger sampling (as distinct from specific sampling by SPTs or undisturbed samples) is of limited reliability due to mixing or softening of samples by groundwater, or uncertainties as to the original depth of the samples. Augering below the groundwater table is of even lesser reliability than augering above the water table.

**Rock Augering:** Use can be made of a Tungsten Carbide (TC) bit for auger drilling into rock to indicate rock quality and continuity by variation in drilling resistance and from examination of recovered rock cuttings. This method of investigation is quick and relatively inexpensive but provides only an indication of the likely rock strength and predicted values may be in error by a strength order. Where rock strengths may have a significant impact on construction feasibility or costs, then further investigation by means of cored boreholes may be warranted.

**Wash Boring:** The borehole is usually advanced by a rotary bit, with water being pumped down the drill rods and returned up the annulus, carrying the drill cuttings. Only major changes in stratification can be assessed from the cuttings, together with some information from "feel" and rate of penetration.

**Mud Stabilised Drilling:** Either Wash Boring or Continuous Core Drilling can use drilling mud as a circulating fluid to stabilise the borehole. The term 'mud' encompasses a range of products ranging from bentonite to polymers. The mud tends to mask the cuttings and reliable identification is only possible from intermittent intact sampling (eg. from SPT and U50 samples) or from rock coring, etc.

**Continuous Core Drilling:** A continuous core sample is obtained using a diamond tipped core barrel. Provided full core recovery is achieved (which is not always possible in very low strength rocks and granular soils), this technique provides a very reliable (but relatively expensive) method of investigation. In rocks, NMLC or HQ triple tube core barrels, which give a core of about 50mm and 61mm diameter, respectively, is usually used with water flush. The length of core recovered is compared to the length drilled and any length not recovered is shown as NO CORE. The location of NO CORE recovery is determined on site by the supervising engineer; where the location is uncertain, the loss is placed at the bottom of the drill run.

**Standard Penetration Tests:** Standard Penetration Tests (SPT) are used mainly in non-cohesive soils, but can also be used in cohesive soils, as a means of indicating density or strength and also of obtaining a relatively undisturbed sample. The test procedure is

described in Australian Standard 1289.6.3.1–2004 (R2016) 'Methods of Testing Soils for Engineering Purposes, Soil Strength and Consolidation Tests – Determination of the Penetration Resistance of a Soil – Standard Penetration Test (SPT)'.

The test is carried out in a borehole by driving a 50mm diameter split sample tube with a tapered shoe, under the impact of a 63.5kg hammer with a free fall of 760mm. It is normal for the tube to be driven in three successive 150mm increments and the 'N' value is taken as the number of blows for the last 300mm. In dense sands, very hard clays or weak rock, the full 450mm penetration may not be practicable and the test is discontinued.

The test results are reported in the following form:

 In the case where full penetration is obtained with successive blow counts for each 150mm of, say, 4, 6 and 7 blows, as

> N = 13 4, 6, 7

 In a case where the test is discontinued short of full penetration, say after 15 blows for the first 150mm and 30 blows for the next 40mm, as

> N > 30 15, 30/40mm

The results of the test can be related empirically to the engineering properties of the soil.

A modification to the SPT is where the same driving system is used with a solid  $60^{\circ}$  tipped steel cone of the same diameter as the SPT hollow sampler. The solid cone can be continuously driven for some distance in soft clays or loose sands, or may be used where damage would otherwise occur to the SPT. The results of this Solid Cone Penetration Test (SCPT) are shown as 'Nc' on the borehole logs, together with the number of blows per 150mm penetration.

### LOGS

The borehole or test pit logs presented herein are an interpretation of the subsurface conditions, and their reliability will depend to some extent on the frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will enable the most reliable assessment, but is not always practicable or possible to justify on economic grounds. In any case, the boreholes or test pits represent only a very small sample of the total subsurface conditions.

The terms and symbols used in preparation of the logs are defined in the following pages.

Interpretation of the information shown on the logs, and its application to design and construction, should therefore take into account the spacing of boreholes or test pits, the method of drilling or excavation, the frequency of sampling and testing and the possibility of other than 'straight line' variations between the boreholes or test pits. Subsurface conditions between boreholes or test pits may vary significantly from conditions encountered at the borehole or test pit locations.





#### **GROUNDWATER**

Where groundwater levels are measured in boreholes, there are several potential problems:

- Although groundwater may be present, in low permeability soils it may enter the hole slowly or perhaps not at all during the time it is left open.
- A localised perched water table may lead to an erroneous indication of the true water table.
- Water table levels will vary from time to time with seasons or recent weather changes and may not be the same at the time of construction.
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must be washed out of the hole or 'reverted' chemically if reliable water observations are to be made.

More reliable measurements can be made by installing standpipes which are read after the groundwater level has stabilised at intervals ranging from several days to perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from perched water tables or surface water.

#### FILL

The presence of fill materials can often be determined only by the inclusion of foreign objects (eg. bricks, steel, etc) or by distinctly unusual colour, texture or fabric. Identification of the extent of fill materials will also depend on investigation methods and frequency. Where natural soils similar to those at the site are used for fill, it may be difficult with limited testing and sampling to reliably assess the extent of the fill.

The presence of fill materials is usually regarded with caution as the possible variation in density and material type is much greater than with natural soil deposits. Consequently, there is an increased risk of adverse environmental characteristics or behaviour. If the volume and nature of fill is of importance to a project, then frequent test pit excavations are preferable to boreholes.

#### LABORATORY TESTING

3

Laboratory testing has not been undertaken to confirm the soil classification and rock strengths indicated on the environmental logs unless noted in the report.





## **SYMBOL LEGENDS**

<u>SOIL</u>	ROCK
FILL	CONGLOMERATE
TOPSOIL	SANDSTONE
CLAY (CL, CI, CH)	SHALE/MUDSTONE
SILT (ML, MH)	SILTSTONE
SAND (SP, SW)	CLAYSTONE
GRAVEL (GP, GW)	COAL
SANDY CLAY (CL, CI, CH)	LAMINITE
SILTY CLAY (CL, CI, CH)	LIMESTONE
CLAYEY SAND (SC)	PHYLLITE, SCHIST
SILTY SAND (SM)	TUFF
GRAVELLY CLAY (CL, CI, CH)	GRANITE, GABBRO
CLAYEY GRAVEL (GC)	DOLERITE, DIORITE
SANDY SILT (ML, MH)	BASALT, ANDESITE
완설보 보설보 보설보 보설보	QUARTZITE

## **OTHER MATERIALS**









### **CLASSIFICATION OF COARSE AND FINE GRAINED SOILS**

М	Major Divisions		Typical Names	Field Classification of Sand and Gravel	Laboratory Cl	assification
ionis	GRAVEL (more than half of coarse fraction is larger than 2.36mm  GRAVEL (more than half of coarse fraction is larger than 2.36mm  GRAVEL (more than half of coarse fraction is larger than 2.36mm  GRAVEL (more than half of coarse fraction is smaller than 2.36mm)  GRAVEL (more little or no fines  GP Gravel and gravel-sand mixtures, little or no fines, uniform gravels  GRAVEL (more little or no fines  GP Gravel-silt mixtures and gravel-sand-silt mixtures  GC Gravel-clay mixtures  SAND (more than half of coarse fraction is smaller than 2.36mm)  SP Sand and gravel-sand mixtures, little or no fines  SP Sand and gravel-sand mixtures, little or no fines  SP Sand and gravel-sand mixtures, little or no fines  SP Sand and gravel-sand mixtures, little or no fines  SP Sand and gravel-sand mixtures, little or no fines  SP Sand and gravel-sand mixtures, little or no fines  SP Sand and gravel-sand mixtures, little or no fines  SP Sand and gravel-sand mixtures, little or no fines  SP Sand and gravel-sand mixtures, little or no fines  SP Sand and gravel-sand mixtures, little or no fines  SP Sand and gravel-sand mixtures, little or no fines  SP Sand and gravel-sand mixtures, little or no fines			Wide range in grain size and substantial amounts of all intermediate sizes, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	$C_u > 4$ 1 < $C_c < 3$
rsizefract				Predominantly one size or range of sizes with some intermediate sizes missing, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	Fails to comply with above
uding ove			_	, , , , , , , , , , , , , , , , , , , ,		Fines behave as silt
ofsailexd			, ,	, , , , , , , , , , , , , , , , , , , ,		Fines behave as clay
rethan 65%c greaterthan	SAND (more than half	SW	Sand and gravel-sand mixtures, little or no fines	Wide range in grain size and substantial amounts of all intermediate sizes, not enough fines to bind coarse grains, no dry strength	≤5% fines	$C_u > 6$ 1 < $C_c < 3$
oil (more:	of coarse fraction SP		Sand and gravel-sand mixtures, little or no fines	Predominantly one size or range of sizes with some intermediate sizes missing, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	Fails to comply with above
graineds	2.36mm)	SM	Sand-silt mixtures	'Dirty' materials with excess of non-plastic fines, zero to medium dry strength	≥ 12% fines, fines are silty	
Coarse	SC SC		Sand-clay mixtures	'Dirty' materials with excess of plastic fines, medium to high dry strength	≥ 12% fines, fines are clayey	N/A

			Group		Field Classification of Silt and Clay			
Majo	or Divisions	Symbol	Typical Names	Dry Strength	Dilatancy	Toughness	% < 0.075mm	
exduding mm)	SILT and CLAY (low to medium	ML	Inorganic silt and very fine sand, rock flour, silty or clayey fine sand or silt with low plasticity	None to low	Slow to rapid	Low	Below A line	
of sail exdu 0.075mm)	CT CT CT CT CT CT CT CT CT CT CT CT CT C		Inorganic clay of low to medium plasticity, gravelly clay, sandy clay	Medium to high	None to slow	Medium	Above A line	
an 35%. se than			Organic silt	Low to medium	Slow	Low	Below A line	
onisle			Inorganic silt	Low to medium	None to slow	Low to medium	Below A line	
xoils (m e fracti			Inorganic clay of high plasticity	High to very high	None	High	Above A line	
re grained s		ОН	Organic clay of medium to high plasticity, organic silt	Medium to high	None to very slow	Low to medium	Below A line	
.=	Highly organic soil	Pt	Peat, highly organic soil	-	-	-	-	

5

### **Laboratory Classification Criteria**

A well graded coarse grained soil is one for which the coefficient of uniformity Cu > 4 and the coefficient of curvature  $1 < C_c < 3$ . Otherwise, the soil is poorly graded. These coefficients are given by:

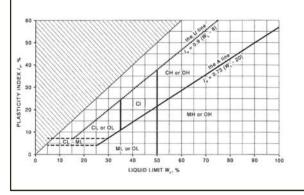
$$C_U = \frac{D_{60}}{D_{10}}$$
 and  $C_C = \frac{(D_{30})^2}{D_{10} D_{60}}$ 

Where  $D_{10}$ ,  $D_{30}$  and  $D_{60}$  are those grain sizes for which 10%, 30% and 60% of the soil grains, respectively, are smaller.

#### NOTES

- 1 For a coarse grained soil with a fines content between 5% and 12%, the soil is given a dual classification comprising the two group symbols separated by a dash; for example, for a poorly graded gravel with between 5% and 12% silt fines, the classification is GP-GM.
- Where the grading is determined from laboratory tests, it is defined by coefficients of curvature (C<sub>c</sub>) and uniformity (C<sub>u</sub>) derived from the particle size distribution curve.
- 3 Clay soils with liquid limits > 35% and ≤ 50% may be classified as being of medium plasticity.
- The U line on the Modified Casagrande Chart is an approximate upper bound for most natural soils.

# Modified Casagrande Chart for Classifying Silts and Clays according to their Behaviour





## **LOG SYMBOLS**

Log Column	Symbol	De	finition				
Groundwater Record		— Sta	anding water level.	Time delay following compl	etion of drilling/excavation may be shown.		
	—с	Ext	ent of borehole/te	est pit collapse shortly after o	drilling/excavation.		
	<b>—</b>	— Gr	oundwater seepag	e into borehole or test pit no	oted during drilling or excavation.		
Samples	ES U50 DB DS ASB ASS		Sample taken over depth indicated, for environmental analysis.  Undisturbed 50mm diameter tube sample taken over depth indicated.  Bulk disturbed sample taken over depth indicated.  Small disturbed bag sample taken over depth indicated.  Soil sample taken over depth indicated, for asbestos analysis.  Soil sample taken over depth indicated, for acid sulfate soil analysis.  Soil sample taken over depth indicated, for salinity analysis.				
Field Tests	N = 17 4, 7, 10	fig	ures show blows pe		tween depths indicated by lines. Individual usal' refers to apparent hammer refusal within		
		7 fig	ures show blows pe	er 150mm penetration for 60	netween depths indicated by lines. Individual D° solid cone driven by SPT hammer. 'R' refers and ing 150mm depth increment.		
	VNS = 25 PID = 100		Vane shear reading in kPa of undrained shear strength. Photoionisation detector reading in ppm (soil sample headspace test).				
Moisture Condition (Fine Grained Soils)  (Coarse Grained Soils)	w > PL w ≈ PL w < PL w ≈ LL w > LL		Moisture content estimated to be greater than plastic limit.  Moisture content estimated to be approximately equal to plastic limit.  Moisture content estimated to be less than plastic limit.  Moisture content estimated to be near liquid limit.  Moisture content estimated to be wet of liquid limit.  DRY — runs freely through fingers.				
	M W		<ul><li>MOIST – does not run freely but no free water visible on soil surface.</li><li>WET – free water visible on soil surface.</li></ul>				
Strength (Consistency) Cohesive Soils	VS S F St VSt Hd Fr ( )		FT – und RM – und FF – und RY STIFF – und RD – und IABLE – stre	confined compressive streng confined compressive streng confined compressive streng confined compressive streng confined compressive streng confined compressive streng ength not attainable, soil cru dicates estimated consiste	ath > 25kPa and $\leq$ 50kPa. th > 50kPa and $\leq$ 100kPa. th > 100kPa and $\leq$ 200kPa. th > 200kPa and $\leq$ 400kPa. th > 400kPa.		
Density Index/ Relative Density				Density Index (I <sub>D</sub> ) Range (%)	SPT 'N' Value Range (Blows/300mm)		
(Cohesionless Soils)	VL L		RY LOOSE	≤15	0-4		
	MD		ose Edium dense	> 15 and ≤ 35 > 35 and ≤ 65	4 – 10 10 – 30		
	D		NSE	> 65 and ≤ 85	30 – 50		
VD ( )				> 85 > 85	> 50 > 50		
			VERY DENSE > 85 > 50  Bracketed symbol indicates estimated density based on ease of drilling or other assessment.				
Hand Penetrometer Readings	300 250	Me	easures reading in l		ive strength. Numbers indicate individual		



Log Column	Symbol	Definition			
Remarks	'V' bit	Hardened steel "	V' shaped bit.		
	'TC' bit	Twin pronged tu	ngsten carbide bit.		
	<b>T</b> <sub>60</sub>	Penetration of auger string in mm under static load of rig applied by drill head hydraulics without rotation of augers.			
	Soil Origin	The geological or	rigin of the soil can generally be described as:		
		RESIDUAL	<ul> <li>soil formed directly from insitu weathering of the underlying rock.</li> <li>No visible structure or fabric of the parent rock.</li> </ul>		
		EXTREMELY WEATHERED	<ul> <li>soil formed directly from insitu weathering of the underlying rock.</li> <li>Material is of soil strength but retains the structure and/or fabric of the parent rock.</li> </ul>		
		ALLUVIAL	– soil deposited by creeks and rivers.		
		ESTUARINE	<ul> <li>soil deposited in coastal estuaries, including sediments caused by inflowing creeks and rivers, and tidal currents.</li> </ul>		
		MARINE	– soil deposited in a marine environment.		
		AEOLIAN	<ul> <li>soil carried and deposited by wind.</li> </ul>		
		COLLUVIAL	<ul> <li>soil and rock debris transported downslope by gravity, with or without the assistance of flowing water. Colluvium is usually a thick deposit formed from a landslide. The description 'slopewash' is used for thinner surficial deposits.</li> </ul>		
		LITTORAL	– beach deposited soil.		



## **Classification of Material Weathering**

Term		Abbre	viation	Definition
Residual Soil	R	S	Material is weathered to such an extent that it has soil properties. Mas structure and material texture and fabric of original rock are no longer visible but the soil has not been significantly transported.	
Extremely Weathered	xw		Material is weathered to such an extent that it has soil properties. Mass structure and material texture and fabric of original rock are still visible.	
Highly Weathered	Distinctly Weathered	HW	DW	The whole of the rock material is discoloured, usually by iron staining or bleaching to the extent that the colour of the original rock is not recognisable. Rock strength is significantly changed by weathering. Some primary minerals have weathered to clay minerals. Porosity may be increased by leaching, or may be decreased due to deposition of weathering products in pores.
Moderately Weathered	(Note 1)	MW		The whole of the rock material is discoloured, usually by iron staining or bleaching to the extent that the colour of the original rock is not recognisable, but shows little or no change of strength from fresh rock.
Slightly Weathered	SW		Rock is partially discoloured with staining or bleaching along joints but shows little or no change of strength from fresh rock.	
Fresh		F	R	Rock shows no sign of decomposition of individual minerals or colour changes.

**NOTE 1:** The term 'Distinctly Weathered' is used where it is not practicable to distinguish between 'Highly Weathered' and 'Moderately Weathered' rock. 'Distinctly Weathered' is defined as follows: 'Rock strength usually changed by weathering. The rock may be highly discoloured, usually by iron staining. Porosity may be increased by leaching, or may be decreased due to deposition of weathering products in pores'. There is some change in rock strength.

## **Rock Material Strength Classification**

				Guide to Strength
Term	Abbreviation	Uniaxial Compressive Strength (MPa)	Point Load Strength Index Is <sub>(50)</sub> (MPa)	Field Assessment
Very Low Strength	VL	0.6 to 2	0.03 to 0.1	Material crumbles under firm blows with sharp end of pick; can be peeled with knife; too hard to cut a triaxial sample by hand. Pieces up to 30mm thick can be broken by finger pressure.
Low Strength	L	2 to 6	0.1 to 0.3	Easily scored with a knife; indentations 1mm to 3mm show in the specimen with firm blows of the pick point; has dull sound under hammer. A piece of core 150mm long by 50mm diameter may be broken by hand. Sharp edges of core may be friable and break during handling.
Medium Strength	М	6 to 20	0.3 to 1	Scored with a knife; a piece of core 150mm long by 50mm diameter can be broken by hand with difficulty.
High Strength	н	20 to 60	1 to 3	A piece of core 150mm long by 50mm diameter cannot be broken by hand but can be broken by a pick with a single firm blow; rock rings under hammer.
Very High Strength	VH	60 to 200	3 to 10	Hand specimen breaks with pick after more than one blow; rock rings under hammer.
Extremely High Strength	EH	> 200	>10	Specimen requires many blows with geological pick to break through intact material; rock rings under hammer.



**Appendix E: Laboratory Reports & COC Documents** 



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### **CERTIFICATE OF ANALYSIS 255513**

Client Details	
Client	Environmental Investigation Services
Attention	Anthony Barkway
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details	
Your Reference	E33524PA, Prospect
Number of Samples	39 Soil, 1 Water
Date samples received	11/11/2020
Date completed instructions received	11/11/2020

### **Analysis Details**

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

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

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

Please refer to the last page of this report for any comments relating to the results.

Report Details						
Date results requested by	18/11/2020					
Date of Issue	18/11/2020					
NATA Accreditation Number 2901. This document shall not be reproduced except in full.						
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *						

#### **Asbestos Approved By**

Analysed by Asbestos Approved Identifier: Lucy Zhu Authorised by Asbestos Approved Signatory: Lucy Zhu

**Results Approved By** 

Dragana Tomas, Senior Chemist Jaimie Loa-Kum-Cheung, Metals Supervisor Lucy Zhu, Asbestos Supervisor **Authorised By** 

Nancy Zhang, Laboratory Manager

TECHNICAL

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		255513-1	255513-4	255513-7	255513-10	255513-14
Your Reference	UNITS	BH1	BH2	ВН3	BH4	BH5
Depth		0-0.2	0-0.4	0-0.2	0-0.2	0-0.4
Date Sampled		09/11/2020	09/11/2020	09/11/2020	09/11/2020	09/11/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/11/2020	13/11/2020	13/11/2020	13/11/2020	13/11/2020
Date analysed	-	13/11/2020	13/11/2020	13/11/2020	13/11/2020	13/11/2020
TRH C <sub>6</sub> - C <sub>9</sub>	mg/kg	<25	<25	<25	<25	<25
TRH C <sub>6</sub> - C <sub>10</sub>	mg/kg	<25	<25	<25	<25	<25
vTPH C <sub>6</sub> - C <sub>10</sub> less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	109	104	100	114	120

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		255513-16	255513-19	255513-22	255513-24	255513-29
Your Reference	UNITS	BH6	BH7	ВН8	ВН9	BH10
Depth		0-0.2	0-0.2	0-0.3	0-0.3	0-0.3
Date Sampled		10/11/2020	10/11/2020	10/11/2020	10/11/2020	10/11/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/11/2020	13/11/2020	13/11/2020	13/11/2020	13/11/2020
Date analysed	-	13/11/2020	13/11/2020	13/11/2020	13/11/2020	13/11/2020
TRH C <sub>6</sub> - C <sub>9</sub>	mg/kg	<25	<25	<25	<25	<25
TRH C <sub>6</sub> - C <sub>10</sub>	mg/kg	<25	<25	<25	<25	<25
vTPH C <sub>6</sub> - C <sub>10</sub> less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	114	112	112	120	105

vTRH(C6-C10)/BTEXN in Soil					
Our Reference		255513-32	255513-37	255513-38	255513-39
Your Reference	UNITS	SDUP1	SDUP6	TB-S1	TS-S1
Depth		_	_	-	_
Date Sampled		09/11/2020	10/11/2020	09/11/2020	09/11/2020
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	13/11/2020	13/11/2020	13/11/2020	13/11/2020
Date analysed	-	13/11/2020	13/11/2020	13/11/2020	13/11/2020
TRH C <sub>6</sub> - C <sub>9</sub>	mg/kg	<25	<25	<25	[NA]
TRH C6 - C10	mg/kg	<25	<25	<25	[NA]
vTPH C <sub>6</sub> - C <sub>10</sub> less BTEX (F1)	mg/kg	<25	<25	<25	[NA]
Benzene	mg/kg	<0.2	<0.2	<0.2	103%
Toluene	mg/kg	<0.5	<0.5	<0.5	101%
Ethylbenzene	mg/kg	<1	<1	<1	103%
m+p-xylene	mg/kg	<2	<2	<2	103%
o-Xylene	mg/kg	<1	<1	<1	104%
naphthalene	mg/kg	<1	<1	<1	[NA]
Total +ve Xylenes	mg/kg	<3	<3	<3	[NT]
Surrogate aaa-Trifluorotoluene	%	113	112	117	108

svTRH (C10-C40) in Soil						
Our Reference		255513-1	255513-4	255513-7	255513-10	255513-14
Your Reference	UNITS	BH1	BH2	ВН3	BH4	BH5
Depth		0-0.2	0-0.4	0-0.2	0-0.2	0-0.4
Date Sampled		09/11/2020	09/11/2020	09/11/2020	09/11/2020	09/11/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/11/2020	13/11/2020	13/11/2020	13/11/2020	13/11/2020
Date analysed	-	14/11/2020	14/11/2020	14/11/2020	14/11/2020	14/11/2020
TRH C <sub>10</sub> - C <sub>14</sub>	mg/kg	<50	<50	<50	<50	<50
TRH C <sub>15</sub> - C <sub>28</sub>	mg/kg	<100	<100	<100	<100	<100
TRH C <sub>29</sub> - C <sub>36</sub>	mg/kg	<100	<100	<100	<100	<100
TRH >C10 -C16	mg/kg	<50	<50	<50	<50	<50
TRH >C <sub>10</sub> - C <sub>16</sub> less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C <sub>16</sub> -C <sub>34</sub>	mg/kg	<100	<100	<100	<100	<100
TRH >C <sub>34</sub> -C <sub>40</sub>	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	103	108	116	114	114

svTRH (C10-C40) in Soil						
Our Reference		255513-16	255513-19	255513-22	255513-24	255513-29
Your Reference	UNITS	BH6	BH7	BH8	ВН9	BH10
Depth		0-0.2	0-0.2	0-0.3	0-0.3	0-0.3
Date Sampled		10/11/2020	10/11/2020	10/11/2020	10/11/2020	10/11/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/11/2020	13/11/2020	13/11/2020	13/11/2020	13/11/2020
Date analysed	-	14/11/2020	14/11/2020	14/11/2020	14/11/2020	14/11/2020
TRH C <sub>10</sub> - C <sub>14</sub>	mg/kg	<50	<50	<50	<50	<50
TRH C <sub>15</sub> - C <sub>28</sub>	mg/kg	<100	<100	<100	<100	140
TRH C <sub>29</sub> - C <sub>36</sub>	mg/kg	<100	<100	<100	<100	170
TRH >C <sub>10</sub> -C <sub>16</sub>	mg/kg	<50	<50	<50	<50	<50
TRH >C <sub>10</sub> - C <sub>16</sub> less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C <sub>16</sub> -C <sub>34</sub>	mg/kg	<100	<100	<100	<100	220
TRH >C <sub>34</sub> -C <sub>40</sub>	mg/kg	<100	<100	<100	<100	160
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	380
Surrogate o-Terphenyl	%	112	113	112	108	118

svTRH (C10-C40) in Soil			
Our Reference		255513-32	255513-37
Your Reference	UNITS	SDUP1	SDUP6
Depth		_	-
Date Sampled		09/11/2020	10/11/2020
Type of sample		Soil	Soil
Date extracted	-	13/11/2020	13/11/2020
Date analysed	-	14/11/2020	14/11/2020
TRH C <sub>10</sub> - C <sub>14</sub>	mg/kg	<50	<50
TRH C <sub>15</sub> - C <sub>28</sub>	mg/kg	<100	<100
TRH C <sub>29</sub> - C <sub>36</sub>	mg/kg	<100	<100
TRH >C <sub>10</sub> -C <sub>16</sub>	mg/kg	<50	<50
TRH >C <sub>10</sub> - C <sub>16</sub> less Naphthalene (F2)	mg/kg	<50	<50
TRH >C <sub>16</sub> -C <sub>34</sub>	mg/kg	<100	<100
TRH >C <sub>34</sub> -C <sub>40</sub>	mg/kg	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50
Surrogate o-Terphenyl	%	110	106

PAHs in Soil						
Our Reference		255513-1	255513-4	255513-7	255513-10	255513-14
Your Reference	UNITS	BH1	BH2	вн3	BH4	BH5
Depth		0-0.2	0-0.4	0-0.2	0-0.2	0-0.4
Date Sampled		09/11/2020	09/11/2020	09/11/2020	09/11/2020	09/11/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/11/2020	13/11/2020	13/11/2020	13/11/2020	13/11/2020
Date analysed	-	14/11/2020	14/11/2020	14/11/2020	14/11/2020	14/11/2020
Naphthalene	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+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	108	92	87	84	98

PAHs in Soil						
Our Reference		255513-16	255513-19	255513-22	255513-24	255513-29
Your Reference	UNITS	BH6	ВН7	вн8	ВН9	BH10
Depth		0-0.2	0-0.2	0-0.3	0-0.3	0-0.3
Date Sampled		10/11/2020	10/11/2020	10/11/2020	10/11/2020	10/11/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/11/2020	13/11/2020	13/11/2020	13/11/2020	13/11/2020
Date analysed	-	14/11/2020	14/11/2020	14/11/2020	14/11/2020	14/11/2020
Naphthalene	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+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	87	93	132	108	105

PAHs in Soil			
Our Reference		255513-32	255513-37
Your Reference	UNITS	SDUP1	SDUP6
Depth		_	-
Date Sampled		09/11/2020	10/11/2020
Type of sample		Soil	Soil
Date extracted	-	13/11/2020	13/11/2020
Date analysed	-	14/11/2020	14/11/2020
Naphthalene	mg/kg	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	86	87

Organochlorine Pesticides in soil						
Our Reference		255513-1	255513-4	255513-7	255513-10	255513-14
Your Reference	UNITS	BH1	BH2	ВН3	BH4	BH5
Depth		0-0.2	0-0.4	0-0.2	0-0.2	0-0.4
Date Sampled		09/11/2020	09/11/2020	09/11/2020	09/11/2020	09/11/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/11/2020	13/11/2020	13/11/2020	13/11/2020	13/11/2020
Date analysed	-	14/11/2020	14/11/2020	14/11/2020	14/11/2020	14/11/2020
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
нсв	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
gamma-BHC	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
delta-BHC	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
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
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
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	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
pp-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
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	104	101	109	102	106

Organochlorine Pesticides in soil						
Our Reference		255513-16	255513-19	255513-22	255513-24	255513-29
Your Reference	UNITS	BH6	BH7	BH8	ВН9	BH10
Depth		0-0.2	0-0.2	0-0.3	0-0.3	0-0.3
Date Sampled		10/11/2020	10/11/2020	10/11/2020	10/11/2020	10/11/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/11/2020	13/11/2020	13/11/2020	13/11/2020	13/11/2020
Date analysed	-	14/11/2020	14/11/2020	14/11/2020	14/11/2020	14/11/2020
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
нсв	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
gamma-BHC	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
delta-BHC	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
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
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
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	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
pp-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
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	99	101	105	108	103

Organophosphorus Pesticides in Soil						
Our Reference		255513-1	255513-4	255513-7	255513-10	255513-14
Your Reference	UNITS	BH1	BH2	ВН3	BH4	BH5
Depth		0-0.2	0-0.4	0-0.2	0-0.2	0-0.4
Date Sampled		09/11/2020	09/11/2020	09/11/2020	09/11/2020	09/11/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/11/2020	13/11/2020	13/11/2020	13/11/2020	13/11/2020
Date analysed	-	14/11/2020	14/11/2020	14/11/2020	14/11/2020	14/11/2020
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	104	101	109	102	106

Organophosphorus Pesticides in Soil						
Our Reference		255513-16	255513-19	255513-22	255513-24	255513-29
Your Reference	UNITS	BH6	BH7	BH8	ВН9	BH10
Depth		0-0.2	0-0.2	0-0.3	0-0.3	0-0.3
Date Sampled		10/11/2020	10/11/2020	10/11/2020	10/11/2020	10/11/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/11/2020	13/11/2020	13/11/2020	13/11/2020	13/11/2020
Date analysed	-	14/11/2020	14/11/2020	14/11/2020	14/11/2020	14/11/2020
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	99	101	105	108	103

Envirolab Reference: 255513

Revision No: R00

PCBs in Soil						
Our Reference		255513-1	255513-4	255513-7	255513-10	255513-14
Your Reference	UNITS	BH1	BH2	вн3	BH4	BH5
Depth		0-0.2	0-0.4	0-0.2	0-0.2	0-0.4
Date Sampled		09/11/2020	09/11/2020	09/11/2020	09/11/2020	09/11/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/11/2020	13/11/2020	13/11/2020	13/11/2020	13/11/2020
Date analysed	-	14/11/2020	14/11/2020	14/11/2020	14/11/2020	14/11/2020
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	104	101	109	102	106

PCBs in Soil						
Our Reference		255513-16	255513-19	255513-22	255513-24	255513-29
Your Reference	UNITS	BH6	BH7	BH8	ВН9	BH10
Depth		0-0.2	0-0.2	0-0.3	0-0.3	0-0.3
Date Sampled		10/11/2020	10/11/2020	10/11/2020	10/11/2020	10/11/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/11/2020	13/11/2020	13/11/2020	13/11/2020	13/11/2020
Date analysed	-	14/11/2020	14/11/2020	14/11/2020	14/11/2020	14/11/2020
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	99	101	105	108	103

Acid Extractable metals in soil						
Our Reference		255513-1	255513-4	255513-7	255513-10	255513-14
Your Reference	UNITS	BH1	BH2	вн3	BH4	BH5
Depth		0-0.2	0-0.4	0-0.2	0-0.2	0-0.4
Date Sampled		09/11/2020	09/11/2020	09/11/2020	09/11/2020	09/11/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/11/2020	13/11/2020	13/11/2020	13/11/2020	13/11/2020
Date analysed	-	13/11/2020	13/11/2020	13/11/2020	13/11/2020	13/11/2020
Arsenic	mg/kg	7	6	8	7	14
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	16	16	13	15	14
Copper	mg/kg	14	18	24	20	15
Lead	mg/kg	25	22	19	25	32
Mercury	mg/kg	0.2	<0.1	0.6	0.2	<0.1
Nickel	mg/kg	11	8	14	14	9
Zinc	mg/kg	48	36	64	51	59

Acid Extractable metals in soil						
Our Reference		255513-16	255513-19	255513-22	255513-24	255513-29
Your Reference	UNITS	ВН6	ВН7	ВН8	ВН9	BH10
Depth		0-0.2	0-0.2	0-0.3	0-0.3	0-0.3
Date Sampled		10/11/2020	10/11/2020	10/11/2020	10/11/2020	10/11/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/11/2020	13/11/2020	13/11/2020	13/11/2020	13/11/2020
Date analysed	-	13/11/2020	13/11/2020	13/11/2020	13/11/2020	13/11/2020
Arsenic	mg/kg	13	6	16	<4	13
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	23	39	20	29	24
Copper	mg/kg	15	21	12	14	23
Lead	mg/kg	30	19	31	10	28
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	9	31	6	10	15
Zinc	mg/kg	43	45	38	13	89

Acid Extractable metals in soil			
Our Reference		255513-32	255513-37
Your Reference	UNITS	SDUP1	SDUP6
Depth		_	_
Date Sampled		09/11/2020	10/11/2020
Type of sample		Soil	Soil
Date prepared	-	13/11/2020	13/11/2020
Date analysed	-	13/11/2020	13/11/2020
Arsenic	mg/kg	6	11
Cadmium	mg/kg	<0.4	<0.4
Chromium	mg/kg	13	22
Copper	mg/kg	22	10
Lead	mg/kg	15	22
Mercury	mg/kg	<0.1	<0.1
Nickel	mg/kg	7	5
Zinc	mg/kg	29	16

Moisture						
Our Reference		255513-1	255513-4	255513-7	255513-10	255513-14
Your Reference	UNITS	BH1	BH2	ВН3	BH4	BH5
Depth		0-0.2	0-0.4	0-0.2	0-0.2	0-0.4
Date Sampled		09/11/2020	09/11/2020	09/11/2020	09/11/2020	09/11/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/11/2020	13/11/2020	13/11/2020	13/11/2020	13/11/2020
Date analysed	-	16/11/2020	16/11/2020	16/11/2020	16/11/2020	16/11/2020
Moisture	%	15	17	22	16	32

Moisture						
Our Reference		255513-16	255513-19	255513-22	255513-24	255513-29
Your Reference	UNITS	ВН6	BH7	ВН8	ВН9	BH10
Depth		0-0.2	0-0.2	0-0.3	0-0.3	0-0.3
Date Sampled		10/11/2020	10/11/2020	10/11/2020	10/11/2020	10/11/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/11/2020	13/11/2020	13/11/2020	13/11/2020	13/11/2020
Date analysed	-	16/11/2020	16/11/2020	16/11/2020	16/11/2020	16/11/2020
Moisture	%	23	13	21	18	23

Moisture			
Our Reference		255513-32	255513-37
Your Reference	UNITS	SDUP1	SDUP6
Depth		_	_
Date Sampled		09/11/2020	10/11/2020
Type of sample		Soil	Soil
Date prepared	-	13/11/2020	13/11/2020
Date analysed	-	16/11/2020	16/11/2020
Moisture	%	20	19

Asbestos ID - soils NEPM - ASB-001						
Our Reference		255513-4	255513-7	255513-10	255513-19	255513-22
Your Reference	UNITS	BH2	ВН3	BH4	BH7	BH8
Depth		0-0.4	0-0.2	0-0.2	0-0.2	0-0.3
Date Sampled		09/11/2020	09/11/2020	09/11/2020	10/11/2020	10/11/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	16/11/2020	16/11/2020	16/11/2020	16/11/2020	16/11/2020
Sample mass tested	g	858.53	666.24	836.08	834.63	733.99
Sample Description	-	Brown coarse- grained soil & rocks	Brown coarse- grained soil & rocks	Brown coarse- grained soil & rocks	Brown coarse- grained soil & rocks	Brown coarse- grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg	0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
		Organic fibres detected	Organic fibres detected	Organic fibres detected	Organic fibres detected	Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos <sup>#1</sup>	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	_	_	-	-	_
FA and AF Estimation*	g	_	_	_	-	_
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

Envirolab Reference: 255513

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Asbestos ID - soils NEPM - ASB-001			
Our Reference		255513-24	255513-29
Your Reference	UNITS	ВН9	BH10
Depth		0-0.3	0-0.3
Date Sampled		10/11/2020	10/11/2020
Type of sample		Soil	Soil
Date analysed	-	16/11/2020	16/11/2020
Sample mass tested	g	763.75	489.41
Sample Description	-	Brown coarse- grained soil & rocks	Brown coarse- grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
		Organic fibres detected	Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected
Total Asbestos#1	g/kg	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	_	_
FA and AF Estimation*	g	_	_
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001

BTEX in Water		
Our Reference		255513-40
Your Reference	UNITS	FR-S1 SPT
Depth		-
Date Sampled		10/11/2020
Type of sample		Water
Date extracted	-	13/11/2020
Date analysed	-	16/11/2020
Benzene	μg/L	<1
Toluene	μg/L	<1
Ethylbenzene	μg/L	<1
m+p-xylene	μg/L	<2
o-xylene	μg/L	<1
Surrogate Dibromofluoromethane	%	88
Surrogate toluene-d8	%	98
Surrogate 4-BFB	%	100

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
ASB-001	Asbestos ID - Identification of asbestos in soil samples using Polarised Light Microscopy and Dispersion Staining Techniques. Minimum 500mL soil sample was analysed as recommended by "National Environment Protection (Assessment of site contamination) Measure, Schedule B1 and "The Guidelines from the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009" with a reporting limit of 0.1g/kg (0.01% w/w) as per Australian Standard AS4964-2004.  Results reported denoted with * are outside our scope of NATA accreditation.
	NOTE #1 Total Asbestos g/kg was analysed and reported as per Australian Standard AS4964 (This is the sum of ACM >7mm, <7mm and FA/AF)
	<b>NOTE</b> #2 The screening level of 0.001% w/w asbestos in soil for FA and AF only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres.
	Estimation = Estimated asbestos weight
	Results reported with "" is equivalent to no visible asbestos identified using Polarised Light microscopy and Dispersion Staining Techniques.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.
	F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
	Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-021	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.

Method ID	Methodology Summary
Org-021	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.  Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-022	Determination of VOCs sampled onto coconut shell charcoal sorbent tubes, that can be desorbed using carbon disulphide, and analysed by GC-MS.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS/GC-MSMS.
	Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:-  1. 'EQ PQL'values are assuming all contributing PAHs reported as <pql "total="" 'eq="" +ve="" 2.="" 3.="" <pql="" a="" above.="" actually="" all="" and="" approach="" approaches="" are="" as="" assuming="" at="" be="" below="" between="" but="" calculation="" can="" conservative="" contribute="" contributing="" false="" give="" given="" half="" hence="" individual="" is="" least="" lowest="" may="" mid-point="" more="" most="" negative="" not="" note,="" of="" pahs="" pahs"="" pahs.<="" positive="" pql="" pql'values="" pql.="" present="" present.="" reflective="" reported="" simply="" stipulated="" sum="" susceptible="" teq="" teqs="" th="" that="" the="" therefore="" this="" to="" total="" when="" zero'values="" zero.=""></pql>
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.  Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONT	QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil							Duplicate			
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	255513-4	
Date extracted	-			13/11/2020	1	13/11/2020	13/11/2020		13/11/2020	13/11/2020	
Date analysed	-			13/11/2020	1	13/11/2020	13/11/2020		13/11/2020	13/11/2020	
TRH C <sub>6</sub> - C <sub>9</sub>	mg/kg	25	Org-023	<25	1	<25	<25	0	110	107	
TRH C <sub>6</sub> - C <sub>10</sub>	mg/kg	25	Org-023	<25	1	<25	<25	0	110	107	
Benzene	mg/kg	0.2	Org-023	<0.2	1	<0.2	<0.2	0	110	108	
Toluene	mg/kg	0.5	Org-023	<0.5	1	<0.5	<0.5	0	104	100	
Ethylbenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	111	101	
m+p-xylene	mg/kg	2	Org-023	<2	1	<2	<2	0	112	114	
o-Xylene	mg/kg	1	Org-023	<1	1	<1	<1	0	112	101	
naphthalene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]	
Surrogate aaa-Trifluorotoluene	%		Org-023	113	1	109	98	11	102	105	

QUALITY CONT	QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate				
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]	
Date extracted	-			[NT]	29	13/11/2020	13/11/2020			[NT]	
Date analysed	-			[NT]	29	13/11/2020	13/11/2020			[NT]	
TRH C <sub>6</sub> - C <sub>9</sub>	mg/kg	25	Org-023	[NT]	29	<25	<25	0		[NT]	
TRH C <sub>6</sub> - C <sub>10</sub>	mg/kg	25	Org-023	[NT]	29	<25	<25	0		[NT]	
Benzene	mg/kg	0.2	Org-023	[NT]	29	<0.2	<0.2	0		[NT]	
Toluene	mg/kg	0.5	Org-023	[NT]	29	<0.5	<0.5	0		[NT]	
Ethylbenzene	mg/kg	1	Org-023	[NT]	29	<1	<1	0		[NT]	
m+p-xylene	mg/kg	2	Org-023	[NT]	29	<2	<2	0		[NT]	
o-Xylene	mg/kg	1	Org-023	[NT]	29	<1	<1	0		[NT]	
naphthalene	mg/kg	1	Org-023	[NT]	29	<1	<1	0		[NT]	
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	29	105	104	1	[NT]	[NT]	

QUALITY CO	NTROL: svT	RH (C10	-C40) in Soil		Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	255513-4
Date extracted	-			13/11/2020	1	13/11/2020	13/11/2020		13/11/2020	13/11/2020
Date analysed	-			14/11/2020	1	14/11/2020	14/11/2020		14/11/2020	14/11/2020
TRH C <sub>10</sub> - C <sub>14</sub>	mg/kg	50	Org-020	<50	1	<50	<50	0	122	114
TRH C <sub>15</sub> - C <sub>28</sub>	mg/kg	100	Org-020	<100	1	<100	<100	0	102	<100
TRH C <sub>29</sub> - C <sub>36</sub>	mg/kg	100	Org-020	<100	1	<100	<100	0	116	112
TRH >C <sub>10</sub> -C <sub>16</sub>	mg/kg	50	Org-020	<50	1	<50	<50	0	122	114
TRH >C <sub>16</sub> -C <sub>34</sub>	mg/kg	100	Org-020	<100	1	<100	<100	0	102	<100
TRH >C <sub>34</sub> -C <sub>40</sub>	mg/kg	100	Org-020	<100	1	<100	<100	0	116	112
Surrogate o-Terphenyl	%		Org-020	104	1	103	104	1	106	106

QUALITY CO	NTROL: svT	RH (C10	-C40) in Soil		Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]	
Date extracted	-			[NT]	29	13/11/2020	13/11/2020		[NT]		
Date analysed	-			[NT]	29	14/11/2020	14/11/2020		[NT]		
TRH C <sub>10</sub> - C <sub>14</sub>	mg/kg	50	Org-020	[NT]	29	<50	<50	0	[NT]		
TRH C <sub>15</sub> - C <sub>28</sub>	mg/kg	100	Org-020	[NT]	29	140	170	19	[NT]		
TRH C <sub>29</sub> - C <sub>36</sub>	mg/kg	100	Org-020	[NT]	29	170	240	34	[NT]		
TRH >C <sub>10</sub> -C <sub>16</sub>	mg/kg	50	Org-020	[NT]	29	<50	51	2	[NT]		
TRH >C <sub>16</sub> -C <sub>34</sub>	mg/kg	100	Org-020	[NT]	29	220	270	20	[NT]		
TRH >C <sub>34</sub> -C <sub>40</sub>	mg/kg	100	Org-020	[NT]	29	160	240	40	[NT]		
Surrogate o-Terphenyl	%		Org-020	[NT]	29	118	124	5	[NT]		

QUALI	QUALITY CONTROL: PAHs in Soil								Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	255513-4	
Date extracted	-			13/11/2020	1	13/11/2020	13/11/2020		13/11/2020	13/11/2020	
Date analysed	-			14/11/2020	1	14/11/2020	14/11/2020		14/11/2020	14/11/2020	
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	103	99	
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]	
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	108	122	
Fluorene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	112	107	
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	103	115	
Anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]	
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	111	105	
Pyrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	123	118	
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]	
Chrysene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	114	104	
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]	
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	1	<0.05	<0.05	0	102	102	
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]	
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]	
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]	
Surrogate p-Terphenyl-d14	%		Org-022/025	98	1	108	83	26	91	82	

QUALI		Du	plicate		Spike Recovery %					
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	29	13/11/2020	13/11/2020			[NT]
Date analysed	-			[NT]	29	14/11/2020	14/11/2020			[NT]
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	29	<0.1	<0.1	0		[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	29	<0.1	<0.1	0		[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	29	<0.1	<0.1	0		[NT]
Fluorene	mg/kg	0.1	Org-022/025	[NT]	29	<0.1	<0.1	0		[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	29	<0.1	<0.1	0		[NT]
Anthracene	mg/kg	0.1	Org-022/025	[NT]	29	<0.1	<0.1	0		[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	29	<0.1	<0.1	0		[NT]
Pyrene	mg/kg	0.1	Org-022/025	[NT]	29	<0.1	<0.1	0		[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	29	<0.1	<0.1	0		[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	29	<0.1	<0.1	0		[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	29	<0.2	<0.2	0		[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	29	<0.05	<0.05	0		[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	29	<0.1	<0.1	0		[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	29	<0.1	<0.1	0		[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	29	<0.1	<0.1	0		[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	29	105	80	27		[NT]

QUALITY CONT	ROL: Organo	chlorine F	Pesticides in soil			Du	plicate	Spike Re	Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	255513-4	
Date extracted	-			13/11/2020	1	13/11/2020	13/11/2020		13/11/2020	13/11/2020	
Date analysed	-			14/11/2020	1	14/11/2020	14/11/2020		14/11/2020	14/11/2020	
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	104	94	
НСВ	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]	
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	94	94	
gamma-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]	
Heptachlor	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	101	103	
delta-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]	
Aldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	92	132	
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	122	97	
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]	
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]	
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]	
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	92	85	
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	119	79	
Endrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	107	95	
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]	
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	108	110	
Endrin Aldehyde	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]	
pp-DDT	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]	
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	93	91	
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]	
Surrogate TCMX	%		Org-022/025	102	1	104	96	8	101	103	

QUALITY CO	NTROL: Organo	chlorine F	Pesticides in soil			Du	plicate	Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	29	13/11/2020	13/11/2020			[NT]
Date analysed	-			[NT]	29	14/11/2020	14/11/2020			[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	29	<0.1	<0.1	0		[NT]
НСВ	mg/kg	0.1	Org-022/025	[NT]	29	<0.1	<0.1	0		[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	29	<0.1	<0.1	0		[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	29	<0.1	<0.1	0		[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	29	<0.1	<0.1	0		[NT]
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	29	<0.1	<0.1	0		[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	29	<0.1	<0.1	0		[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	29	<0.1	<0.1	0		[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	29	<0.1	<0.1	0		[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	29	<0.1	<0.1	0		[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	29	<0.1	<0.1	0		[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	29	<0.1	<0.1	0		[NT]
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	29	<0.1	<0.1	0		[NT]
Endrin	mg/kg	0.1	Org-022/025	[NT]	29	<0.1	<0.1	0		[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	29	<0.1	<0.1	0		[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	29	<0.1	<0.1	0		[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	29	<0.1	<0.1	0		[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	29	<0.1	<0.1	0		[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	29	<0.1	<0.1	0		[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	29	<0.1	<0.1	0		[NT]
Surrogate TCMX	%		Org-022/025	[NT]	29	103	97	6		[NT]

QUALITY CONTRO	L: Organoph	osphorus	Pesticides in Soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	255513-4
Date extracted	-			13/11/2020	1	13/11/2020	13/11/2020		13/11/2020	13/11/2020
Date analysed	-			14/11/2020	1	14/11/2020	14/11/2020		14/11/2020	14/11/2020
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	120	120
Dimethoate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos-methyl	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	91	95
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	79	103
Malathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	79	94
Chlorpyriphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	101	99
Parathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	78	83
Bromophos-ethyl	mg/kg	0.1	Org-022	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	101	105
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	102	1	104	96	8	101	103

QUALITY CONTRO	L: Organoph	nosphorus	s Pesticides in Soil			Du	plicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]	
Date extracted	-			[NT]	29	13/11/2020	13/11/2020			[NT]	
Date analysed	-			[NT]	29	14/11/2020	14/11/2020			[NT]	
Dichlorvos	mg/kg	0.1	Org-022/025	[NT]	29	<0.1	<0.1	0		[NT]	
Dimethoate	mg/kg	0.1	Org-022/025	[NT]	29	<0.1	<0.1	0		[NT]	
Diazinon	mg/kg	0.1	Org-022/025	[NT]	29	<0.1	<0.1	0		[NT]	
Chlorpyriphos-methyl	mg/kg	0.1	Org-022/025	[NT]	29	<0.1	<0.1	0		[NT]	
Ronnel	mg/kg	0.1	Org-022/025	[NT]	29	<0.1	<0.1	0		[NT]	
Fenitrothion	mg/kg	0.1	Org-022/025	[NT]	29	<0.1	<0.1	0		[NT]	
Malathion	mg/kg	0.1	Org-022/025	[NT]	29	<0.1	<0.1	0		[NT]	
Chlorpyriphos	mg/kg	0.1	Org-022/025	[NT]	29	<0.1	<0.1	0		[NT]	
Parathion	mg/kg	0.1	Org-022/025	[NT]	29	<0.1	<0.1	0		[NT]	
Bromophos-ethyl	mg/kg	0.1	Org-022	[NT]	29	<0.1	<0.1	0		[NT]	
Ethion	mg/kg	0.1	Org-022/025	[NT]	29	<0.1	<0.1	0		[NT]	
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	[NT]	29	<0.1	<0.1	0		[NT]	
Surrogate TCMX	%		Org-022/025	[NT]	29	103	97	6		[NT]	

QUALIT	TY CONTRO	L: PCBs	in Soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	255513-4
Date extracted	-			13/11/2020	1	13/11/2020	13/11/2020		13/11/2020	13/11/2020
Date analysed	-			14/11/2020	1	14/11/2020	14/11/2020		14/11/2020	14/11/2020
Aroclor 1016	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	100	80
Aroclor 1260	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	102	1	104	96	8	101	103

QUALIT	Y CONTRO	L: PCBs	in Soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	29	13/11/2020	13/11/2020			[NT]
Date analysed	-			[NT]	29	14/11/2020	14/11/2020			[NT]
Aroclor 1016	mg/kg	0.1	Org-021	[NT]	29	<0.1	<0.1	0		[NT]
Aroclor 1221	mg/kg	0.1	Org-021	[NT]	29	<0.1	<0.1	0		[NT]
Aroclor 1232	mg/kg	0.1	Org-021	[NT]	29	<0.1	<0.1	0		[NT]
Aroclor 1242	mg/kg	0.1	Org-021	[NT]	29	<0.1	<0.1	0		[NT]
Aroclor 1248	mg/kg	0.1	Org-021	[NT]	29	<0.1	<0.1	0		[NT]
Aroclor 1254	mg/kg	0.1	Org-021	[NT]	29	<0.1	<0.1	0		[NT]
Aroclor 1260	mg/kg	0.1	Org-021	[NT]	29	<0.1	<0.1	0		[NT]
Surrogate TCMX	%		Org-021	[NT]	29	103	97	6		[NT]

QUALITY CONT	ROL: Acid E	xtractabl	e metals in soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	255513-4
Date prepared	-			13/11/2020	1	13/11/2020	13/11/2020		13/11/2020	13/11/2020
Date analysed	-			13/11/2020	1	13/11/2020	13/11/2020		13/11/2020	13/11/2020
Arsenic	mg/kg	4	Metals-020	<4	1	7	7	0	113	97
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	<0.4	<0.4	0	112	87
Chromium	mg/kg	1	Metals-020	<1	1	16	14	13	107	87
Copper	mg/kg	1	Metals-020	<1	1	14	14	0	105	97
Lead	mg/kg	1	Metals-020	<1	1	25	23	8	109	90
Mercury	mg/kg	0.1	Metals-021	<0.1	1	0.2	0.2	0	98	87
Nickel	mg/kg	1	Metals-020	<1	1	11	9	20	111	85
Zinc	mg/kg	1	Metals-020	<1	1	48	47	2	115	80

QUALITY CON	TROL: Acid E	xtractabl	e metals in soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	29	13/11/2020	13/11/2020			[NT]
Date analysed	-			[NT]	29	13/11/2020	13/11/2020			[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	29	13	11	17		[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	29	<0.4	<0.4	0		[NT]
Chromium	mg/kg	1	Metals-020	[NT]	29	24	20	18		[NT]
Copper	mg/kg	1	Metals-020	[NT]	29	23	26	12		[NT]
Lead	mg/kg	1	Metals-020	[NT]	29	28	25	11		[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	29	<0.1	<0.1	0		[NT]
Nickel	mg/kg	1	Metals-020	[NT]	29	15	13	14		[NT]
Zinc	mg/kg	1	Metals-020	[NT]	29	89	94	5		[NT]

QUALIT	Y CONTROL	: BTEX ir	n Water			Du		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			13/11/2020	[NT]		[NT]	[NT]	13/11/2020	
Date analysed	-			13/11/2020	[NT]		[NT]	[NT]	16/11/2020	
Benzene	μg/L	1	Org-023	<1	[NT]		[NT]	[NT]	102	
Toluene	μg/L	1	Org-023	<1	[NT]		[NT]	[NT]	102	
Ethylbenzene	μg/L	1	Org-023	<1	[NT]		[NT]	[NT]	106	
m+p-xylene	μg/L	2	Org-023	<2	[NT]		[NT]	[NT]	105	
o-xylene	μg/L	1	Org-023	<1	[NT]		[NT]	[NT]	106	
Surrogate Dibromofluoromethane	%		Org-023	89	[NT]		[NT]	[NT]	86	
Surrogate toluene-d8	%		Org-023	99	[NT]		[NT]	[NT]	99	
Surrogate 4-BFB	%		Org-023	100	[NT]		[NT]	[NT]	102	

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

<b>Quality Contro</b>	ol Definitions
Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from "2018 TLVs and BEIs", as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

#### **Laboratory Acceptance Criteria**

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

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Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

## **Report Comments**

Asbestos-ID in soil: NEPM

This report is consistent with the reporting recommendations in the National Environment Protection (Assessment of Site Contamination) Measure, Schedule B1, May 2013. This is reported outside our scope of NATA accreditation.

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Envirolab Services Pty Ltd
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#### **SAMPLE RECEIPT ADVICE**

Client Details	
Client	Environmental Investigation Services
Attention	Anthony Barkway

Sample Login Details	
Your reference	E33524PA, Prospect
Envirolab Reference	255513
Date Sample Received	11/11/2020
Date Instructions Received	11/11/2020
Date Results Expected to be Reported	18/11/2020

Sample Condition	
Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	39 Soil, 1 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	15.6
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments	
Nil	

#### Please direct any queries to:

Aileen Hie	Jacinta Hurst					
Phone: 02 9910 6200	Phone: 02 9910 6200					
Fax: 02 9910 6201	Fax: 02 9910 6201					
Email: ahie@envirolab.com.au	Email: jhurst@envirolab.com.au					

Analysis Underway, details on the following page:



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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBsin Soil	Acid Extractable metalsin soil	Asbestos ID - soils NEPM - ASB- 001	BTEX in Water	On Hold
BH1-0-0.2	✓	✓	✓	✓	✓	✓	✓			
BH1-0.5-0.7										✓
BH1-1.5-1.7										✓
BH2-0-0.4	✓	✓	✓	✓	✓	✓	✓	✓		
BH2-0.7-0.95										✓
BH2-3.6-3.8										✓
BH3-0-0.2	✓	✓	✓	✓	✓	✓	✓	✓		
BH3-0.5-0.7										✓
BH3-1.5-1.7										✓
BH4-0-0.2	✓	✓	✓	✓	✓	✓	✓	✓		
BH4-0.5-0.7										✓
BH4-0.7-0.95										✓
BH4-1.5-1.7										✓
BH5-0-0.4	✓	✓	✓	✓	✓	✓	✓			
BH5-0.5-0.7										✓
BH6-0-0.2	✓	✓	✓	✓	✓	✓	✓			
BH6-0.7-0.95										✓
BH6-1.5-1.7										✓
BH7-0-0.2	✓	✓	✓	✓	✓	✓	✓	✓		
BH7-0.5-0.95										✓
BH7-1.5-1.7										✓
BH8-0-0.3	✓	✓	✓	✓	✓	✓	✓	✓		
BH8-0.5-0.8										✓
BH9-0-0.3	✓	✓	✓	✓	✓	✓	✓	✓		
BH9-0.55-0.85										✓
BH9-1.5-1.95										✓
BH9-3.0-3.45										✓
BH9-3.5-3.8										✓
BH10-0-0.3	✓	✓	✓	✓	✓	✓	✓	✓		
BH10-0.5-0.7										✓
BH10-2.8-3.0										✓
SDUP1-	✓	✓	✓				✓			



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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBsin Soil	Acid Extractable metalsin soil	Asbestos ID - soils NEPM - ASB- 001	BTEX in Water	On Hold
SDUP2-										✓
SDUP3-										✓
SDUP4-										✓
SDUP5-										✓
SDUP6-	✓	✓	✓				✓			
TB-S1-	✓									
TS-S1-	✓									
FR-S1 SPT-									✓	

The '\sqrt{'} indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.** 

#### **Additional Info**

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

SAMPLE AND CHAIN OF CUSTODY FORM FROM: <u>TO:</u> E33524PA ENVIROLAB SERVICES PTY LTD JKE Job Number: 12 ASHLEY STREET **JK**Environments CHATSWOOD NSW 2067 STANDARD REAR OF 115 WICKS ROAD P: (02) 99106200 Date Results F: (02) 99106201 Required: MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 1 of 2 Attention: ' **Anthony Barkway** Attention: Aileen Page: abarkway@jkenvironments.com.au Sample Preserved in Esky on Ice Location: Prospect Tests Required нw Sampler: Asbestos WA Method Sample Description Сотро 6 Sample Container Combo 3 HOLD Date Lab Sample Depth (m) PID Sampled Ref: Number G, A F: sandy clay Х 9.11.20 вн1 0-0.2 F: silty clay Х 2 G. A 0 0.5-0.7 9.11.20 BH1 G, A1 0 Silty clay Х 9.11.20 вн1 1.5-1.7 0 х Х G. A F: silty sand 4 9.11.20 RH2 0-0.4 G, A1 0 Silty clay Х 5 9.11.20 BH2 0.7-0.95 b 0.4 Siltstone Х G вн2 3.6-3.8 9.11.20 G, A 0 F: sandy clay Х Х 9.11.20 внз 0-0.2 0 X G. A F: silty clay Я 9.11.20 внз 0.5-0.7 9 G, A1 0 Silty clay Х 9.11.20 внз 1.5-1.7 G. A 0 F: clayey sand х Х 10 вн4 0-0.2 9.11.20 G, A 0 F: silty clay Х 9.11.20 вн4 0.5-0.7 0 х 12 G. A1 Silty clay 9.11.20 вн4 0.7-0.95 Х 13 G, A1 0.1 Siltstone 1.5-1.7 9.11.20 вн4 14 G, A 0 F: sandy clay Χ 9.11.20 вн5 0-0.4 G, A1 0 Silty clay Χ 15 вн5 0.5-0.7 9.11.20 16 G, A 0 F: sandy clay х Envirolab Services 0-0.2 10.11.20 вн6 12 Ashley St ENVIROLAB G, A1 0 Silty clay Х 17 0.7-0.95 Chats 10.11.20 вн6 VOOD NSW 2067 Ph: (02) 9910 6200 X 18 G 0 Siltstone 10.11.20 вн6 1.5-1.7 Х G, A 0 F: clayey sand Х 19 0-0.2 10.11.20 внт 12020 0.2 F: clayey sand Х 20 G, A 10.11.20 вн7 0.5-0.95 Received By: R
Temp(Cool/Ambient G, A1 0 Silty clay Х 21 10.11.20 вн7 1.5-1.7 Х X G, A 0 F: clayey sand 10.11.20 вн8 0-0.3 ing: collepack 0 х G, A1 Silty clay Security IntadvBroken/None 10.11.20 23 вн8 0.5-0.8 0.1 F: clayey silty sand Х Х 24 G, A внэ 0-0.3 10.11.20 G, A 0 F: clayey sand 2.5 BH9 0.55-0.85 Remarks (comments/detection limits required): Sample Containers: G - 250mg Glass Jar A - 500mL Ziplock Asbestos Bag A1 - 40g Ziplock Asbestos Bag Relinquished By: Anthony Barkway Date: 11.11.2020 Received By: R. Chazeen

COC: 1578 11/11/20

SAMPLE AND CHAIN OF CUSTODY FORM FROM: TO: E33524PA **ENVIROLAB SERVICES PTY LTD** JKE Job 12 ASHLEY STREET Number: **JK**Environments CHATSWOOD NSW 2067 STANDARD P: (02) 99106200 Date Results REAR OF 115 WICKS ROAD F: (02) 99106201 Required: MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 2 of 2 Attention: Anthony Barkway Attention: Aileen Page: abarkway@jkenvironments.com.au Sample Preserved in Esky on Ice Location: Prospect **Tests Required** HW Sampler: Asbestos WA Sample Description Combo 6 Combo 3 Sample Container Method HOLD BTEX Date Lab Sample Depth (m) PID Sampled Ref: Number 26 G, A F: silty clay х Ω вн9 1.5-1.95 10.11.20 27 BH9 G, A 0 F: clayey sand Х 10.11.20 3.0-3.45 28<sub>BH9</sub> Х G, A1 0 Silty clay 10.11.20 3.5-3.8 29 G, A 0 F: silty sand Χ X 10.11.20 BH1,0 0-0.3 30 G, A1 7.6 Silty clay х BH10 10.11.20 0.5-0.7 х 31 G 0.8 Siltstone BH10 2.8-3.0 10.11.20 Soil duplicate Х G NA 9.11.20 32 SDUP1 Ģ NA Soil duplicate Х 33 SDUP2 9.11.20 34 SDUP3 G Х NA Soil duplicate 9.11.20 G Х NA Soil duplicate 35 SDUP4 10.11.20 36 SDUPS G NA Soil duplicate Х 10.11.20 37 | SDUP6 G NA Soil duplicate Х 10.11.20 3为 TB-S1 G NA Soil blank Х 9-10.11.20 ٧ NΑ Soil spike Х 29 TS-S1 9-10.11.20 HD FR-S1 SPT ٧ Water Х 10.11.20 NA Remarks (comments/detection limits required): Sample Containers: V - BTEX Vial G - 250mg Glass Jar A - 500mL Ziplock Asbestos Bag A1 - 40g Ziplock Asbestos Bag Time: Received By: Date: 1259 Relhazeen 11/11/2020

Coc:-15-18 11/11/20: Date: 11.11.2020 Relinquished By: Anthony Barkway



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#### **CERTIFICATE OF ANALYSIS 255513-A**

Client Details	
Client	JK Environments
Attention	Anthony Barkway
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details	
Your Reference	E33524PA, Prospect
Number of Samples	39 Soil, 1 Water
Date samples received	11/11/2020
Date completed instructions received	11/11/2020

#### **Analysis Details**

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

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

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

Please refer to the last page of this report for any comments relating to the results.

Report Details	
Date results requested by	26/11/2020
Date of Issue	23/11/2020
NATA Accreditation Number 2901. T	his document shall not be reproduced except in full.
Accredited for compliance with ISO/I	EC 17025 - Testing. Tests not covered by NATA are denoted with *

**Results Approved By** 

Dragana Tomas, Senior Chemist Hannah Nguyen, Senior Chemist Josh Williams, Senior Chemist Manju Dewendrage, Chemist **Authorised By** 

Nancy Zhang, Laboratory Manager



vTRH(C6-C10)/BTEXN in Soil						
Our Reference		255513-A-2	255513-A-8	255513-A-11	255513-A-20	255513-A-25
Your Reference	UNITS	BH1	вн3	BH4	BH7	ВН9
Depth		0.5-0.7	0.5-0.7	0.5-0.7	0.5-0.95	0.55-0.85
Date Sampled		09/11/2020	09/11/2020	09/11/2020	10/11/2020	10/11/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	20/11/2020	20/11/2020	20/11/2020	20/11/2020	20/11/2020
Date analysed	-	23/11/2020	23/11/2020	23/11/2020	23/11/2020	23/11/2020
TRH C6 - C9	mg/kg	<25	<25	<25	<25	<25
TRH C6 - C10	mg/kg	<25	<25	<25	<25	<25
vTPH C <sub>6</sub> - C <sub>10</sub> less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	116	113	113	120	119

vTRH(C6-C10)/BTEXN in Soil		
Our Reference		255513-A-30
Your Reference	UNITS	BH10
Depth		0.5-0.7
Date Sampled		10/11/2020
Type of sample		Soil
Date extracted	-	20/11/2020
Date analysed	-	23/11/2020
TRH C6 - C9	mg/kg	<25
TRH C <sub>6</sub> - C <sub>10</sub>	mg/kg	<25
vTPH C <sub>6</sub> - C <sub>10</sub> less BTEX (F1)	mg/kg	<25
Surrogate aaa-Trifluorotoluene	%	126

Envirolab Reference: 255513-A

svTRH (C10-C40) in Soil						
Our Reference		255513-A-2	255513-A-8	255513-A-11	255513-A-20	255513-A-25
Your Reference	UNITS	BH1	ВН3	BH4	BH7	ВН9
Depth		0.5-0.7	0.5-0.7	0.5-0.7	0.5-0.95	0.55-0.85
Date Sampled		09/11/2020	09/11/2020	09/11/2020	10/11/2020	10/11/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	20/11/2020	20/11/2020	20/11/2020	20/11/2020	20/11/2020
Date analysed	-	20/11/2020	20/11/2020	20/11/2020	20/11/2020	20/11/2020
TRH C <sub>10</sub> - C <sub>14</sub>	mg/kg	<50	<50	<50	<50	<50
TRH C <sub>15</sub> - C <sub>28</sub>	mg/kg	<100	<100	<100	<100	<100
TRH C <sub>29</sub> - C <sub>36</sub>	mg/kg	<100	<100	<100	<100	<100
TRH >C10 -C16	mg/kg	<50	<50	<50	<50	<50
TRH >C <sub>10</sub> - C <sub>16</sub> less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C <sub>16</sub> -C <sub>34</sub>	mg/kg	<100	<100	<100	<100	<100
TRH >C <sub>34</sub> -C <sub>40</sub>	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	109	94	108	94	96

svTRH (C10-C40) in Soil		
Our Reference		255513-A-30
Your Reference	UNITS	BH10
Depth		0.5-0.7
Date Sampled		10/11/2020
Type of sample		Soil
Date extracted	-	20/11/2020
Date analysed	-	20/11/2020
TRH C <sub>10</sub> - C <sub>14</sub>	mg/kg	<50
TRH C <sub>15</sub> - C <sub>28</sub>	mg/kg	<100
TRH C <sub>29</sub> - C <sub>36</sub>	mg/kg	<100
TRH >C <sub>10</sub> -C <sub>16</sub>	mg/kg	<50
TRH >C <sub>10</sub> - C <sub>16</sub> less Naphthalene (F2)	mg/kg	<50
TRH >C <sub>16</sub> -C <sub>34</sub>	mg/kg	<100
TRH >C <sub>34</sub> -C <sub>40</sub>	mg/kg	<100
Total +ve TRH (>C10-C40)	mg/kg	<50
Surrogate o-Terphenyl	%	95

PAHs in Soil						
Our Reference		255513-A-2	255513-A-8	255513-A-11	255513-A-20	255513-A-25
Your Reference	UNITS	BH1	BH3	BH4	BH7	ВН9
Depth		0.5-0.7	0.5-0.7	0.5-0.7	0.5-0.95	0.55-0.85
Date Sampled		09/11/2020	09/11/2020	09/11/2020	10/11/2020	10/11/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	20/11/2020	20/11/2020	20/11/2020	20/11/2020	20/11/2020
Date analysed	-	20/11/2020	20/11/2020	20/11/2020	20/11/2020	20/11/2020
Naphthalene	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+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	128	126	123	125	126

Envirolab Reference: 255513-A

Organochlorine Pesticides in soil						
Our Reference		255513-A-2	255513-A-8	255513-A-11	255513-A-20	255513-A-25
Your Reference	UNITS	BH1	ВН3	BH4	BH7	ВН9
Depth		0.5-0.7	0.5-0.7	0.5-0.7	0.5-0.95	0.55-0.85
Date Sampled		09/11/2020	09/11/2020	09/11/2020	10/11/2020	10/11/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	20/11/2020	20/11/2020	20/11/2020	20/11/2020	20/11/2020
Date analysed	-	20/11/2020	20/11/2020	20/11/2020	20/11/2020	20/11/2020
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
НСВ	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
gamma-BHC	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
delta-BHC	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
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
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
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	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
pp-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
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	127	126	125	125	119

Envirolab Reference: 255513-A

Organophosphorus Pesticides in Soil						
Our Reference		255513-A-2	255513-A-8	255513-A-11	255513-A-20	255513-A-25
Your Reference	UNITS	BH1	BH3	BH4	BH7	ВН9
Depth		0.5-0.7	0.5-0.7	0.5-0.7	0.5-0.95	0.55-0.85
Date Sampled		09/11/2020	09/11/2020	09/11/2020	10/11/2020	10/11/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	20/11/2020	20/11/2020	20/11/2020	20/11/2020	20/11/2020
Date analysed	-	20/11/2020	20/11/2020	20/11/2020	20/11/2020	20/11/2020
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	127	126	125	125	119

Envirolab Reference: 255513-A

PCBs in Soil						
Our Reference		255513-A-2	255513-A-8	255513-A-11	255513-A-20	255513-A-25
Your Reference	UNITS	BH1	ВН3	BH4	BH7	ВН9
Depth		0.5-0.7	0.5-0.7	0.5-0.7	0.5-0.95	0.55-0.85
Date Sampled		09/11/2020	09/11/2020	09/11/2020	10/11/2020	10/11/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	20/11/2020	20/11/2020	20/11/2020	20/11/2020	20/11/2020
Date analysed	-	20/11/2020	20/11/2020	20/11/2020	20/11/2020	20/11/2020
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	127	126	125	125	119

Envirolab Reference: 255513-A

Acid Extractable metals in soil						
Our Reference		255513-A-2	255513-A-8	255513-A-11	255513-A-20	255513-A-25
Your Reference	UNITS	BH1	вн3	BH4	ВН7	BH9
Depth		0.5-0.7	0.5-0.7	0.5-0.7	0.5-0.95	0.55-0.85
Date Sampled		09/11/2020	09/11/2020	09/11/2020	10/11/2020	10/11/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	20/11/2020	20/11/2020	20/11/2020	20/11/2020	20/11/2020
Date analysed	-	20/11/2020	20/11/2020	20/11/2020	20/11/2020	20/11/2020
Arsenic	mg/kg	4	6	<4	5	5
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	12	10	11	18	26
Copper	mg/kg	11	18	15	16	11
Lead	mg/kg	11	12	27	15	10
Mercury	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
Nickel	mg/kg	2	4	11	16	20
Zinc	mg/kg	10	23	31	57	15

Acid Extractable metals in soil		
Our Reference		255513-A-41
Your Reference	UNITS	BH1 - [TRIPLICATE]
Depth		0.5-0.7
Date Sampled		09/11/2020
Type of sample		Soil
Date prepared	-	20/11/2020
Date analysed	-	20/11/2020
Arsenic	mg/kg	7
Cadmium	mg/kg	<0.4
Chromium	mg/kg	15
Copper	mg/kg	10
Lead	mg/kg	13
Mercury	mg/kg	<0.1
Nickel	mg/kg	3
Zinc	mg/kg	10

Envirolab Reference: 255513-A

Moisture						
Our Reference		255513-A-2	255513-A-8	255513-A-11	255513-A-20	255513-A-25
Your Reference	UNITS	BH1	ВН3	BH4	BH7	ВН9
Depth		0.5-0.7	0.5-0.7	0.5-0.7	0.5-0.95	0.55-0.85
Date Sampled		09/11/2020	09/11/2020	09/11/2020	10/11/2020	10/11/2020
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	20/11/2020	20/11/2020	20/11/2020	20/11/2020	20/11/2020
Date analysed	-	23/11/2020	23/11/2020	23/11/2020	23/11/2020	23/11/2020
Moisture	%	26	18	12	9.4	14

Moisture		
Our Reference		255513-A-30
Your Reference	UNITS	BH10
Depth		0.5-0.7
Date Sampled		10/11/2020
Type of sample		Soil
Date prepared	-	20/11/2020
Date analysed	-	23/11/2020
Moisture	%	15

Method ID	Methodology Summary
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Table (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.
	F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables (3, 4)). Note Naphthalene is determined from the VOC analysis.
	Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of positive individual TRH fractions (>C10-C40).
Org-021	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-021	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.  Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum the positive individual PCBs.
Org-022	Determination of VOCs sampled onto coconut shell charcoal sorbent tubes, that can be desorbed using carbon disulphide analysed by GC-MS.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS/GC-MSMS.
	Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum the positive individually report DDD+DDE+DDT.

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Method ID	Methodology Summary
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:-  1. 'EQ PQL'values are assuming all contributing PAHs reported as <pql actually="" are="" at="" conservative<="" is="" most="" pql.="" td="" the="" this=""></pql>
	approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present.  2. 'EQ zero'values are assuming all contributing PAHs reported as <pql 'eq="" 3.="" <pql="" a="" above.<="" all="" and="" approach="" approaches="" are="" as="" assuming="" below="" between="" but="" calculation="" conservative="" contribute="" contributing="" false="" half="" hence="" is="" least="" mid-point="" more="" most="" negative="" pahs="" pql'values="" pql.="" present="" reported="" stipulated="" susceptible="" td="" teq="" teqs="" that="" the="" this="" to="" when="" zero.=""></pql>
	Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.  Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum
	of the positive individual Xylenes.

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QUALITY CON	TROL: vTRH	(C6-C10).	/BTEXN in Soil			Du	plicate		Spike Red	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date extracted	-			20/11/2020	2	20/11/2020	20/11/2020		20/11/2020	
Date analysed	-			23/11/2020	2	23/11/2020	23/11/2020		23/11/2020	
TRH C <sub>6</sub> - C <sub>9</sub>	mg/kg	25	Org-023	<25	2	<25	<25	0	107	
TRH C <sub>6</sub> - C <sub>10</sub>	mg/kg	25	Org-023	<25	2	<25	<25	0	107	
Benzene	mg/kg	0.2	Org-023	<0.2	2	<0.2	<0.2	0	102	
Toluene	mg/kg	0.5	Org-023	<0.5	2	<0.5	<0.5	0	107	
Ethylbenzene	mg/kg	1	Org-023	<1	2	<1	<1	0	112	
m+p-xylene	mg/kg	2	Org-023	<2	2	<2	<2	0	108	
o-Xylene	mg/kg	1	Org-023	<1	2	<1	<1	0	107	
naphthalene	mg/kg	1	Org-023	<1	2	<1	<1	0	[NT]	
Surrogate aaa-Trifluorotoluene	%		Org-023	117	2	116	109	6	109	

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QUALITY CO	NTROL: svT	RH (C10	-C40) in Soil			Du	plicate	Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date extracted	-			20/11/2020	2	20/11/2020	20/11/2020		20/11/2020	
Date analysed	-			20/11/2020	2	20/11/2020	20/11/2020		20/11/2020	
TRH C <sub>10</sub> - C <sub>14</sub>	mg/kg	50	Org-020	<50	2	<50	<50	0	115	
TRH C <sub>15</sub> - C <sub>28</sub>	mg/kg	100	Org-020	<100	2	<100	<100	0	114	
TRH C <sub>29</sub> - C <sub>36</sub>	mg/kg	100	Org-020	<100	2	<100	<100	0	108	
TRH >C <sub>10</sub> -C <sub>16</sub>	mg/kg	50	Org-020	<50	2	<50	<50	0	115	
TRH >C <sub>16</sub> -C <sub>34</sub>	mg/kg	100	Org-020	<100	2	<100	<100	0	114	
TRH >C <sub>34</sub> -C <sub>40</sub>	mg/kg	100	Org-020	<100	2	<100	<100	0	108	
Surrogate o-Terphenyl	%		Org-020	111	2	109	108	1	83	

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QUA	LITY CONTRO	L: PAHs	in Soil			Du	plicate		Spike Red	overy %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date extracted	-			20/11/2020	2	20/11/2020	20/11/2020		20/11/2020	
Date analysed	-			20/11/2020	2	20/11/2020	20/11/2020		20/11/2020	
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	119	
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	130	
Fluorene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	114	
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	121	
Anthracene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	109	
Pyrene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	105	
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	
Chrysene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	120	
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	2	<0.2	<0.2	0	[NT]	
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	2	<0.05	<0.05	0	97	
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	
Surrogate p-Terphenyl-d14	%		Org-022/025	118	2	128	126	2	114	

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QUALITY CONT	ROL: Organo	chlorine F	Pesticides in soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date extracted	-			20/11/2020	2	20/11/2020	20/11/2020		20/11/2020	
Date analysed	-			20/11/2020	2	20/11/2020	20/11/2020		20/11/2020	
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	117	
нсв	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	128	
gamma-BHC	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	
Heptachlor	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	115	
delta-BHC	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	
Aldrin	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	117	
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	120	
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	103	
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	103	
Endrin	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	91	
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	119	
Endrin Aldehyde	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	
pp-DDT	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	112	
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	
Surrogate TCMX	%		Org-022/025	121	2	127	128	1	128	

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QUALITY CONTRO	L: Organoph	nosphorus	s Pesticides in Soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date extracted	-			20/11/2020	2	20/11/2020	20/11/2020		20/11/2020	
Date analysed	-			20/11/2020	2	20/11/2020	20/11/2020		20/11/2020	
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	98	
Dimethoate	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	
Diazinon	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	
Chlorpyriphos-methyl	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	
Ronnel	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	123	
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	95	
Malathion	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	122	
Chlorpyriphos	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	109	
Parathion	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	76	
Bromophos-ethyl	mg/kg	0.1	Org-022	<0.1	2	<0.1	<0.1	0	[NT]	
Ethion	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	119	
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	
Surrogate TCMX	%		Org-022/025	121	2	127	128	1	128	

Envirolab Reference: 255513-A

QUALIT	Y CONTRO	L: PCBs	in Soil			Du		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date extracted	-			20/11/2020	2	20/11/2020	20/11/2020		20/11/2020	
Date analysed	-			20/11/2020	2	20/11/2020	20/11/2020		20/11/2020	
Aroclor 1016	mg/kg	0.1	Org-021	<0.1	2	<0.1	<0.1	0	[NT]	
Aroclor 1221	mg/kg	0.1	Org-021	<0.1	2	<0.1	<0.1	0	[NT]	
Aroclor 1232	mg/kg	0.1	Org-021	<0.1	2	<0.1	<0.1	0	[NT]	
Aroclor 1242	mg/kg	0.1	Org-021	<0.1	2	<0.1	<0.1	0	[NT]	
Aroclor 1248	mg/kg	0.1	Org-021	<0.1	2	<0.1	<0.1	0	[NT]	
Aroclor 1254	mg/kg	0.1	Org-021	<0.1	2	<0.1	<0.1	0	120	
Aroclor 1260	mg/kg	0.1	Org-021	<0.1	2	<0.1	<0.1	0	[NT]	
Surrogate TCMX	%		Org-021	121	2	127	128	1	128	[NT]

Envirolab Reference: 255513-A

QUALITY CONT	ROL: Acid E	xtractable	e metals in soil			Du	Spike Recovery %			
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date prepared	-			20/11/2020	2	20/11/2020	20/11/2020		20/11/2020	
Date analysed	-			20/11/2020	2	20/11/2020	20/11/2020		20/11/2020	
Arsenic	mg/kg	4	Metals-020	<4	2	4	9	77	111	
Cadmium	mg/kg	0.4	Metals-020	<0.4	2	<0.4	<0.4	0	108	
Chromium	mg/kg	1	Metals-020	<1	2	12	18	40	108	
Copper	mg/kg	1	Metals-020	<1	2	11	12	9	112	
Lead	mg/kg	1	Metals-020	<1	2	11	14	24	108	
Mercury	mg/kg	0.1	Metals-021	<0.1	2	<0.1	<0.1	0	109	
Nickel	mg/kg	1	Metals-020	<1	2	2	3	40	109	
Zinc	mg/kg	1	Metals-020	<1	2	10	12	18	107	[NT]

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

Envirolab Reference: 255513-A

<b>Quality Contro</b>	ol Definitions
Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from "2018 TLVs and BEIs", as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

#### **Laboratory Acceptance Criteria**

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

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## **Report Comments**

Acid Extractable Metals in Soil: The laboratory RPD acceptance criteria has been exceeded for 255513-A-2 for Cr. Therefore a triplicate result has been issued as laboratory sample number 255513-A-41.

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Envirolab Services Pty Ltd
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12 Ashley St Chatswood NSW 2067
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customerservice@envirolab.com.au
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#### **SAMPLE RECEIPT ADVICE**

Client Details	
Client	JK Environments
Attention	Anthony Barkway

Sample Login Details	
Your reference	E33524PA, Prospect
Envirolab Reference	255513-A
Date Sample Received	11/11/2020
Date Instructions Received	11/11/2020
Date Results Expected to be Reported	26/11/2020

Sample Condition	
Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	39 Soil, 1 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	15.6
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments	
Nil	

#### Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	Phone: 02 9910 6200
Fax: 02 9910 6201	Fax: 02 9910 6201
Email: ahie@envirolab.com.au	Email: jhurst@envirolab.com.au

Analysis Underway, details on the following page:

# ENVIROLAB GROUP ENVIROLAB ENVIROLAB SERVICES

**Envirolab Services Pty Ltd** 

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

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBsin Soil	Acid Extractable metalsin soil	On Hold
BH1-0-0.2								✓
BH1-0.5-0.7	✓	✓	✓	✓	✓	✓	✓	
BH1-1.5-1.7								✓
BH2-0-0.4								✓
BH2-0.7-0.95								<ul><li>✓</li><li>✓</li></ul>
BH2-3.6-3.8								✓
BH3-0-0.2								✓
BH3-0.5-0.7	✓	✓	✓	✓	✓	✓	✓	
BH3-1.5-1.7								✓
BH4-0-0.2								✓
BH4-0.5-0.7	✓	✓	✓	✓	✓	✓	✓	
BH4-0.7-0.95								✓
BH4-1.5-1.7								✓ ✓ ✓
BH5-0-0.4								✓
BH5-0.5-0.7								✓
BH6-0-0.2								<b>✓</b>
BH6-0.7-0.95								
BH6-1.5-1.7								✓
BH7-0-0.2								✓
BH7-0.5-0.95	✓	✓	✓	✓	✓	✓	✓	
BH7-1.5-1.7								✓
BH8-0-0.3								✓
BH8-0.5-0.8								✓
BH9-0-0.3								✓
BH9-0.55-0.85	✓	✓	✓	✓	✓	✓	✓	
BH9-1.5-1.95								✓
BH9-3.0-3.45								✓
BH9-3.5-3.8								✓
BH10-0-0.3								✓
BH10-0.5-0.7	✓	✓						
BH10-2.8-3.0								✓
SDUP1-								✓



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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBsin Soil	Acid Extractable metalsin soil	On Hold
SDUP2-								✓
SDUP3-								✓
SDUP4-								✓
SDUP5-								✓
SDUP6-								✓
TB-S1-								✓
TS-S1-								✓
FR-S1 SPT-								✓

The '\sqrt{'} indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.** 

#### **Additional Info**

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

#### Ming To

From:

Nick Sarlamis

Sent:

Thursday, 19 November 2020 1:46 PM

To:

Anthony Barkway; Nancy Zhang

Cc:

Aileen Hie; Customer Service; Ming To

Subject:

RE: Results for Registration 255513 E33524PA, Prospect

No worries Anthony

Ref: 255513-A 7A7: Standard Due: 26/11/2020 M7.

#### Kind Regards,

#### Nick Sarlamis | Inorganics Supervisor | Envirolab Services

Celebrating 15 years of Great Science. Great Service.

12 Ashley Street Chatswood NSW 2067

T 612 9910 6200

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#### Samples will be analysed per our T&C's.

From: Anthony Barkway <ABarkway@jkenvironments.com.au>

Sent: Thursday, 19 November 2020 1:33 PM To: Nancy Zhang <NZhang@envirolab.com.au>

Cc: Aileen Hie <AHie@envirolab.com.au>; Customer Service <CustomerService@envirolab.com.au>

Subject: RE: Results for Registration 255513 E33524PA, Prospect

CAUTION: This email originated from outside of the organisation. Do not act on instructions, click links or open attachments unless you recognise the sender and know the content is authentic and safe.

Hi Nancy,

Could I please ask you to schedule some additional testing for this batch? As per below:

Sample Number + Depth	Sample Number Lab Ref:	Tests Required
BH1 (0.5-0.7)	2	Combo 6
BH3 (0.5-0.7)	8	Combo 6
BH4 (0.5-0.7)	11	Combo 6
BH7 (0.5-0.95)	20	Combo 6
BH9 (0.55-0.85)	25	Combo 6
BH10 (0.5-0.7)	30	TRHs

#### Standard **TAT** please!

Thank you!

Kind Regards

Regards



**Envirolab Services Pty Ltd** 

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#### **CERTIFICATE OF ANALYSIS 256497**

Client Details	
Client	JK Environments
Attention	Anthony Barkway
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details	
Your Reference	E33524PA, Prospect
Number of Samples	6 Water
Date samples received	24/11/2020
Date completed instructions received	24/11/2020

#### **Analysis Details**

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

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

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

Report Details	
Date results requested by	01/12/2020
Date of Issue	30/11/2020
NATA Accreditation Number 2901. Thi	s document shall not be reproduced except in full.
Accredited for compliance with ISO/IE	C 17025 - Testing. Tests not covered by NATA are denoted with *

**Results Approved By** 

Dragana Tomas, Senior Chemist Loren Bardwell, Senior Chemist **Authorised By** 

Nancy Zhang, Laboratory Manager



VOCs in water				
Our Reference		256497-1	256497-2	256497-3
Your Reference	UNITS	MW1	MW3	MW8
Date Sampled		23/11/2020	23/11/2020	23/11/2020
Type of sample		Water	Water	Water
Date extracted	-	24/11/2020	24/11/2020	24/11/2020
Date analysed	-	25/11/2020	25/11/2020	25/11/2020
Dichlorodifluoromethane	μg/L	<10	<10	<10
Chloromethane	μg/L	<10	<10	<10
Vinyl Chloride	μg/L	<10	<10	<10
Bromomethane	μg/L	<10	<10	<10
Chloroethane	μg/L	<10	<10	<10
Trichlorofluoromethane	μg/L	<10	<10	<10
1,1-Dichloroethene	μg/L	<1	<1	<1
Trans-1,2-dichloroethene	μg/L	<1	<1	<1
1,1-dichloroethane	μg/L	1	<1	<1
Cis-1,2-dichloroethene	μg/L	<1	<1	<1
Bromochloromethane	μg/L	<1	<1	<1
Chloroform	μg/L	<1	<1	<1
2,2-dichloropropane	μg/L	<1	<1	<1
1,2-dichloroethane	μg/L	<1	<1	<1
1,1,1-trichloroethane	μg/L	<1	<1	<1
1,1-dichloropropene	μg/L	<1	<1	<1
Cyclohexane	μg/L	<1	<1	<1
Carbon tetrachloride	μg/L	<1	<1	<1
Benzene	μg/L	<1	<1	<1
Dibromomethane	μg/L	<1	<1	<1
1,2-dichloropropane	μg/L	<1	<1	<1
Trichloroethene	μg/L	<1	<1	<1
Bromodichloromethane	μg/L	<1	<1	<1
trans-1,3-dichloropropene	μg/L	<1	<1	<1
cis-1,3-dichloropropene	μg/L	<1	<1	<1
1,1,2-trichloroethane	μg/L	<1	<1	<1
Toluene	μg/L	<1	<1	<1
1,3-dichloropropane	μg/L	<1	<1	<1
Dibromochloromethane	μg/L	<1	<1	<1
1,2-dibromoethane	μg/L	<1	<1	<1
Tetrachloroethene	μg/L	<1	<1	<1
1,1,1,2-tetrachloroethane	μg/L	<1	<1	<1
Chlorobenzene	μg/L	<1	<1	<1
Ethylbenzene	μg/L	<1	<1	<1

VOCs in water				
Our Reference		256497-1	256497-2	256497-3
Your Reference	UNITS	MW1	MW3	MW8
Date Sampled		23/11/2020	23/11/2020	23/11/2020
Type of sample		Water	Water	Water
Bromoform	μg/L	<1	<1	<1
m+p-xylene	μg/L	<2	<2	<2
Styrene	μg/L	<1	<1	<1
1,1,2,2-tetrachloroethane	μg/L	<1	<1	<1
o-xylene	μg/L	<1	<1	<1
1,2,3-trichloropropane	μg/L	<1	<1	<1
Isopropylbenzene	μg/L	<1	<1	<1
Bromobenzene	μg/L	<1	<1	<1
n-propyl benzene	μg/L	<1	<1	<1
2-chlorotoluene	μg/L	<1	<1	<1
4-chlorotoluene	μg/L	<1	<1	<1
1,3,5-trimethyl benzene	μg/L	<1	<1	<1
Tert-butyl benzene	μg/L	<1	<1	<1
1,2,4-trimethyl benzene	μg/L	<1	<1	<1
1,3-dichlorobenzene	μg/L	<1	<1	<1
Sec-butyl benzene	μg/L	<1	<1	<1
1,4-dichlorobenzene	μg/L	<1	<1	<1
4-isopropyl toluene	μg/L	<1	<1	<1
1,2-dichlorobenzene	μg/L	<1	<1	<1
n-butyl benzene	μg/L	<1	<1	<1
1,2-dibromo-3-chloropropane	μg/L	<1	<1	<1
1,2,4-trichlorobenzene	μg/L	<1	<1	<1
Hexachlorobutadiene	μg/L	<1	<1	<1
1,2,3-trichlorobenzene	μg/L	<1	<1	<1
Surrogate Dibromofluoromethane	%	130	127	123
Surrogate toluene-d8	%	93	98	100
Surrogate 4-BFB	%	105	99	100

vTRH(C6-C10)/BTEXN in Water						
Our Reference		256497-1	256497-2	256497-3	256497-4	256497-5
Your Reference	UNITS	MW1	MW3	MW8	WDUP1	TS-W1
Date Sampled		23/11/2020	23/11/2020	23/11/2020	23/11/2020	23/11/2020
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	24/11/2020	24/11/2020	24/11/2020	24/11/2020	24/11/2020
Date analysed	-	25/11/2020	25/11/2020	25/11/2020	25/11/2020	25/11/2020
TRH C <sub>6</sub> - C <sub>9</sub>	μg/L	<10	<10	<10	<10	[NA]
TRH C <sub>6</sub> - C <sub>10</sub>	μg/L	<10	<10	<10	<10	[NA]
TRH C <sub>6</sub> - C <sub>10</sub> less BTEX (F1)	μg/L	<10	<10	<10	<10	[NA]
Benzene	μg/L	<1	<1	<1	<1	104%
Toluene	μg/L	<1	<1	<1	<1	109%
Ethylbenzene	μg/L	<1	<1	<1	<1	106%
m+p-xylene	μg/L	<2	<2	<2	<2	97%
o-xylene	μg/L	<1	<1	<1	<1	108%
Naphthalene	μg/L	<1	<1	<1	<1	[NT]
Surrogate Dibromofluoromethane	%	130	127	123	125	114
Surrogate toluene-d8	%	93	98	100	98	99
Surrogate 4-BFB	%	105	99	100	99	103

vTRH(C6-C10)/BTEXN in Water		
Our Reference		256497-6
Your Reference	UNITS	TB-W1
Date Sampled		23/11/2020
Type of sample		Water
Date extracted	-	24/11/2020
Date analysed	-	25/11/2020
Benzene	μg/L	<1
Toluene	μg/L	<1
Ethylbenzene	μg/L	<1
m+p-xylene	μg/L	<2
o-xylene	μg/L	<1
Naphthalene	μg/L	<1
Surrogate Dibromofluoromethane	%	117
Surrogate toluene-d8	%	98
Surrogate 4-BFB	%	100

svTRH (C10-C40) in Water					
Our Reference		256497-1	256497-2	256497-3	256497-4
Your Reference	UNITS	MW1	MW3	MW8	WDUP1
Date Sampled		23/11/2020	23/11/2020	23/11/2020	23/11/2020
Type of sample		Water	Water	Water	Water
Date extracted	-	25/11/2020	25/11/2020	25/11/2020	25/11/2020
Date analysed	-	26/11/2020	26/11/2020	26/11/2020	26/11/2020
TRH C <sub>10</sub> - C <sub>14</sub>	μg/L	<50	<50	<50	<50
TRH C <sub>15</sub> - C <sub>28</sub>	μg/L	<100	<100	<100	<100
TRH C <sub>29</sub> - C <sub>36</sub>	μg/L	<100	<100	<100	<100
TRH >C <sub>10</sub> - C <sub>16</sub>	μg/L	<50	<50	<50	<50
TRH >C <sub>10</sub> - C <sub>16</sub> less Naphthalene (F2)	μg/L	<50	<50	<50	<50
TRH >C <sub>16</sub> - C <sub>34</sub>	μg/L	<100	<100	<100	<100
TRH >C <sub>34</sub> - C <sub>40</sub>	μg/L	<100	<100	<100	<100
Surrogate o-Terphenyl	%	88	88	95	97

PAHs in Water - Low Level					
Our Reference		256497-1	256497-2	256497-3	256497-4
Your Reference	UNITS	MW1	MW3	MW8	WDUP1
Date Sampled		23/11/2020	23/11/2020	23/11/2020	23/11/2020
Type of sample		Water	Water	Water	Water
Date extracted	-	25/11/2020	25/11/2020	25/11/2020	25/11/2020
Date analysed	-	26/11/2020	26/11/2020	26/11/2020	26/11/2020
Naphthalene	μg/L	<0.2	<0.2	<0.2	<0.2
Acenaphthylene	μg/L	<0.1	<0.1	<0.1	<0.1
Acenaphthene	μg/L	<0.1	<0.1	<0.1	<0.1
Fluorene	μg/L	<0.1	<0.1	<0.1	<0.1
Phenanthrene	μg/L	<0.1	<0.1	<0.1	<0.1
Anthracene	μg/L	<0.1	<0.1	<0.1	<0.1
Fluoranthene	μg/L	<0.1	<0.1	<0.1	<0.1
Pyrene	μg/L	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	μg/L	<0.1	<0.1	<0.1	<0.1
Chrysene	μg/L	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	μg/L	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	μg/L	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	μg/L	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	μg/L	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	μg/L	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	μg/L	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	μg/L	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	79	76	87	82

HM in water - dissolved					
Our Reference		256497-1	256497-2	256497-3	256497-4
Your Reference	UNITS	MW1	MW3	MW8	WDUP1
Date Sampled		23/11/2020	23/11/2020	23/11/2020	23/11/2020
Type of sample		Water	Water	Water	Water
Date prepared	-	25/11/2020	25/11/2020	25/11/2020	25/11/2020
Date analysed	-	25/11/2020	25/11/2020	25/11/2020	25/11/2020
Arsenic-Dissolved	μg/L	<1	<1	<1	<1
Cadmium-Dissolved	μg/L	<0.1	<0.1	<0.1	<0.1
Chromium-Dissolved	μg/L	<1	<1	<1	<1
Copper-Dissolved	μg/L	2	2	<1	2
Lead-Dissolved	μg/L	<1	<1	<1	<1
Mercury-Dissolved	μg/L	<0.05	<0.05	<0.05	<0.05
Nickel-Dissolved	μg/L	13	2	6	13
Zinc-Dissolved	μg/L	16	6	12	15

Method ID	Methodology Summary
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-022	Determination of various metals by ICP-MS.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-023	Water samples are analysed directly by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.

QUAL	ITY CONTROL	: VOCs i	n water			Du	plicate		Spike Re	coverv %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			24/11/2020	1	24/11/2020	25/11/2020		24/11/2020	
Date analysed	-			25/11/2020	1	25/11/2020	26/11/2020		25/11/2020	
Dichlorodifluoromethane	μg/L	10	Org-023	<10	1	<10	<10	0	[NT]	
Chloromethane	μg/L	10	Org-023	<10	1	<10	<10	0	[NT]	
Vinyl Chloride	μg/L	10	Org-023	<10	1	<10	<10	0	[NT]	
Bromomethane	μg/L	10	Org-023	<10	1	<10	<10	0	[NT]	
Chloroethane	μg/L	10	Org-023	<10	1	<10	<10	0	[NT]	
Trichlorofluoromethane	μg/L	10	Org-023	<10	1	<10	<10	0	[NT]	
1,1-Dichloroethene	μg/L	1	Org-023	<1	1	<1	<1	0	[NT]	
Trans-1,2-dichloroethene	μg/L	1	Org-023	<1	1	<1	<1	0	[NT]	
1,1-dichloroethane	μg/L	1	Org-023	<1	1	1	1	0	117	
Cis-1,2-dichloroethene	μg/L	1	Org-023	<1	1	<1	<1	0	[NT]	
Bromochloromethane	μg/L	1	Org-023	<1	1	<1	<1	0	[NT]	
Chloroform	μg/L	1	Org-023	<1	1	<1	<1	0	119	
2,2-dichloropropane	μg/L	1	Org-023	<1	1	<1	<1	0	[NT]	
1,2-dichloroethane	μg/L	1	Org-023	<1	1	<1	<1	0	129	
1,1,1-trichloroethane	μg/L	1	Org-023	<1	1	<1	<1	0	127	
1,1-dichloropropene	μg/L	1	Org-023	<1	1	<1	<1	0	[NT]	
Cyclohexane	μg/L	1	Org-023	<1	1	<1	<1	0	[NT]	
Carbon tetrachloride	μg/L	1	Org-023	<1	1	<1	<1	0	[NT]	
Benzene	μg/L	1	Org-023	<1	1	<1	<1	0	[NT]	
Dibromomethane	μg/L	1	Org-023	<1	1	<1	<1	0	[NT]	
1,2-dichloropropane	μg/L	1	Org-023	<1	1	<1	<1	0	[NT]	
Trichloroethene		1	Org-023	<1	1	<1	<1	0	117	
Bromodichloromethane	μg/L μg/L	1	Org-023	<1	1	<1	<1	0	128	
trans-1,3-dichloropropene	μg/L	1	Org-023	<1	1	<1	<1	0		
cis-1,3-dichloropropene			Org-023	<1	1	<1	<1	0	[NT]	
	μg/L	1							[NT]	
1,1,2-trichloroethane	μg/L	1	Org-023	<1	1	<1 <1	<1	0	[NT]	
Toluene	μg/L	1	Org-023	<1	1		<1	0	[NT]	
1,3-dichloropropane	μg/L	1	Org-023	<1	1	<1	<1	0	[NT]	
Dibromochloromethane	μg/L	1	Org-023	<1	1	<1	<1	0	126	
1,2-dibromoethane	μg/L	1	Org-023	<1	1	<1	<1	0	[NT]	
Tetrachloroethene	μg/L	1	Org-023	<1	1	<1	<1	0	129	
1,1,1,2-tetrachloroethane	μg/L	1	Org-023	<1	1	<1	<1	0	[NT]	
Chlorobenzene	μg/L 	1	Org-023	<1	1	<1	<1	0	[NT]	
Ethylbenzene	μg/L	1	Org-023	<1	1	<1	<1	0	[NT]	
Bromoform	μg/L	1	Org-023	<1	1	<1	<1	0	[NT]	
m+p-xylene	μg/L	2	Org-023	<2	1	<2	<2	0	[NT]	
Styrene	μg/L	1	Org-023	<1	1	<1	<1	0	[NT]	
1,1,2,2-tetrachloroethane	μg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]

QUALIT	Y CONTROI	L: VOCs i	n water			Dı	uplicate		Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
o-xylene	μg/L	1	Org-023	<1	1	<1	<1	0	[NT]	
1,2,3-trichloropropane	μg/L	1	Org-023	<1	1	<1	<1	0	[NT]	
Isopropylbenzene	μg/L	1	Org-023	<1	1	<1	<1	0	[NT]	
Bromobenzene	μg/L	1	Org-023	<1	1	<1	<1	0	[NT]	
n-propyl benzene	μg/L	1	Org-023	<1	1	<1	<1	0	[NT]	
2-chlorotoluene	μg/L	1	Org-023	<1	1	<1	<1	0	[NT]	
4-chlorotoluene	μg/L	1	Org-023	<1	1	<1	<1	0	[NT]	
1,3,5-trimethyl benzene	μg/L	1	Org-023	<1	1	<1	<1	0	[NT]	
Tert-butyl benzene	μg/L	1	Org-023	<1	1	<1	<1	0	[NT]	
1,2,4-trimethyl benzene	μg/L	1	Org-023	<1	1	<1	<1	0	[NT]	
1,3-dichlorobenzene	μg/L	1	Org-023	<1	1	<1	<1	0	[NT]	
Sec-butyl benzene	μg/L	1	Org-023	<1	1	<1	<1	0	[NT]	
1,4-dichlorobenzene	μg/L	1	Org-023	<1	1	<1	<1	0	[NT]	
4-isopropyl toluene	μg/L	1	Org-023	<1	1	<1	<1	0	[NT]	
1,2-dichlorobenzene	μg/L	1	Org-023	<1	1	<1	<1	0	[NT]	
n-butyl benzene	μg/L	1	Org-023	<1	1	<1	<1	0	[NT]	
1,2-dibromo-3-chloropropane	μg/L	1	Org-023	<1	1	<1	<1	0	[NT]	
1,2,4-trichlorobenzene	μg/L	1	Org-023	<1	1	<1	<1	0	[NT]	
Hexachlorobutadiene	μg/L	1	Org-023	<1	1	<1	<1	0	[NT]	
1,2,3-trichlorobenzene	μg/L	1	Org-023	<1	1	<1	<1	0	[NT]	
Surrogate Dibromofluoromethane	%		Org-023	104	1	130	122	6	105	
Surrogate toluene-d8	%		Org-023	95	1	93	99	6	102	
Surrogate 4-BFB	%		Org-023	94	1	105	96	9	88	

QUALITY CONT	ROL: vTRH(	C6-C10)/E	BTEXN in Water			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			24/11/2020	1	24/11/2020	25/11/2020		24/11/2020	
Date analysed	-			25/11/2020	1	25/11/2020	26/11/2020		25/11/2020	
TRH C <sub>6</sub> - C <sub>9</sub>	μg/L	10	Org-023	<10	1	<10	<10	0	116	
TRH C <sub>6</sub> - C <sub>10</sub>	μg/L	10	Org-023	<10	1	<10	<10	0	116	
Benzene	μg/L	1	Org-023	<1	1	<1	<1	0	114	
Toluene	μg/L	1	Org-023	<1	1	<1	<1	0	127	
Ethylbenzene	μg/L	1	Org-023	<1	1	<1	<1	0	113	
m+p-xylene	μg/L	2	Org-023	<2	1	<2	<2	0	112	
o-xylene	μg/L	1	Org-023	<1	1	<1	<1	0	113	
Naphthalene	μg/L	1	Org-023	<1	1	<1	<1	0	[NT]	
Surrogate Dibromofluoromethane	%		Org-023	104	1	130	122	6	105	
Surrogate toluene-d8	%		Org-023	95	1	93	99	6	102	
Surrogate 4-BFB	%		Org-023	94	1	105	96	9	88	

QUALITY CON	QUALITY CONTROL: svTRH (C10-C40) in Water					Du	Spike Recovery %			
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			25/11/2020	1	25/11/2020	25/11/2020		25/11/2020	
Date analysed	-			25/11/2020	1	26/11/2020	26/11/2020		25/11/2020	
TRH C <sub>10</sub> - C <sub>14</sub>	μg/L	50	Org-020	<50	1	<50	<50	0	110	
TRH C <sub>15</sub> - C <sub>28</sub>	μg/L	100	Org-020	<100	1	<100	<100	0	103	
TRH C <sub>29</sub> - C <sub>36</sub>	μg/L	100	Org-020	<100	1	<100	<100	0	72	
TRH >C <sub>10</sub> - C <sub>16</sub>	μg/L	50	Org-020	<50	1	<50	<50	0	110	
TRH >C <sub>16</sub> - C <sub>34</sub>	μg/L	100	Org-020	<100	1	<100	<100	0	103	
TRH >C <sub>34</sub> - C <sub>40</sub>	μg/L	100	Org-020	<100	1	<100	<100	0	72	
Surrogate o-Terphenyl	%		Org-020	96	1	88	90	2	75	

QUALITY CO	ONTROL: PAH	ls in Wate	er - Low Level			Du	plicate		Spike Red	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			25/11/2020	1	25/11/2020	25/11/2020		25/11/2020	
Date analysed	-			26/11/2020	1	26/11/2020	26/11/2020		26/11/2020	
Naphthalene	μg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	78	
Acenaphthylene	μg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	
Acenaphthene	μg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	75	
Fluorene	μg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	77	
Phenanthrene	μg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	84	
Anthracene	μg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	
Fluoranthene	μg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	76	
Pyrene	μg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	82	
Benzo(a)anthracene	μg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	
Chrysene	μg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	108	
Benzo(b,j+k)fluoranthene	μg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	
Benzo(a)pyrene	μg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	78	
Indeno(1,2,3-c,d)pyrene	μg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	
Dibenzo(a,h)anthracene	μg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	
Benzo(g,h,i)perylene	μg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	
Surrogate p-Terphenyl-d14	%		Org-022/025	83	1	79	78	1	76	

QUALITY CC	NTROL: HN	l in water	- dissolved			Du	plicate		Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date prepared	-			25/11/2020	2	25/11/2020	25/11/2020		25/11/2020	
Date analysed	-			25/11/2020	2	25/11/2020	25/11/2020		25/11/2020	
Arsenic-Dissolved	μg/L	1	Metals-022	<1	2	<1	<1	0	103	
Cadmium-Dissolved	μg/L	0.1	Metals-022	<0.1	2	<0.1	<0.1	0	107	
Chromium-Dissolved	μg/L	1	Metals-022	<1	2	<1	<1	0	97	
Copper-Dissolved	μg/L	1	Metals-022	<1	2	2	2	0	98	
Lead-Dissolved	μg/L	1	Metals-022	<1	2	<1	<1	0	107	
Mercury-Dissolved	μg/L	0.05	Metals-021	<0.05	2	<0.05	<0.05	0	108	
Nickel-Dissolved	μg/L	1	Metals-022	<1	2	2	2	0	98	
Zinc-Dissolved	μg/L	1	Metals-022	<1	2	6	7	15	102	

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

<b>Quality Contro</b>	ol Definitions
Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from "2018 TLVs and BEIs", as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

#### **Laboratory Acceptance Criteria**

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.



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12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

#### **SAMPLE RECEIPT ADVICE**

Client Details	
Client	JK Environments
Attention	Anthony Barkway

Sample Login Details	
Your reference	E33524PA, Prospect
Envirolab Reference	256497
Date Sample Received	24/11/2020
Date Instructions Received	24/11/2020
Date Results Expected to be Reported	01/12/2020

Sample Condition	
Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	6 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	13.9
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments	
Nil	

#### Please direct any queries to:

Aileen Hie	Jacinta Hurst							
Phone: 02 9910 6200	Phone: 02 9910 6200							
Fax: 02 9910 6201	Fax: 02 9910 6201							
Email: ahie@envirolab.com.au	Email: jhurst@envirolab.com.au							

Analysis Underway, details on the following page:



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Sample ID	VOCs in water	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	PAHs in Water - Low Level	HM in water - dissolved
MW1	✓	✓	✓	✓	✓
MW3	✓	✓	✓	✓	✓
MW8	✓	✓	✓	✓	✓
		1	✓	✓	✓
WDUP1					
TS-W1		✓			

The '√' indicates the testing you have requested. THIS IS NOT A REPORT OF THE RESULTS.

#### **Additional Info**

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

SAMPLE AND CHAIN OF CUSTODY FORM

TO: ENVIROLAB S 12 ASHLEY S CHATSWOOD	TREET		JKE Job Number:		E33524PA	- · ·				FRON	1	KE	nv	iro	nm	ien	ıts	
P: (02) 99106 F: (02) 99106	5200 5201		Date Results Required:		STANDARD					REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001								
Attention: A	ileen		Page:		1		ŀ			Attention: Anthony Barkway								
Location:	Prospe	t		,					Sam	ple Preserved in Esky on Ice								
Sampler:	AM	<del></del>	,		· 1		1	1	1	T	ests R	equire	d					
Date Sampled	Lab Ref:	Sample Number	Sample Containers	PID	Sample Description	Combo 3L	VOCs	ВТЕХ										
23.11.20	1	MW1	G1 x 2, V x 4, H	2.8	Water	х	х		1	nvir	DLAB	Chat	swoo	2 Ast d NSV	ley Si V 2067			
23.11.20	1	MW3	G1 x 2, V x 4, H	4.5	Water	х	x			Job	No:		Ph: (0)	2) 991 V	0 6200	491	7	
23.11.20	3	MW8	G1 x 2, V x 4, H	0.3	Water	х	х			Time	Rec	ived: eived:	$\mathcal{A}$	)	(1	41	13	7
23.11.20	4	WDUP1	G1 x 2, V x 2, H	-	DUP Water	X.				Tem	N:phil	ce/lce	paek	16.				
23.11.20	2	TS-W1	v	-	Trip Blank Water			х		Sec	uritly:	ntact	Broke	en/No	ne			
23.11.20	6	TB-W1	v	-	Trip Spike Water			х										
	<u> </u>																	
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		1																
					,													
		detection limits s PQLs to ANZEC	required): CC (2000) Detection L	imits Ple	ase	G1 -			er Gla	ss Bot NO3 V			. Amb	er Gla	ss Bot	tle		
Relinquished			Date:			PVC -		E Plast	ic Bot	ties	ved B				Date:		7	-
						Ι.				<u>_</u>		-	)/\~	_	21		h	þ



**Appendix F: Report Explanatory Notes** 



#### **QA/QC Definitions**

The QA/QC terms used in this report are defined below. The definitions are in accordance with US EPA publication SW-846, entitled *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (1994)<sup>18</sup> methods and those described in *Environmental Sampling and Analysis, A Practical Guide*, (1991)<sup>19</sup>. The NEPM (2013) is consistent with these documents.

#### A. Practical Quantitation Limit (PQL), Limit of Reporting (LOR) & Estimated Quantitation Limit (EQL)

These terms all refer to the concentration above which results can be expressed with a minimum 95% confidence level. The laboratory reporting limits are generally set at ten times the standard deviation for the Method Detection Limit for each specific analyte. For the purposes of this report the LOR, PQL, and EQL are considered to be equivalent.

When assessing laboratory data it should be borne in mind that values at or near the PQL have two important limitations: "The uncertainty of the measurement value can approach, and even equal, the reported value. Secondly, confirmation of the analytes reported is virtually impossible unless identification uses highly selective methods. These issues diminish when reliably measurable amounts of analytes are present. Accordingly, legal and regulatory actions should be limited to data at or above the reliable detection limit" (Keith, 1991).

#### B. Precision

The degree to which data generated from repeated measurements differ from one another due to random errors. Precision is measured using the standard deviation or Relative Percent Difference (RPD).

#### C. Accuracy

Accuracy is a measure of the agreement between an experimental result and the true value of the parameter being measured (i.e. the proximity of an averaged result to the true value, where all random errors have been statistically removed). The assessment of accuracy for an analysis can be achieved through the analysis of known reference materials or assessed by the analysis of surrogates, field blanks, trip spikes and matrix spikes. Accuracy is typically reported as percent recovery.

#### D. Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents a characteristic of a population, parameter variations at a sampling point, or an environmental condition. Representativeness is primarily dependent upon the design and implementation of the sampling program. Representativeness of the data is partially ensured by the avoidance of contamination, adherence to sample handing and analysis protocols and use of proper chain-of-custody and documentation procedures.

#### E. Completeness

Completeness is a measure of the number of valid measurements in a data set compared to the total number of measurements made and overall performance against DQIs. The following information is assessed for completeness:

- Chain-of-custody forms;
- Sample receipt form;
- All sample results reported;
- All blank data reported;



<sup>&</sup>lt;sup>18</sup> US EPA, (1994). SW-846: Test Methods for Evaluating Solid Waste, Physical/Chemical Methods. (US EPA SW-846)

<sup>&</sup>lt;sup>19</sup> Keith., H, (1991). Environmental Sampling and Analysis, A Practical Guide



- All laboratory duplicate and RPDs calculated;
- All surrogate spike data reported;
- All matrix spike and lab control spike (LCS) data reported and RPDs calculated;
- Spike recovery acceptable limits reported; and
- NATA stamp on reports.

#### F. <u>Comparability</u>

Comparability is the evaluation of the similarity of conditions (e.g. sample depth, sample homogeneity) under which separate sets of data are produced. Data comparability checks include a bias assessment that may arise from the following sources:

- Collection and analysis of samples by different personnel; Use of different techniques;
- Collection and analysis by the same personnel using the same methods but at different times; and
- Spatial and temporal changes (due to environmental dynamics).

#### G. Blanks

The purpose of laboratory and field blanks is to check for artefacts and interferences that may arise during sampling, transport and analysis.

#### H. Matrix Spikes

Samples are spiked with laboratory grade standards to detect interactive effects between the sample matrix and the analytes being measured. Matrix Spikes are reported as a percent recovery and are prepared for 1 in every 20 samples. Sample batches that contain less than 20 samples may be reported with a Matrix Spike from another batch. The percent recovery is calculated using the formula below. Acceptable recovery limits are 70% to 130%.

(Spike Sample Result – Sample Result) x 100 Concentration of Spike Added

#### I. Surrogate Spikes

Samples are spiked with a known concentration of compounds that are chemically related to the analyte being investigated but unlikely to be detected in the environment. The purpose of the Surrogate Spikes is to check the accuracy of the analytical technique. Surrogate Spikes are reported as percent recovery.

#### J. <u>Duplicates</u>

Laboratory duplicates measure precision, expressed as Relative Percent Difference. Duplicates are prepared from a single field sample and analysed as two separate extraction procedures in the laboratory. The RPD is calculated using the formula where D1 is the sample concentration and D2 is the duplicate sample concentration:

 $\frac{(D1 - D2) \times 100}{\{(D1 + D2)/2\}}$ 



Appendix G: Data (QA/QC) Evaluation



#### Data (QA/QC) Evaluation

#### A. <u>INTRODUCTION</u>

This Data (QA/QC) Evaluation forms part of the validation process for the DQOs documented in Section 6.1 of this report. Checks were made to assess the data in terms of precision, accuracy, representativeness, comparability and completeness. These 'PARCC' parameters are referred to collectively as DQIs and are defined in the Report Explanatory Notes attached in the report appendices.

#### 1. Field and Laboratory Considerations

The quality of the analytical data produced for this project has been considered in relation to the following:

- Sample collection, storage, transport and analysis;
- Laboratory PQLs;
- Field QA/QC results; and
- Laboratory QA/QC results.

#### 2. Field QA/QC Samples and Analysis

A summary of the field QA/QC samples collected and analysed for this investigation is provided in the following table:

Sample Type	Sample Identification	Frequency (of Sample Type)	Analysis Performed		
Intra-laboratory duplicate (soil)	SDUP1 (primary sample BH2 0-0.4m)	Approximately 12.5% of primary samples	Heavy metals, TRH/BTEX and PAHs		
Intra-laboratory duplicate (soil)	SDUP6 (primary sample BH8 0-0.3m)	As above	Heavy metals, TRH/BTEX and PAHs		
Intra-laboratory duplicate (groundwater)	WDUP1 (primary sample MW1)	Approximately 33% of primary samples	Heavy metals, TRH/BTEX and PAHs		
Trip spike (soil)	TS-S1 (10/11/2020)	One for the investigation to demonstrate adequacy of preservation, storage and transport methods	ВТЕХ		
Trip blank (soil)	TB-S1 (10/11/2020)	One for the investigation to demonstrate adequacy of storage and transport methods	TRH F1, BTEX		
Rinsate (soil SPT)	FR-S1 (10/11/2020)	One for the investigation to demonstrate adequacy of decontamination methods	BTEX		
Trip spike (groundwater)	TS-W1 (23/11/2020)	One for the investigation to demonstrate adequacy of preservation, storage and transport methods	BTEX		



Sample Type	Sample Identification	Frequency (of Sample Type)	Analysis Performed
Trip blank (groundwater)	TB-W1 (23/11/2020)	One for the investigation to demonstrate adequacy of storage and transport methods	ВТЕХ

The results for the field QA/QC samples are detailed in the laboratory summary tables (Table S7 and Table G4) attached to the investigation report and are discussed in the subsequent sections of this Data (QA/QC) Evaluation report.

#### 3. <u>Data Assessment Criteria</u>

JKE adopted the following criteria for assessing the field and laboratory QA/QC analytical results:

#### **Field Duplicates**

Acceptable targets for precision of field duplicates in this report will be 30% or less, consistent with NEPM (2013). RPD failures will be considered qualitatively on a case-by-case basis taking into account factors such as the concentrations used to calculate the RPD (i.e. RPD exceedance where concentrations are close to the PQL are typically not as significant as those where concentrations are reported at least five or 10 times the PQL), sample type, collection methods and the specific analyte where the RPD exceedance was reported.

#### Field/Trip Blanks and Rinsates

Acceptable targets for field blank and rinsate samples in this report will be less than the PQL for organic analytes. Metals will be considered on a case-by-case basis with regards to typical background concentrations in soils.

#### **Trip Spikes**

Acceptable targets for trip spike samples in this report will be 70% to 130%.

#### Laboratory QA/QC

The suitability of the laboratory data is assessed against the laboratory QA/QC criteria which is outlined in the laboratory reports. These criteria were developed and implemented in accordance with the laboratory's NATA accreditation and align with the acceptable limits for QA/QC samples as outlined in NEPM (2013) and other relevant guidelines.

A summary of the acceptable limits adopted by the primary laboratory (Envirolab) is provided below:

#### **RPDs**

- Results that are <5 times the PQL, any RPD is acceptable; and</li>
- Results >5 times the PQL, RPDs between 0-50% are acceptable.

Laboratory Control Samples (LCS) and Matrix Spikes

- 70-130% recovery acceptable for metals and inorganics;
- 60-140% recovery acceptable for organics; and
- 10-140% recovery acceptable for VOCs.





#### Surrogate Spikes

- 60-140% recovery acceptable for general organics; and
- 10-140% recovery acceptable for VOCs.

#### **Method Blanks**

All results less than PQL.

#### **B. DATA EVALUATION**

#### 1. Sample Collection, Storage, Transport and Analysis

Samples were collected by trained field staff in accordance. Field sampling procedures were designed to be consistent with relevant guidelines, including NEPM (2013) and other guidelines made under the CLM Act 1997.

Appropriate sample preservation, handling and storage procedures were adopted. Laboratory analysis was undertaken within specified holding times in accordance with Schedule B(3) of NEPM (2013) and the laboratory NATA accredited methodologies. Envirolab noted that the asbestos results were reported to be consistent with the recommendations in NEPM (2013), however this level of reporting is outside the scope of their NATA accreditation. In the absence of other available analytical methods for asbestos, this was found to be acceptable for the purpose of this investigation.

JKE note that the temperature on receipt of soil samples was reported to be up to 15.6°C. JKE understand that the temperature is measured at the laboratory using an infrared temperature probe by scanning the outside of the sample container (i.e. one sample jar/container at the time of registering the samples). This procedure is not considered to be robust as there is a potential for the outside of the jar to warm to ambient temperature, or at least to increase from that of the internal contents, relatively quickly. On this basis, JKE are of the opinion that the temperatures reported on the Sample Receipts are unlikely to be reliable or representative of the overall batch. This is further supported by the trip spike recovery results (discussed further below) which reported adequate recovery in the range of 101% to 104%.

Review of the project data also indicated that:

- COC documentation was adequately maintained;
- Sample receipt advice documentation was provided for all sample batches;
- All analytical results were reported; and
- Consistent units were used to report the analysis results.

#### 2. <u>Laboratory PQLs</u>

Appropriate PQLs were adopted for the analysis and all PQLs were below the SAC, with the exception of the vinyl chloride and anthracene PQL for groundwater analysis which were greater than the SAC (i.e. ecological and recreational) by approximately three and 10 times respectively. In light of the VOC/PAH concentrations reported for soil and groundwater, JKE are of the opinion that this is not significant, and it does not affect the quality of the dataset as a whole or the outcome of the assessment.



#### 3. Field QA/QC Sample Results

#### **Field Duplicates**

The results indicated that field precision was acceptable. RPD non-conformances were reported for some analytes as discussed below:

- Elevated RPDs were reported for lead in SDUP1/BH2 (0-0.4m); and
- Elevated RPDs were also reported for several heavy metals in SDUP6/BH8 (0-0.3m).

Soil heavy metals RPD values outside the acceptable limits have been attributed to sample heterogeneity and the difficulties associated with obtaining homogenous duplicate samples of heterogeneous matrices. In addition, detectable concentrations of these analytes were relatively low and close to the laboratory PQLs which would yield higher RPD values for detected variations. As both the primary and duplicate sample results were assessed against the SAC, the exceedances are not considered to have had an adverse impact on the data set or the decision-making process as a whole.

#### Field/Trip Blanks

During the investigation, one soil trip blank and one water trip blank were placed in the eskies during sampling and transported back to the laboratory. Analysis of both soil and water trip blanks revealed all results to be less than the PQLs, therefore cross contamination between samples that may have significance for data validity did not occur.

#### Rinsates

All results were below the PQL. This indicated that cross-contamination artefacts associated with sampling equipment were not present and the potential for cross-contamination to have occurred was low.

#### **Trip Spikes**

The soil trip spike results ranged from 101% to 104% and the water trip spike results ranged from 97% to 109%. The results indicated that field preservation methods were appropriate.

#### 4. <u>Laboratory QA/QC</u>

The analytical methods implemented by the laboratory were performed in accordance with their NATA accreditation and were consistent with Schedule B(3) of NEPM (2013). The frequency of data reported for the laboratory QA/QC (i.e. duplicates, spikes, blanks, LCS) was considered to be acceptable for the purpose of this investigation. A review of the laboratory QA/QC data identified the following minor non-conformances:

Report 255513-A – The laboratory RPD for chromium in one sample exceeded the acceptance criteria.
 A triplicate result has been issued for the exceedance.

The laboratory data quality non-conformances were minor and were not considered to impact the overall accuracy of the data.



#### C. <u>DATA QUALITY SUMMARY</u>

JKE are of the opinion that the data are adequately precise, accurate, representative, comparable and complete to serve as a basis for interpretation to achieve the investigation objectives.

Non-conformances were reported for some field QA/QC samples and laboratory QA/QC analysis. These non-conformances were considered to be sporadic and minor, and were not considered to be indicative of systematic sampling or analytical errors. On this basis, these non-conformances are not considered to materially impact the report findings.

There was only one groundwater monitoring event undertaken for the investigation. On this basis there is some uncertainty around the representativeness of the groundwater data, particularly during different climatic conditions and after wet/dry periods. However, given the low contaminant concentrations reported, this is not considered to alter the conclusions of the investigation.



**Appendix H: Field Work Documents** 



### **PID FIELD CALIBRATION FORM**

Client:	Integrated Projects		+					
Project:	Proposed Seniors Living Dev	velopment						
Location:	55 Fox Hills Crescent, Fox H	ills Golf Club, PROSPECT, NS\	V					
Job Number:	E33524PA							
	P	PID						
			Date of last factory					
Make: RAE	Model: MiniRAE	Unit: Green	calibration:					
Date of calibration: 9/11 A		Name of Calibrator: HW						
Calibration gas: Iso-butylen	e	Calibration Gas Concentrati	on: 100.0 ppm					
Measured reading:	100 ppm	Error in measured reading:	± o ppm					
Measured reading Acceptab	ole (Yes/No):							
	P	ID						
	9		Date of last factory					
Make: Mini Ru 2000	Model: PID	Unit: Yellow	calibration: 14/8/20					
Date of calibration: 2	Date of calibration: 23 14/20 Name of Calibrator: AM							
Calibration gas: Iso-butylen		Calibration Gas Concentrati	on: 100.0 ppm					
Measured reading:  0	O ppm	Error in measured reading:	± Ø ppm					
Measured reading Acceptab	ole (Yes/No):							
	Р	ID						
			Date of last factory					
Make:	Model:	Unit:	calibration:					
Date of calibration:		Name of Calibrator:						
Calibration gas: Iso-butylen	е	Calibration Gas Concentration	on: 100.0 ppm					
Measured reading:	ppm	Error in measured reading: ± ppm						
Measured reading Acceptab	ole (Yes/No):	U	T-P					
	P	ID						
			Date of last factory					
Make:	Model:	Unit:	calibration:					
Date of calibration:		Name of Calibrator:	0.11.01.01.11					
Calibration gas: Iso-butylen	e	Calibration Gas Concentration	on: 100.0 ppm					
Measured reading:	ppm	Error in measured reading:	± ppm					
Measured reading Acceptab		janor minoadarea reading.	_ ppm					
		ID						
		· ·	Date of last factory					
Make:	Model:	Unit:	calibration:					
Date of calibration:		Name of Calibrator:	Can Diation					
Calibration gas: Iso-butylen	e	Calibration Gas Concentration	on: 100.0 ppm					
Measured reading:	ppm	Error in measured reading:	± ppm					
Measured reading Acceptab			- hhiii					
	- , / / .							



### **WATER QUALITY METER CALIBRATION FORM**

Client:	Integrated Pro	ojects					
Project: Proposed Seniors Living Development							
Location: 55 Fox Hills Crescent, Fox Hills Golf Club, PROSPECT, NSW							
Job Number:	E33524PA						
		DISSOLVED OXYGEN					
Make: YSI		Model: Professional	plus				
Date of calibration: 10/11/2	0	Name of Calibrator:	(W				
Span value: 70% to 130%							
Measured value: 104%							
Measured reading Acceptable	(Ye³/No):						
		рН					
Make: YSI		Model: Professiona	of dus				
Date of calibration: 10/11/2	0	Name of Calibrator: HW					
Buffer 1: Theoretical pH = 7.01	± 0.01	Expiry date: Dee 2021 Lot No: 35504					
Buffer 2: Theoretical pH = 4.01	± 0.01	Expiry date: sept 2021 Lot No: 351749					
Measured reading of Buffer 1:	6.97						
Measured reading of Buffer 2:	4.12						
Slope: —		Measured reading Acce	eptable (Yes/No):				
		EC					
Make: YSI		Model: Professional	plus				
Date: 10/11/20	Name of Calib	rator: MW	Temperature: 20.6 °C				
Calibration solution: Conden	clinty Standard	Expiry date: Nov 2021	Lot No: 354762				
Theoretical conductivity at ten	nperature (see solution						
Measured conductivity: 115	🧚 μS/cm	Measured reading Acce	eptable (Yes/No):				
		REDOX					
Make: YSI		Model: Professional	plus				
Date of calibration: 10/11/2		Name of Calibrator:					
Calibration solution: ORP TO		Expiry date: Jan 2025	Lot No: 4923				
Theoretical redox value:	240m\	V					
Measured redox reading: 3	.27.7 mV	Measured reading Acce	eptable (Yes/No):				



### **WATER QUALITY METER CALIBRATION FORM**

Project: Proposed Seniors Living Development  Location: 55 Fox Hills Crescent, Fox Hills Golf Club, PROSPECT, NSW  Job Number: E33524PA  DISSOLVED OXYGEN  Make: Model: Date of calibration: 23/u/w Name of Calibrator: Am  Span value: 70% to 130%  Measured value: /// Measured reading Acceptable (res/No):  pH  Make: Model:  Date of calibration: 23/u/a Name of Calibrator: Am  Make: Model:  Date of calibration: 23/u/a Name of Calibrator: Am  Make: Name of Calibrator: Am  Name of Calibrat	Client: Integrated Proj	jects
Job Number: E33524PA  DISSOLVED OXYGEN  Make: Model: Date of calibration: 23/1/20 Name of Calibrator: Am  Span value: 70% to 130%  Measured value: /04 /0  Measured reading Acceptable (Yes/No):  pH  Make: Model:	Project: Proposed Senio	ors Living Development
Make: Model: Date of calibration: 23/1/20 Name of Calibrator: Am  Span value: 70% to 130%  Measured value: /04 /0  Measured reading Acceptable (Yes/No):  pH  Make: Model:	Location: 55 Fox Hills Cre	escent, Fox Hills Golf Club, PROSPECT, NSW
Make:  Date of calibration: 23/1/20  Name of Calibrator: Am  Span value: 70% to 130%  Measured value: /04 /0  Measured reading Acceptable (Yes/No):  pH  Make:  Model:	Job Number: E33524PA	
Date of calibration: 23/1/20 Name of Calibrator: Am  Span value: 70% to 130%  Measured value: /04 //o  Measured reading Acceptable (Yes/No):  pH  Make: Model:	D	DISSOLVED OXYGEN
Span value: 70% to 130%  Measured value: /04 /0  Measured reading Acceptable (Yes/No):  pH  Make: Model:	Make:	Model:
Measured value: /04-% Measured reading Acceptable (Yes/No):  pH  Make: Model:	Date of calibration: 23/1/20	Name of Calibrator: Am
Measured reading Acceptable (Yes/No):  pH  Make: Model:	Span value: 70% to 130%	
Make: Model:	Measured value: /04 //o	
Make: Model:	Measured reading Acceptable (Yes/No):	
		рН
Date of calibration: 12/1/22 Name of Calibrator: Ask	Make:	Model:
Date of Cambration. 2311120 Intalle of Cambrator.	Date of calibration: 23/11/20	Name of Calibrator: Am
Buffer 1: Theoretical pH = $7.01\pm0.01$ Expiry date: Use No: 35 34 46	Buffer 1: Theoretical pH = 7.01± 0.01	Expiry date: 21 Lot No: 353446
Buffer 2: Theoretical pH = $4.01\pm0.01$ Expiry date: $346922$	Buffer 2: Theoretical pH = 4.01± 0.01	Expiry date: June 21 Lot No: 346922
Measured reading of Buffer 1: 6 9 /	Measured reading of Buffer 1: 6 9 /	•
Measured reading of Buffer 2: 4.6	Measured reading of Buffer 2: 4-6/	
Slope: Measured reading Acceptable (Yes/No):	Slope:	Measured reading Acceptable (Yes/No):
EC		EC
Make: Model:	Make:	Model:
Date: 23/11/20 Name of Calibrator: AM Temperature: 24 °C		)
Calibration solution: Cordneticity Standard Expiry date: Nov 21 Lot No: 354762	Calibration solution: Corolneli ity terelad	Expiry date: Nov 21 Lot No: 354762
Theoretical conductivity at temperature (see solution container): /386 µS/cm	Theoretical conductivity at temperature (see solution	
Measured conductivity: 1ζ95 μS/cm Measured reading Acceptable (Yes/No):	Measured conductivity: 1395 μS/cm	Measured reading Acceptable (Yes/No):
REDOX		REDOX
Make: Model:	1 .	Model:
Date of calibration: 23/4/25 Name of Calibrator: AM		Name of Calibrator: HM
Calibration solution: ORP Test Solution Expiry date: 4/25 Lot No: 5235	Calibration solution: ORP Test Solution	Expiry date: 4/25 Lot No: 5235
Theoretical redox value: 240mV	Theoretical redox value: 240mV	
Measured redox reading: 247.9 mV Measured reading Acceptable (Yes/No):	Measured redox reading: 2479 mV	Measured reading Acceptable (Yes/No):

Client:	Integrated Projects						Job No.	:		E33524PA		
Project:		Seniors Livin	g Developme	ent			Well No	.:		MWI		
ocation:	55 Fox Hill	55 Fox Hills Crescent, Fox Hills Golf Club, PROSPECT, NSW Depth (m):						n):		7.50		
	SH DETAIL			5/33/44/65 E. 1936						7.32		
VELET I III	I		_/							_		
		Gatic Cov	er 🔟	Sta	andpipe 🔲			Other (de	scribe)			
	/ELOPMEN	T DETAILS	0.1.		la							
Method:			Bailer			Before (m)	:		7.2			
Date:			10/11/:	<i>v</i>		- Before:				5pm		
Jndertake			HW			- After (m):			Dry			
	Removed:		~0.51		Time	- After:			4:5	5pm		
	ng (ppm):		0.9									
Comment	STATE OF THE PARTY	SUREMENTS	S									
	lume Remov			c,	DO	T	EC	Т.	u	Eh (mV)		
	(L)		Temp (°	-)	(mg/L)	(H	S/cm)	P	Н	189 8		
	0.5		20.5		6.3	9	6045	7.	//	83.7		
well o	hy											
					~~~~~~~~~			1				
		<del>-</del>										
										ļ		
omment	s:Odours (Y	ES / (NO),	NAPL/PSH	(YES /	O)/Sheen (YI	S /(NO) S	teady Sta	te Achieved	(YES / N	0))		
(OL ! ! - ·	0											
/SI Used:	3											
Tested By:		HW	IR	emarks:								
Colou Dy		1.00			te conditions							
Ooto T	ad:	1.1.1				than 0.2 unit	s, differen	ce in the cor	ductiveity l	ess than 10%		
Date Teste	ea.	10/11/2	_		able/not in dra		8					
				Minimum 3	monitorina we	ell volumes n	uraed unl	ess well pur	ed until it is	s effectively dry		
Checked E	By:	AVB				Juli 100 p	gou, uill	- so .ron pur	,	- 2coursely dry		
Date:		11/11/	120									

#### **JK**Environments Client: Integrated Projects Job No.: E33524PA Project: Proposed Seniors Living Development Well No.: mw3 Location: 55 Fox Hills Crescent, Fox Hills Golf Club, PROSPECT, NSW Depth (m): 7.50 WELL FINISH DETAILS Gatic Cover Other (describe) Standpipe L WELL DEVELOPMENT DETAILS Method: 7.40 SWL - Before (m): Bailer Date: Time - Before: 10/11/20 4:0000 Undertaken By: HW SWL - After (m): Total Vol. Removed: Time - After: 0.14 PID Reading (ppm): 2,0 Comments: DEVELOPMENT MEASUREMENTS Volume Removed EC Temp (°C) pH Eh (mV) (mg/L) (µS/cm) Not enough Water Comments:Odours (YES / NO) NAPL/PSH (YES / NO), Sheen (YES / NO), Steady State Achieved (YES / NO) YSI Used: 3

Remarks:

10/11/20

AVB

Steady state conditions

and SWL stable/not in drawdown

Difference in the pH less than 0.2 units, difference in the conductiveity less than 10%

Minimum 3 monitoring well volumes purged, unless well purged until it is effectively dry

Tested By:

Date Tested:

Checked By: Date:

Client:	Integrated	Projects					Job No.			E33524PA		
Project:			ng Development		Well No.		mw8					
				h DDOODEO	T NOW							
ocation:	1		Fox Hills Golf Cli	ub, PROSPEC	I, NSW		Depth (r	n):		7.50		
ELL FIN	ISH DETAIL	S										
		Gatic Co	ver 🔽	Standpip	е			Other (de	scribe)			
VELL DEV	/ELOPMEN											
lethod:			Developm	ent pump	SWL – Be				3.1			
ate:			10/11/20		Time – Be					25pm		
Indertake			HW		SWL - Af				6.8	35		
	Removed:		~281		Time – Af	ter:			4:4	lopm		
	ng (ppm):		0							\$190		
OMMents	MENT MEA	SURFMENT	S									
	ume Remov				00		EC	Т		T = ( ) 0		
	(L)		Temp (°C)	(m	ıg/L)	(µ\$	S/cm)	р	Н	Eh (mV)		
	0.5		20,7	4	-2	77	292	6	41	193.0		
	2		19.8	2	, 0	100	531	6.	78	176.4		
	4		19.5		9	10	974	6.		167.7		
	6		19:5		9	//0	31	6.0		160.9		
	8		19.6		.5	11	199	6.0	96	149.0		
	10		19.7	3	5	11	060	6.0	7/	145.4		
	12		19.4	3	.6	/0	724	6.9	5	143.4		
	14		19.3	3	6	10	509	7.0	0	141.3		
	16		19.2		12	105	54	7.	02	136.7		
	18		19.1	2	.5	61	05	6.9	38	112.5		
	20		19.0	/-	/	60	18	60	98	106.4		
	22		19.0	3	4	- 111	88	7.0	>7	86.8		
	24		19.0	3	0	112	76	7.	04	78.4		
	26		19,1	3	2	113	43	7.	04	71.6		
	28		19.0	3	2	100	366	7.	04	67.5		
						ļ						
						ļ						
						ļ						
						ļ						
						ļ		4				
						ļ				<u> </u>		
						ļ		4		<u> </u>		
	0.1			1 020				1		1		
omments			, NAPL/PSH (YI		een (YES	NO), Ste	eady Stat	e Achieved	(YES)/ I	NO)		
'SI Used:	Sil-	H Waye	s, promu									
	J											
ested By:		11.1	In.	arks:								
ested by:		HW		<u>arкs:</u> ady state cond	itions							
Date Teste	q.	1.11	- Diff			0.2 units	, difference	e in the con	ductiveity	less than 10%		
rate 1 dolb	u.	10/11/	and S	SWL stable/no	t in drawdo	wn						
Checked B	····	Aud		imum 3 monito	oring well vo	lumes pu	rged, unle	ess well purg	ed until it	is effectively dry		
Date:	J	440										



									-	
Client: Integrated		l Projects				Job No.: E33524PA				
Project: Proposed		Proposed	Seniors Living Development				Well No.: pw		pwl	
Location: 55 Fox Hil		ls Crescent	, Fox Hills Golf Club, P	Depth (m):		7.5				
WELL FINISH										
	atic Cov			Standp	ipe			Other (desc	ribe)	
WELL PURGE	DETAIL	.S:	Α	4						
Method:				stallic		SWL - Be	fore:	2-46		
Date:			23/4/20			Time - Before:		3:02		
Undertaken By:			AM -			Total Vol Removed:		21		
Pump Progra	m No:		10624	4		PID (ppm):		2.8		
PURGING / S	AMPLING	MEASUR	EMENTS							
Time (m	in)	SWL (m)	Vol (L)	Notes	Temp (°C)	DO (mg/L)	EC (µS/cm)	pН	Eh (mV)	
3-05		2-68	1		20.1	3.5	2284	6.56	186.6	
3267		2.88	2		19.9	3.6	1908	6.37	169.4	
3:09		3-24	3		19.7	2.8	1463	5-79	168.0	
3:11		3-36	+		19.7	2-6	1412	5.76	171.0	
3:13		3-58	5		19.7	2-4	1358	5.68	1737	
3:15		3.79	6		19.7	2.3	1356	5.21	167.7	
3:17		3.96	7		19.6	2-4	1360	5:72	166.6	
3:19		4.12	8	<b>*</b>	19.6	2.3	1395	5.75	162.3	
3:21		4.34	9		19.7	2.2	1386	5.74	158.6	
3:23		4.56	10		19.6	2.1	1395	573	158.4	
3:25		4.76	11		19.8	1.9	2970	6.36	153.3	
3:27		4.99	17_		19.8	2.1	1976	6.20	134.2	
3: 29		5.18	13		19.7	1.9	155-3	5.85	1334	
3:31		5.54	14		15.7	1.7	1702	5.83	136.9	
3:33		5-79	15		19.6	1.8	14 36	5.74	1409	
3:35		6-13	16		19.6	25	15 72	5.89	1400	
3:37	,	645	17		19-7	2.4	1859	6.07	153.3	
3:39		6.63	18		19.8	2.2	2)63	6.17	132-5	
3:41		6.96	19		19.9	1.9	3075	6.47	125-4	
2		6 76	Stele	1 6 0			5071	6, 77	125.4	
			Sperre	Sampley						
Comments: O	dours (Y	ES / (NO)	. NAPL/PS	SH (YES / (IO)) Sheen (	YES / NO) St	eady State	Achieved (YE	S / NO)		
		Medic	in 8	It God	0					
Sampling	Contain	ers Used:	x glass ar	nber, 🅻 x BTEX vials, 🕽	_x HNO3 plast	ic, Ox H2S	O4 plastic, 🔾 x	unpreserve	d plastic	
YSI used: 3								WPUPI		
Tested By: Alistair Mitchell				Remarks:						
Date Tested: 23/11/20				- Steady state conditions - difference in the pH less than 0.2 units, difference in conductivity less than 10%						
Checked By: AUB			10% and SWL stable/not in drawdown							
Date: 24/11/10										



								. 4
Client:	Integrated	Projects				Job No.: E33524PA		
Project: Proposed		Seniors Liv	ing Development	Well No.:		3		
Location:	55 Fox Hil	lls Crescent, Fox Hills Golf Club, PROSPECT, NSW				Depth (m):		7.5
WELL FINISH							<u> </u>	
✓ Gatic Co	over		Standpipe	9			Other (descr	ibe)
WELL PURGE DETA	AILS:							
Method:		Par	stalfor		SWL - Be	fore:	4.50	
Date:		23/1	120	Time - Before:		4:58		
Undertaken By:					Total Vol Removed:		1/	
Pump Program No:		14.0			PID (ppm):		45	
PURGING / SAMPLI	NG MEASUR							
Time (min)	SWL (m)	Vol (L)	Notes	Temp (°C)	DO (mg/L)	EC (µS/cm)	рН	Eh (mV)
4:59	476	1		194	5.0	8427	7.25	74.5
5:00	4-95	2		19-1	4.7	8282	7.39	749
5:02	5.22	3		19-0	4.6	8656	7.34	780
5:03	5.48	4		19.0	4.7	7895	7.36	870
5:05	5.68	5		18.9	4.6	8050	7.36	95.0
5:06	5.91	6		18.9	4.5	8217	7.35	96.0
5:08	6. K	7		18.9	43	8376	7.33	93.4
5.10	6.33	8		18.9	4.3	8406	7.32	91.5
5:12		9		19-1	4.3	8411	7.30	
5:15	6.62	10				8398	7.28	879
3.73	6.95		1 C 1	18-9	4.2	05/0	1.28	88.7
		Start	d Sampling	ļ				
				ļ				ļ
								T
								†
								†
								<b>†</b>
				·				+
				<del> </del>				+
								+
Comments: Odours	(YES / NO	NAPL/PS	SH (YES / NO), Sheen (YE	S / NO), St	eady State	Achieved (YES	S /(NO)	
			nber, $4$ x BTEX vials, $1$ x					plastic
YSI used: 3		Con						
Tested By: Alistair Mi			Remarks:	_				2.0
	3/1/20		- Steady state conditions - difference in the pH les	ss than 0.2		rence in condu	ctivity less th	an 10%
Checked By: Av	B		10% and SWL stable/no	ot in drawdo	wn			



	_							-		
Client:	Integrated Projects					Job No.: E33524PA				
Project:	Proposed Seniors Living Development				Well No.:					
Location:	55 Fox Hills Crescent, Fox Hills Golf Club, PROSPECT, NSW					Depth (m): 7.5				
WELL FINISH										
X Gatic C			Standpipe	)			Other (descr	ibe)		
WELL PURGE DETA	AILS:		A 44							
Method:			ustalli-c		SWL - Be	fore:	3.1			
Date:			11/20		Time - Before:		4:18			
Undertaken By:		Ar		Total Vol Removed:		12				
Pump Program No:			106204		PID (ppm)	:	6.3			
PURGING / SAMPLI	NG MEASUR	EMENTS								
Time (min)	SWL (m)	Vol (L)	Notes	Temp (°C)	DO (mg/L)	EC (µS/cm)	pH	Eh (mV)		
4:20	3.27	!		19.0	6.6	11571	6.83	169-4		
4:22	2.40	2		18-6	04	11471	6.92	135.2		
4:24	3.48	3		18.6	0.3	11423	6.94	109.1		
4-26	3.56	4		18-6	6-3	11460	6.95	77.7		
4-28	3.61	5		18-6	0.3	11355	6.95	15.9		
430	3.65	6		18-7	6-3	11363	6.96	43.9		
4.32	3.68	7		18-7	0.2	11348	6.95	34.7		
4:34	3.71	8		18.7	6.2	11332	6.946	28-5		
4:36	3.74	9	************************	187	6.2	11343	6.96	23-9		
4:38	3.75	16		18.7	0.2	11329	6.97	19.5		
4:40	3.75	17		18.7	6.4	11360	7.04	16.9		
7:10			Statel Joupty	1.0./	<u>v</u> 1	11360	7.01	1		
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Comments: Odours	(YES / NO	NAPL/PS	SH (YES INO), Sheen (YE	S / NO), SI	teady State	Achieved (YE	§ / NO)			
Sampling Conta	ainers Used:	2x glass ar	mber, 4 x BTEX vials, ) x	HNO3 plast	ic,Å x H2S	O4 plastic, ()x	unpreserved	plastic		
YSI used: 3										
Tested By: Alistair M	itchell		Remarks:							
	3/11/20		- Steady state conditions - difference in the pH les	- difference in the pH less than 0.2 units, difference in conductivity less than 10%						
Checked By: AUB			10% and SWL stable/not in drawdown							
Date: 74/	11/20		1							



**Appendix I: Guidelines and Reference Documents** 



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