REPORT TO

ERILYAN PTY LTD

ON

PRELIMINARY (STAGE 1) SITE INVESTIGATION

FOR

PROPOSED NORTHSIDE WEST CLINIC STAGE 2 DEVELOPMENT

AT

23-27 LYTTON STREET, WENTWORTHVILLE, NSW

Date: 4 June 2021
Ref: E27318PHrpt

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Executive Summary

Erilyan ('the client') commissioned JK Environments (JKE) to undertake a Preliminary (Stage 1) Site Investigation (PSI) for the proposed Northside West Clinic Stage 2 development at 23-27 Lytton Street, Wentworthville, 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 and the investigation was confined to the site boundaries as shown on Figure 2.

This report has been prepared to support the lodgement of a Development Application (DA) for the proposed Northside West Clinic Stage 2 development. We understand that the Stage 2 Development will comprise:

- Construction of a three-storey ward building in the area of the existing on-grade carpark on the southern side of the Northside West Clinic; and
- Demolition of the existing building in the western portion of the site and construction of a two-storey Day Programme building above an undercroft car park.

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);
- Provide a preliminary waste classification for off-site disposal of soil;
- 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:

- Review of site information, including background and site history information from various sources outlined in the report (including two previous soil screenings undertaken at the site);
- 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 and sampling from three borehole locations. The site has historically been vacant or used for residential purposes prior to the construction and eventual expansion of the community hospital and Wentworthville Clinic from 1961 to the present day. The PSI identified bonded asbestos containing material (ACM) in fill (soil) at one borehole location. Previous screenings also found suspected ACM (in the form of fibre cement fragments) at the ground surface.

Minor elevations of some metals in groundwater were also identified above the ecological SAC, however these were considered to be consistent with regional/background groundwater conditions.

Based on the Tier 1 risk assessment, asbestos may pose a risk to human-health if it is not managed properly. The asbestos-related risks in the context of the current land use were assessed to be low due to the most likely form of the asbestos being bonded ACM and not being visible at the surface of the site (during the site inspection for the PSI).

Based on the findings of the investigation, JKE are of the opinion that the site can be made suitable for the proposed development. A Detailed Site Investigation (DSI) is required to address the data gaps outlined in Section 10.4. Based on the findings of the DSI, a Remediation Action Plan (RAP) may be required.

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

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Abbreviations

Asbestos Fines/Fibrous Asbestos	**AF/FA**
Ambient Background Concentrations	**ABC**
Added Contaminant Limits	**ACL**
Asbestos Containing Material	**ACM**
Area of Environmental Concern	**AEC**
Australian Height Datum	**AHD**
Acid Sulfate Soil	**ASS**
Above-Ground Storage Tank	**AST**
Below Ground Level	**BGL**
Benzo(a)pyrene Toxicity Equivalent Factor	**BaP TEQ**
Benzene, Toluene, Ethylbenzene, Xylene	**BTEX**
Cation Exchange Capacity	**CEC**
Contaminated Land Management	**CLM**
Contaminant(s) of Potential Concern	**CoPC**
Chain of Custody	**COC**
Conceptual Site Model	**CSM**
Development Application	**DA**
Dial Before You Dig	**DBYD**
Data Quality Indicator	**DQI**
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**
Fibre Cement Fragment(s)	**FCF**
Health Investigation Level	**HILs**
Health Screening Level	**HSL**
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**
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**

Source, Pathway, Receptor	**SPR**
Specific Contamination Concentration	**SCC**
Standard Penetration Test	**SPT**
Standing Water Level	**SWL**
Trip Blank	**TB**
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

Erilyan ('the client') commissioned JK Environments (JKE) to undertake a Preliminary (Stage 1) Site Investigation (PSI) for the proposed Northside West Clinic Stage 2 development at 23-27 Lytton Street, Wentworthville, 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 and the investigation was confined to the site boundaries as shown on Figure 2.

This report has been prepared to support the lodgement of a Development Application (DA) for the proposed Northside West Clinic Stage 2 development.

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: 33969BTrpt, dated 13 May 2021)[1]. This report should be read in conjunction with the JKG report.

JKE (as EIS, prior to our rebranding) have previously undertaken two contamination screenings at the site (Ref: E27318Klet[2] and E27318Klet2[3]). A summary of this information is included in Section 2 and these screening reports are attached in the appendices.

1.1 Proposed Development Details

From the supplied architectural drawings prepared by Team 2 Architects (Job No. 903, Drawing Nos. SK0010 to SK0015 and SK1011 to SK1020, Revision P1, dated 11 February 2021), we understand that the Stage 2 Development will comprise:

- Construction of a three-storey ward building in the area of the existing on-grade carpark on the southern side of the Northside West Clinic; and
- Demolition of the existing building in the western portion of the site and construction of a two-storey Day Programme building above an undercroft car park.

The ground floor level of the proposed ward building will occupy the eastern half of the building footprint and will be approximately level with Lytton Street on the eastern side, and due to the slope of the site approximately 1.7m above the existing ground level in the north-western corner. This will likely require either placement of fill or suspending the building over the existing ground surface.

The proposed undercroft car park on the western side of the site will be approximately at the existing ground level and we will only require minimal or no excavation or filling. Extensive landscaping is not proposed as part of this development, however, it is noted that existing garden beds and trees are to be retained. Please refer to the development plans attached in the appendices.

[1] JKG, (2020). *Report to Erilyan Pty Ltd on Geotechnical Investigation for Proposed Northside West Stage 2 at 23-27 Lytton Street, Wentworthville, NSW*. (referred to as JKG report)

[2] EIS (2014). *Report to Erilyan Pty Ltd on Preliminary Soil Contamination Screening & Waste Classification for Proposed Additions to Northside West Clinic at 23-27 Lytton Street, Wentworthville, NSW.* (referred to as EIS 2014)

[3] EIS (2015). *Report to Erilyan Pty Ltd on Preliminary Soil Contamination Screening & Waste Classification for Proposed Additions to Northside West Clinic – Stage 2 Works at 23-27 Lytton Street, Wentworthville, NSW.* (referred to as EIS 2015)

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);
- Provide a preliminary waste classification for off-site disposal of soil;
- 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.

1.3 Scope of Work

The investigation was undertaken generally in accordance with a JKE proposal (Ref: EP53114PH) of 24 November 2020 and written acceptance from the client of 31 March 2021. The scope of work included the following:

- Review of site information, including background and site history information from various sources outlined in the report;
- 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)[4], other guidelines made under or with regards to the Contaminated Land Management Act (1997)[5] and State Environmental Planning Policy No.55 – Remediation of Land (1998)[6]. A list of reference documents/guidelines is included in the appendices.

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

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

[6] *State Environmental Planning Policy No. 55 – Remediation of Land 1998* (NSW) (referred to as SEPP55)

2 SITE INFORMATION

2.1 EIS 2014

The EIS 2014 preliminary contamination screening included a site inspection and soil sampling and analysis from four boreholes and one test pit location. The EIS 2014 report identified the following:

- Sub-surface conditions encountered at the site consisted of silty gravelly clay fill material beneath pavement to a maximum depth of approximately 0.8m below ground level (BGL), underlain by natural silty clay and siltstone to the termination depth of approximately 6.0mBGL;
- All soil results were below the human-health based SAC for a commercial/industrial land use setting;
- A single elevation of nickel above the ecological SAC for commercial/industrial land use were identified in the fill within sample BH3 (0.05-0.25m);
- Two fibre cement fragments (FCF) were identified on the ground surface of the south-east and south-west portions of the site. The FCF were not analysed for asbestos, however they were assumed to contain asbestos; and
- The fill material was assigned a preliminary waste classification of General Solid Waste (Non-putrescible) containing asbestos.

The EIS 2014 report concluded that: "… *additional asbestos soil investigation works are required to assess the exposed soils for the presence and nature (friable and/or non-friable) of potential asbestos containing material (ACM). If asbestos is identified at the site and Asbestos Management Plan (AMP) should be prepared to manage the potential health risk posed by ACM. The risk of widespread soil contamination other than potential ACM is considered to be relatively low."*

A copy of the EIS 2014 report is attached in the appendices.

2.2 EIS 2015

The EIS 2015 preliminary contamination screening included a site inspection and soil sampling and analysis from four borehole locations drilled for the geotechnical investigation. Groundwater wells were installed in two locations for geotechnical purposes but were not sampled as part of the contamination screening. The EIS 2015 report identified the following:

- Sub-surface conditions encountered at the site consisted of fill material beneath pavement to a maximum depth of approximately 1.3mBGL, underlain by natural silty clay and siltstone to the termination depth of approximately 12mBGL;
- All soil results were below the human-health based SAC for a commercial/industrial land use setting;
- Elevated concentrations of nickel above the ecological SAC for commercial/industrial land use were identified in the fill within samples BH101 (0.1-0.2m), BH102 (0.1-0.2m) and BH104 (0.13-0.25m); and
- The fill material was assigned a preliminary waste classification of General Solid Waste (Non-putrescible); and
- A hydrocarbon odour was encountered in the groundwater monitoring well (MW103) installed in BH103 and detections of hydrocarbons were also identified in soil from BH102.

The EIS 2015 report concluded that: "… *EIS are of the opinion that the potential for widespread contamination at the site is relatively low. However, given the potential unknown extent potential* [sic] *of soil and groundwater contamination at the site the following should be undertaken:*

- *Following the removal of the asphalt pavement a suitably qualified environmental consultant should be engaged to inspect the surface of the site for potential ACMs. A number of shallow testpits should be excavated across the site to inspect the fill material for potential ACMs. Additional soil sampling, analysis and reporting may be required depending on the conditions encountered. Should ACMs be identified, the waste classification fill material will be revised to General Solid Waste – containing asbestos; and*
- *A preliminary groundwater contamination screening assessment should be undertaken to assess the groundwater conditions at the site. The groundwater contamination screening assessment should include the development and sampling of the two existing groundwater monitoring well installed at the site (MW101 and MW103)."*

Investigation of the groundwater was also recommended.

A copy of the EIS 2015 report is attached in the appendices.

2.3 Site Identification

Table 2-1: Site Identification

Current Site Owner (certificate of title):	Health Care Corporation Pty Limited
Site Address:	23-27 Lytton Street, Wentworthville, NSW
Lot & Deposited Plan:	Lot 1 in DP787784
Current Land Use:	Westmead Clinic
Proposed Land Use:	Westmead Clinic
Local Government Authority:	Cumberland City Council
Current Zoning:	R4: High Density Residential
Site Area (m^2) (approx.):	6,600m^2
RL (AHD in m) (approx.):	19
Geographical Location (decimal degrees) (approx.):	Latitude: -33.810779 Longitude: 150.974627
Site Location Plan:	Figure 1
Sample Location Plan:	Figure 2
Contamination Location Plan:	Figure 3

2.4 Site Location and Regional Setting

The site is located in a predominantly residential area of Wentworthville and is bound by Lytton Street to the east. The site is located immediately (<50m) to the east of Finlayson Creek.

2.5 Topography

The region consists of undulating topography with the site itself characterised by an overall slope with a gradient of approximately 2° that falls to the west towards Finlayson Creek.

2.6 Site Inspection

A walkover inspection of the site was undertaken by JKE on 28 April 2021. The inspection was limited to accessible areas of the site and immediate surrounds. An internal inspection of buildings was not undertaken.

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

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

At the time of the inspection, the majority of site was occupied by three buildings that made up the Westmead Clinic. The main clinical building was of recent construction while the smaller two buildings appeared of older vintage. Part of the central building was cut into the slope of the site to form a steep ramp accessed from Lytton Street to the east. Potential asbestos containing building materials were noted as fibre cement lined eaves and awnings of the older style buildings.

The southern and northern portions of the site contained open air asphaltic concrete car parks. Various large native trees and exotic shrubs were located within landscaped areas around the perimeter of the site. No signs or indicators of former land use were identified at the time of the inspection.

2.6.2 Boundary Conditions, Soil Stability and Erosion

The site was fenced by a low steel mesh fence along the western and southern boundaries. The eastern boundary was open along Lytton Street and the northern boundary fenced by a taller metal fence. No signs of erosion or soil wash in unpaved areas was encountered at the time of the inspection.

2.6.3 Presence of Drums/Chemical Storage and Waste

General waste was stored in skip bins located in the northern portion of the site, and a grease trap was located to the west of the main clinic building. Storage of fuel or chemicals was not encountered at the site.

2.6.4 Evidence of Cut and Fill

Portions of the site may have historically been cut and/or filled to create a level platform for the existing buildings, particularly in the eastern portion of the site at the higher end of the slope.

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

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

2.6.6 Drainage and Services

Surface water runoff is presumed to follow the general slope of the site to the west towards Finlayson Creek. Stormwater drains were located along the western boundary and were presumably connected to the local stormwater system.

2.6.7 Sensitive Environments

Finlayson Creek was located immediately (<50m) adjacent the western boundary of the site, running along a general north-south orientation. The creek ran along a man-made a concrete lined channel that was connected to the larger Toongabbie Creek approximately 1.2km to the north of the site.

2.6.8 Landscaped Areas and Visible Signs of Plant Stress

Various large native trees and exotic shrubs were located within landscaped areas around the perimeter of the site. No visual signs of plant stress or dieback were identified at the time of the inspection.

2.7 Surrounding Land Use

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

- North – Low density residential properties;
- South – Wentworthville Community Garden and low-density residential properties;
- East – Grassed public land and Finlayson Creek; and
- West – Lytton Street and residential beyond.

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

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

2.9 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 is not deemed to be: significantly contaminated; subject to a management order; subject of an approved voluntary management proposal; or subject to an on-going management order under the provisions of the CLM Act 1997;

- The land is not the subject of a Site Audit Statement (SAS);
- The land is not affected by acid sulfate soils (ASS); and
- The land is not within 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 Ashfield Shale of the Wianamatta Group, which typically consists of black to dark grey shale and laminite.

3.2 Acid Sulfate Soil (ASS) Risk and Planning

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

3.3 Dryland Salinity

Salinity information presented in the Lotsearch report indicated that the site is located within an area of moderate salinity potential.

3.4 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 15 registered bores within the report buffer of 2,000m. In summary:

- The nearest registered bore was located approximately 570m from the site. This was utilised for monitoring purposes;
- The remaining bores were registered for monitoring or testing purposes;
- There were no nearby bores (i.e. within 500m) registered for domestic or irrigation uses; and
- The drillers log information from the closest registered bores typically identified fill and/or clay soil to depths of 1.2-3.5m, underlain by shale or sandstone bedrock. Standing water levels (SWLs) in the bores ranged from 5.0mBGL to 7.0mBGL.

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

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

3.5 Receiving Water Bodies

The site location and regional topography indicates that excess surface water flows have the potential to enter the Finlayson Creek located immediately west of the site. This water body is a potential receptor, although it is noted that the areas of the creek near the site comprise a concrete lined channel.

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 appeared to consist of several residential properties with the main residence and several ancillary buildings (e.g. possibly sheds/garages) and large open grassed areas. **Off-site:** The surrounds appeared similar to the site and appeared to consist of low-density residential properties. Finlayson Creek to the west of the site appeared as a natural creek line with no concrete channel.
1943	**On-site:** The site appeared generally similar to the previous photograph. **Off-site:** The northern portion of Finlayson Creek appeared to partially include the concrete channel. The remaining surrounds appeared generally similar to the previous photograph in terms of land use, however, there was a general increase in residential development.
1949-1956	The site and immediate surrounds appeared generally similar to the previous photograph. There was an additional residential-type structure in the central eastern area of the site in the 1949 photograph and several additional residential type structures in the 1956 photograph.
1961-1965	**On-site:** The central residential properties appeared to have been demolished and replaced by a large rectangular building which may be the original hospital clinic. Residential properties at the northern and southern ends of the site appeared unchanged. **Off-site:** The immediate surrounds appeared generally similar to the previous photograph.
1970	**On-site:** The site appeared generally similar to the previous photograph. **Off-site:** The length of Finlayson Creek appeared to be contained within the concrete channel. The remaining surrounds appeared generally similar to the previous photograph.
1978	**On-site:** Residential buildings at the northern end of the site had been demolished and replaced with a paved car park. Extensions to the central rectangular building were evident to the north. **Off-site:** The immediate surrounds appeared generally unchanged from the previous photograph.
1982	**On-site:** Excavation and/or exposed soil was visible across the northern/north-eastern portion of the site. Further extensions and additions to the central rectangular building were also evident. **Off-site:** The immediate surrounds appeared generally unchanged from the previous photograph.
1986	**On-site:** The residential buildings at the southern end of the site had been demolished and a paved car park (consistent with the existing car park) was visible across the southern portion of the site. **Off-site:** The immediate surrounds appeared generally unchanged from the previous photograph.
1991-2009	The site and immediate surrounds appeared generally similar to the previous photograph.

Year	Details
2015-2020	Construction of the existing clinical building in the central north-eastern corner of the site was undertaken during this time. The general site layout and immediate surrounds appeared generally similar to the present day.

4.2 Review of Historical Land Title Records

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

- The land was privately owned by various of individuals from as early as 1915. The individual owners had listed professions such as engineer, storekeeper, builder, varnisher and retired grazier;
- Portions of the site were bought and owned by the Wentworthville Community Hospital No.1 Pty Limited between 1960 to 1970;
- The site was gradually purchased by Baulkham Hills Private Hospital Limited between 1979 and 1986; and
- The site was purchased by Health Care Corporation Pty Limited and remains the sole owner to the present day.

The historical land title records did not identify any particular land uses which could have resulted in significant contamination. The professions of the individuals listed on the title records are unlikely to be associated with site related activities given the apparent residential-type land uses evident in the aerial photographs dating back to the early/mid 1900s.

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 contained development consents, building applications and associated documentation for the original Wentworthville Community Hospital.

The records did not contain any information of significance in the context of the PSI. Development Consent was granted for excavation into an earth bank within the workshop on 11 April 1988. No associated plans or documentation was provided and the excavation details are generic in nature.

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. The search did not identify any licences to store dangerous goods including underground fuel storage tanks (USTs), above ground storage tanks (ASTs) or chemicals at the site.

4.5 NSW EPA and Department of Defence Records

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

- Records maintained in relation to contaminated land under Section 58 of the CLM Act 1997;

- Records of sites notified in accordance with the Guidelines on the Duty to Report Contamination under Section 60 of the CLM Act 1997 (2015)[7];
- Licensed activities under the Protection of the Environment Operations Act (1997)[8];
- 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.

A number of listed properties with current or former notices under Sections 58 or 60 of the CLM Act 1997 were identified in the report buffer of 1,000m as indicated in the Lotsearch report. However, all listed properties were over 500m from the site and are not considered to represent potential off-site sources of contamination that could impact the site.

POEO licenses were also listed in relation to various properties/activities in the report buffer, relating to railways systems, and application of herbicides along waterways. Activities associated with these licences are not considered to be indicative of off-site sources of contamination that could impact the site.

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 4-2: Historical Business Directory and other Records

Records	On-site	Off-site
Historical dry cleaners, motor garages and service stations	None	There were several properties listed in the report buffer between 1948-1990. The nearest property was a motor mechanics located approximately 200m to the west and cross-gradient of the site (i.e. on the opposite side of the creek). Due to the proximity and cross-gradient location, this property is not considered a potential off-site source of contamination. The remining properties were located over 270m to the north-west and cross-gradient of the site and were 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

[7] 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)

[8] Protection of the Environment Operations Act 1997 (NSW) (referred to as POEO Act 1997)

Records	On-site	Off-site
National liquid fuel facilities	None	There were two listed liquid fuel facilities within the report buffer. The nearest property is a BP petrol station and is located approximately 275m to the north-west and cross-gradient of the site. Due to the proximity and cross-gradient location, this property is not considered a potential 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

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 4-3: Summary of Historical Land Uses / Activities

Year(s)	On-site - Potential Land Use / Activities	Off-site - Potential Land Use / Activities
1930-1961	The site was made up of several residential properties and associated sheds, with large open grassed areas.	The immediate surrounds appeared to consist of mostly residential properties and vacant land. The natural course of Finlayson Creek was partially converted to the man-made concrete channel during this time.
1961-1970	The central residential properties were demolished and the original Wentworthville Community Hospital building was constructed.	The remaining length of Finlayson Creek converted to the man-made concrete channel during this time.
1970-1978	The northern residential properties were demolished and a new car park was constructed along with additions to the hospital building.	The immediate surrounds appeared generally unchanged.
1978-1986	Some excavation (or potentially filling) was visible in the northern portion of the site. The southern residential properties were demolished and a new car park was constructed along with additions to the hospital building.	
1986-2009	The site appeared generally unchanged during this time.	
2015 – present day	Construction of the existing clinical building in the central north-eastern corner of the site was undertaken during this time. The general site layout and immediate surrounds appeared generally similar to the present day.	

4.8 Integrity of Site History Information

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

5 CONCEPTUAL SITE MODEL

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

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 10.

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
Fill material – The site has been historically filled to achieve the existing levels. Boreholes drilled for the previous screenings identified fill to a maximum depth of 1.3m. However, the fill was generally shallower. The fill may have been imported from various sources and could be contaminated, although the screening results suggested that widespread contamination (other than asbestos) was not likely.	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.
Use of pesticides – Pesticides may have been used beneath the buildings and/or around the site.	Heavy metals and OCPs
Hazardous Building Material – Hazardous building materials may be present as a result of former building and demolition activities across the site. In particular in the footprints of the original residential buildings. These materials may also be present in the existing buildings/ structures on site.	Asbestos, lead and PCBs
Potential Fuel Storage or UST – Based on several lines of evidence, including the identification of hydrocarbon odours in groundwater well MW103 and petroleum compounds in soil in BH102, it is considered possible that an unidentified UST exists, or that a localised fuel spill has occurred at the southern end of the site.	TRHs, BTEX and naphthalene

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	The potential mechanisms for contamination are most likely to include 'top-down' impacts and spills. There is a potential for sub-surface releases to have occurred if deep fill (or other buried industrial infrastructure) is present, although this is considered to be the least likely mechanism for contamination.
Affected media	Soil and groundwater have been identified as potentially affected media. The potential for soil vapour impacts would require further consideration in the event that volatile contamination was found in soil/groundwater.
Receptor identification	Human receptors include site occupants/users (including primarily adults), construction workers and intrusive maintenance workers. Off-site human receptors include adjacent land users. Use of the site by children may occur, however is expected to be infrequent. This has been discussed further later in this report. Ecological receptors include terrestrial organisms and plants within unpaved areas. This has been included to incorporate the existing trees and garden beds which are to be retained
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. Due to its proximity to the site, exposure to groundwater has the potential to occur in Finlayson Creek through direct migration.
Potential exposure mechanisms	The following have been identified as potential exposure mechanisms for site contamination: • Vapour intrusion into the proposed basement/undercroft and/or building (either from soil contamination or volatilisation of contaminants from groundwater); • Contact (dermal, ingestion or inhalation) with exposed soils in landscaped areas and/or unpaved areas; and • Migration of groundwater off-site and into nearby water bodies, including aquatic ecosystems.

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). 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 remediation is required.

A waste classification is required prior to off-site disposal of excavated soil/bedrock. Preliminary waste classification data is to be collected concurrently with the PSI.

The DQOs were developed by the author of this report and checked by the reviewer. Both the author and reviewer were joint decision-makers in relation to Step 2 of the DQO process.

The investigation was constrained by access limitations associated with the existing structures on site.

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:

- Existing relevant environmental data from previous reports;
- 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, fibre cement and groundwater for the CoPC identified in the CSM. It is noted that groundwater was analysed for an extended list of volatile organic compounds (VOCs); and
- Field and laboratory QA/QC data.

6.1.4 Step 4 - Define the Study Boundary

The sampling will be confined to the site boundaries as shown in Figure 2 (spatial boundary). The sampling was completed on 20 April 2021 and 28 April 2021 (temporal boundary). The assessment of potential risk to adjacent land users has been made based on data collected within the site boundary.

Sampling was not undertaken within the existing building footprint due to access constraints.

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 spatial distribution of the data and the number of samples submitted for analysis (i.e. non-probabilistic sample design).

6.1.5.2 Field and Laboratory QA/QC

Field QA/QC included analysis of intra-laboratory duplicates, trip spike and trip blank 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.

Quantitative limits on decision errors were not established due to the non-probabilistic sample design.

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 sampling from the geotechnical boreholes, and 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

Aspect	Input
Sampling Density	Samples were collected from three locations (BH201, BH202 and BH203) as shown on the attached Figure 2. Based on the site area (6,600m^2), this number of locations corresponded to a sampling density of approximately one sample per 2,200m^2. 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)[9].
Sampling Plan	The sampling locations were placed on a judgemental sampling plan based on the nominated geotechnical borehole locations, taking into consideration areas that were not easily accessible. This sampling plan was considered suitable to make a preliminary assessment of potential risks

[9] NSW EPA, (1995), *Contaminated Sites Sampling Design Guidelines.* (referred to as EPA Sampling Design Guidelines 1995)

Aspect	Input
	associated with the AEC and CoPC identified in the CSM, and assess whether further investigation is warranted.
Set-out and Sampling Equipment	Sampling locations were set out using a tape measure. In-situ sampling locations were checked for underground services by an external contractor prior to sampling. Samples from BH201 and BH202 were collected using a drill rig equipped with spiral flight augers. Soil samples were obtained from a Standard Penetration Test (SPT) split-spoon sampler, or directly from the auger when conditions did not allow use of the SPT sampler. BH203 was sampled using a hand auger due to access constraints.
Sample Collection and Field QA/QC	Soil samples were obtained on 20 April 2021 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. The field screening for asbestos quantification included the following: • A representative bulk sample was collected from fill, from each distinct fill profile where sufficient sample return was achieved (except BH203 where a composite fill sample was screened from two profiles given the low sample volume). 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; • Each sample was weighed using an electronic scale; • Each bulk sample was passed through a sieve with a 7.1mm aperture and inspected for the presence of fibre cement; • The condition of fibre cement or any other suspected asbestos materials was noted on the field records; and • If observed, any fragments of fibre cement in the bulk sample were collected, placed in a zip-lock 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.
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

Aspect	Input
	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 for geotechnical purposes in 2015 in BH101 (MW101) and BH103 (MW103). The wells were positioned to gain a snap-shot of the groundwater conditions. MW103 was the most 'down-gradient' well and was considered to reflect the groundwater conditions flowing across (beneath) the site and beyond the down-gradient site boundary towards Finlayson Creek.
Monitoring Well Installation Procedure	The monitoring well construction details are documented on the appropriate borehole logs with the ESI 2015 report attached in the appendices. The monitoring wells were installed to depths of approximately 11.7mBGL to 12.45mBGL. The wells were generally constructed as follows: • 50mm diameter Class 18 PVC (machine slotted screen) was installed in the lower section of the well to intersect groundwater; • 50mm diameter Class 18 PVC casing was installed in the upper section of the well (screw fixed); • A 2mm sand filter pack was used around the screen section for groundwater infiltration; • A hydrated bentonite seal/plug was used on top of the sand pack to seal the well; and • A gatic cover was installed at the surface with a concrete plug to limit the inflow of surface water. 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.
Monitoring Well Development	The monitoring wells were developed on 20 April 2021 using a submersible electrical pump. Due to the presumed build-up of sediment within MW101, the groundwater volume was reduced, therefore this well was pumped until effectively dry. Higher volumes of groundwater were available in MW103 and therefore 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 eight days after development. Groundwater samples were obtained on 28 April 2021. 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: • Standing water level (SWL) using an electronic dip meter; and

Aspect	Input
	• pH, temperature, electrical conductivity (EC), dissolved oxygen (DO) and redox potential (Eh) using a YSI Multi-probe water quality meter. 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 or ice bricks. 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.

6.3.1 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 and trip spikes)	Envirolab Services Pty Ltd NSW, NATA Accreditation Number – 2901 (ISO/IEC 17025 compliance)	267374, 267374-A & 267802

It is noted that there are additional soil salinity results included in report 267374. These results are to be reported by JKE separately for salinity assessment purposes.

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.

The guidelines on specific land use scenarios is outlined in the NEPM 2013, Schedule B7, Section 3.2.5.3, state that:

"Adults of working age are the population usually most sensitive to health risks associated with soil contamination within the generic commercial/industrial land use scenario. Although many commercial premises welcome children on an intermittent basis, it is unlikely that children visit the majority of workplaces frequently. Similarly, in commercial premises where children are regular visitors, such as shopping centres, both the duration and frequency of child exposures are generally lower than that of a full-time adult employee."

"In accordance with the recommendations outlined in enHealth (2004), the adult employees addressed in the HIL D values have been considered to work within the same commercial/industrial premises for their full working life (30 years). The HILs developed for the commercial/industrial land use scenario are not applicable to a site used frequently by more sensitive groups such as children (within childcare centres, hospitals and hotels) and the elderly (within hospitals, aged care facilities and hospices)."

For this proposed development and associated land use at the site, we have adopted the commercial/industrial human-health and ecological SAC. This SAC is based on the proposed land use as a community health facility which will welcome children on an intermittent basis (for appointments) and it is unlikely that children will be visiting the site frequently or for extended time periods.

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 'commercial/industrial' exposure scenario (HIL-D);
- Health Screening Levels (HSLs) for a 'commercial/industrial' exposure scenario (HSL-D). 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)[10]; and
- Asbestos was assessed against the HSL-D criteria. A summary of the asbestos criteria is provided in the table below:

[10] 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*

Table 7-1: Details for Asbestos SAC

Guideline	Applicability
Asbestos in Soil	The HSL-D 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 include the following: • No visible asbestos at the surface/in the top 10cm of soil; • <0.05% 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 = $\frac{\text{\% asbestos content x bonded ACM (kg)}}{\text{Soil volume (L) x soil density (kg/L)}}$** 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 = $\frac{\text{\% asbestos content x bonded ACM (g)}}{\text{Soil weight (g)}}$** Despite the above, given the preliminary nature of the investigation, decisions relating to the requirement for further investigation have been based around asbestos either being present or absent (i.e. if asbestos is found during the PSI, this will trigger a requirement for detailed investigation/characterisation).

7.1.2 Environment (Ecological – terrestrial ecosystems)

- Ecological Investigation Levels (EILs) and Ecological Screening Levels (ESLs) for an 'commercial/industrial' 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[11];
- ESLs were adopted based on the soil type; and
- 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)[12].

7.1.3 Management Limits for Petroleum Hydrocarbons

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

[11] 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)

[12] 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

7.1.4 Waste Classification

Data for the waste classification assessment were assessed in accordance with the Waste Classification Guidelines, Part 1: Classifying Waste (2014)[13] as outlined in the following table:

Table 7-2: Waste Categories

Category	Description
General Solid Waste (non-putrescible)	• If Specific Contaminant Concentration (SCC) ≤ Contaminant Threshold (CT1) then Toxicity Characteristics Leaching Procedure (TCLP) not needed to classify the soil as general solid waste; and • If TCLP ≤ TCLP1 and SCC ≤ SCC1 then treat as general solid waste.
Restricted Solid Waste (non-putrescible)	• If SCC ≤ CT2 then TCLP not needed to classify the soil as restricted solid waste; and • If TCLP ≤ TCLP2 and SCC ≤ SCC2 then treat as restricted solid waste.
Hazardous Waste	• If SCC > CT2 then TCLP not needed to classify the soil as hazardous waste; and • If TCLP > TCLP2 and/or SCC > SCC2 then treat as hazardous waste.
Virgin Excavated Natural Material (VENM)	Natural material (such as clay, gravel, sand, soil or rock fines) that meet the following: • That has been excavated or quarried from areas that are not contaminated with manufactured chemicals, or with process residues, as a result of industrial, commercial mining or agricultural activities; • That does not contain sulfidic ores or other waste; and • Includes excavated natural material that meets such criteria for virgin excavated natural material as may be approved from time to time by a notice published in the NSW Government Gazette.

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)[14]. Environmental values for this investigation include aquatic ecosystems, human uses, and human-health risks in non-use scenarios.

7.2.1 Human Health

HSLs for a 'commercial/industrial' exposure scenario (HSL-D). HSLs were calculated based on the soil type and the most conservative depth to groundwater of 2-4m.

VOCs (where there were no HSLs) were assessed against the laboratory PQLs.

[13] NSW EPA, (2014). *Waste Classification Guidelines, Part 1: Classifying Waste.* (referred to as Waste Classification Guidelines 2014)

[14] NSW Department of Environment and Conservation, (2007). *Guidelines for the Assessment and Management of Groundwater Contamination.*

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)[15].

[15] 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)

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
Pavement	Asphaltic Concrete (AC) pavement was encountered at the surface in BH201 to a depth of approximately 0.08mBGL.
Fill	Fill was encountered at the surface or beneath the pavement in all boreholes and extended to depths of approximately 0.8m to 1.0mBGL. BH203 was terminated in the fill at a depth of approximately 0.8mBGL. The fill typically comprised gravelly sand and silty clay with inclusions of ash and building rubble (bricks, concrete, and tile fragments).
Natural Soil	Natural silty clay was encountered beneath the fill in BH201 and BH202 and extended to a depth of approximately 4.8mBGL. BH202 was terminated in the fill at a maximum depth of approximately 3.0mBGL.
Bedrock	Weather siltstone bedrock was encountered beneath the natural soil in BH201 at a depth of approximately 4.8mBGL and extended to the termination depth.
Groundwater	The boreholes were largely dry on completion of augering. The water levels recorded in BH201 were influenced by the introduction of water during the coring process.

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 and Monitoring Well Headspace for VOCs	PID soil sample headspace readings are presented in attached report tables and the COC documents attached in the appendices. All results were 0ppm isobutylene equivalents which indicates a lack of PID detectable VOCs. The well headspace PID reading in MW103 was 98ppm and the well headspace reading in MW101 was 2ppm. It is noted that MW103 was the well where hydrocarbon odours were previously encountered.
Bulk Screening for Asbestos	The bulk field screening results are summarised in the attached report tables. All results were below the SAC. ACM (>7mm) was found in the subsurface fill profile in BH203 (sample

Aspect	Details
	FCF203). The calculated asbestos concentration in this sample was 0.0119%w/w (see Table S5) and was below the HSL-D SAC of 0.05%w/w.
Groundwater Depth & Flow	The standing water level (SWL) was measured in borehole BH201 at a depth of approximately 4.0mBGL a short time after completion of coring. The remaining boreholes were dry during and a short time after completion of drilling. SWLs measured in the monitoring wells installed at the site ranged from 4.17m to 4.54mBGL. Groundwater RLs calculated on these measurements ranged from 17.13m to 17.26m.
Groundwater Field Parameters	Field measurements recorded during sampling were as follows: - pH ranged from 5.96 to 6.04; - EC ranged from 7,205µS/cm to 9,700µS/cm; - Eh ranged from -11.2mV to -14.2mV; and - DO ranged from 0.3ppm to 1.4ppm.
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	7	6	0	0	-
Cadmium	7	<PQL	0	NSL	-
Chromium (total)	7	48	0	0	-
Copper	7	25	0	0	-
Lead	7	34	0	0	-
Mercury	7	0.2	0	NSL	-
Nickel	7	45	0	0	-
Zinc	7	140	0	0	-
Total PAHs	7	0.4	0	NSL	-
Benzo(a)pyrene	7	0.05	NSL	0	-

Analyte	N	Max. (mg/kg)	N> Human Health SAC	N> Ecological SAC	Comments
Carcinogenic PAHs (as BaP TEQ)	7	<PQL	0	NSL	-
Naphthalene	7	<PQL	0	NSL	-
DDT+DDE+DDD	4	<PQL	0	NSL	-
DDT	4	<PQL	NSL	0	-
Aldrin and dieldrin	4	<PQL	0	NSL	-
Chlordane	4	<PQL	0	NSL	-
Heptachlor	4	<PQL	0	NSL	-
PCBs	4	<PQL	0	NSL	-
TRH F1	7	<PQL	0	0	-
TRH F2	7	78	0	0	-
TRH F3	7	170	0	0	-
TRH F4	7	370	0	0	-
Benzene	7	<PQL	0	0	-
Toluene	7	<PQL	0	0	-
Ethylbenzene	7	<PQL	0	0	-
Xylenes	7	<PQL	0	0	-
Asbestos (in soil) – 500ml ACM >7mm Asbestos Fines/Fibrous Asbestos (AF/FA)	4	 <0.01% w/w <0.001% w/w	 0 0	NA	-
Asbestos in fibre cement	1	-	-	NSL	Sample FCF203 was found to contain asbestos fibres.

Notes:

N: Total number (primary samples)

NSL: No set limit

NL: Not limiting

8.4.2 Waste Classification Assessment

The laboratory results were assessed against the criteria presented in Section 7.1.4. The results are presented in the report tables attached in the appendices. A summary of the results is presented in the following table:

Table 8-4: Summary of Soil Laboratory Results Compared to CT and SCC Criteria

Analyte	N	N > CT Criteria	N > SCC Criteria	Comments
Arsenic	7	0	0	-
Cadmium	7	0	0	-
Chromium	7	0	0	-
Copper	7	NSL	NSL	-
Lead	7	0	0	-
Mercury	7	0	0	-
Nickel	7	1	0	Nickel concentrations exceeded the CT1 criterion in one fill sample collected from BH201 (0.1-0.2m) with a maximum concentration of 45mg/kg.
Zinc	7	NSL	NSL	-
TRH (C_6-C_9)	7	0	0	-
TRH (C_{10}-C_{36})	7	0	0	-
BTEX	7	0	0	-
Total PAHs	7	0	0	-
Benzo(a)pyrene	7	0	0	-
OCPs & OPPs	4	0	0	-
PCBs	4	0	0	-
Asbestos	4	-	-	Asbestos was not detected in the soil samples analysed. Sample FCF203 was found to contain chrysotile, amosite and crocidolite asbestos fibres.

N: Total number (primary samples)

NSL: No set limit

Table 8-5: Summary of Soil Laboratory Results Compared to TCLP Criteria

Analyte	N	N > TCLP Criteria	Comments
Nickel	1	0	-

N: Total number (primary samples)

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 8-6: Summary of Groundwater Laboratory Results – Human Health and Environmental (Ecological)

Analyte	N ^	Max. (µg/L)	N> Human Health SAC	N> Ecological SAC	Comments
Arsenic	2	<PQL	Not applicable	0	-
Cadmium	2	0.2	Not applicable	0	-
Chromium (total)	2	<PQL	Not applicable	0	-
Copper	2	<PQL	Not applicable	0	-
Lead	2	<PQL	Not applicable	0	-
Mercury	2	<PQL	Not applicable	0	-
Nickel	2	22	Not applicable	1	One minor elevation of nickel above the ecological SAC was encountered in MW01 with a concentration of 22µg/L.
Zinc	2	18	Not applicable	1	One minor elevation of zinc above the ecological SAC was encountered in MW01 with a concentration of 18µg/L.
Total PAHs	2	<PQL	Not applicable	0	-
Benzo(a)pyrene	2	<PQL	Not applicable	0	-
Carcinogenic PAHs (as BaP TEQ)	2	<PQL	Not applicable	0	-
Naphthalene	2	<PQL	0	0	
TRH F1	2	<PQL	0	NSL	-
TRH F2	2	<PQL	0	NSL	-
Benzene	2	<PQL	0	0	-
Toluene	2	<PQL	0	0	-

Analyte	N ^	Max. (µg/L)	N> Human Health SAC	N> Ecological SAC	Comments
Ethylbenzene	2	<PQL	0	0	-
m+p-Xylene	2	<PQL	NSL	0	-
o-Xylene	2	<PQL	NSL	0	-
Total Xylenes	2	<PQL	0	NSL	-
Other VOCs	2	<PQL	0	0	-
pH	2	6.3	1	1	The pH of 6.3 encountered in MW101 is just outside the range of 6.5-6.9 for fresh waters.
EC	2	12000	0	0	-

Notes:

^: Primary samples

N: Total number

NSL: No set limit

NL: Not limiting

9 WASTE CLASSIFICATION ASSESSMENT

9.1 Preliminary Waste Classification of Fill

Based on the results of the PSI, and at the time of reporting, the fill material is assigned a preliminary classification of **General Solid Waste (non-putrescible) containing Special Waste (asbestos)**. Further sampling should be undertaken to confirm the waste classification prior to off-site disposal. Detailed sampling (including bulk field screening in accordance with NEPM 2013 requirements) should occur to characterise the waste if off-site disposal of surplus material is required.

9.2 Classification of Natural Soil and Bedrock

Based on the scope of work undertaken for this PSI, and at the time of reporting, JKE are of the opinion that the natural soil and bedrock at the site may meet the definition of **VENM** for off-site disposal or re-use purposes. Further assessment via sampling and/or inspection is required following the removal of the overlying fill (where applicable) to confirm this classification prior to off-site disposal of the waste.

10 DISCUSSION

10.1 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:

- Fill material;
- Use of pesticides;
- Hazardous building materials; and
- Potential fuel storage or UST.

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.

10.2 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.

10.2.1 Soil

Asbestos in the form of bonded FCF (i.e. Asbestos Containing Material – ACM) was identified within the fill material at the site within BH203 (0-0.5m), as shown on Figure 3. FCF has also been identified at the ground surface during the previous screenings.

There were no further surficial FCF observed during the PSI site inspection, therefore the potential for exposure to asbestos in soil during typical day to day site use is considered to be relatively low. The risk of exposure would increase through disturbance of the soil. These risks will need to be managed during construction so they remain low and acceptable.

Considering the site history (e.g. demolition of numerous buildings and sheds) and subsurface observations (e.g. fill with demolition rubble), we consider that the potential for widespread occurrence of asbestos in soil is high.

All remaining CoPC were reported at concentrations below the SAC, or at levels below the laboratory detection limits.

JKE consider there is a potential for hydrocarbons to occur in the southern area of the site. Observations of previous hydrocarbon odours in MW103, together with elevated PIDs in the well headspace support this. Further investigation is required to better assess this AEC.

10.2.2 Groundwater

Elevated nickel and zinc concentrations marginally above the ecological SAC were encountered in the groundwater sample from MW101. JKE consider the elevated results are likely to be indicative of regional groundwater background concentrations rather than on on-site contamination source and represents a low risk to ecological receptors.

All other CoPC in groundwater were low and consistent with expectations based on the absence of any suspected groundwater contamination sources at the site or in the surrounds.

10.3 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 10.1.

> *Are any results above the SAC?*

No soil samples exceeded the SAC. However, bonded ACM was encountered in the fill profile within BH203 at the site. Elevated nickel above the EIL was also identified during the previous screenings.

Nickel and zinc were encountered in groundwater in MW101 at concentrations that exceeded the ecological SAC.

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

Potential human-health risks associated with the disturbance of soil containing asbestos exist. Risks to site receptors under the current site configuration were assessed to be low. Remediation (and management) will be required so that risks remain low throughout construction and in the context of the proposed development. There is considered to be a potential for unexpected finds associated with a source of hydrocarbons in the southern area of the site.

> *Is remediation required?*

The investigations to date have not identified contamination that clearly warrants remediation. However, investigations have been preliminary in nature. It is considered that remediation may be required due to the nature of the site history and the identified ACM at the site. However, the requirement for remediation will need to be confirmed via further sampling of soil and groundwater to provide a more detailed

characterisation of the site conditions. A Detailed Site Investigation (DSI) is therefore required. Depending on the outcome of the DSI, a Remediation Action Plan (RAP) and/or Asbestos Management Plan (AMP) will need to be implemented.

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

Yes, further investigation is required.

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

We are of the opinion that the site can be made suitable for the proposed development. If remediation for asbestos is required, remediation strategies may include surficial removal of ACM, excavation and off-site disposal of contaminated soils and/or capping and containment of material on site. The contamination identified to date is well suited to a surface removal and clearance strategy. These options would be further evaluated following the DSI.

10.4 Data Gaps

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

Table 10-1: Data Gap Assessment

Data Gap	Assessment
Groundwater assessment limited in scope	The groundwater assessment was limited to two pre-existing groundwater wells in the western portion of the site. Additional work to address this data gap will be required.
Soil sampling density below minimum guideline density	Sampling was limited to accessible areas of the site (i.e.) outside building footprints) and did not meet the recommended density in the EPA Sampling design Guidelines 1995. Recommendations for additional soil sampling are included in the report to address this data gap.

11 CONCLUSIONS AND RECOMMENDATIONS

The PSI included a review of historical information and sampling from three borehole locations. The site has historically been vacant or used for residential purposes prior to the construction and eventual expansion of the community hospital and Wentworthville Clinic from 1961 to the present day. The PSI identified bonded ACM in fill (soil) at one borehole location below the human-health based SAC. Previous screenings also found suspected ACM (in the form of FCF) at the ground surface.

Minor elevations of some metals in groundwater were also identified above the ecological SAC, however these were considered to be consistent with regional/background groundwater conditions.

Based on the Tier 1 risk assessment, asbestos may pose a risk to human-health if it is not managed properly. The asbestos-related risks in the context of the current land use were assessed to be low due to the most likely form of the asbestos being bonded ACM and not being visible at the surface of the site.

Based on the findings of the investigation, JKE are of the opinion that the site can be made suitable for the proposed development described in Section 1.1. A DSI is required to address the data gaps outlined in Section 10.4. Based on the findings of the DSI, a RAP may be required.

JKE are of the opinion that there is currently no requirement to report the contamination to the NSW EPA under the NSW EPA Guidelines on the Duty to Report Contamination under Section 60 of the CLM Act 1997 (2015)[16]. This is to be further evaluated as part of the DSI.

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

[16] 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)

12 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

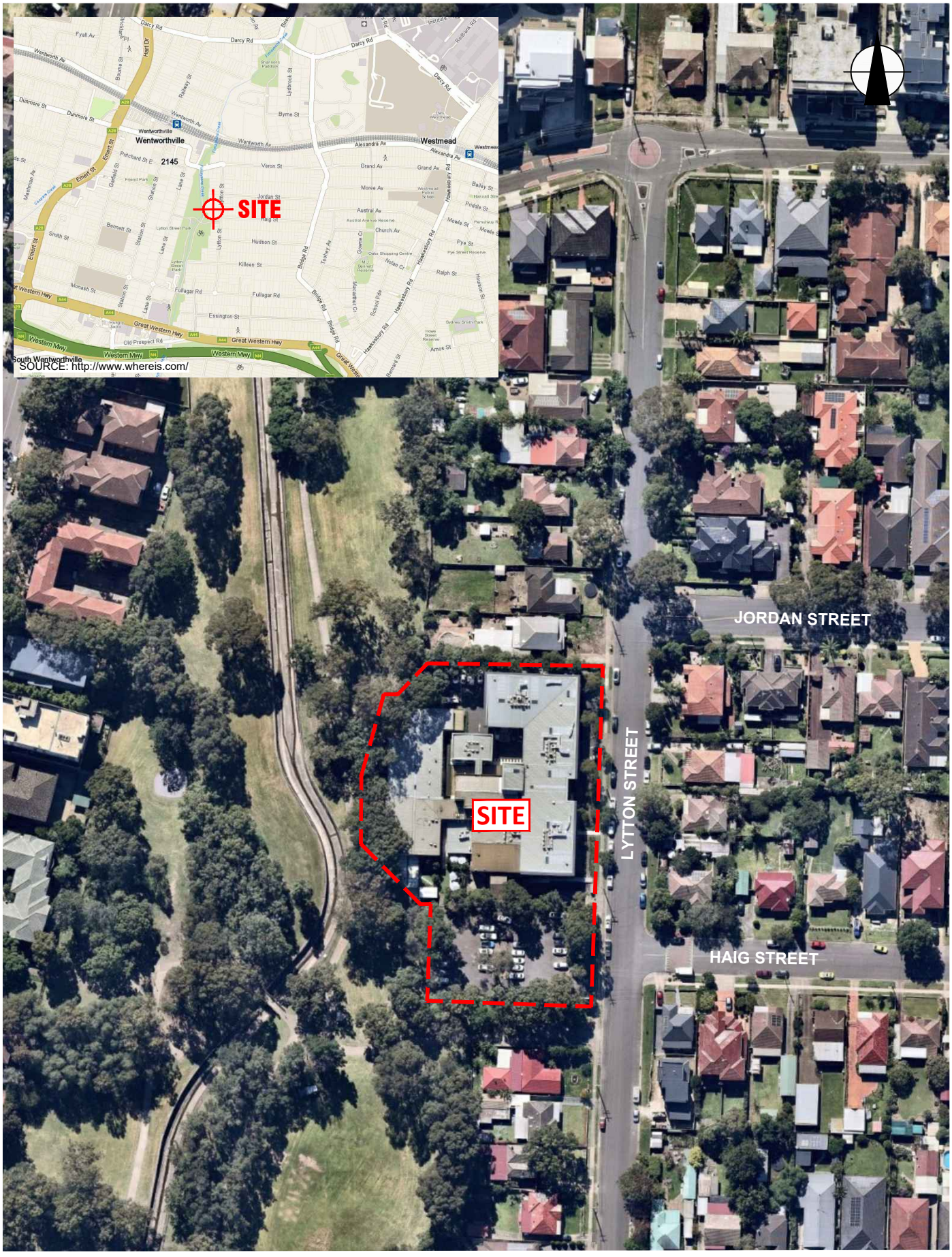
Borehole and test pit logs are prepared by environmental scientists, engineers or geologists based upon interpretation of field conditions and laboratory evaluation of field samples. Logs are normally provided in our reports and these should not be re-drawn for inclusion in site remediation or other 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**

Location: 23-27 LYTTON STREET, WENTWORTHVILLE, NSW

Project No: E27318PH

Figure No: 1

JKEnvironments

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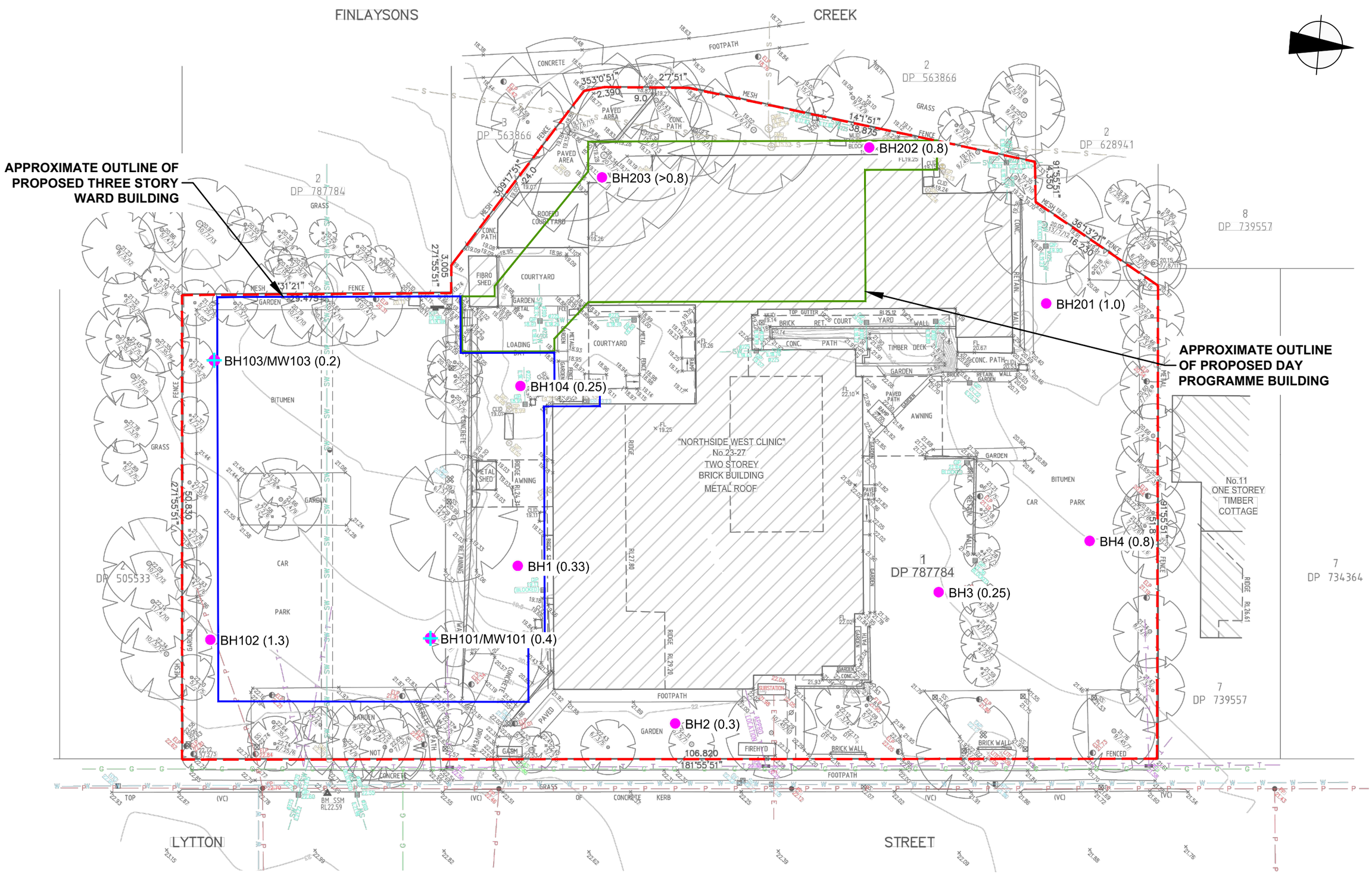

LEGEND

APPROXIMATE SITE BOUNDARY	
BH(Fill Depth)	BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL (m)
BH/MW(Fill Depth)	BOREHOLE AND GROUNDWATER MONITORING WELL LOCATION, NUMBER AND DEPTH OF FILL (m)

0 4 8 12 16 20

SCALE 1:400 @A3 METRES

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

Title: **SAMPLE LOCATION PLAN**

Location: 23-27 LYTTON STREET, WENTWORTHVILLE, NSW

Project No: E27318PH

Figure No: 2

JKEnvironments

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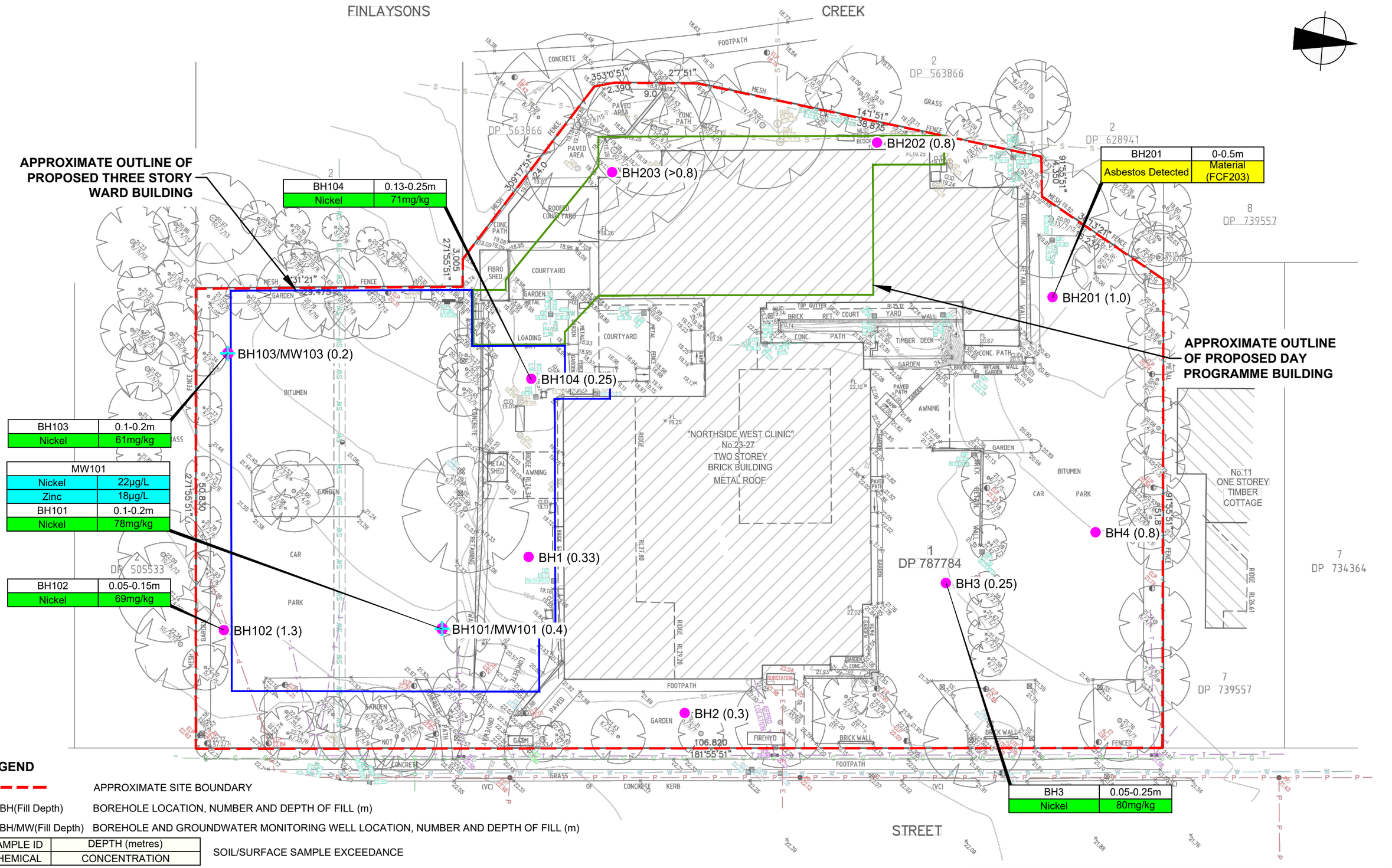

LEGEND

- APPROXIMATE SITE BOUNDARY
- BH(Fill Depth) — BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL (m)
- BH/MW(Fill Depth) — BOREHOLE AND GROUNDWATER MONITORING WELL LOCATION, NUMBER AND DEPTH OF FILL (m)

SAMPLE ID	DEPTH (metres)
CHEMICAL	CONCENTRATION

SOIL/SURFACE SAMPLE EXCEEDANCE

SAMPLE ID	-
CHEMICAL	CONCENTRATION (µg/L)

GROUNDWATER SAMPLE EXCEEDANCE

- SOIL/SURFACE CONTAMINATION ABOVE SAC FOR HUMAN HEALTH RISK
- SOIL CONTAMINATION ABOVE SAC FOR ECOLOGICAL RISK
- GROUNDWATER CONTAMINATION ABOVE SAC

0 4 8 12 16 20
SCALE 1:400 @A3 METRES

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

Title: **CONTAMINATION LOCATION PLAN**

Location: 23-27 LYTTON STREET, WENTWORTHVILLE, NSW

Project No: E27318PH

Figure No: 3

JKEnvironments

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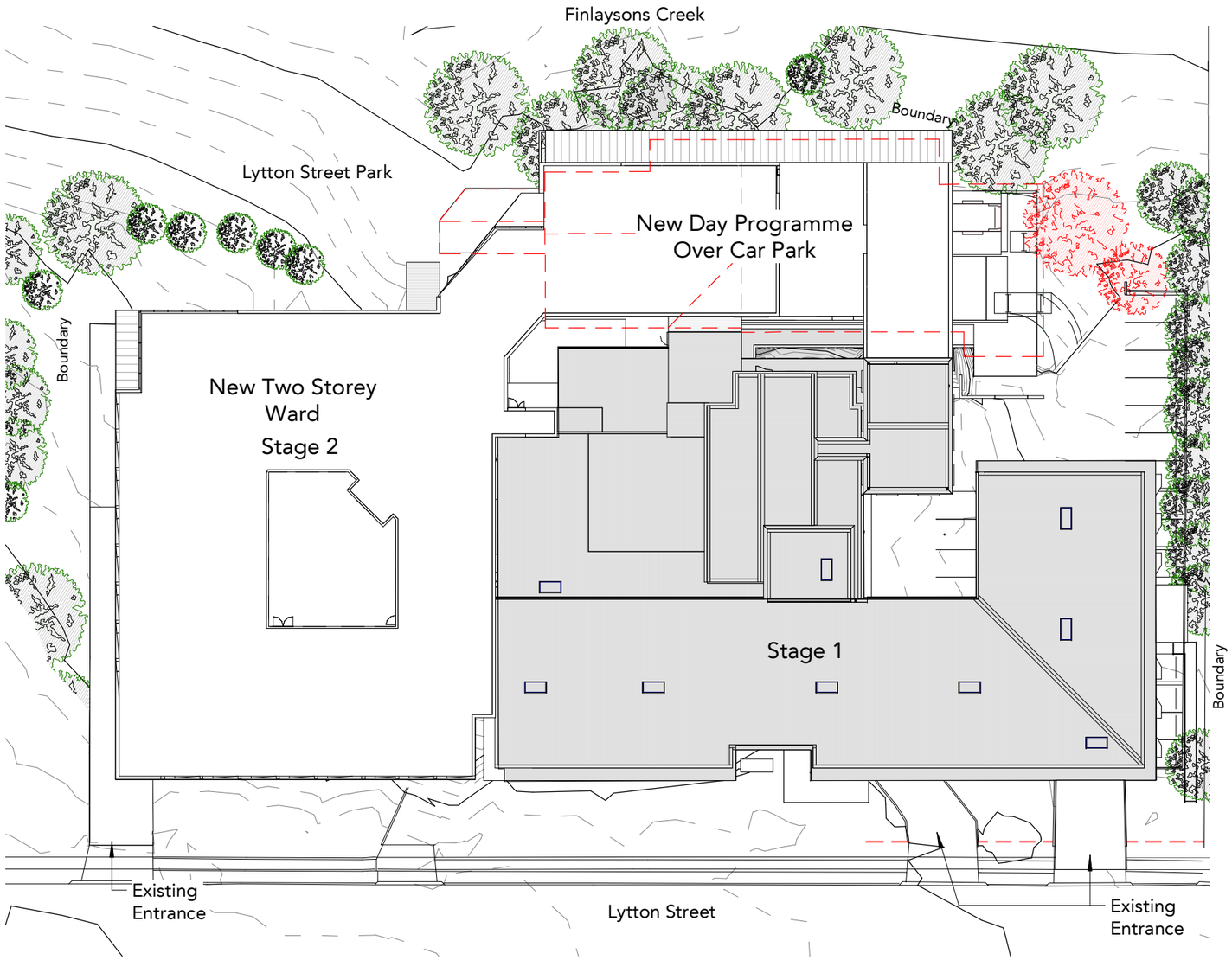
Appendix B: Site Information and Site History

Proposed Development Plans



1 SK Site Plan
Scale: 1 : 500

DRAWING STATUS:

PRELIMINARY

Rev	Revision Description	Date
P1	Preliminary Sketch	20.08.20
P2	Preliminary Sketch	26.08.20
P3	Preliminary Sketch	31.08.20
P4	Preliminary Sketch	10.09.20
P5	Preliminary Sketch - VE Option	18.11.20

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SCALE 1:500

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Reg Vic: 19340

Project:
Northside West Stage 2

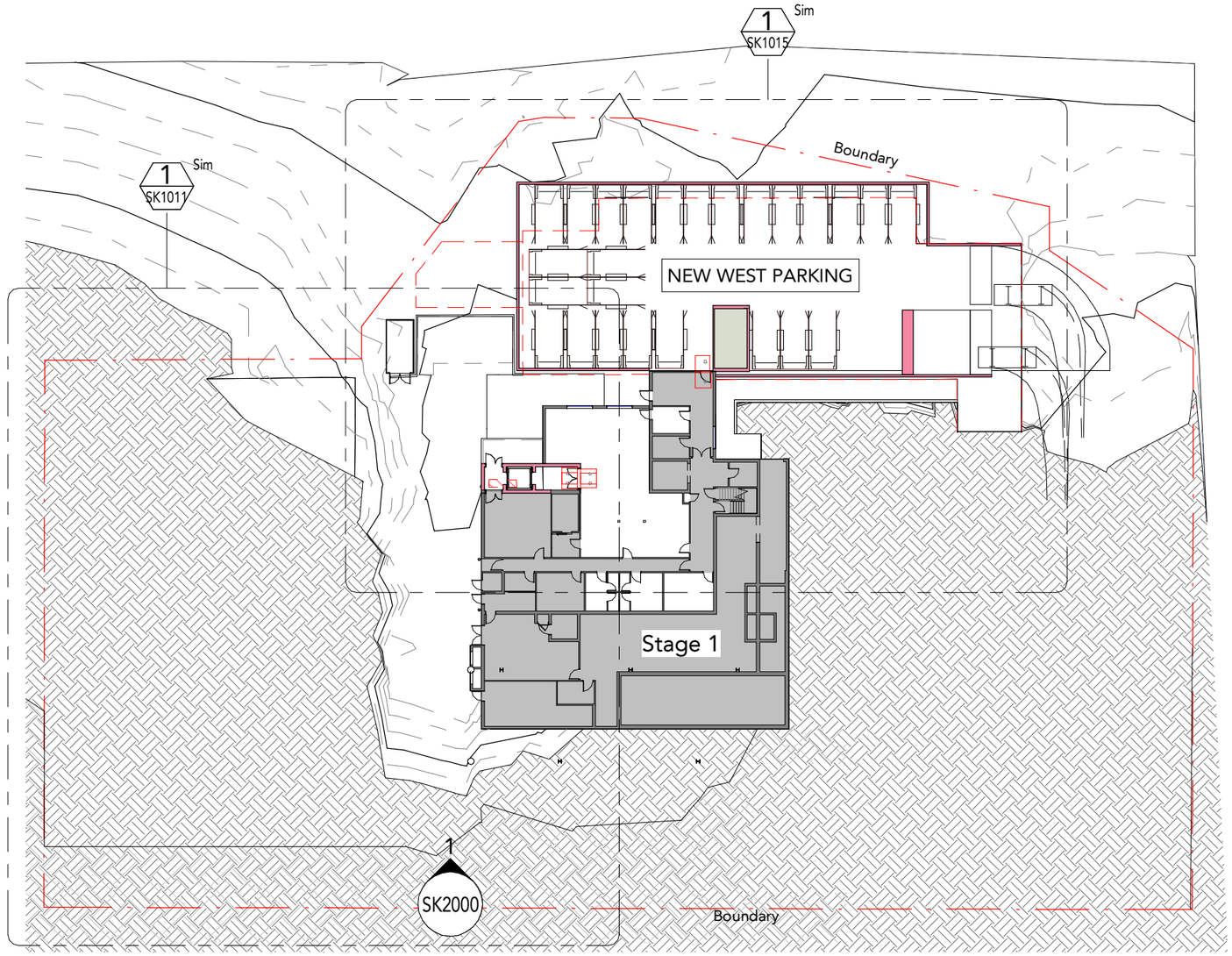
Wentworthville. NSW 2145

Title:
Site Plan

Project #:	Scale:	Drw:	Ckd:
903	1 : 500 @A3	IK	ZA

Drawing #: SK0010

Rev: P5



1 Site Plan - Lower Ground
Scale: 1 : 500

DRAWING STATUS:

PRELIMINARY

Rev	Revision Description	Date
P1	Preliminary Sketch	20.08.20
P2	Preliminary Sketch	26.08.20
P3	Preliminary Sketch	31.08.20
P4	Preliminary Sketch	10.09.20
P5	Preliminary Sketch - VE Option	18.11.20

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South Yarra VIC 3141
Reg Vic: 19340

CLIENT SIGN OFF

Signature:

Name:

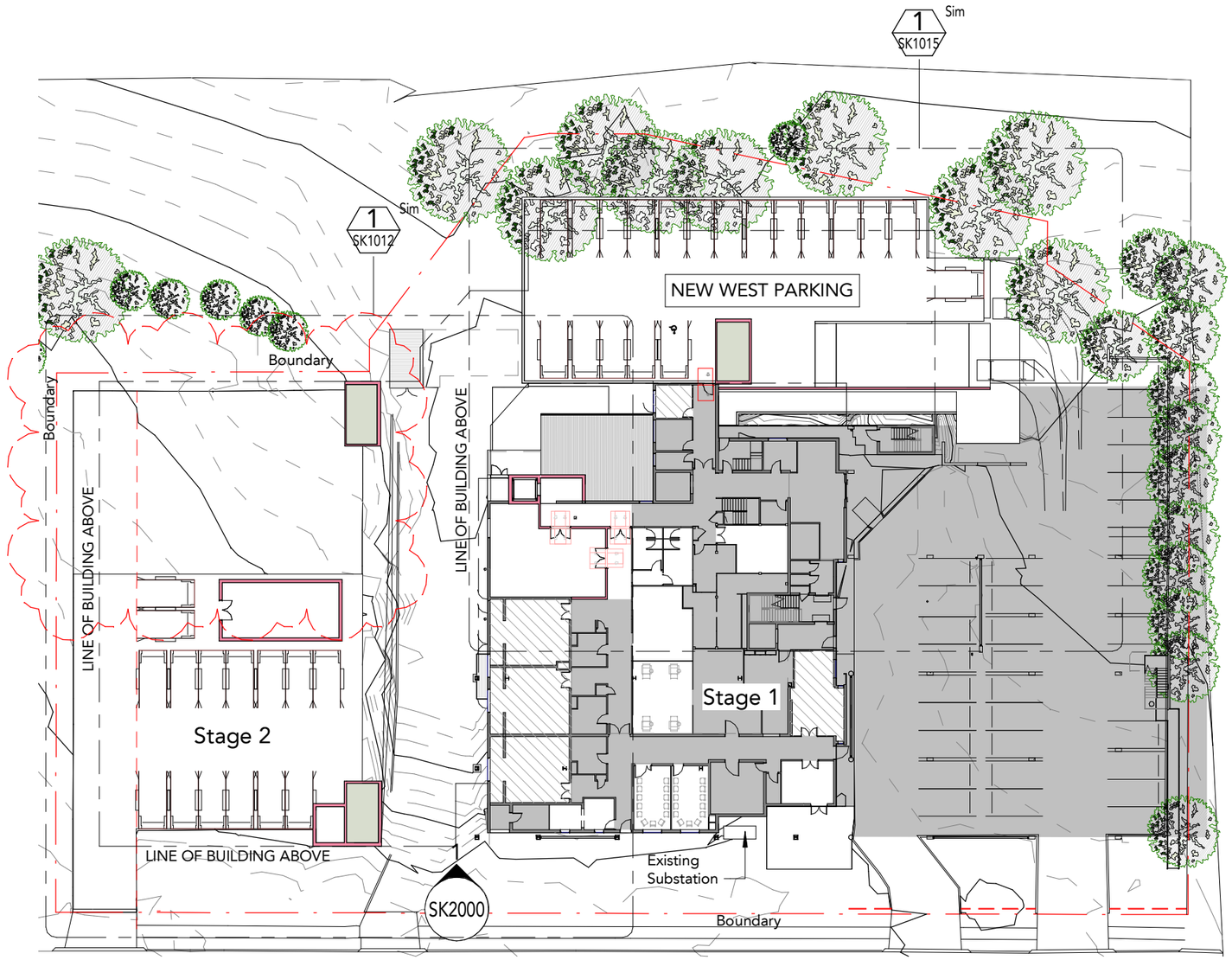
Date:

Project:
Northside West Stage 2
Wentworthville. NSW 2145

Title:
Site Plan - Lower Ground

Project #:	Scale:	Drw:	Ckd:
903	As indicated @A3	IK	ZA

Drawing #: SK0011
Rev: P5



1 Site Plan - Ground Floor
Scale: 1 : 500

DRAWING STATUS:

PRELIMINARY

Rev	Revision Description	Date
P1	Preliminary Sketch	20.08.20
P2	Preliminary Sketch	26.08.20
P3	Preliminary Sketch	31.08.20
P4	Preliminary Sketch	10.09.20
P5	Preliminary Sketch - VE Option	18.11.20

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Signature:

Name:

Date:

Project:
Northside West Stage 2

Wentworthville. NSW 2145

Title:
Site Plan - Ground Floor

Project #:	Scale:	Drw:	Ckd:
903	As indicated @A3	IK	ZA

Drawing #: SK0012

Rev: P5

1 Site Plan - Level 1
Scale: 1 : 500

Ward Room: 41 Rooms
New Consult: 9 Rooms
GFA: 1813m²

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Signature:

Name:

Date:

DRAWING STATUS:

PRELIMINARY

Rev	Revision Description	Date
P1	Preliminary Sketch	20.08.20
P2	Preliminary Sketch	26.08.20
P3	Preliminary Sketch	31.08.20
P4	Preliminary Sketch	10.09.20
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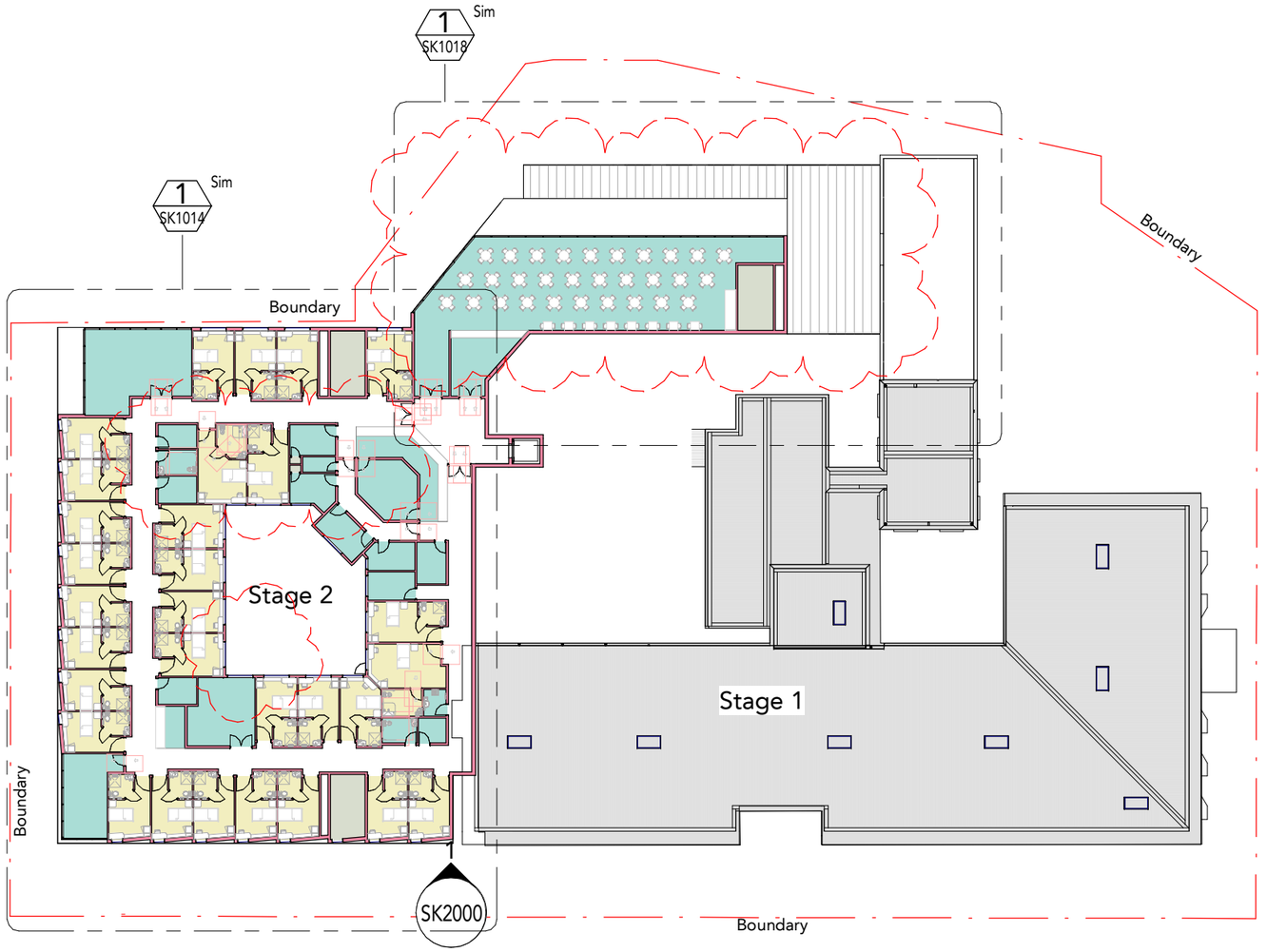
Project:
Northside West Stage 2
Wentworthville. NSW 2145

Title:
Site Plan - Level 1

Project #:	Scale:	Drw:	Ckd:
903	1 : 500 @A3	IK	ZA

Drawing #: SK0013
Rev: P5



1 Site Plan - Level 2
Scale: 1 : 500

Ward Room: 30 Rooms
GFA: 1601m²

DRAWING STATUS:

PRELIMINARY

Rev	Revision Description	Date
P1	Preliminary Sketch	20.08.20
P2	Preliminary Sketch	26.08.20
P3	Preliminary Sketch	31.08.20
P4	Preliminary Sketch	10.09.20
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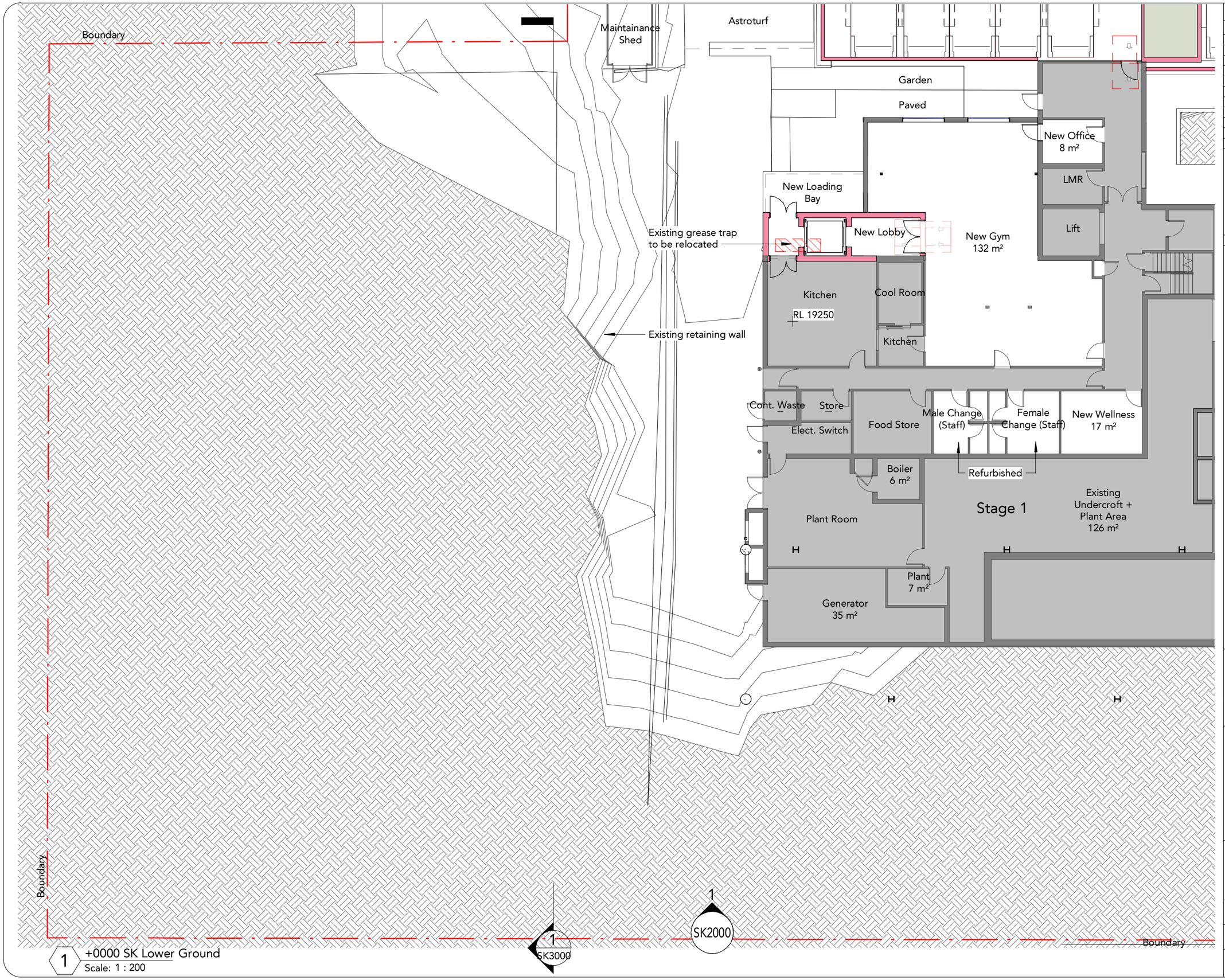
Date:

Project:
Northside West Stage 2
Wentworthville. NSW 2145

Title:
Site Plan - Level 2

Project #:	Scale:	Drw:	Ckd:
903	1 : 500 @A3	IK	ZA

Drawing #: SK0014
Rev: P5



1 +0000 SK Lower Ground
Scale: 1 : 200

DRAWING STATUS:

PRELIMINARY

Rev	Revision Description	Date
P1	Preliminary Sketch	20.08.20
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Project:
Northside West Stage 2

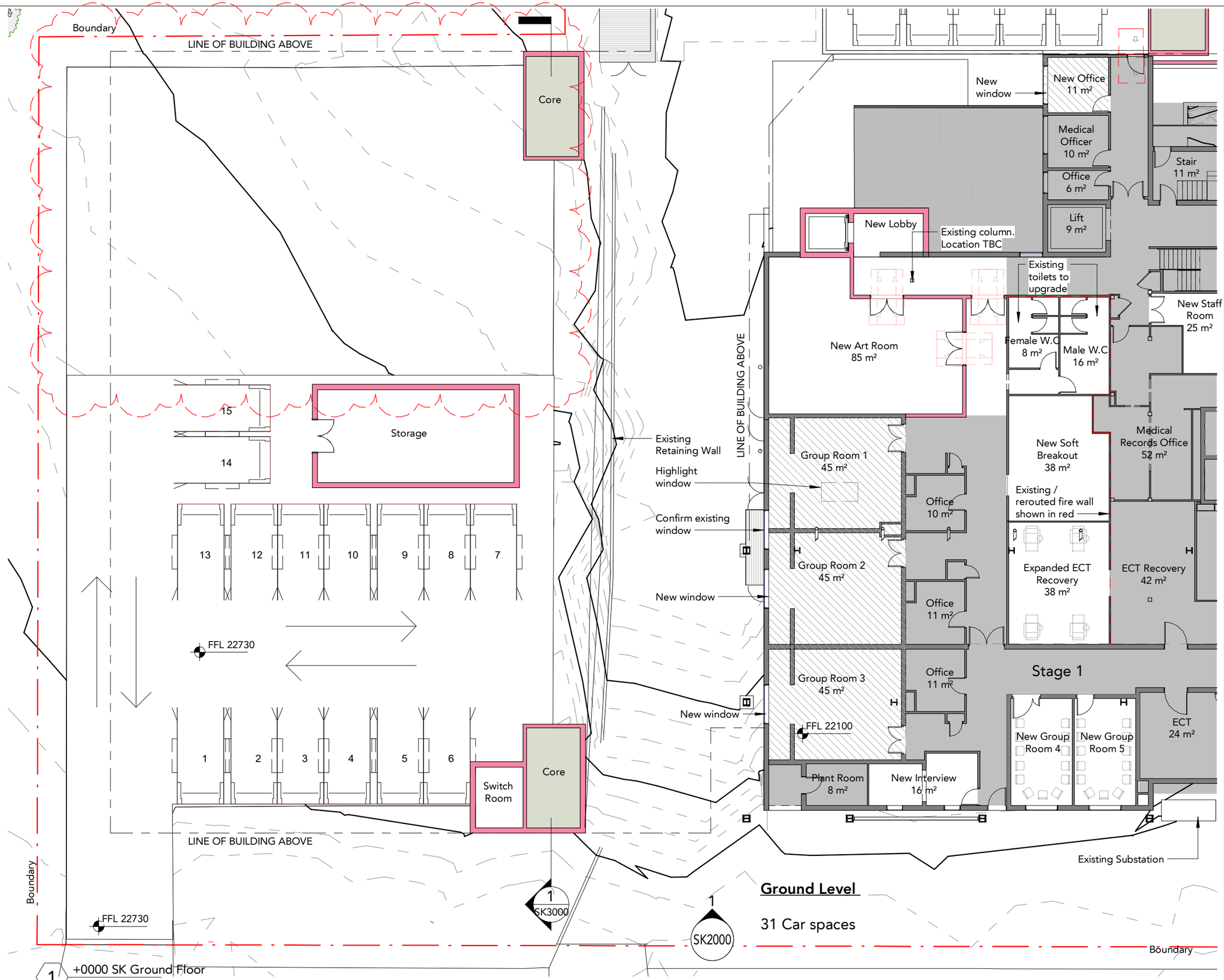
Wentworthville. NSW 2145

Title:
Lower Ground

Project #:	Scale:	Drw:	Ckd:
903	1 : 200 @A3	IK	ZA

Drawing #: SK1011

Rev: P5



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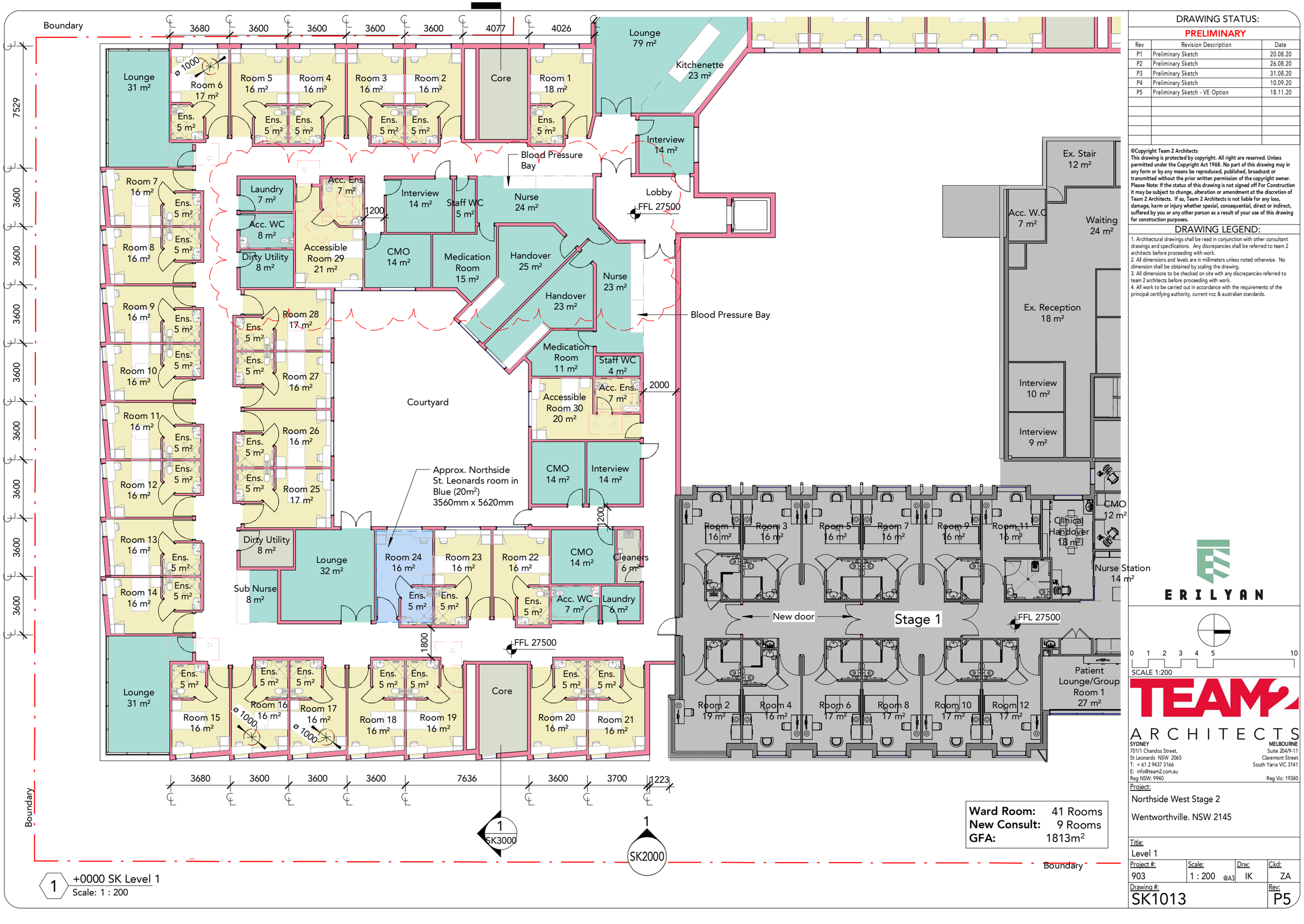
Project:
Northside West Stage 2
Wentworthville. NSW 2145

Title:
Ground Floor

Project #:	Scale:	Drw:	Ckd:
903	1 : 200 @A3	IK	ZA

Drawing #: SK1012

Rev: P5



Ward Room: 41 Rooms
New Consult: 9 Rooms
GFA: 1813m²

1 +0000 SK Level 1
Scale: 1 : 200

DRAWING STATUS:

PRELIMINARY

Rev	Revision Description	Date
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P5	Preliminary Sketch - VE Option	18.11.20

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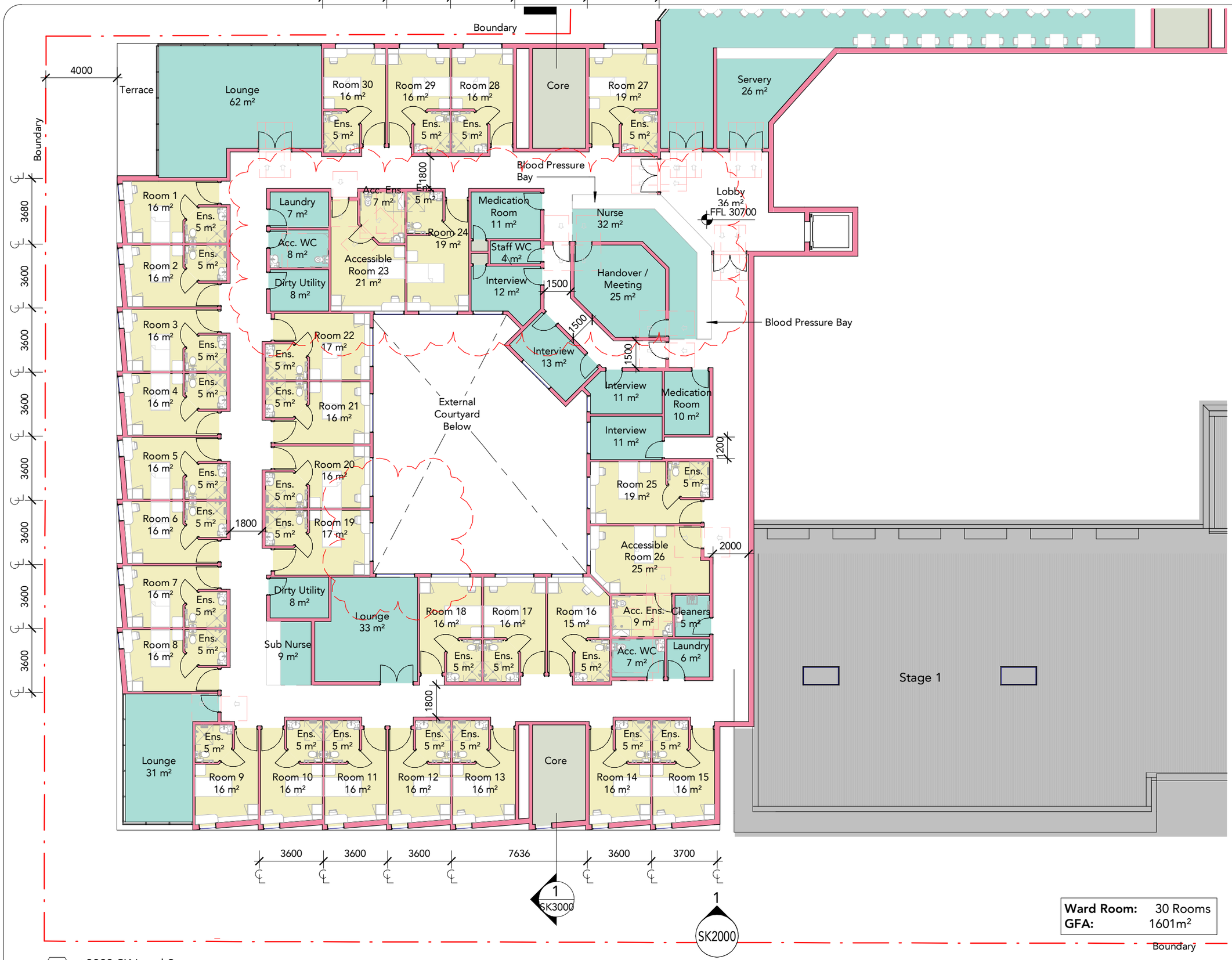
Project:
Northside West Stage 2
Wentworthville. NSW 2145

Title:
Level 1

Project #:	Scale:	Drw:	Ckd:
903	1 : 200 @A3	IK	ZA

Drawing #: SK1013
Rev: P5



1 +0000 SK Level 2
Scale: 1 : 200

DRAWING STATUS:

PRELIMINARY

Rev	Revision Description	Date
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Reg Vic: 19340

Project:
Northside West Stage 2

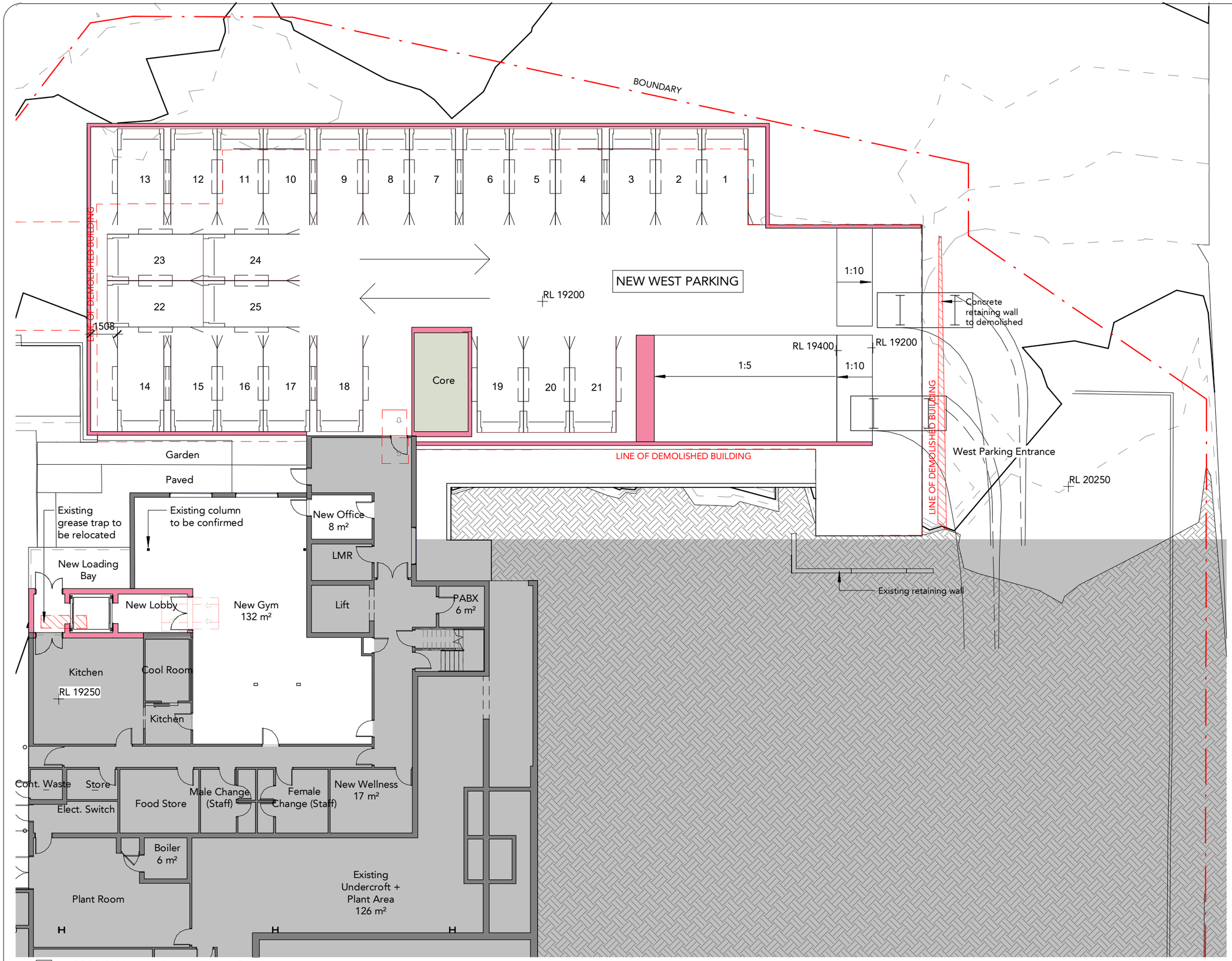
Wentworthville. NSW 2145

Title:
Level 2

Project #:	Scale:	Drw:	Ckd:
903	1 : 200 @A3	IK	ZA

Drawing #: SK1014

Rev: P5



1 +0000 SK Lower Ground West Parking
Scale: 1 : 200

DRAWING STATUS:

PRELIMINARY

Rev	Revision Description	Date
P1	Preliminary Sketch	20.08.20
P2	Preliminary Sketch	26.08.20
P3	Preliminary Sketch	31.08.20
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Project:
Northside West Stage 2
Wentworthville. NSW 2145

Title:
Lower Ground West Parking

Project #:	Scale:	Drw:	Ckd:
903	1 : 200 @A3	IK	ZA

Drawing #: SK1015
Rev: P5

BOUNDARY

TREE TO BE DEMOLISHED

13 12 11 10 9 8 7 6 5 4 3 2 1

1000

6000

RL 22100

NEW WEST PARKING

LINE OF DEMOLISHED BUILDING

14 15 16 17 18

Core

RL 21900

1:10

1:5

RL 22100

LINE OF DEMOLISHED BUILDING

LINE OF DEMOLISHED BUILDING

RL 22100

EXISTING BUILDING ABOVE SHOWN IN DASHED

Existing retaining wall

New Lobby

Existing column. Location TBC

Existing toilets to upgrade

Female W.C

Male W.C

New Staff Room 25 m²

EXISTING BUILDING ABOVE SHOWN IN DASHED

New Art Room 85 m²

Stage 1

Group Room 1 45 m²

Highlight Window

New Soft Breakout 38 m²

Expanded ECT Recovery 38 m²

New Group Room 6 35 m²

EXISTING NORTH PARKING

1 +0000 SK Ground Floor West Parking

Scale: 1 : 200

DRAWING STATUS:

PRELIMINARY

Rev	Revision Description	Date
P1	Preliminary Sketch	20.08.20
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Project:
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Wentworthville. NSW 2145

Title:
Ground Floor West Parking

Project #:	Scale:	Drw:	Ckd:
903	1 : 200 @A3	IK	ZA

Drawing #: SK1016

Rev: P5

1 Level 1 - West Block
Scale: 1 : 200

DRAWING STATUS:

PRELIMINARY

Rev	Revision Description	Date
P1	Preliminary Sketch	20.08.20
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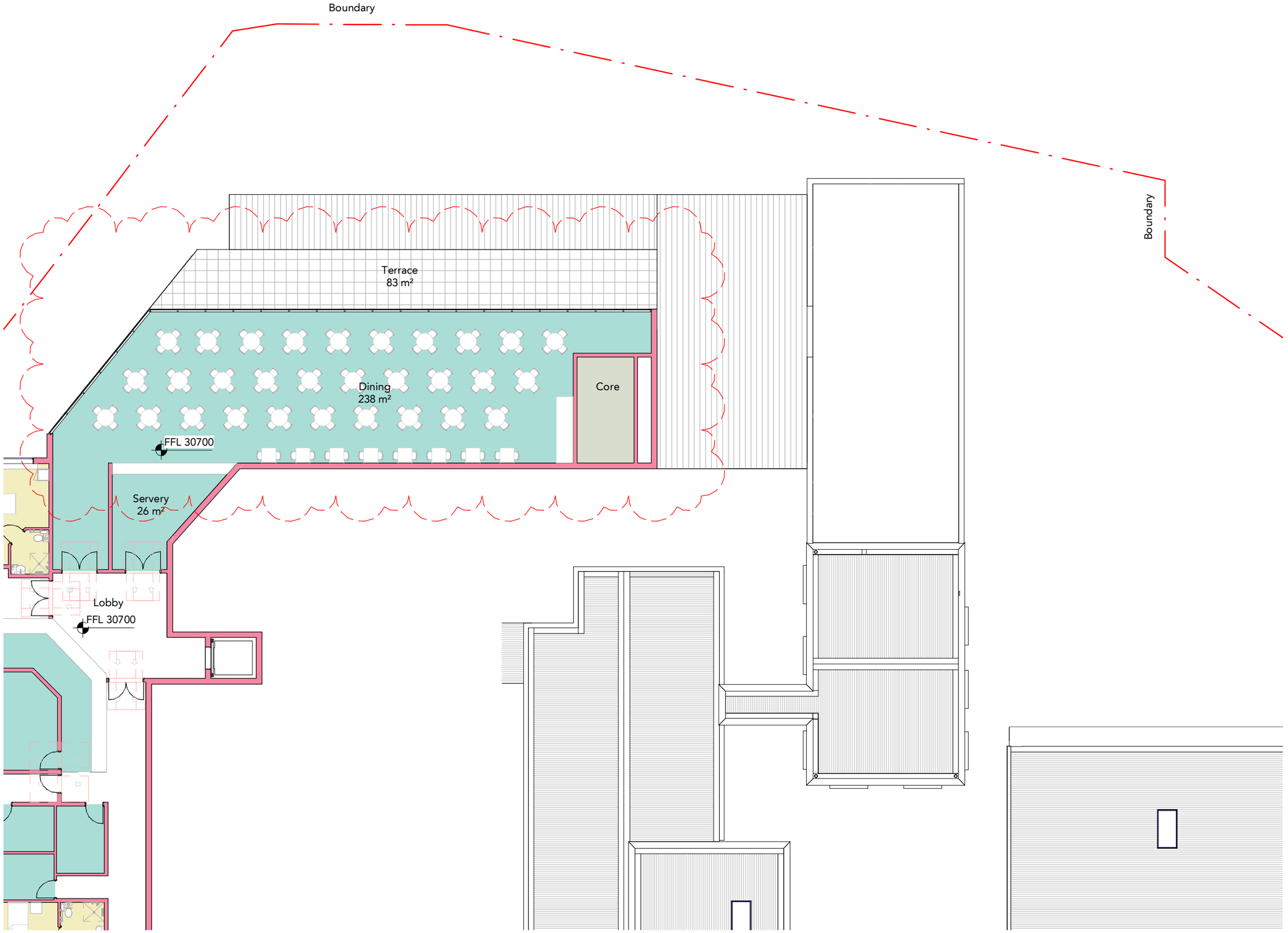
E: info@team2.com.au
Reg NSW: 9940
MELBOURNE
Suite 204/9-11
Claremont Street
South Yarra VIC 3141
Reg Vic: 19340

Project:
Northside West Stage 2
Wentworthville. NSW 2145

Title:
Level 1 West Block

Project #:	Scale:	Drw:	Ckd:
903	1 : 200 @A3	IK	ZA

Drawing #: SK1017
Rev: P5



1 Level 2 - West Block
Scale: 1 : 200

DRAWING STATUS:

PRELIMINARY

Rev	Revision Description	Date
P1	Preliminary Sketch	20.08.20
P2	Preliminary Sketch	26.08.20
P3	Preliminary Sketch	31.08.20
P4	Preliminary Sketch	10.09.20
P5	Preliminary Sketch - VE Option	18.11.20

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DRAWING LEGEND:

1. Architectural drawings shall be read in conjunction with other consultant drawings and specifications. Any discrepancies shall be referred to team 2 architects before proceeding with work.
2. All dimensions and levels are in millimeters unless noted otherwise. No dimension shall be obtained by scaling the drawing.
3. All dimensions to be checked on site with any discrepancies referred to team 2 architects before proceeding with work.
4. All work to be carried out in accordance with the requirements of the principal certifying authority, current ncc & australian standards.

ERILYAN

0 1 2 3 4
SCALE 1:100

TEAM2 ARCHITECTS

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Project:
Northside West Stage 2

Wentworthville. NSW 2145

Title:
Level 2 West Block

Project #:	Scale:	Drw:	Ckd:
903	1 : 200 @A3	IK	ZA

Drawing #: SK1018

Rev: P5

Lotsearch Environmental Risk and Planning Report

LOTSEARCH

LOTSEARCH ENVIRO PROFESSIONAL

Date: 07 Apr 2021 11:56:25

Reference: LS019346 EP

Address: 23-27 Lytton Street, Wentworthville, NSW 2145

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

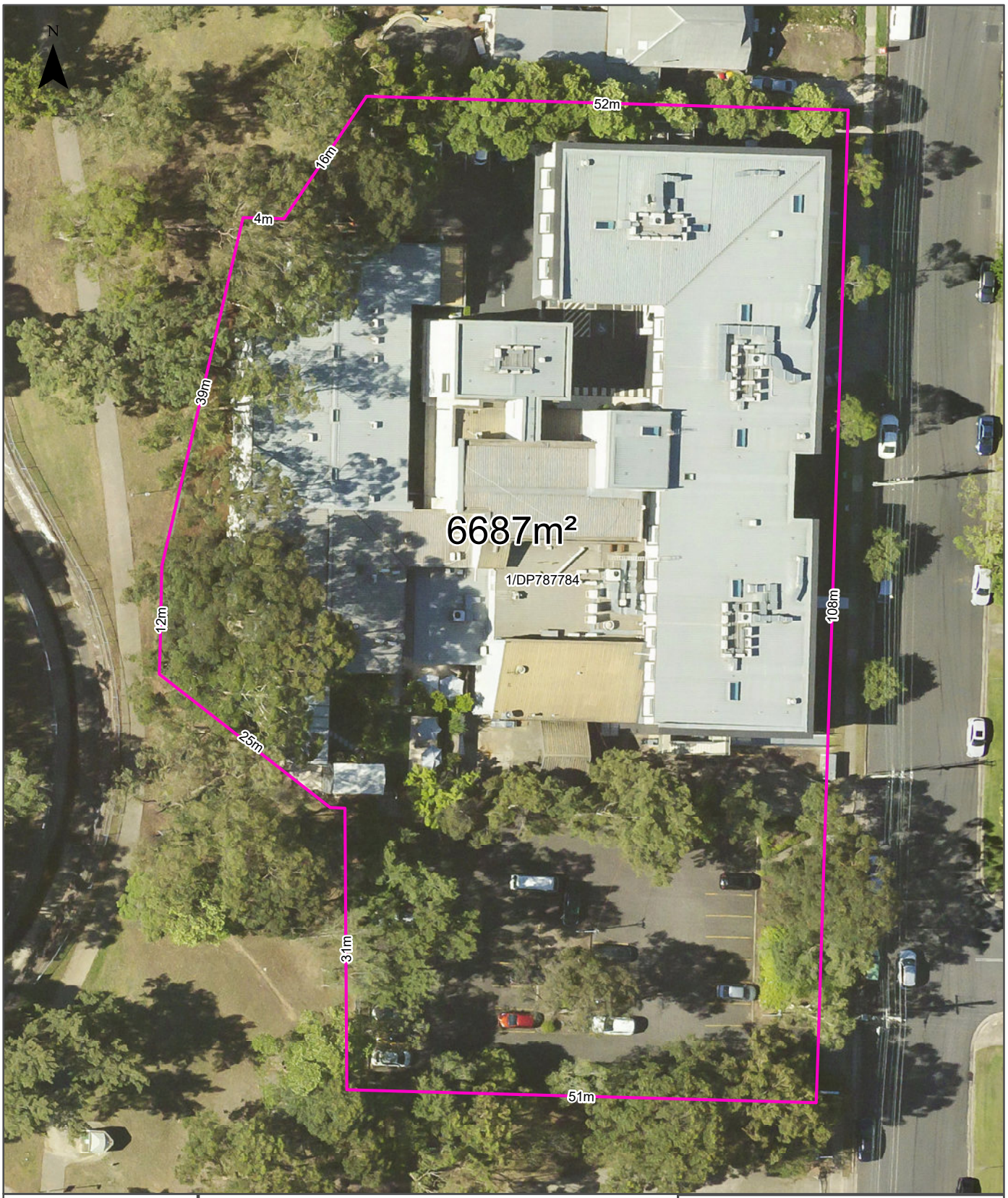
Datasets contained within this report, detailing their source and data currency:

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	19/02/2021	19/02/2021	Quarterly	-	-	-	-
Topographic Data	NSW Department of Finance, Services & Innovation	25/06/2019	25/06/2019	As required	-	-	-	-
List of NSW contaminated sites notified to EPA	Environment Protection Authority	11/03/2021	08/03/2021	Monthly	1000m	0	0	3
Contaminated Land Records of Notice	Environment Protection Authority	07/04/2021	07/04/2021	Monthly	1000m	0	0	0
Former Gasworks	Environment Protection Authority	09/03/2021	11/10/2017	Monthly	1000m	0	0	0
National Waste Management Facilities Database	Geoscience Australia	11/02/2021	07/03/2017	Quarterly	1000m	0	0	0
National Liquid Fuel Facilities	Geoscience Australia	15/02/2021	13/07/2012	Annually	1000m	0	0	2
EPA PFAS Investigation Program	Environment Protection Authority	12/03/2021	23/11/2020	Monthly	2000m	0	0	0
Defence PFAS Investigation & Management Program - Investigation Sites	Department of Defence	30/03/2021	30/03/2021	Monthly	2000m	0	0	0
Defence PFAS Investigation & Management Program - Management Sites	Department of Defence	30/03/2021	30/03/2021	Monthly	2000m	0	0	0
Airservices Australia National PFAS Management Program	Airservices Australia	29/03/2021	29/03/2021	Monthly	2000m	0	0	0
Defence 3 Year Regional Contamination Investigation Program	Department of Defence	12/03/2021	12/03/2021	Monthly	2000m	0	0	0
EPA Other Sites with Contamination Issues	Environment Protection Authority	02/02/2021	13/12/2018	Annually	1000m	0	0	0
Licensed Activities under the POEO Act 1997	Environment Protection Authority	08/03/2021	08/03/2021	Monthly	1000m	0	0	2
Delicensed POEO Activities still regulated by the EPA	Environment Protection Authority	08/03/2021	08/03/2021	Monthly	1000m	0	0	0
Former POEO Licensed Activities now revoked or surrendered	Environment Protection Authority	08/03/2021	08/03/2021	Monthly	1000m	0	3	4
UBD Business Directories (Premise & Intersection Matches)	Hardie Grant			Not required	150m	2	10	10
UBD Business Directories (Road & Area Matches)	Hardie Grant			Not required	150m	-	0	0
UBD Business Directory Dry Cleaners & Motor Garages/Service Stations (Premise & Intersection Matches)	Hardie Grant			Not required	500m	0	0	134
UBD Business Directory Dry Cleaners & Motor Garages/Service Stations (Road & Area Matches)	Hardie Grant			Not required	500m	-	0	24
Points of Interest	NSW Department of Finance, Services & Innovation	18/02/2021	18/02/2021	Quarterly	1000m	3	4	57
Tanks (Areas)	NSW Department of Customer Service - Spatial Services	16/02/2021	16/02/2021	Quarterly	1000m	0	0	0
Tanks (Points)	NSW Department of Customer Service - Spatial Services	16/02/2021	16/02/2021	Quarterly	1000m	0	0	0
Major Easements	NSW Department of Finance, Services & Innovation	17/02/2021	17/02/2021	Quarterly	1000m	0	1	16
State Forest	Forestry Corporation of NSW	25/02/2021	14/02/2021	Annually	1000m	0	0	0
NSW National Parks and Wildlife Service Reserves	NSW Office of Environment & Heritage	22/01/2021	11/12/2020	Annually	1000m	0	0	0
Hydrogeology Map of Australia	Commonwealth of Australia (Geoscience Australia)	08/10/2014	17/03/2000	As required	1000m	1	1	1
Temporary Water Restriction (Botany Sands Groundwater Source) Order 2018	NSW Department of Planning, Industry and Environment	26/10/2020	21/02/2018	Annually	1000m	0	0	0
Groundwater Boreholes	NSW Dept. of Primary Industries - Water NSW; Commonwealth of Australia (Bureau of Meteorology)	24/07/2018	23/07/2018	Annually	2000m	0	0	15

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features Onsite	No. Features within 100m	No. Features within Buffer
Geological Units 1:100,000	NSW Department of Planning, Industry and Environment	20/08/2014		Annually	1000m	1	1	4
Geological Structures 1:100,000	NSW Department of Planning, Industry and Environment	20/08/2014		Annually	1000m	0	1	1
Naturally Occurring Asbestos Potential	NSW Dept. of Industry, Resources & Energy	04/12/2015	24/09/2015	Unknown	1000m	0	0	0
Atlas of Australian Soils	Australian Bureau of Agriculture and Resource Economics and Sciences (ABARES)	19/05/2017	17/02/2011	As required	1000m	1	1	1
Soil Landscapes of Central and Eastern NSW	NSW Department of Planning, Industry and Environment	14/10/2020	27/07/2020	Annually	1000m	1	1	1
Environmental Planning Instrument Acid Sulfate Soils	NSW Department of Planning, Industry and Environment	18/03/2021	26/02/2021	Monthly	500m	0	-	-
Atlas of Australian Acid Sulfate Soils	CSIRO	19/01/2017	21/02/2013	As required	1000m	1	1	1
Dryland Salinity - National Assessment	National Land and Water Resources Audit	18/07/2014	12/05/2013	None planned	1000m	0	0	0
Dryland Salinity Potential of Western Sydney	NSW Department of Planning, Industry and Environment	12/05/2017	01/01/2002	None planned	1000m	1	1	2
Mining Subsidence Districts	NSW Department of Customer Service - Subsidence Advisory NSW	16/02/2021	16/02/2021	Quarterly	1000m	0	0	0
Current Mining Titles	NSW Department of Industry	04/03/2021	04/03/2021	Monthly	1000m	0	0	0
Mining Title Applications	NSW Department of Industry	04/03/2021	04/03/2021	Monthly	1000m	0	0	0
Historic Mining Titles	NSW Department of Industry	04/03/2021	04/03/2021	Monthly	1000m	11	11	13
Environmental Planning Instrument SEPP State Significant Precincts	NSW Department of Planning, Industry and Environment	18/03/2021	07/12/2018	Monthly	1000m	0	0	0
Environmental Planning Instrument Land Zoning	NSW Department of Planning, Industry and Environment	18/03/2021	12/03/2021	Monthly	1000m	1	5	72
Commonwealth Heritage List	Australian Government Department of the Agriculture, Water and the Environment	23/02/2021	20/11/2019	Quarterly	1000m	0	0	0
National Heritage List	Australian Government Department of the Agriculture, Water and the Environment	23/02/2021	20/11/2019	Quarterly	1000m	0	0	0
State Heritage Register - Curtilages	NSW Department of Planning, Industry and Environment	15/02/2021	30/11/2020	Quarterly	1000m	0	0	1
Environmental Planning Instrument Local Heritage	NSW Department of Planning, Industry and Environment	18/03/2021	12/03/2021	Monthly	1000m	0	1	65
Bush Fire Prone Land	NSW Rural Fire Service	26/03/2021	11/02/2021	Weekly	1000m	0	0	0
Native Vegetation of the Sydney Metropolitan Area	NSW Office of Environment & Heritage	01/03/2017	16/12/2016	As required	1000m	1	1	6
Ramsar Wetlands of Australia	Australian Government Department of Agriculture, Water and the Environment	24/02/2021	19/03/2020	Annually	1000m	0	0	0
Groundwater Dependent Ecosystems	Bureau of Meteorology	14/08/2017	15/05/2017	Annually	1000m	0	0	0
Inflow Dependent Ecosystems Likelihood	Bureau of Meteorology	14/08/2017	15/05/2017	Unknown	1000m	0	0	0
NSW BioNet Species Sightings	NSW Office of Environment & Heritage	07/04/2021	07/04/2021	Weekly	10000m	-	-	-

Site Diagram

23-27 Lytton Street, Wentworthville, NSW 2145



Legend

- Site Boundary
- Internal Parcel Boundaries

Total Area: 6687m²

Total Perimeter: 337m

Scale: 0 15 30 Meters

Data Sources: Data Sources: Aerial Imagery: © Aerometrex Pty Ltd

Disclaimers:

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

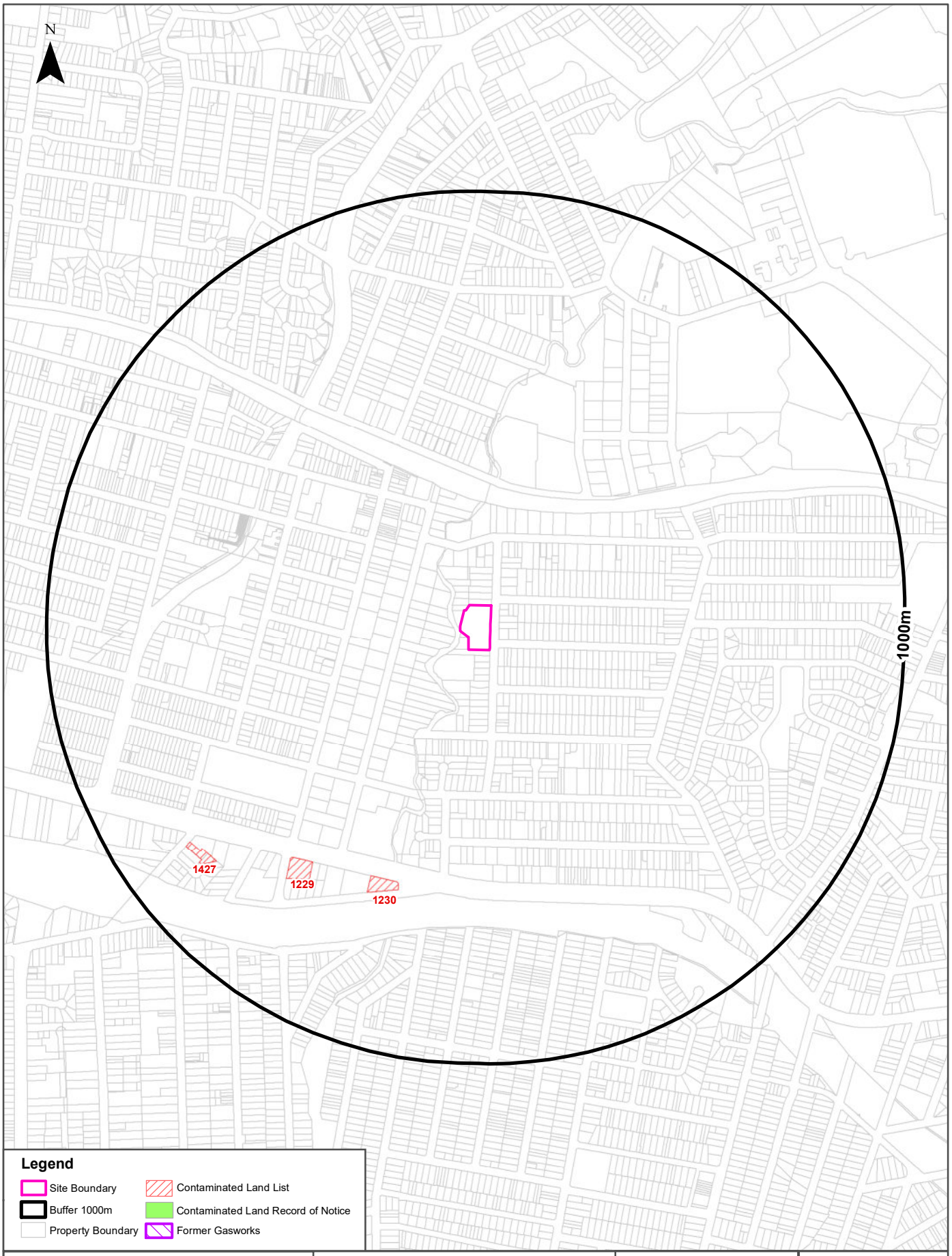
Parcels that make up a small percentage of the total site area have not been labelled for increased legibility.

Coordinate System: GDA 1994 MGA Zone 56

Date: 07 April 2021

Contaminated Land

23-27 Lytton Street, Wentworthville, NSW 2145



Contaminated Land

23-27 Lytton Street, Wentworthville, NSW 2145

List of NSW contaminated sites notified to EPA

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

Map Id	Site	Address	Suburb	Activity	Management Class	Status	Location Confidence	Dist	Direction
1230	Caltex Service Station	313 Great Western Highway	South Wentworthville	Service Station	Regulation under CLM Act not required	Current EPA List	Premise Match	588m	South
1229	Aldi Stores Development	331-339 Great Western Highway	South Wentworthville	Metal Industry	Regulation under CLM Act not required	Current EPA List	Premise Match	637m	South West
1427	Former Workshop	2 Rawson Rd and 8 Barfil Crescent	Wentworthville	Unclassified	Regulation under CLM Act not required	Current EPA List	Premise Match	795m	South West

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

23-27 Lytton Street, Wentworthville, NSW 2145

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

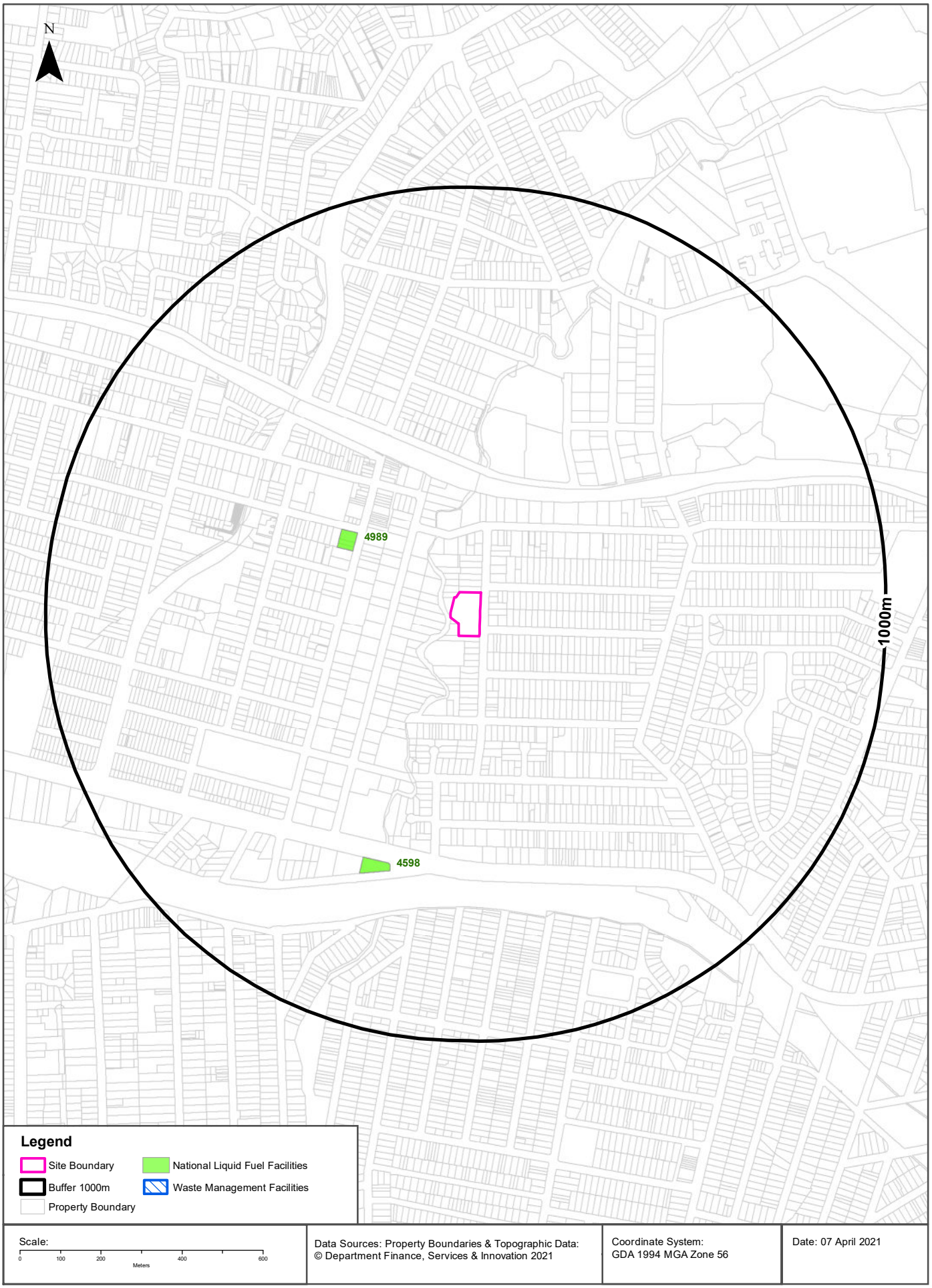
Former Gasworks within the dataset buffer:

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

23-27 Lytton Street, Wentworthville, NSW 2145



Waste Management & Liquid Fuel Facilities

23-27 Lytton Street, Wentworthville, NSW 2145

National Waste Management Site Database

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

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

Waste Management Facilities Data Source: Geoscience Australia
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	Direction
4989	BP	BP Wentworthville	55-57 Station Street	Wentworthville	Petrol Station	Operational		25/07/2011	Premise Match	276m	North West
4598	Caltex	Caltex Woolworths South Wentworthville	313 Great Western Highway	South Wentworthville	Petrol Station	Operational		25/07/2011	Premise Match	588m	South

National Liquid Fuel Facilities Data Source: Geoscience Australia
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PFAS Investigation & Management Programs

23-27 Lytton Street, Wentworthville, NSW 2145

EPA PFAS Investigation Program

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

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

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

Defence PFAS Investigation Program

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

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

Defence PFAS Investigation Program Data Custodian: Department of Defence, Australian Government

Defence PFAS Management Program

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

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

Defence PFAS Management Program Data Custodian: Department of Defence, Australian Government

Airservices Australia National PFAS Management Program

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

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

Airservices Australia National PFAS Management Program Data Custodian: Airservices Australia

Defence Sites

23-27 Lytton Street, Wentworthville, NSW 2145

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

23-27 Lytton Street, Wentworthville, NSW 2145

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

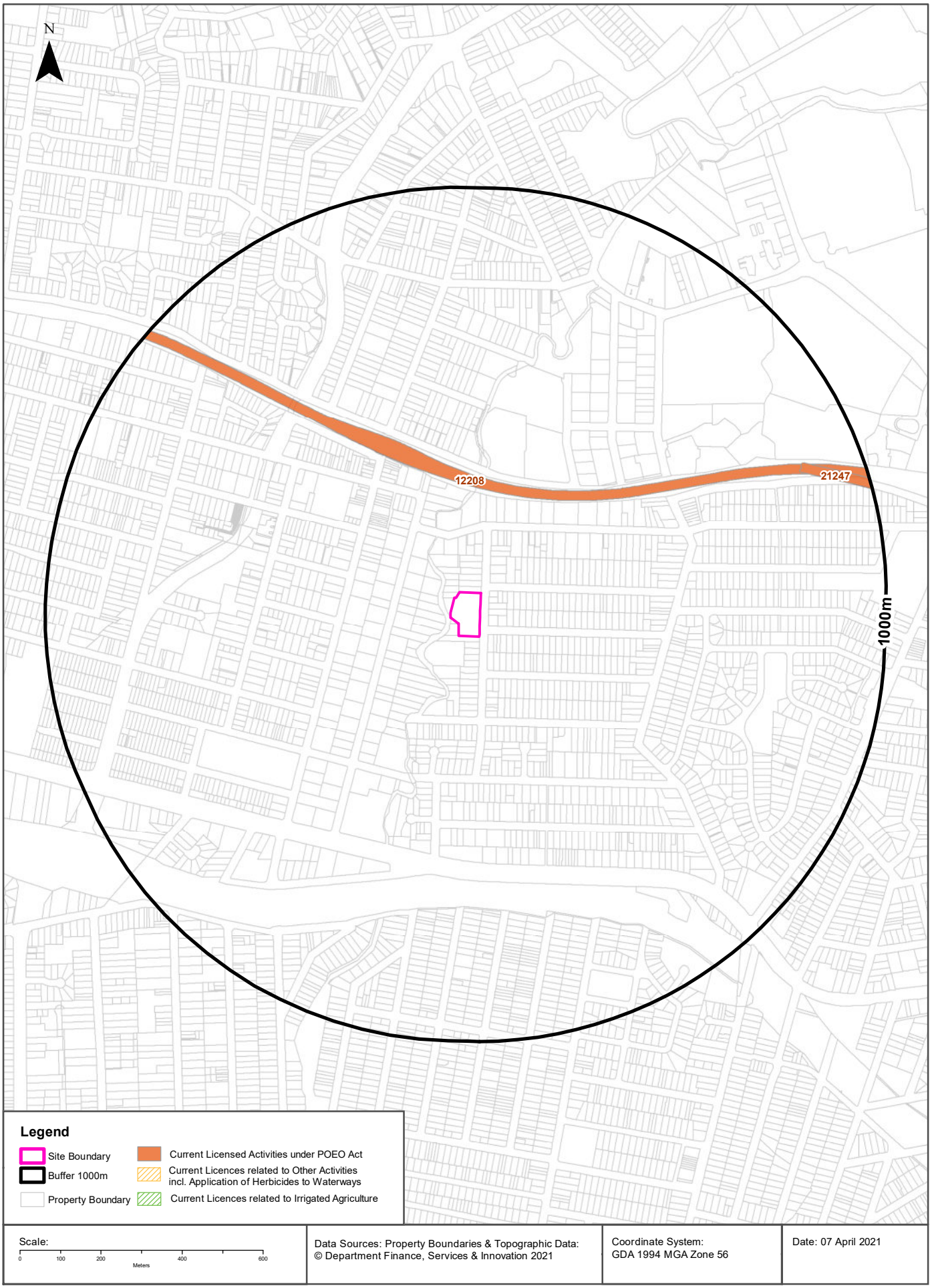
Sites within the dataset buffer:

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

23-27 Lytton Street, Wentworthville, NSW 2145



EPA Activities

23-27 Lytton Street, Wentworthville, NSW 2145

Licensed Activities under the POEO Act 1997

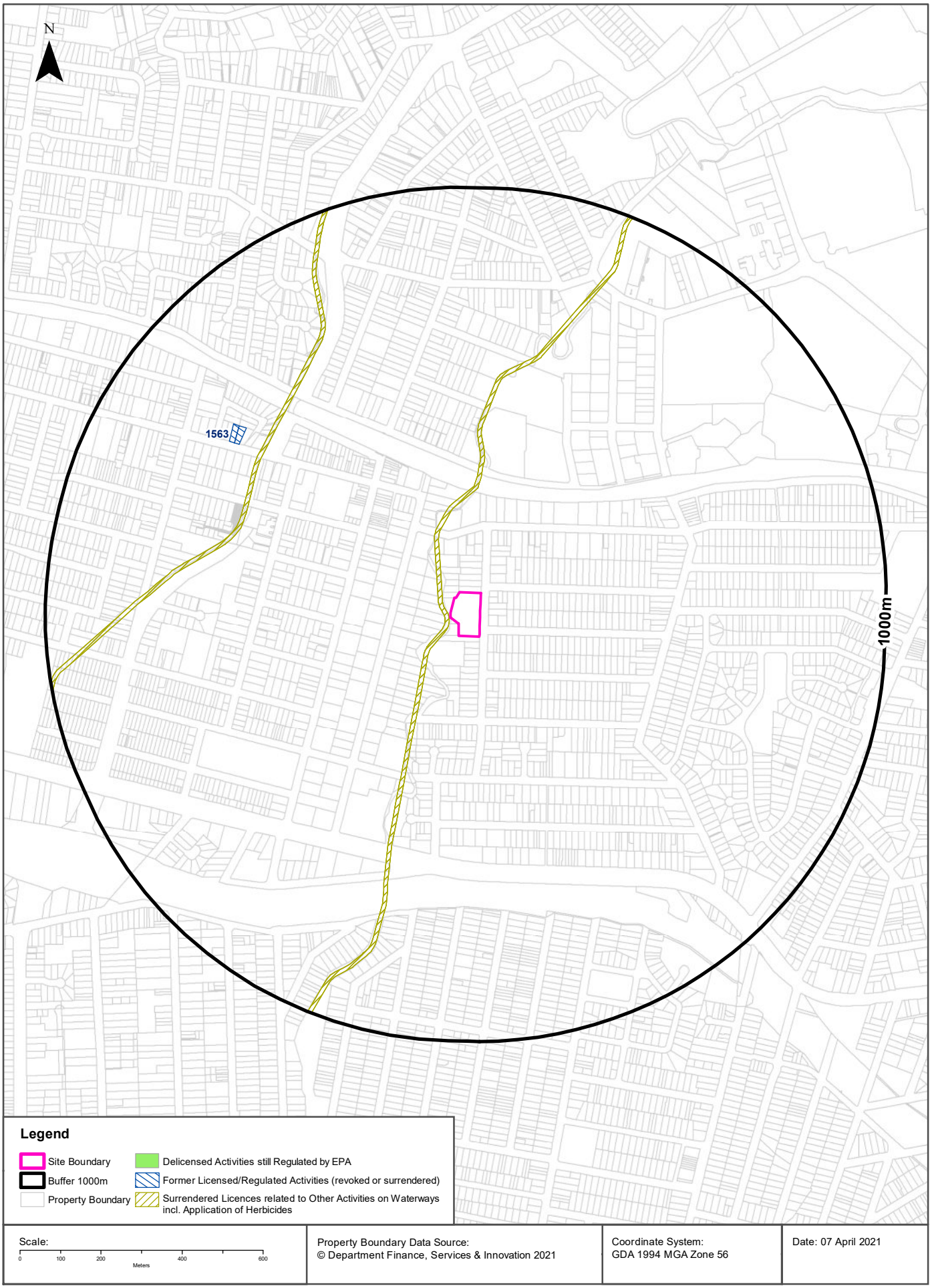
Licensed activities under the Protection of the Environment Operations Act 1997, within the dataset buffer:

EPL	Organisation	Name	Address	Suburb	Activity	Loc Conf	Distance	Direction
12208	SYDNEY TRAINS		SYDNEY TRAINS, HAYMARKET, NSW 1238		Railway systems activities	Network of Features	252m	North
21247	Metro Trains Sydney Pty Ltd		SYDNEY METRO, ROUSE HILL, NSW 2155		Railway systems activities	Network of Features	841m	East

POEO Licence Data Source: Environment Protection Authority
© State of New South Wales through the Environment Protection Authority

Delicensed & Former Licensed EPA Activities

23-27 Lytton Street, Wentworthville, NSW 2145



EPA Activities

23-27 Lytton Street, Wentworthville, NSW 2145

Delicensed Activities still regulated by the EPA

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

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

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

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

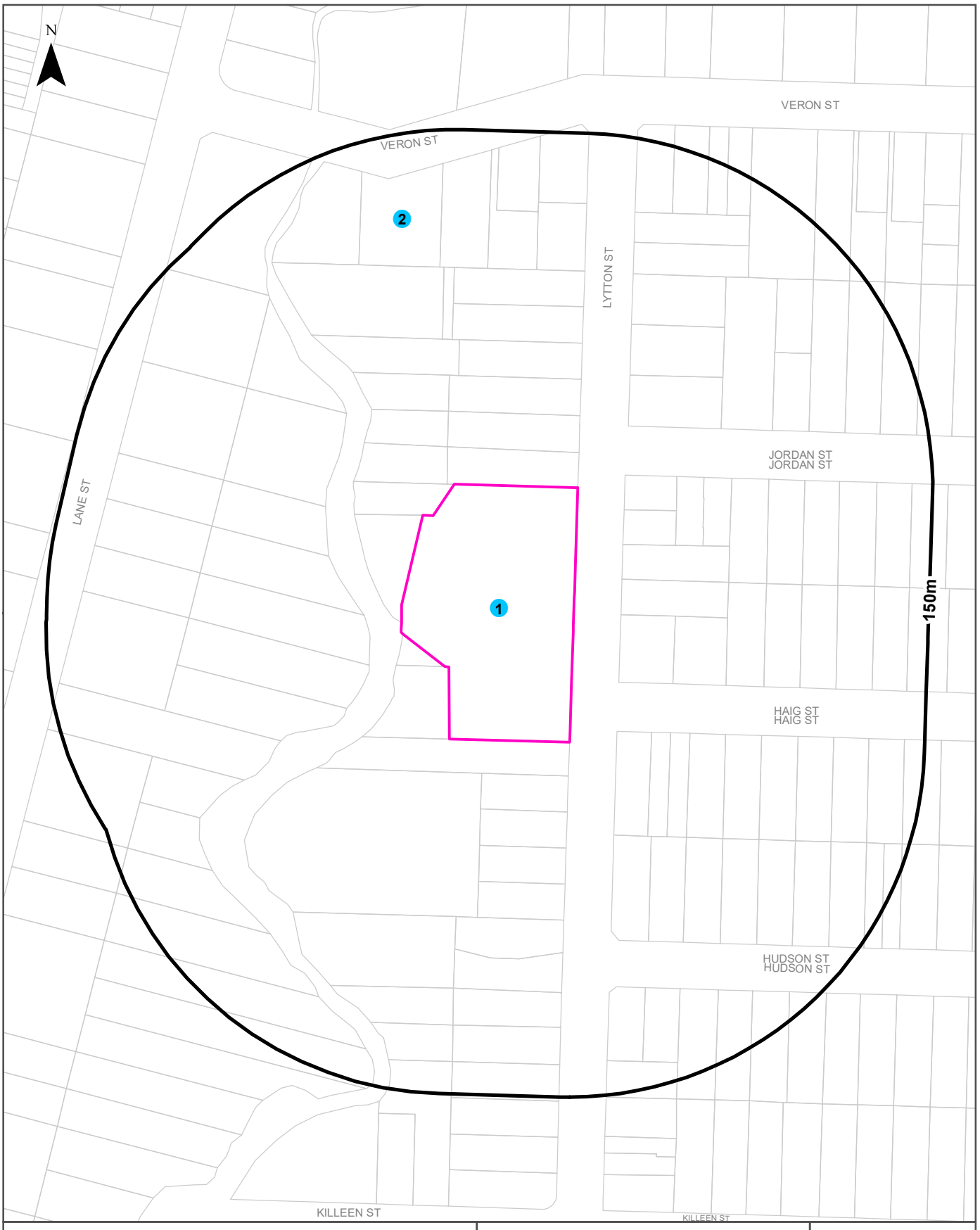
Former Licensed activities under the Protection of the Environment Operations Act 1997, now revoked or surrendered, within the dataset buffer:

Licence No	Organisation	Location	Status	Issued Date	Activity	Loc Conf	Distance	Direction
4653	LUHRMANN ENVIRONMENT MANAGEMENT PTY LTD	WATERWAYS THROUGHOUT NSW	Surrendered	06/09/2000	Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	4m	North West
4838	Robert Orchard	Various Waterways throughout New South Wales - SYDNEY NSW 2000	Surrendered	07/09/2000	Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	4m	North West
6630	SYDNEY WEED & PEST MANAGEMENT PTY LTD	WATERWAYS THROUGHOUT NSW - PROSPECT, NSW, 2148	Surrendered	09/11/2000	Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	4m	North West
1563	HOLROYD CITY COUNCIL	WENTWORTHVILLE SWIMMING CENTRE, DUNMORE STREET, WENTWORTHVILLE , NSW 2145	Surrendered	25/10/2000	Miscellaneous licensed discharge to waters (at any time)	Premise Match	652m	North West

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

Historical Business Directories

23-27 Lytton Street, Wentworthville, NSW 2145



Legend

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

Scale: 0 30 60 90 120 Meters

Coordinate System: GDA 1994 MGA Zone 56

Date: 07 April 2021

Data Sources: Reproduced with permission of UBD and Hardie Grant Media Pty Ltd DD 01/08/2018
Property Boundaries © NSW Department Finance, Services & Innovation 2021

Historical Business Directories

23-27 Lytton Street, Wentworthville, NSW 2145

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	MEDICAL PRACTITIONERS. (M2020)	D'Netto, R, 17 Lytton St., Wentworthville. 2145.	47889	1982	Premise Match	0m	On-site
	Hospitals - Private	Wentworthville Community, 21 Lytton St., Wentworthville	101057	1965	Premise Match	0m	On-site
2	Air Conditioning Automotive	Salkeld Tom Auto- Electrical Service, 64 Veron St., Wentworthville 2145	34170	1991	Premise Match	92m	North
	AIR CONDITIONING-AUTOMOTIVE.	Salkeld Tom Auto-Electrical Service, 64 Veron St., Wentworthville. 2145	2144	1986	Premise Match	92m	North
	BURGLAR ALARM &/OR PROTECTION SYSTEMS MFRS. &/OR DISTS. &/OR INSTALLERS	Salkeld Tom Auto-Electrical Service, 64 Veron St., Wentworthville. 2145	9266	1986	Premise Match	92m	North
	MOTOR ELECTRICIANS.	Salkeld Tom Auto-Electrical Service, 64 Veron St., Wentworthville. 2145	63014	1986	Premise Match	92m	North
	MOTOR ELECTRICIANS, (M6580)	Salkeld Tom Auto-Electrical Service, 64 Veron St, Wentworthville. 2145.	55583	1982	Premise Match	92m	North
	AIR CONDITIONING - AUTOMOTIVE. (A3480)	Salkeld Tom Auto-Electrical Service, 64 Veron St., Wentworthville. 2145.	1927	1982	Premise Match	92m	North
	MOTOR ELECTRICIANS.	Salkeld Tom Auto-Electrical Service., 64 Vernon St., Wentworthville. 2145.	58041	1975	Premise Match	92m	North
	Mixed Businesses	Hogan, B. L., 64 Veron St., Wentworthville	117561	1965	Premise Match	92m	North

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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
N/A	No records in buffer					

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Dry Cleaners, Motor Garages & Service Stations

23-27 Lytton Street, Wentworthville, NSW 2145

Legend

- Site Boundary
- Buffer 500m
- Property Boundary
- Business directory records mapped to a specific premise
- Business directory records mapped to a road intersection
- Business directory records mapped to a road corridor
- Business directory records mapped to a general area

Scale: 0 80 160 240 320 Meters

Coordinate System: GDA 1994 MGA Zone 56

Date: 07 April 2021

Data Sources: Reproduced with permission of UBD and Hardie Grant Media Pty Ltd DD 01/08/2018
Property Boundaries © NSW Department Finance, Services & Innovation 2021

Historical Business Directories

23-27 Lytton Street, Wentworthville, NSW 2145

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.	Patterson R. G. Pty. Ltd, 124 Station St., Wentworthville. 2145	11974	1990	Premise Match	203m	West
	MOTOR GARAGE & SERVICE STATIONS.	Patterson R. G. Pty. Ltd., 124 Station St., Wentworthville. 2145	5390	1989	Premise Match	203m	West
	MOTOR GARAGES & SERVICE STATIONS.	Patterson R G. Pty Ltd., 124 Station St., Wentworthville. 2145	59767	1988	Premise Match	203m	West
	MOTOR GARAGES & SERVICE STATIONS.	Patterson, R. G. Pty. Ltd., 124 Station St., Wentworthville. 2145	65244	1986	Premise Match	203m	West
	MOTOR GARAGES & SERVICE STATIONS.	Patterson R. G. Pty. Ltd., 124 Station St., Wentworthville. 2145	45353	1985	Premise Match	203m	West
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Patterson R. G. Pty. Ltd., 124 Station St., Wentworthville. 2145	33925	1984	Premise Match	203m	West
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Patterson R. G. Pty. Ltd., 124 Station St., Wentworthville 2145	21375	1983	Premise Match	203m	West
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS. (M6860)	Patterson, R. G. Pty. Ltd, 124 Station St., Wentworthville. 2145.	57361	1982	Premise Match	203m	West
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Patterson R G Pty Ltd., 124 Station St., Wentworthville 2145	3909	1981	Premise Match	203m	West
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Patterson R. G. Pty. Ltd., 124 Station St., Wentworthville. 2145	58652	1980	Premise Match	203m	West
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Patterson R. G. Pty Ltd., 124 Station St., Wentworthville. 2145.	46145	1979	Premise Match	203m	West
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Patterson, R. G. Pty. Ltd., 124 Station St., Wentworthville. 2145	50651	1978	Premise Match	203m	West
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Patterson R. G. Pty. Ltd., 124 Station St., Wentworthville 2145	34711	1976	Premise Match	203m	West
	MOTOR GARAGES &/OR ENGINEERS.	Patterson, R. G. Pty. Ltd., 124 Station St., Wentworthville. 2145	59375	1975	Premise Match	203m	West
	MOTOR SERVICE STATIONS - PETROL, OIL	Patterson. R. G. Pty. Ltd., 124 Station St., Wentworthville. 2145	61896	1975	Premise Match	203m	West
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Patterson R. G. Pty. Ltd., 124 Station St Wentworthville	18255	1972	Premise Match	203m	West
	MOTOR GARAGES &/OR ENGINEERS.	Patterson R. G. Pty. Ltd., 124 Station St., Wentworthville 2145	16257	1972	Premise Match	203m	West

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
1	MOTOR GARAGES &/OR ENGINEERS.	Patterson R. G. Pty. Ltd., 122 Station St Wentworthville	62860	1971	Premise Match	203m	West
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Patterson R. J., 124 Station St Wentworthville	2669	1971	Premise Match	203m	West
	MOTOR GARAGES & ENGINEERS(M6S6)	Patterson, R. G. Pty. Ltd., 122 Station St., Wentworthville	338397	1970	Premise Match	203m	West
	MOTOR SERVICE STATIONS-PETROL,OIL,Etc.	Patterson, R. J., 124 Station St., Wentworthville	341387	1970	Premise Match	203m	West
	MOTOR GARAGES & ENGINEERS.	Patterson R. G. Pty. Ltd., 122 Station St Wentworthville	47310	1969	Premise Match	203m	West
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Patterson R. J., 124 Station St Wentworthville	50845	1969	Premise Match	203m	West
	MOTOR GARAGES & ENGINEERS	Patterson R. G. Pty. Ltd., 122 Station St Wentworthville	30735	1968	Premise Match	203m	West
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Patterson R. J., 124 Station St Wentworthville	36931	1968	Premise Match	203m	West
	MOTOR GARAGES & ENGINEERS.	Patterson R. G. Pty. Ltd., 122 Station St Wentworthville	11158	1967	Premise Match	203m	West
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Patterson R. J., 124 Station St Wentworthville	20394	1967	Premise Match	203m	West
	MOTOR GARAGES & ENGINEERS.	Patterson R. G. Pty. Ltd., 122 Station St Wentworthville	60882	1966	Premise Match	203m	West
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Patterson R. J., 124 Station St Wentworthville	1897	1966	Premise Match	203m	West
	MOTOR GARAGES & ENGINEERS	Patterson R. G. Pty. Ltd., 122-124 Station St Wentworthville	48789	1964	Premise Match	203m	West
	MOTOR GARAGES & ENGINEERS.	Central Service Station., 124 Station St Wentworthville	33582	1962	Premise Match	203m	West
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Paterson's Service Station., 122-124 Station St Wentworthville	42866	1962	Premise Match	203m	West
	MOTOR GARAGES & ENGINEERS.	Patterson's Service Station., 122-124 Station St Wentworthville	33590	1962	Premise Match	203m	West
	MOTOR GARAGES & ENGINEERS	Central Service Station, 124 Station St. Wentworthville	346852	1961	Premise Match	203m	West
	MOTOR SERVICE STATIONS—PETROL, OIL, Etc.	Paterson's Service Station, 122-124 Station St., Wentworthville	350946	1961	Premise Match	203m	West
	MOTOR GARAGES & ENGINEERS	Patterson's Service Station, 122-124 Station St., Wentworthville	347874	1961	Premise Match	203m	West
	MOTOR GARAGES & ENGINEERS.	Centr., Al Service Station 124 Station St Wentworthville	20096	1959	Premise Match	203m	West
	MOTOR SERVICE STATIONS-PETROL,. OIL, ETC.	Patterson R., 124 Station St Wentworthville	24642	1959	Premise Match	203m	West
	MOTOR GARAGE/ENGINEERS.	Central Service Station., 124 Station St Wentworthville	812	1958	Premise Match	203m	West
	MOTOR SERVICE STATIONS-PETROL, ETC.	Patterson R. G. A., 124 Station St Wentworthville	9741	1958	Premise Match	203m	West
	MOTOR GARAGE/ENGINEERS.	Patterson's Service Station., 122-124 Station St Wentworthville	4727	1958	Premise Match	203m	West
	MOTOR GARAGES &/OR ENGINEERS.	Central Service Station., 124 Station St., Wentworthville	57411	1956	Premise Match	203m	West
	MOTOR SERVICE STATIONS-PETROL, ETC.	Patterson R. G. A., 124 Station St Wentworthville	62096	1956	Premise Match	203m	West
	MOTOR GARAGES &/OR ENGINEERS.	Centra Service Station., 124 Station St Wentworthville	49033	1954	Premise Match	203m	West
	MOTOR SERVICE STATIONS-PETROL, ETC.	Patterson R. G. A., 124 Station St Wentworthville	54614	1954	Premise Match	203m	West

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
1	MOTOR GARAGES &/OR ENGINEERS.	Central Service Station., 124 Station St Wentworthville	39792	1953	Premise Match	203m	West
	MOTOR SERVICE STATIONS–PETROL, ETC.	Patterson R. G. A., 124 Station St. Wentworthville	44168	1953	Premise Match	203m	West
	MOTOR GARAGES &/OR ENGINEERS.	Central Garage (The)., 122-124 Station St Wentworthville	31455	1952	Premise Match	203m	West
	MOTOR SERVICE STATIONS–PETROL, ETC.	Patterson R. G. A., 124 Station St., Wentworthville	35951	1952	Premise Match	203m	West
	MOTOR GARAGES &/OR ENGINEERS	Central Garage (The), 122-124 Station St., Wentworthville	83564	1950	Premise Match	203m	West
	MOTOR GARAGES &/OR ENGINEERS	Central Garage (The), 122-124 Station St., Wentworthville	83565	1950	Premise Match	203m	West
	MOTOR SERVICE STATIONS-PETROL, Etc.	Central Garage (The), 122-124 Station St., Wentworthville	85859	1950	Premise Match	203m	West
	MOTOR SERVICE STATIONS-PETROL, Etc.	Patterson, R. G. A., 124 Station St., Wentworthville	86274	1950	Premise Match	203m	West
	MOTOR SERVICE STATIONS-PETROL, ETC.	Patterson, R. G. A., 124 Station St., Wentworthville	26691	1948-49	Premise Match	203m	West
2	MOTOR GARAGES & SERVICE STATIONS.	BP Wentworthville Service Station, 57 Station St., Wentworthville. 2145	18704	1993	Premise Match	278m	North West
	Motor Garages & Service Stations	BP Wentworthville Service Station, 57 Station St, Wentworthville 2145	66582	1991	Premise Match	278m	North West
	Motor Garages & Service Stations	BP Wentworthville Service Station, 57 Station St., Wentworthville 2145	66564	1991	Premise Match	278m	North West
	MOTOR GARAGES & SERVICE STATIONS.	BP Wentworthville Service Station, 57 Station St., Wentworthville. 2145	11224	1990	Premise Match	278m	North West
	MOTOR GARAGE & SERVICE STATIONS.	BP Wentworthville Service Station, 57 Station St., Wentworthville. 2145	64658	1989	Premise Match	278m	North West
	MOTOR GARAGES & SERVICE STATIONS.	BP Wentworthville Service Station, 57 Station St., Wentworthville. 2145	53781	1988	Premise Match	278m	North West
	MOTOR GARAGES & SERVICE STATIONS.	BP Wentworthville Service Station, 57 Station St., Wentworthville. 2145	64250	1986	Premise Match	278m	North West
	MOTOR GARAGES & SERVICE STATIONS.	Amoco Wentworthville Service Station, 57 Station St., Wentworthville. 2145	38930	1985	Premise Match	278m	North West
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Amoco Wentworthville Service Station, 57 Station St., Wentworthville. 2145	22311	1984	Premise Match	278m	North West
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Amoco Wentworthville Service Station., 57 Station St., Wentworthville 2145	8902	1983	Premise Match	278m	North West
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS. (M6860)	Amoco Wentworthville Service Station, 57 Station St., Wentworthville. 2145.	55988	1982	Premise Match	278m	North West
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Amoco Wentworthville Service Station., 57 Station St., Wentworthville. 2145	63660	1981	Premise Match	278m	North West
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Amoco Wentworthville Service Station., 57 Station St., Wentworthville. 2145	50131	1980	Premise Match	278m	North West
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Amoco Service Station., 57 Station St., Wentworthville. 2145	35658	1979	Premise Match	278m	North West
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Amoco Service Station, 57 Station St., Wentworthville. 2145	49262	1978	Premise Match	278m	North West

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
2	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Amoco Service Station., 57 Station St., Wentworthville 2145	23963	1976	Premise Match	278m	North West
	MOTOR SERVICE STATIONS - PETROL, OIL	Amoco Service Station., 57 Station St., Wentworthville. 2145	61373	1975	Premise Match	278m	North West
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Amoco Service Station., 57 Station St Wentworthville	18248	1972	Premise Match	278m	North West
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Amoco Service Station., 57 Station St Wentworthville	2665	1971	Premise Match	278m	North West
	MOTOR SERVICE STATIONS-PETROL,OIL,Etc.	Amoco Service Station., 57 Station St., Wentworthville	340752	1970	Premise Match	278m	North West
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Amoco Service Station., 57 Station St Wentworthville	50840	1969	Premise Match	278m	North West
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Amoco Service Station., 57 Station St Wentworthville	36927	1968	Premise Match	278m	North West
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Amoco Service Station., 57 Station St Wentworthville	20390	1967	Premise Match	278m	North West
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Amoco Service Station., 57 Station St Wentworthville	1892	1966	Premise Match	278m	North West
3	DRY CLEANERS & PRESSERS.	Happy Hippo Valet Service The, 18A The Mall, Wentworthville. 2145	53105	1988	Premise Match	332m	North West
	DRY CLEANERS & PRESSERS.	Happy Hippo Valet Service, The, 18A The Mall, Wentworthville. 2145	25330	1986	Premise Match	332m	North West
	DRY CLEANERS & PRESSERS.	Happy Hippo Valet Service, The. 18A The Mall, Wentworth. 2145	34547	1985	Premise Match	332m	North West
	DRY CLEANERS & PRESSERS.	Happy Hippo Valet Service The., 18A The Mall Wentworthville. 2145	21996	1984	Premise Match	332m	North West
	DRY CLEANERS & PRESSERS.	Happy Hippo Valet Service. The., 18A The Mall., Wentworthville. 2145	8587	1983	Premise Match	332m	North West
	DRY CLEANERS & PRESSERS.(D8500)	Happy Hippo Valet Service, The, 18A The Mall, Wentworthville. 2145.	23864	1982	Premise Match	332m	North West
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Wentworthville Service Station., 44 Dunmore St., Wentworthville 2145	35182	1976	Premise Match	332m	North West
	MOTOR SERVICE STATIONS - PETROL, OIL	Wentworthville Service Station., 44 Dunmore St., Wentworthville. 2145	62037	1975	Premise Match	332m	North West
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Wentworthville Service Station., 44 Dunmore St Wentworthville	18261	1972	Premise Match	332m	North West
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Wentworthville Service Station., 44 Dunmore St., Wentworthville	2672	1971	Premise Match	332m	North West
	MOTOR SERVICE STATIONS-PETROL,OIL,Etc.	Wentworthville Service Station., 44 Dunmore St., Wentworthville	341615	1970	Premise Match	332m	North West
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Wentworthville Service Station., 44 Dunmore St Wentworthville	50848	1969	Premise Match	332m	North West
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Wentworthville Service Station., 44 Dunmore St Wentworthville	36934	1968	Premise Match	332m	North West
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Wentworthville Service Station., 44 Dunmore St Wentworthville	20397	1967	Premise Match	332m	North West
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Wentworthville Service Station., 44 Dunmore St., Wentworthville	1900	1966	Premise Match	332m	North West
	MOTOR GARAGES & ENGINEERS.	Ellis Bros., 42 Dunmore St Wentworthville	33584	1962	Premise Match	332m	North West

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
3	MOTOR GARAGES & ENGINEERS	Ellis Bros., 42 Dunmore St. Wentworthville	347096	1961	Premise Match	332m	North West
	MOTOR GARAGES & ENGINEERS.	Ellis Bros., 42 Dunmore St Wentworthville	65182	1959	Premise Match	332m	North West
	MOTOR GARAGE/ENGINEERS.	Ellis Bros., 42 Dunmore St Wentworthville	1012	1958	Premise Match	332m	North West
	MOTOR GARAGES &/OR ENGINEERS.	Ellis Bros., 42 Dunmore St., Wentworthville	57602	1956	Premise Match	332m	North West
	MOTOR GARAGES &/OR ENGINEERS.	Ellis Bros., 42 Dunmore St Wentworthville	49217	1954	Premise Match	332m	North West
	MOTOR GARAGES &/OR ENGINEERS.	Ellis Bros., 42 Dunmore St Wentworthville	36442	1953	Premise Match	332m	North West
	MOTOR GARAGES &/OR ENGINEERS.	Ellis Bros., 42 Dunmore St., Wentworthville	39957	1953	Premise Match	332m	North West
	MOTOR GARAGES &/OR ENGINEERS.	Ellis Bros., 42 Dunmore St Wentworthville	31601	1952	Premise Match	332m	North West
	MOTOR GARAGES &/OR ENGINEERS	Ellis Bros., 42 Dunmore St., Wentworthville	83714	1950	Premise Match	332m	North West
	MOTOR GARAGES &/OR ENGINEERS.	Gosper G. R., 42 Dunmore St Wentworthville	22394	1948-49	Premise Match	332m	North West
	MOTOR GARAGES &/OR ENGINEERS.	Wentworthville Garage (G. Gosper)., 42 Dunmore St., Wentworthville	23017	1948-49	Premise Match	332m	North West
	MOTOR SERVICE STATIONS-PETROL, ETC.	Wentworthville Garage., 42 Dunmore St Wentworthville	26873	1948-49	Premise Match	332m	North West
4	DRY CLEANERS, PRESSERS/DYERS.	Boyd's Dry Cleaning Service., 23 Station St Wentworthville	24710	1962	Premise Match	335m	North West
	DRY CLEANERS, PRESSERS / DYERS	Boyd's Dry Cleaning Service, 23 Station St., Wentworthville	299062	1961	Premise Match	335m	North West
	DRY CLEANERS, PRESSERS/DYERS	Boyd's Dry Cleaning Service., 23 Station St., Wentworthville	9998	1959	Premise Match	335m	North West
	DRY CLEANERS, PRESSERS & DYERS	Boyd's Dry Cleaning Service., 23 Station St Wentworthville	195	1958	Premise Match	335m	North West
	DRY CLEANERS, PRESSERS & DYERS.	Boyd's Dry Cleaning Service., 23 Station St Wentworthville	54794	1956	Premise Match	335m	North West
5	DRY CLEANERS & PRESSERS.	Happy Hippy., 2 Station St., Wentworthville. 2145	63349	1981	Premise Match	340m	North West
	DRY CLEANERS, PRESSERS &/OR DYERS	Nu-Way Dry Cleaning, 2 Station St., Wentworthville. 2145	20897	1978	Premise Match	340m	North West
	DRY CLEANERS, PRESSERS &/OR DYERS	Nu-Way Dry Cleaning, 2 Station St., Wentworthville. 2145	20898	1978	Premise Match	340m	North West
	DRY CLEANERS, PRESSERS &/OR DYERS.	Nu-Way Dry Cleaning., 2 Station St., Wentworthville 2145	23730	1976	Premise Match	340m	North West
	DRY CLEANERS, PRESSERS &/OR DYERS.	Nu-Way Dry Cleaning, 2 Station St., Wentworthville. 2145	24253	1975	Premise Match	340m	North West
	DRY CLEANERS, PRESSERS &/OR DYERS.	Nu-Way Dry Cleaning., 2 Station St., Wentworthville 2145	7171	1972	Premise Match	340m	North West
6	DRY CLEANERS, PRESSERS &/OR DYERS.	Dry Cleaning Shop., 35 Dunmore St., Wentworthville 2145	23477	1976	Premise Match	396m	North West
	DRY CLEANERS, PRESSERS &/OR DYERS.	Dry Cleaning Shop, 35 Dunmore St., Wentworthville. 2145	24001	1975	Premise Match	396m	North West
	DRY CLEANERS, PRESSERS &/OR DYERS.	Dry Cleaning Shop., 35 Dunmore St., Wentworthville 2145	2855	1972	Premise Match	396m	North West
7	DRY CLEANERS, PRESSERS / DYERS	Presswell Dry Cleaners 7 Kingsway, Wentworthville	299229	1961	Premise Match	399m	North West
	DRY CLEANERS, PRESSERS/DYERS	Presswell Dry Cleaners., 7 Kingsway., Wentworthville	9956	1959	Premise Match	399m	North West
	DRY CLEANERS, PRESSERS & DYERS	Presswell Dry Cleaners., 7 Kingsway., Wentworthville	156	1958	Premise Match	399m	North West

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
8	DRY CLEANERS & PRESSERS.(D8500)	Sparkle, 39 Dunmore St., Wentworthville. 2145,	24055	1982	Premise Match	413m	North West
	DRY CLEANERS & PRESSERS.	Sparkle., 39 Dunmore St., Wentworthville. 2145	63544	1981	Premise Match	413m	North West
	DRY CLEANERS, PRESSERS &/OR DYERS	Town Talk Cleaners., 39 Dunmore St., Wentworthville	55076	1971	Premise Match	413m	North West
	DRY CLEANERS,PRESSERS /DYERS (D710)	Town Talk Cleaners., 39 Dunmore St., Wentworthville	292552	1970	Premise Match	413m	North West
	DRY CLEANERS, PRESSERS/ DYERS	Town Talk Cleaners., 39 Dunmore St Wentworthville	37358	1969	Premise Match	413m	North West
	DRY CLEANERS, PRESSERS/DYERS	Town Talk Cleaners., 39 Dunmore St Wentworthville	20812	1968	Premise Match	413m	North West
	DRY CLEANERS, PRESSERS/ DYERS	Town Talk Cleaners., 39 Dunmore St Wentworthville	6368	1967	Premise Match	413m	North West
	DRY CLEANERS, PRESSERS/ DYERS	Town Talk Cleaners., 39 Dunmore St Wentworthville	55417	1966	Premise Match	413m	North West
	Dry Cleaners, Pressers/Dyers	Town & Country Dry Cleaners, 5 Wenty Arc., 39 -41 Dunmore St., Wentworthville	76364	1965	Premise Match	413m	North West
	DRY CLEANERS, PRESSERS/ DYERS.	Town & Country Dry Cleaners., 5 Wenty Arc 39 -41 Dunmore St Wentworthville	43196	1964	Premise Match	413m	North West
	DRY CLEANERS, PRESSERS/DYERS.	Town & Country Dry Cleaners., 5 Wenty Arc 39 -41 Dunmore St Wentworthville	24945	1962	Premise Match	413m	North West

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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.

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Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
9	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Caltex Service Station., Dunmore St., Wentworthville 2145	25398	1976	Road Match	261m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Mobil Service Station., Dunmore St., Wentworthville 2145	30565	1976	Road Match	261m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Wenty Service Station., Dunmore St., Wentworthville 2145	35183	1976	Road Match	261m
	MOTOR GARAGES &/OR ENGINEERS.	Caltex Service Station., Dunmore St., Wentworthville. 2145	58593	1975	Road Match	261m
	MOTOR SERVICE STATIONS - PETROL, OIL	Caltex Service Station., Dunmore St., Wentworthville. 2145	61601	1975	Road Match	261m
	MOTOR GARAGES &/OR ENGINEERS.	Mobil Service Station., Dunmore St., Wentworthville. 2145	59261	1975	Road Match	261m
	MOTOR SERVICE STATIONS - PETROL, OIL	Mobil Service Station., Dunmore St., Wentworthville. 2145	88365	1975	Road Match	261m
	MOTOR GARAGES &/OR ENGINEERS.	Wenty Service Station., Dunmore St., Wentworthville. 2145	59758	1975	Road Match	261m
	MOTOR SERVICE STATIONS - PETROL, OIL	Wenty Service Station., Dunmore St., Wentworthville. 2145	62038	1975	Road Match	261m
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Archer's Service Station., Dunmore St Wentworthville	18249	1972	Road Match	261m
	MOTOR GARAGES &/OR ENGINEERS.	Archer's Service Station., Dunmore St., Wentworthville 2145	13204	1972	Road Match	261m
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Caltex Service Station., Dunmore St Wentworthville	18251	1972	Road Match	261m
	MOTOR GARAGES &/OR ENGINEERS.	Caltex Service Station., Dunmore St., Wentworthville 2145	13207	1972	Road Match	261m
	MOTOR GARAGES &/OR ENGINEERS.	Wenty Service Station., Dunmore St Wentworthville	16262	1972	Road Match	261m
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Wenty Service Station., Dunmore St Wentworthville	18260	1972	Road Match	261m
	MOTOR GARAGES & ENGINEERS.	Harry's Garage., Dunmore St., Wentworthville	33587	1962	Road Match	261m
	MOTOR GARAGES & ENGINEERS	Harry's Garage, Wentworthville, Dunmore St., Wentworthville	347332	1961	Road Match	261m
	MOTOR SERVICE STATIONS—PETROL, OIL, Etc.	Harry's Garage, Wentworthville, Dunmore St., Wentworthville	350675	1961	Road Match	261m
10	DRY CLEANERS, PRESSERS &/OR DYERS.	Nu-Way Dry Cleaning., 4 The Kingsway, Wentworthville 2145	23729	1976	Road Match	384m
	DRY CLEANERS, PRESSERS &/OR DYERS.	Nu-Way Dry Cleaning, 4 The Kingsway, Wentworthville. 2145	24254	1975	Road Match	384m
	DRY CLEANERS, PRESSERS &/OR DYERS.	Nu-Way Dry Cleaning., 4 The Kingsway Wentworthville 2145	7172	1972	Road Match	384m
11	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Mobil Service Station, Bridge Rd., Westmead. 2145	50508	1978	Road Match	435m

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
11	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Mobil Service Station., Bridge Rd., Westmead 2145	30567	1976	Road Match	435m
	MOTOR GARAGES &/OR ENGINEERS.	Mobil Service Station., Bridge Rd., Westmead. 2145	59264	1975	Road Match	435m

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Aerial Imagery 2020

23-27 Lytton Street, Wentworthville, NSW 2145

Scale:	Data Sources: Aerial Imagery: © Aerometrex Pty Ltd	Coordinate System: GDA 1994 MGA Zone 56	Date: 07 April 2021

0 25 50 75 100 Meters

Aerial Imagery 2015

23-27 Lytton Street, Wentworthville, NSW 2145

Scale:	Data Sources: Aerial Imagery:	Coordinate System:	Date: 07 April 2021
0 25 50 75 100 Meters	© Aerometrex Pty Ltd	GDA 1994 MGA Zone 56	

Aerial Imagery 2009

23-27 Lytton Street, Wentworthville, NSW 2145

Scale:	Data Sources: Aerial Imagery: © Aerometrex Pty Ltd	Coordinate System: GDA 1994 MGA Zone 56	Date: 07 April 2021

Scale: 0 25 50 75 100 Meters

Aerial Imagery 2000

23-27 Lytton Street, Wentworthville, NSW 2145

Aerial Imagery 1994

23-27 Lytton Street, Wentworthville, NSW 2145

Aerial Imagery 1991

23-27 Lytton Street, Wentworthville, NSW 2145

Scale: 0 25 50 75 100 Meters	Data Sources: Aerial Imagery: © NSW Department of Customer Service	Coordinate System: GDA 1994 MGA Zone 56	Date: 07 April 2021

Aerial Imagery 1986

23-27 Lytton Street, Wentworthville, NSW 2145

Aerial Imagery 1982

23-27 Lytton Street, Wentworthville, NSW 2145

Data Sources: Aerial Imagery:
© NSW Department of Customer Service

Coordinate System:
GDA 1994 MGA Zone 56

Date: 07 April 2021

Aerial Imagery 1978

23-27 Lytton Street, Wentworthville, NSW 2145

Aerial Imagery 1970

23-27 Lytton Street, Wentworthville, NSW 2145

Scale:	Data Sources: Aerial Imagery:	Coordinate System:	Date: 07 April 2021
0 25 50 75 100 Meters	© NSW Department of Customer Service	GDA 1994 MGA Zone 56	

Aerial Imagery 1965

23-27 Lytton Street, Wentworthville, NSW 2145

Scale: 0 25 50 75 100 Meters	Data Source Aerial Imagery: © NSW Department of Customer Service	Coordinate System: GDA 1994 MGA Zone 56	Date: 06 April 2021

Aerial Imagery 1961

23-27 Lytton Street, Wentworthville, NSW 2145

Aerial Imagery 1956

23-27 Lytton Street, Wentworthville, NSW 2145

Aerial Imagery 1951

23-27 Lytton Street, Wentworthville, NSW 2145

Aerial Imagery 1949

23-27 Lytton Street, Wentworthville, NSW 2145

Aerial Imagery 1943

23-27 Lytton Street, Wentworthville, NSW 2145

Scale: 0 25 50 75 100 Meters	Data Sources: Aerial Imagery: © Aerometrex Pty Ltd	Coordinate System: GDA 1994 MGA Zone 56	Date: 07 April 2021

Aerial Imagery 1930

23-27 Lytton Street, Wentworthville, NSW 2145

Topographic Map 2015

23-27 Lytton Street, Wentworthville, NSW 2145

Scale: 0 140 280 Meters 420 560	Data Sources: Topographic Map Data © NSW Land and Property Information	Coordinate System: GDA 1994 MGA Zone 56	Date: 07 April 2021

Historical Map 1975

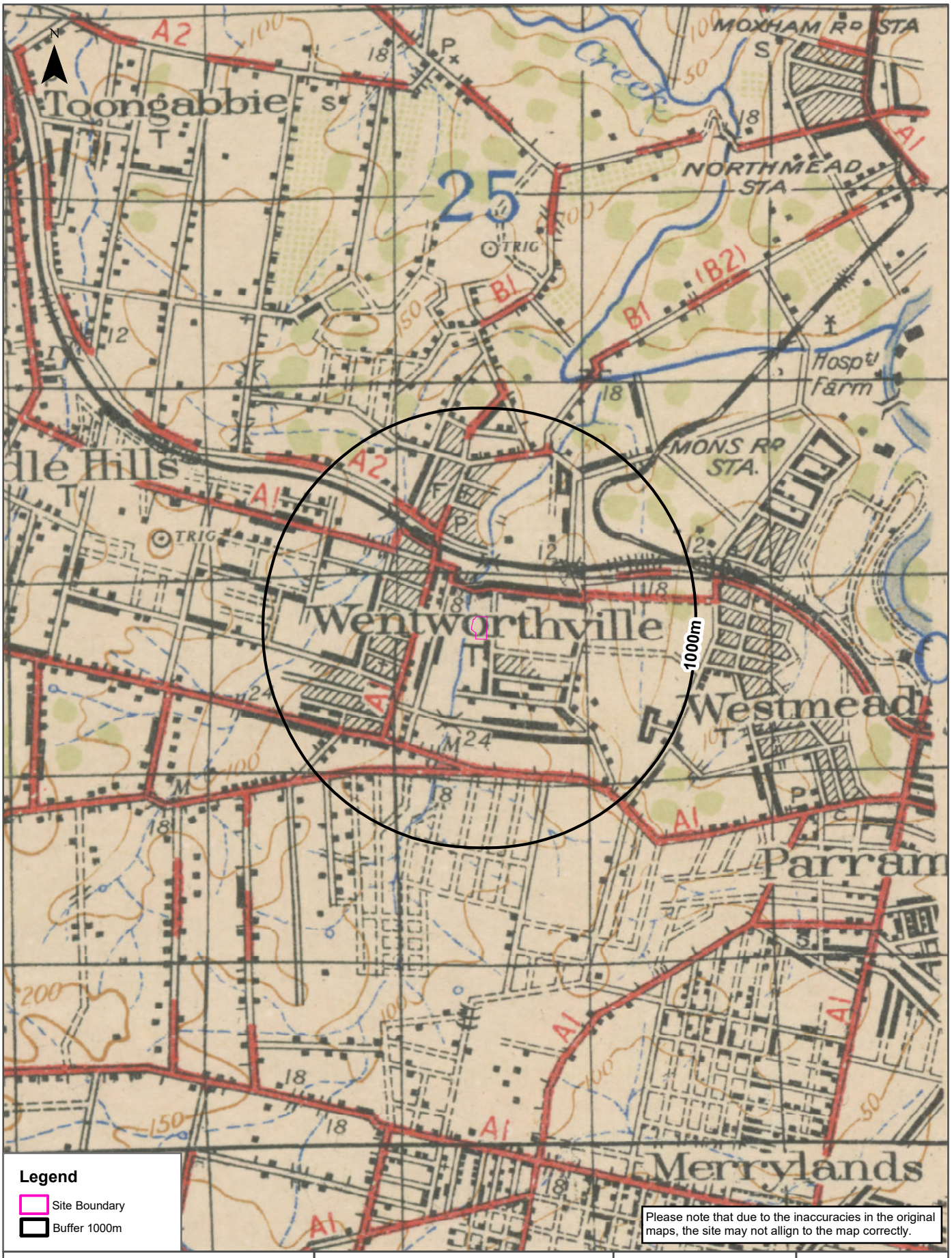
23-27 Lytton Street, Wentworthville, NSW 2145

Scale:	Data Sources: NATMAP 1:100,000 Topographic Maps Geoscience Australia	Coordinate System: GDA 1994 MGA Zone 56	Date: 07 April 2021

0 290 580 870 1,160 Meters

Historical Map 1942

23-27 Lytton Street, Wentworthville, NSW 2145



Scale: 0 290 580 870 1,160 Meters

Data Sources: Australia 1:63360
Produced by Australian Section Imperial General Staff

Coordinate System:
GDA 1994 MGA Zone 56

Date: 07 April 2021

Historical Map 1917 - 1929

23-27 Lytton Street, Wentworthville, NSW 2145

Scale: 0 290 580 870 1,160 Meters

Data Sources: Australia 1:63360
Produced by Australian Section Imperial General Staff

Coordinate System:
GDA 1994 MGA Zone 56

Date: 07 April 2021

Topographic Features

23-27 Lytton Street, Wentworthville, NSW 2145

Scale: 0 100 200 400 600 Meters

Data Sources: Property Boundaries & Topographic Data: © Department Finance, Services & Innovation 2021

Coordinate System: GDA 1994 MGA Zone 56

Date: 07 April 2021

Topographic Features

23-27 Lytton Street, Wentworthville, NSW 2145

Points of Interest

What Points of Interest exist within the dataset buffer?

Map Id	Feature Type	Label	Distance	Direction
40581	Psychiatric Hospital	WENTWORTHVILLE NORTHSIDE WEST CLINIC	0m	On-site
40865	Parking Area	Parking Area	0m	On-site
40866	Parking Area	Parking Area	0m	On-site
40638	Park	LYTTON STREET PARK	55m	South West
40637	Park	Park	172m	South West
40486	Parking Area	Parking Area	176m	North
40782	Community Facility	WENTWORTHVILLE COMMUNITY CENTRE	202m	North
40843	Library	WENTWORTHVILLE LIBRARY	249m	North
40361	Place Of Worship	UNITING CHURCH	296m	West
40294	Park	FRIEND PARK	298m	North West
40362	Sports Court	TENNIS COURTS	317m	South West
40579	Place Of Worship	PRESBYTERIAN CHURCH	349m	West
92507	Railway Station	WENTWORTHVILLE RAILWAY STATION	404m	North West
40955	Primary School	OUR LADY OF MOUNT CARMEL PRIMARY SCHOOL	444m	West
40578	Place Of Worship	ANGLICAN CHURCH	450m	North West
40580	Fire Station	WENTWORTHVILLE FIRE STATION	451m	North West
91881	Community Facility	OES HALL	457m	North
40861	Community Medical Centre	ROSEWOOD COTTAGE WENTWORTHVILLE	457m	South East
40355	Park	IRWIN PLACE PARK	467m	South
91599	Police Station	WENTWORTHVILLE POLICE STATION	472m	North West
40363	Place Of Worship	CATHOLIC CHURCH	499m	West
40356	Shopping Centre	WENTWORTHVILLE PLAZA	500m	South West
40591	Post Office	WENTWORTHVILLE POST OFFICE	501m	North West
40487	Parking Area	Parking Area	529m	North West
40927	Suburb	WENTWORTHVILLE	562m	North West
40372	Park	WENTWORTHVILLE MEMORIAL PARK	638m	North West
40935	Primary School	WENTWORTHVILLE PUBLIC SCHOOL	649m	South West
91884	Park	SHANNONS PADDOCK	651m	North
40735	Community Facility	WENTWORTHVILLE YOUTH CENTRE	665m	North West
40360	Swimming Pool	WENTWORTHVILLE SWIMMING CENTRE	699m	North West
40664	Park	M J BENNETT RESERVE	737m	East

Map Id	Feature Type	Label	Distance	Direction
40639	Park	AUSTRAL AVENUE RESERVE	738m	East
40795	Sports Field	CRICKET GROUND	740m	East
40448	Primary School	WESTMEAD CHRISTIAN GRAMMAR SCHOOL	761m	South East
92108	Park	PLAYGROUND	765m	North
40982	Park	BRIDGE ROAD RESERVE	779m	South East
40426	Roadside Emergency Telephone	345	783m	South East
40772	Park	FINLAYSON STREET PARK NORTH	789m	South
40846	Place Of Worship	FOURSQUARE GOSPEL CHURCH	792m	South East
40891	Park	RICHMOND STREET RESERVE	818m	South
40427	Roadside Emergency Telephone	346	828m	South East
40483	Parking Area	Parking Area	840m	East
40596	Park	PITT PARK	914m	South
91795	Retirement Village	WESTCOURT VILLAS	919m	North East
92063	Swimming Pool Facility	Swimming Pool Facility	925m	North East
40316	Sports Court	NETBALL COURTS	931m	West
40364	Sports Field	RINGROSE OVAL	936m	West
40484	Parking Area	Parking Area	938m	East
40411	Park	NARANG RESERVE	947m	South East
40631	Park	RINGROSE PARK	949m	West
40410	Park	ALLEN BRIERLEY RESERVE	951m	East
92555	Sports Court	TENNIS COURTS	953m	North East
92527	Retirement Village	MAYFLOWER VILLAGE WENTWORTHVILLE	975m	North East
40425	Roadside Emergency Telephone	348	977m	South West
40424	Roadside Emergency Telephone	347	982m	South West
40773	Park	FINLAYSON STREET PARK SOUTH	985m	South West
91708	Primary School	MOTHER TERESA PRIMARY SCHOOL	999m	North East

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

23-27 Lytton Street, Wentworthville, NSW 2145

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
N/A	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
N/A	No records in buffer					

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
120122000	Primary	Undefined		86m	North East
120119583	Primary	Undefined		105m	North
120115610	Primary	Undefined		161m	North
175121509	Primary	Right of way	4 wide & VAR	374m	South
160709464	Primary	Right of way	Variable	420m	East
120107596	Primary	Undefined		432m	North
120109985	Primary	Undefined		433m	North
150113794	Primary	Right of way	4	523m	West
150297601	Primary	Right of way	4	552m	West
150344238	Primary	Right of way	var	572m	North East
120110731	Primary	Undefined		626m	East
163030440	Primary	Right of way	Variable	817m	North East
168110573	Primary	Right of way	variable	884m	North West
168178742	Primary	Right of way	4.5m,5.3m,6.3m	902m	South West

Map Id	Easement Class	Easement Type	Easement Width	Distance	Direction
120118359	Primary	Undefined		936m	East
151651910	Primary	Right of way	4	983m	North West

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

23-27 Lytton Street, Wentworthville, NSW 2145

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)
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National Parks and Wildlife Service Reserves

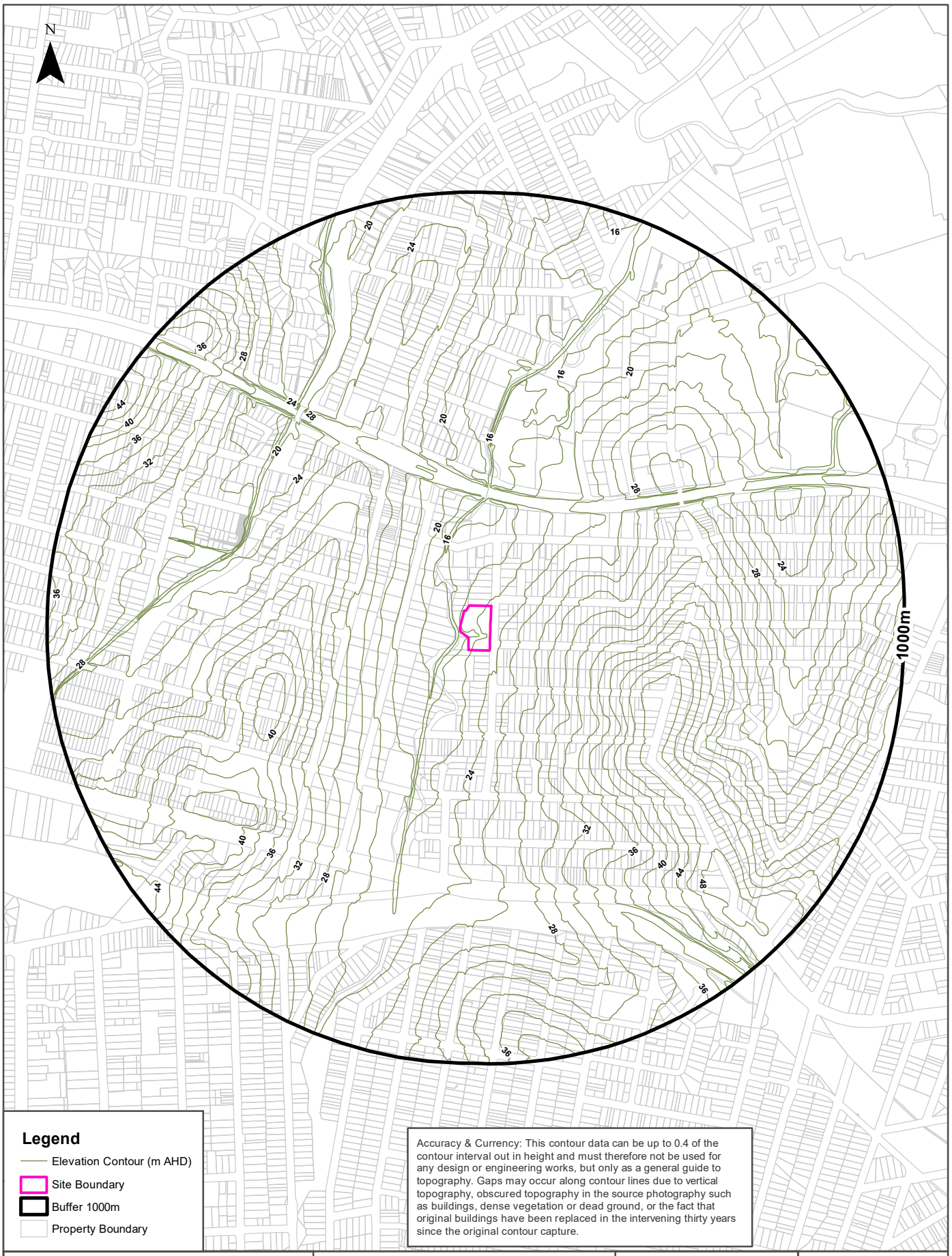
What NPWS Reserves exist within the dataset buffer?

Reserve Number	Reserve Type	Reserve Name	Gazetted Date	Distance	Direction
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)

23-27 Lytton Street, Wentworthville, NSW 2145



Hydrogeology & Groundwater

23-27 Lytton Street, Wentworthville, NSW 2145

Hydrogeology

Description of aquifers within the dataset buffer:

Description	Distance	Direction
Porous, extensive aquifers of low to moderate productivity	0m	On-site

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

Temporary Water Restriction (Botany Sands Groundwater Source) Order 2018

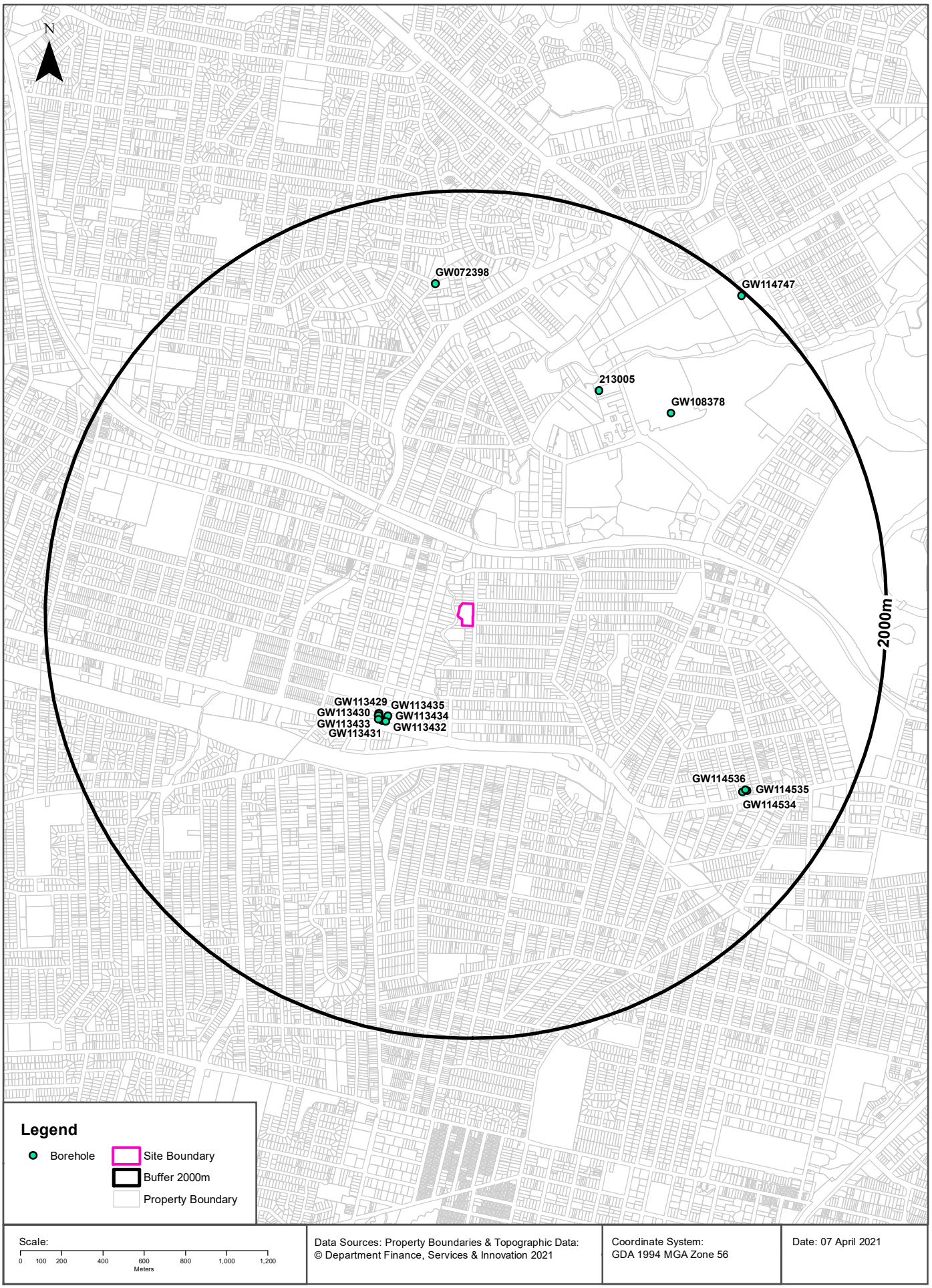
Temporary water restrictions relating to the Botany Sands aquifer within the dataset buffer:

Prohibition Area No.	Prohibition	Distance	Direction
N/A	No records in buffer		

Temporary Water Restriction (Botany Sands Groundwater Source) Order 2018 Data Source : NSW Department of Primary Industries

Groundwater Boreholes

23-27 Lytton Street, Wentworthville, NSW 2145



Hydrogeology & Groundwater

23-27 Lytton Street, Wentworthville, NSW 2145

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)	Yield (L/s)	Elev (AHD)	Dist	Dir
GW113435	10BL600157	Bore	Private	Monitoring Bore	Monitoring Bore	Mobil	27/03/2006	4.00	4.00					569m	South West
GW113434	10BL600157	Bore	Private	Monitoring Bore	Monitoring Bore	Mobil	27/03/2006	5.00	5.00					577m	South West
GW113432	10BL600157	Bore	Private	Monitoring Bore	Monitoring Bore	Mobil	27/03/2006	7.00	7.00					586m	South West
GW113429	10BL600157	Bore	Private	Monitoring Bore	Monitoring Bore	Mobil	27/03/2006	7.70	7.70					587m	South West
GW113436	10BL600157	Bore	Private	Monitoring Bore	Monitoring Bore	Mobil	20/03/2006	4.00	4.00					596m	South West
GW113430	10BL600157	Bore	Private	Monitoring Bore	Monitoring Bore	Mobil	28/03/2006	8.00	8.00					596m	South West
GW113431	10BL600157	Bore	Private	Monitoring Bore	Monitoring Bore	Mobil	20/03/2006	14.00	14.00					603m	South West
GW113433	10BL600157	Bore	Private	Monitoring Bore	Monitoring Bore	Mobil	28/03/2006	6.00	6.00					610m	South West
213005					UNK								16.22	1200m	North East
GW108378	10BL165559, 10BL602047, 10WA109505	Bore		Industrial, Test Bore	Industrial		31/01/2006	282.00	282.00			0.800		1331m	North East
GW114534	10BL604593	Bore	Other Govt	Monitoring Bore	Monitoring Bore		12/08/2014	6.90	6.90		5.00			1539m	South East
GW114536	10BL604593	Bore	Other Govt	Monitoring Bore	Monitoring Bore		12/08/2014	6.50	6.50					1545m	South East
GW114535	10BL604593	Bore	Other Govt	Monitoring Bore	Monitoring Bore		12/08/2014	7.00	7.00		4.80			1555m	South East
GW072398	10BL156064	Bore	Private	Test Bore	Test Bore		31/03/1995	58.00	58.00	2400		0.100		1556m	North
GW114747	10BL605601	Bore	Private	Monitoring Bore	Monitoring Bore		12/05/2014	14.00	10.00	235	7.00			1981m	North 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

23-27 Lytton Street, Wentworthville, NSW 2145

Driller's Logs

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

Groundwater No	Drillers Log	Distance	Direction
GW108378	0.00m-0.20m TOPSOIL 0.20m-2.00m CLAY 2.00m-19.00m SHALE 19.00m-62.00m SANDSTONE 62.00m-64.00m GREY SHALE 64.00m-123.00m SANDSTONE 123.00m-127.00m GREY SHALE 127.00m-164.00m SANDSTONE 164.00m-168.00m GREY SHALE 168.00m-176.00m SANDSTONE 176.00m-184.00m GREY SHALE 184.00m-226.00m SANDSTONE 226.00m-236.00m GREY SHALE 236.00m-260.00m SANDSTONE 260.00m-282.00m GREY SHALE	1331m	North East
GW114534	0.00m-1.80m CLAY 1.80m-3.00m CEMENTED SAND / CLAY 3.00m-6.70m SANDSTONE WEATHERED 6.70m-6.90m SHALE	1539m	South East
GW114536	0.00m-1.20m CLAY FILL 1.20m-1.50m CEMENTED SAND / CLAY 1.50m-3.00m CLAY 3.00m-4.30m WEATHERED SANDSTONE 4.30m-6.50m SHALE	1545m	South East
GW114535	0.00m-1.60m CLAY FILL 1.60m-2.00m CEMENTED SAND/CLAY 2.00m-3.50m SANDY CLAY 3.50m-5.00m SANDSTONE WEATHERED 5.00m-7.00m SHALE	1555m	South East
GW072398	0.00m-1.00m TOP SOIL 1.00m-2.00m RED GREY CLAY 2.00m-25.00m GREY SHALE 25.00m-32.00m GREY S/S F/G XBED SHALE 32.00m-45.00m GREY S/S F/G QUARTZ BANDS 45.00m-53.00m GREY S/S F/G 53.00m-58.00m GREY S/S F/G X BED SHALE	1556m	North
GW114747	0.00m-0.80m GRAVELLY CLAY BROWN,,LOW,MEDIUM PLASTICITY 0.80m-5.70m CLAY GRAVELLY, RED AND GREY,IRONSTONE,GRAVELS 5.70m-10.00m SANDSTONE, GREY AND YELLOW,FINE-MED.GRAINED	1981m	North East

Drill Log Data Source: NSW Department of Primary Industries - Office of Water / Water Administration Ministerial Corp
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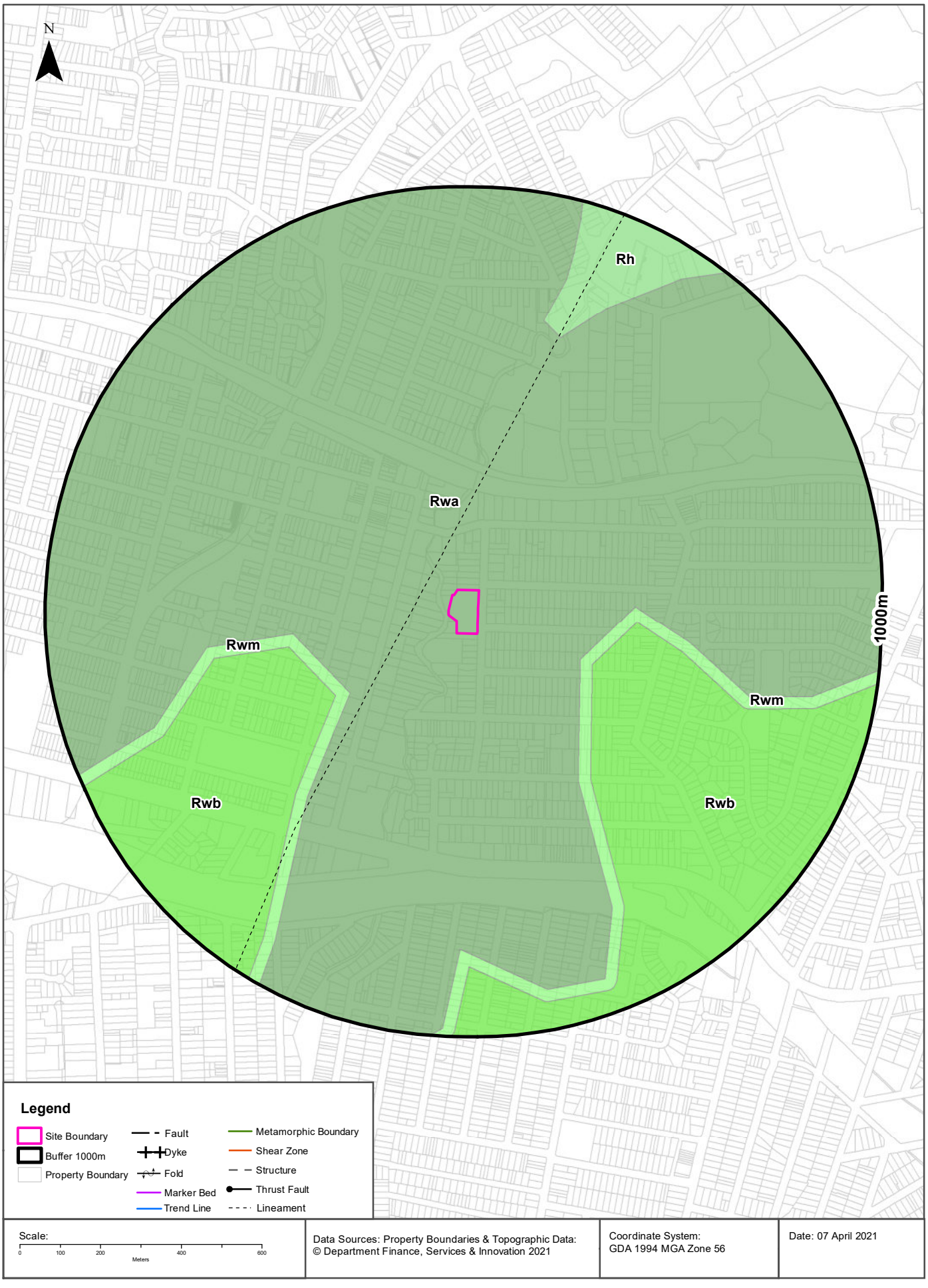
Geology

23-27 Lytton Street, Wentworthville, NSW 2145



Geology

23-27 Lytton Street, Wentworthville, NSW 2145

Geological Units 1:100,000

What are the Geological Units within the dataset buffer?

Symbol	Description	Unit Name	Group	Sub Group	Age	Dom Lith	Map Sheet	Dist	Dir
Rwa	Dark-grey to black claystone-siltstone and fine sandstone -siltstone laminate	Ashfield Shale	Wianamatta Group (undifferentiated)		Middle Triassic		Penrith	0m	On-site
Rwm	Fine to medium-grained quartz-lithic sandstone	Minchinbury Sandstone	Wianamatta Group (undifferentiated)		Middle Triassic		Penrith	262m	South East
Rwb	Shale, carbonaceous claystone,claystone, laminate, fine to medium-grained lithic sandstone, rare coal and tuff	Bringelly Shale	Wianamatta Group (undifferentiated)		Middle Triassic		Penrith	294m	South East
Rh	Medium to very coarse-grained quartz sandstone, minor laminated mudstone and siltstone leases	Hawkesbury Sandstone			Middle Triassic		Penrith	659m	North East

Geological Structures 1:100,000

What are the Geological Structures within the dataset buffer?

Feature	Name	Description	Map Sheet	Distance	Direction
Lineament		Coastal Lineament	Penrith	70m	North West

Geological Data Source : NSW Department of Industry, Resources & Energy
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Naturally Occurring Asbestos Potential

23-27 Lytton Street, Wentworthville, NSW 2145

Naturally Occurring Asbestos Potential

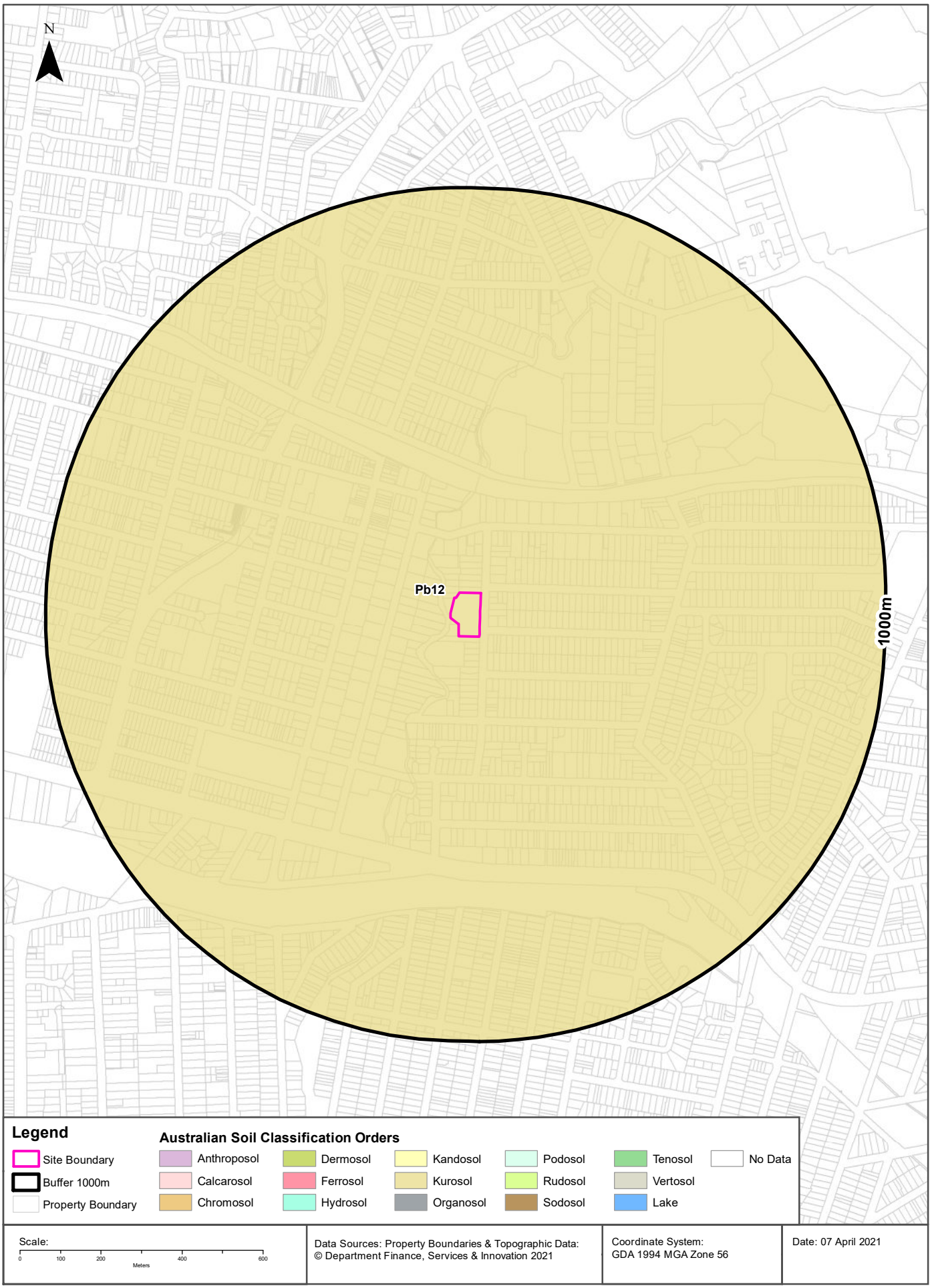
Naturally Occurring Asbestos Potential within the dataset buffer:

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

Naturally Occurring Asbestos Potential Data Source: © State of New South Wales through NSW Department of Industry, Resources & Energy

Atlas of Australian Soils

23-27 Lytton Street, Wentworthville, NSW 2145



Soils

23-27 Lytton Street, Wentworthville, NSW 2145

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	Direction
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.	0m	On-site

Atlas of Australian Soils Data Source: CSIRO
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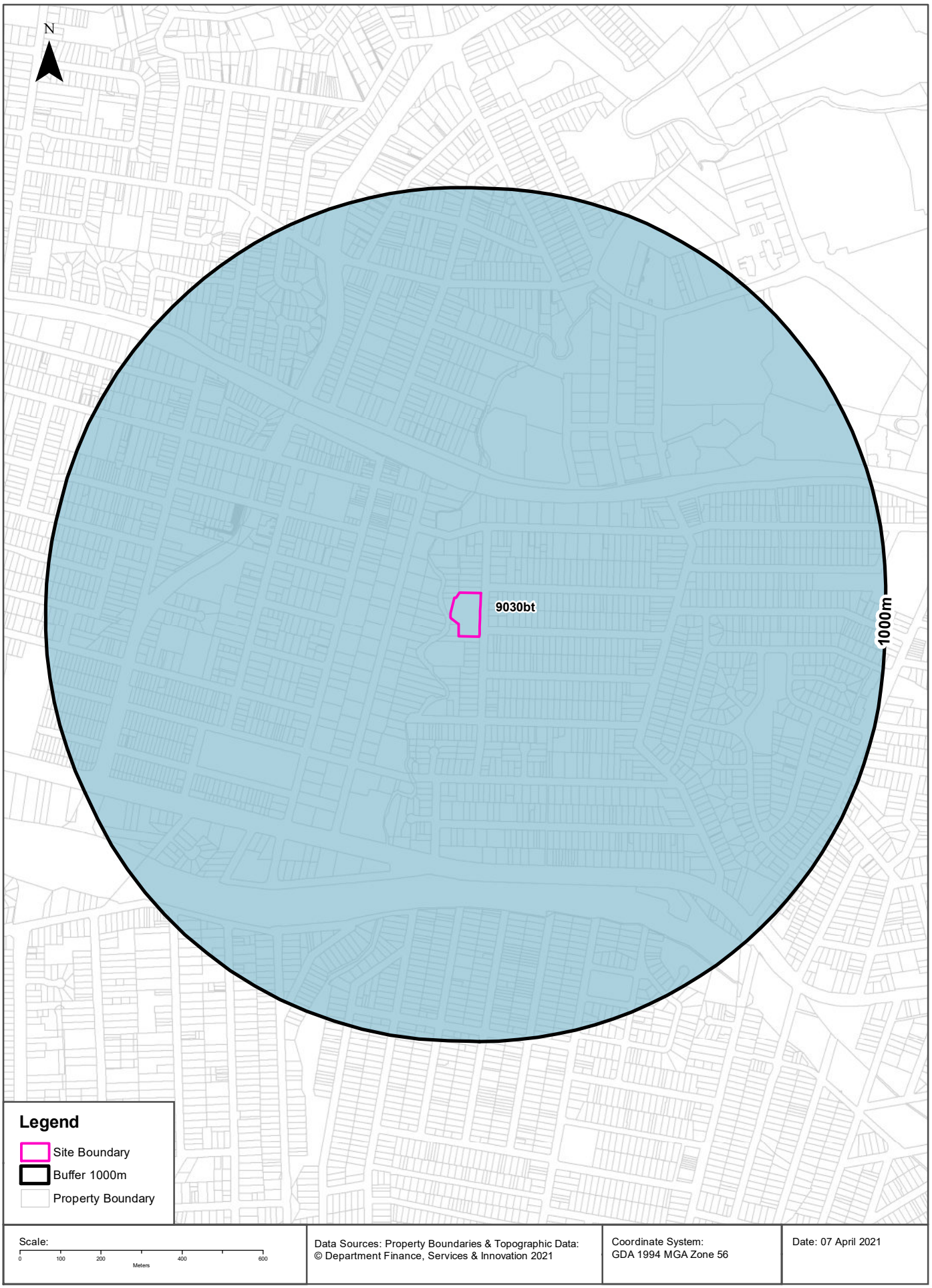
Soil Landscapes of Central and Eastern NSW

23-27 Lytton Street, Wentworthville, NSW 2145



Soils

23-27 Lytton Street, Wentworthville, NSW 2145

Soil Landscapes of Central and Eastern NSW

Soil Landscapes of Central and Eastern NSW within the dataset buffer:

Soil Code	Name	Distance	Direction
9030bt	Blacktown	0m	On-site

Soil Landscapes of Central and Eastern NSW: NSW Department of Planning, Industry and Environment
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Acid Sulfate Soils

23-27 Lytton Street, Wentworthville, NSW 2145

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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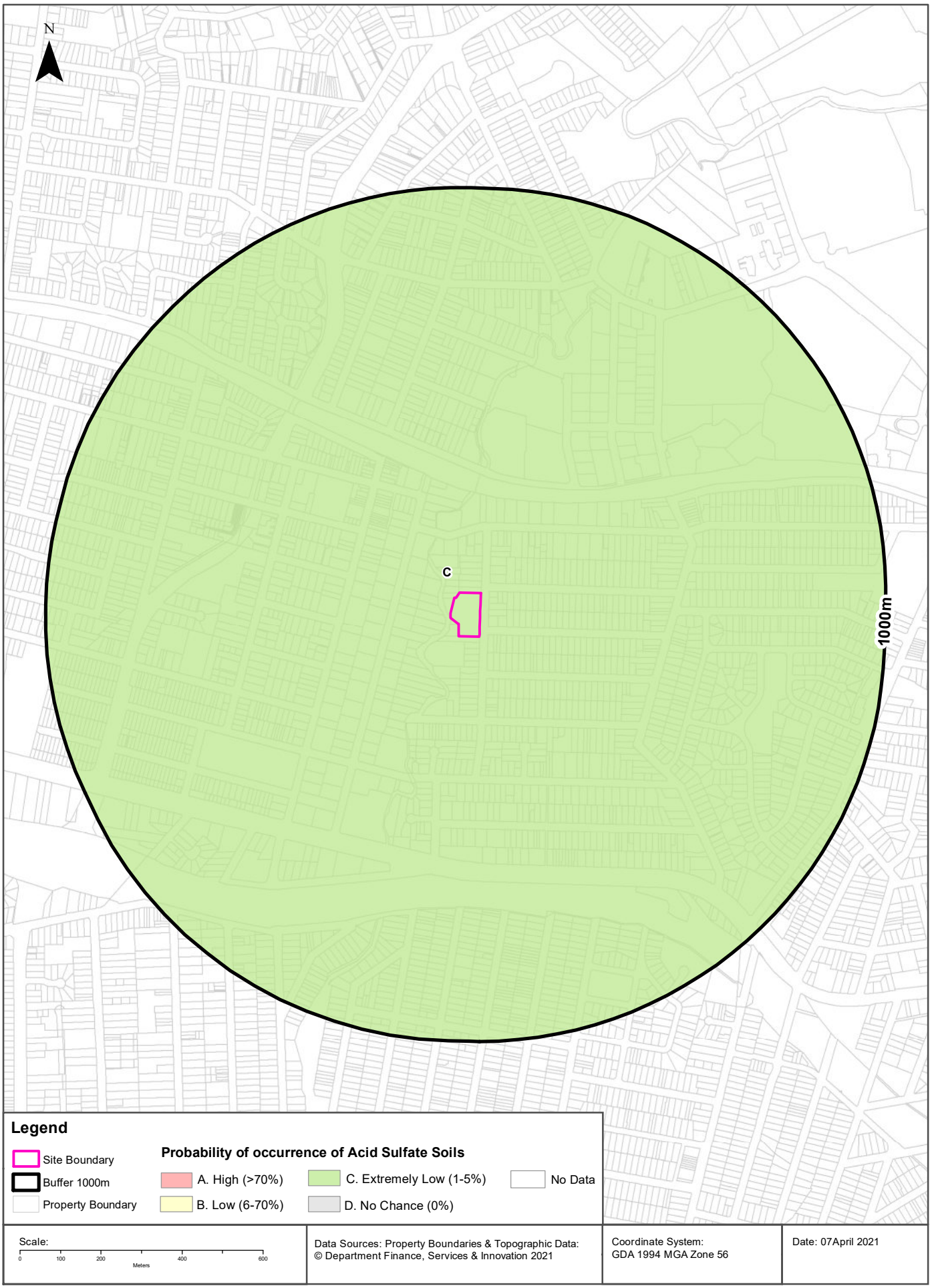
Atlas of Australian Acid Sulfate Soils

23-27 Lytton Street, Wentworthville, NSW 2145



Acid Sulfate Soils

23-27 Lytton Street, Wentworthville, NSW 2145

Atlas of Australian Acid Sulfate Soils

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

Class	Description	Distance	Direction
C	Extremely low probability of occurrence. 1-5% chance of occurrence with occurrences in small localised areas.	0m	On-site

Atlas of Australian Acid Sulfate Soils Data Source: CSIRO
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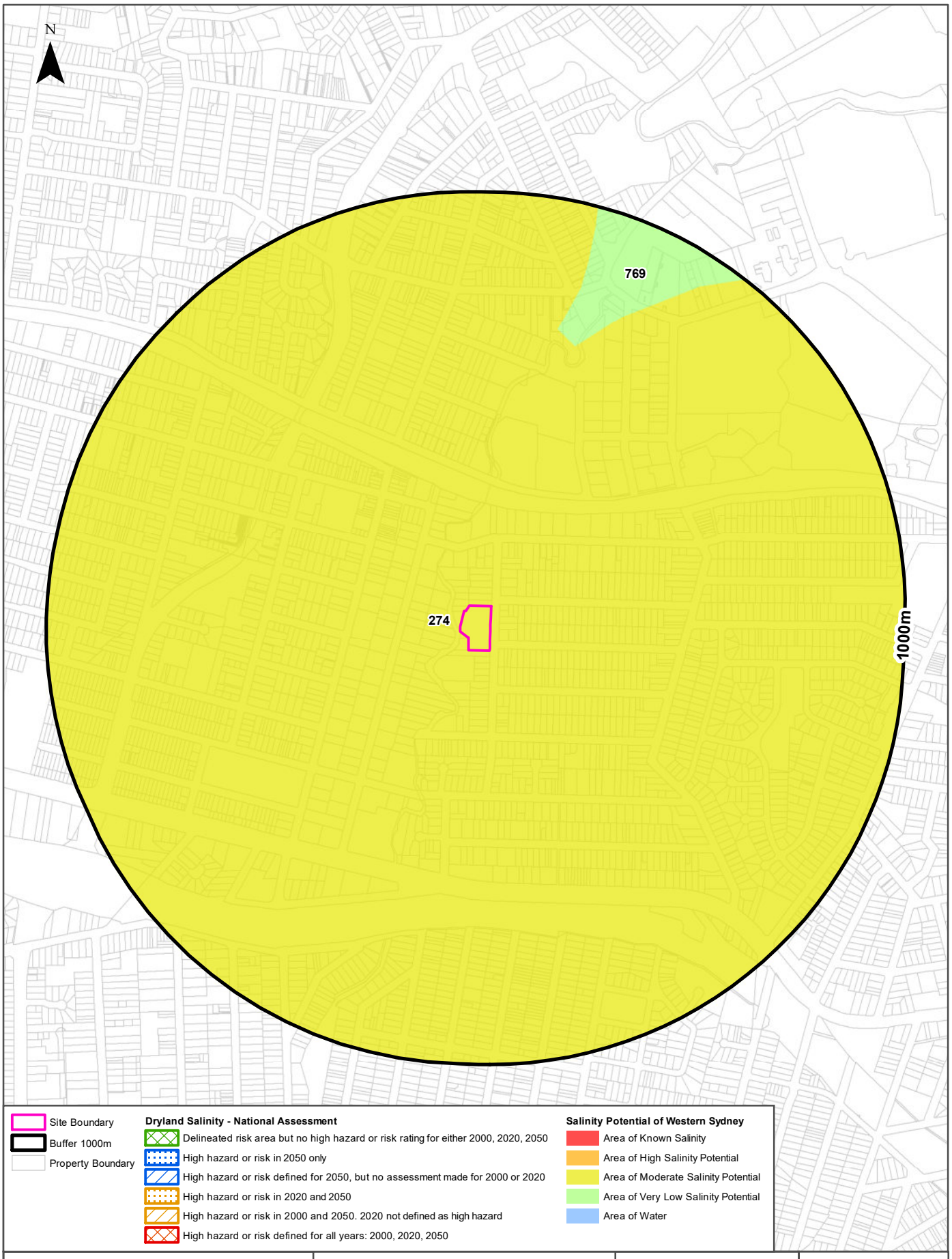
Dryland Salinity

23-27 Lytton Street, Wentworthville, NSW 2145



Dryland Salinity

23-27 Lytton Street, Wentworthville, NSW 2145

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		

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	On-site
769	LOW	Area of Very Low Salinity Potential	659m	North East

Dryland Salinity Potential of Western Sydney Data Source : NSW Office of Environment and Heritage
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Mining

23-27 Lytton Street, Wentworthville, NSW 2145

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

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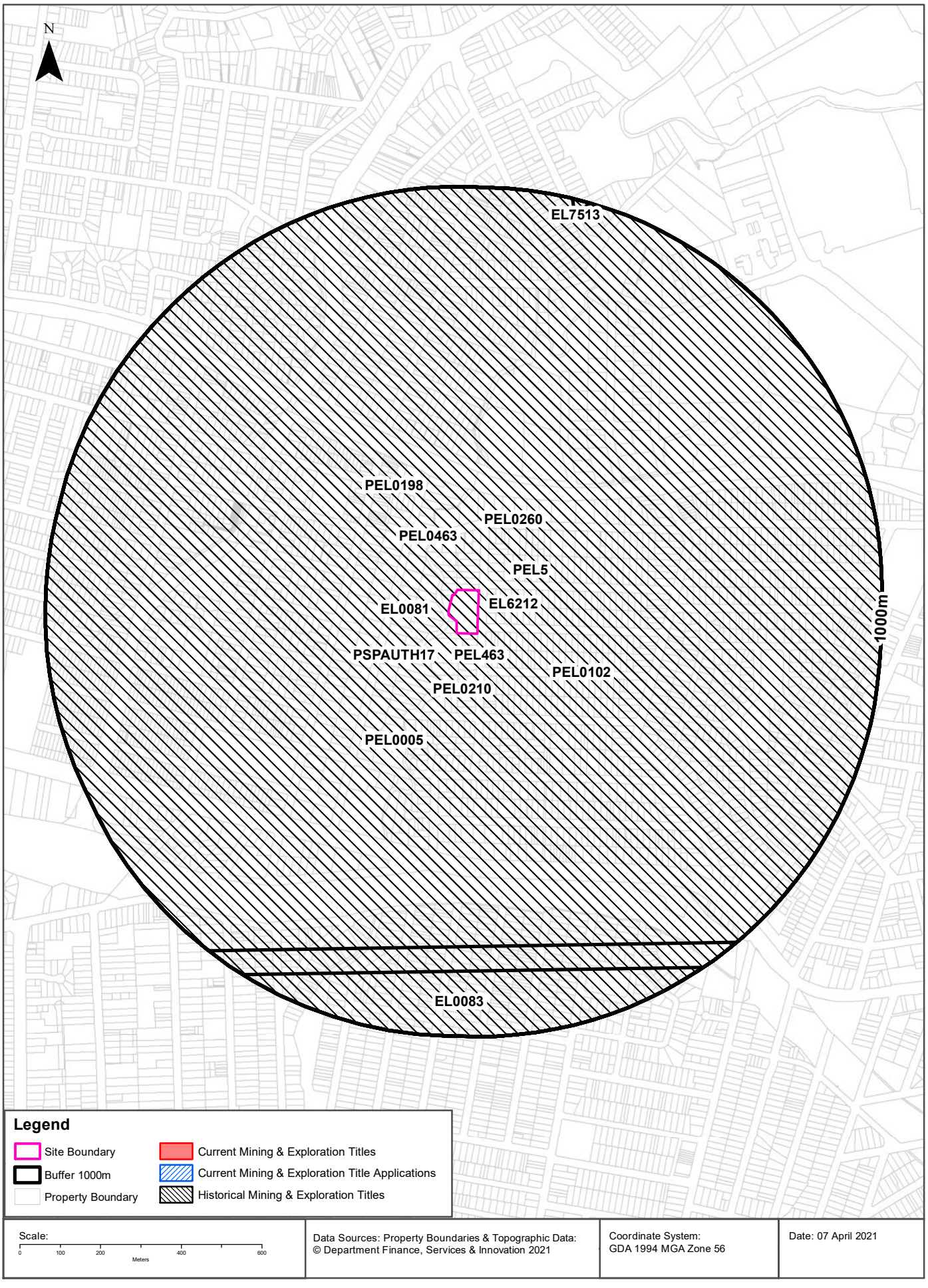

Mining

23-27 Lytton Street, Wentworthville, NSW 2145

Current Mining & Exploration Titles

Current Mining & Exploration Titles within the dataset buffer:

Title Ref	Holder	Grant Date	Expiry Date	Last Renewed	Operation	Resource	Minerals	Dist	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	Applicant	Application Date	Operation	Resource	Minerals	Dist	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

23-27 Lytton Street, Wentworthville, NSW 2145

Historical Mining & Exploration Titles

Historical Mining & Exploration Titles within the dataset buffer:

Title Ref	Holder	Start Date	End Date	Resource	Minerals	Dist	Dir
EL0081	CONTINENTAL OIL CO OF AUSTRALIA LIMITED	01 Feb 1967	01 Feb 1968	MINERALS		0m	On-site
PEL463	DART ENERGY (APOLLO) PTY LTD			MINERALS		0m	On-site
PEL5	AGL UPSTREAM INVESTMENTS PTY LIMITED			MINERALS		0m	On-site
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	On-site
EL6212	HOT ROCK ENERGY PTY LTD,LONGREACH OIL LIMITED	4 Mar 2004	3 Mar 2013	MINERALS	Geothermal	0m	On-site
PEL0102	AUSTRALIAN OIL AND GAS CORPORATION LTD			PETROLEUM	Petroleum	0m	On-site
PEL0198	JOHN STREVENS (TERRIGAL) NL			PETROLEUM	Petroleum	0m	On-site
PSPAUTH17	MACQUARIE ENERGY PTY LTD	8/03/2007	7/03/2008	PETROLEUM	Petroleum	0m	On-site
PEL0210	THE AUSTRALIAN GAS LIGHT COMPANY (AGL), NORTH BULLI COLLIERIES PTY LTD			PETROLEUM	Petroleum	0m	On-site
PEL0463	DART ENERGY (APOLLO) PTY LTD	22/10/2008	6/03/2015	PETROLEUM	Petroleum	0m	On-site
PEL0005	AGL UPSTREAM INVESTMENTS PTY LIMITED	11/11/1993	4/03/2015	PETROLEUM	Petroleum	0m	On-site
EL0083	CONTINENTAL OIL CO OF AUSTRALIA LIMITED	01 Feb 1967	01 Feb 1968	MINERALS		837m	South
EL7513	GRADIENT ENERGY LIMITED	7 Apr 2010	15 Apr 2011	MINERALS	Geothermal	959m	North

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

State Environmental Planning Policy

23-27 Lytton Street, Wentworthville, NSW 2145

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							

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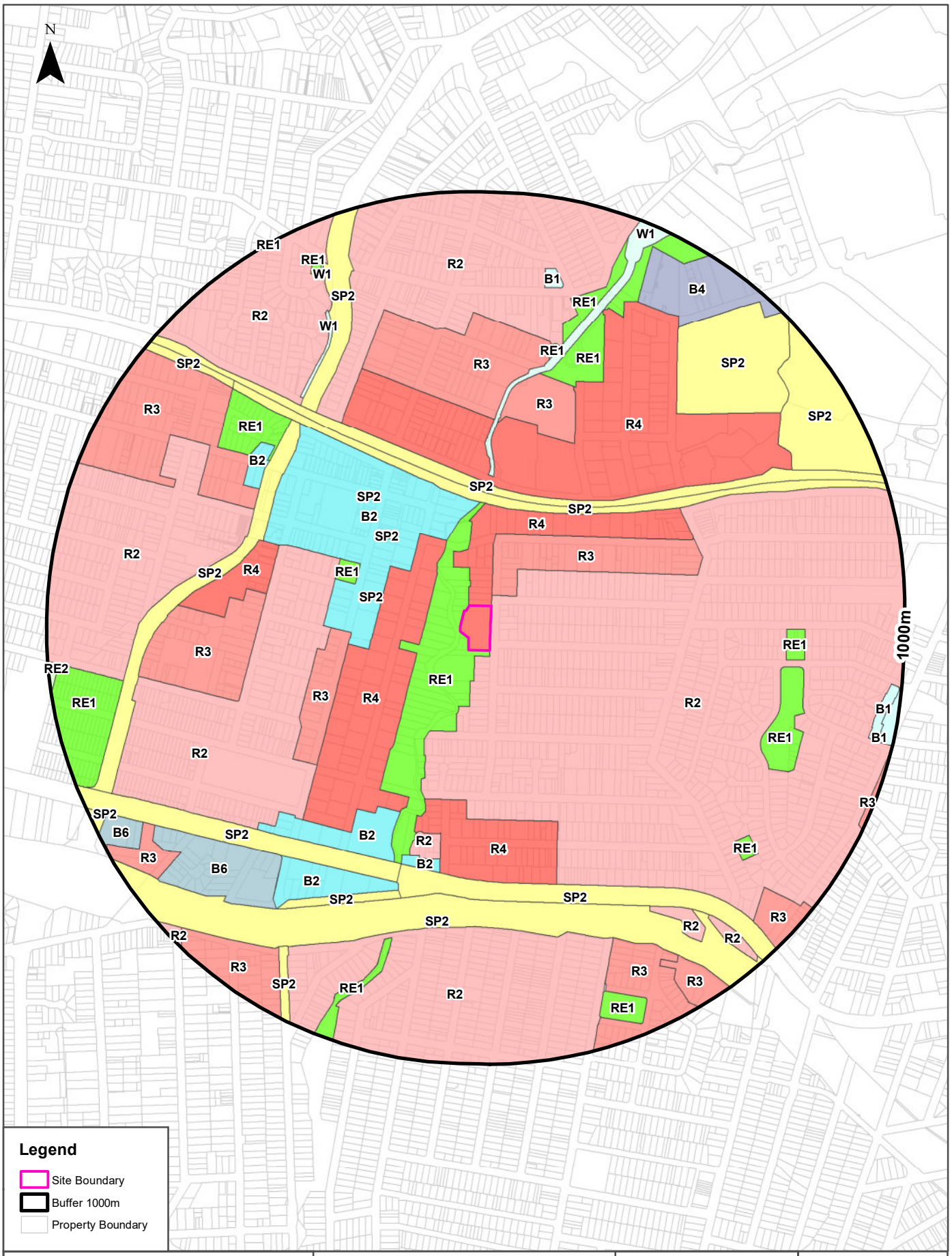
EPI Planning Zones

23-27 Lytton Street, Wentworthville, NSW 2145



Environmental Planning Instrument

23-27 Lytton Street, Wentworthville, NSW 2145

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
R4	High Density Residential		Holroyd Local Environmental Plan 2013	23/06/2017	23/06/2017	14/08/2020	Amendment No 9	0m	On-site
RE1	Public Recreation		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		0m	South West
R2	Low Density Residential		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		0m	East
R3	Medium Density Residential		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		26m	North East
R4	High Density Residential		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		85m	South West
B2	Local Centre		Holroyd Local Environmental Plan 2013	14/08/2020	14/08/2020	14/08/2020	Amendment No 18	162m	North West
SP2	Infrastructure	Local Road	Holroyd Local Environmental Plan 2013	22/06/2018	22/06/2018	14/08/2020	Amendment No 16	201m	West
SP2	Infrastructure	Rail Corridor	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		240m	North East
SP2	Infrastructure	Local Road	Holroyd Local Environmental Plan 2013	14/08/2020	14/08/2020	14/08/2020	Amendment No 18	241m	North West
R3	Medium Density Residential		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		264m	South West
SP2	Infrastructure	Railway Corridor	Parramatta Local Environmental Plan 2011	07/10/2011	07/10/2011	05/06/2020		264m	North
RE1	Public Recreation		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		272m	North West
R4	High Density Residential		Parramatta Local Environmental Plan 2011	07/10/2011	07/10/2011	05/06/2020		282m	North East
R2	Low Density Residential		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		313m	West
W1	Natural Waterways		Parramatta Local Environmental Plan 2011	28/07/2017	28/07/2017	05/06/2020	Amendment No 20	313m	North
SP2	Infrastructure	Local Road	Holroyd Local Environmental Plan 2013	14/08/2020	14/08/2020	14/08/2020	Amendment No 18	340m	North West
R4	High Density Residential		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		363m	South
B2	Local Centre		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		425m	South West
R3	Medium Density Residential		Parramatta Local Environmental Plan 2011	07/10/2011	07/10/2011	05/06/2020		432m	North
R2	Low Density Residential		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		446m	South
R3	Medium Density Residential		Parramatta Local Environmental Plan 2011	07/10/2011	07/10/2011	05/06/2020		453m	North
R4	High Density Residential		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		473m	West
R3	Medium Density Residential		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		476m	West
B2	Local Centre		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		510m	South
SP2	Infrastructure	Classified Road	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		514m	West
SP2	Infrastructure	Classified Road	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		540m	South
R2	Low Density Residential		Parramatta Local Environmental Plan 2011	07/10/2011	07/10/2011	05/06/2020		540m	North
SP2	Infrastructure	Classified Road	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		542m	South West

Zone	Description	Purpose	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
R2	Low Density Residential		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		555m	West
R3	Medium Density Residential		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		564m	North West
RE1	Public Recreation		Parramatta Local Environmental Plan 2011	28/07/2017	28/07/2017	05/06/2020	Amendment No 20	567m	North East
B2	Local Centre		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		576m	North West
B2	Local Centre		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		588m	South West
SP2	Infrastructure	Classified Road	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		592m	South
RE1	Public Recreation		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		594m	North West
SP2	Infrastructure	Classified Road	Parramatta Local Environmental Plan 2011	21/02/2020	21/02/2020	05/06/2020	Amendment No 40	598m	North West
SP2	Infrastructure	Strategic Bus Corridor	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		605m	South West
RE1	Public Recreation		Parramatta Local Environmental Plan 2011	07/10/2011	07/10/2011	05/06/2020		613m	North
R2	Low Density Residential		Parramatta Local Environmental Plan 2011	07/10/2011	07/10/2011	05/06/2020		634m	North West
W1	Natural Waterways		Parramatta Local Environmental Plan 2011	07/10/2011	07/10/2011	05/06/2020		644m	North West
SP2	Infrastructure	Health Services Facilities	Parramatta Local Environmental Plan 2011	07/10/2011	07/10/2011	05/06/2020		645m	North East
RE1	Public Recreation		Parramatta Local Environmental Plan 2011	07/10/2011	07/10/2011	05/06/2020		657m	North
R2	Low Density Residential		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		667m	South
B6	Enterprise Corridor		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		673m	South West
RE1	Public Recreation		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		689m	East
RE1	Public Recreation		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		714m	East
RE1	Public Recreation		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		718m	South
R2	Low Density Residential		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		728m	South East
RE1	Public Recreation		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		750m	South East
R3	Medium Density Residential		Holroyd Local Environmental Plan 2013	16/01/2015	16/01/2015	14/08/2020	Amendment No 2	754m	South East
SP2	Infrastructure	Rail Corridor	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		777m	North West
B1	Neighbourhood Centre		Parramatta Local Environmental Plan 2011	07/10/2011	07/10/2011	05/06/2020		781m	North
SP2	Infrastructure	Educational Establishment	Parramatta Local Environmental Plan 2011	07/10/2011	07/10/2011	05/06/2020		795m	North East
B4	Mixed Use		Parramatta Local Environmental Plan 2011	07/10/2011	07/10/2011	05/06/2020		809m	North East
RE1	Public Recreation		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		823m	West
R2	Low Density Residential		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		828m	South East
SP2	Infrastructure	Strategic Bus Corridor	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		839m	South West
R3	Medium Density Residential		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		850m	South West
R3	Medium Density Residential		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		851m	South West
R3	Medium Density Residential		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		852m	South East
RE1	Public Recreation		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		868m	South
W1	Natural Waterways		Parramatta Local Environmental Plan 2011	07/10/2011	07/10/2011	05/06/2020		871m	North West

Zone	Description	Purpose	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
R3	Medium Density Residential		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		874m	South East
RE1	Public Recreation		Parramatta Local Environmental Plan 2011	07/10/2011	07/10/2011	05/06/2020		877m	North West
B6	Enterprise Corridor		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		890m	South West
B1	Neighbourhood Centre		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		937m	East
B1	Neighbourhood Centre		Holroyd Local Environmental Plan 2013	09/10/2015	09/10/2015	14/08/2020	Amendment No 4	954m	East
SP2	Infrastructure	Classified Road	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		960m	South West
R2	Low Density Residential		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		965m	South West
RE2	Private Recreation		Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	14/08/2020		973m	West
R3	Medium Density Residential		Holroyd Local Environmental Plan 2013	16/01/2015	16/01/2015	14/08/2020	Amendment No 2	983m	South East
RE1	Public Recreation		Parramatta Local Environmental Plan 2011	07/10/2011	07/10/2011	05/06/2020		997m	North West

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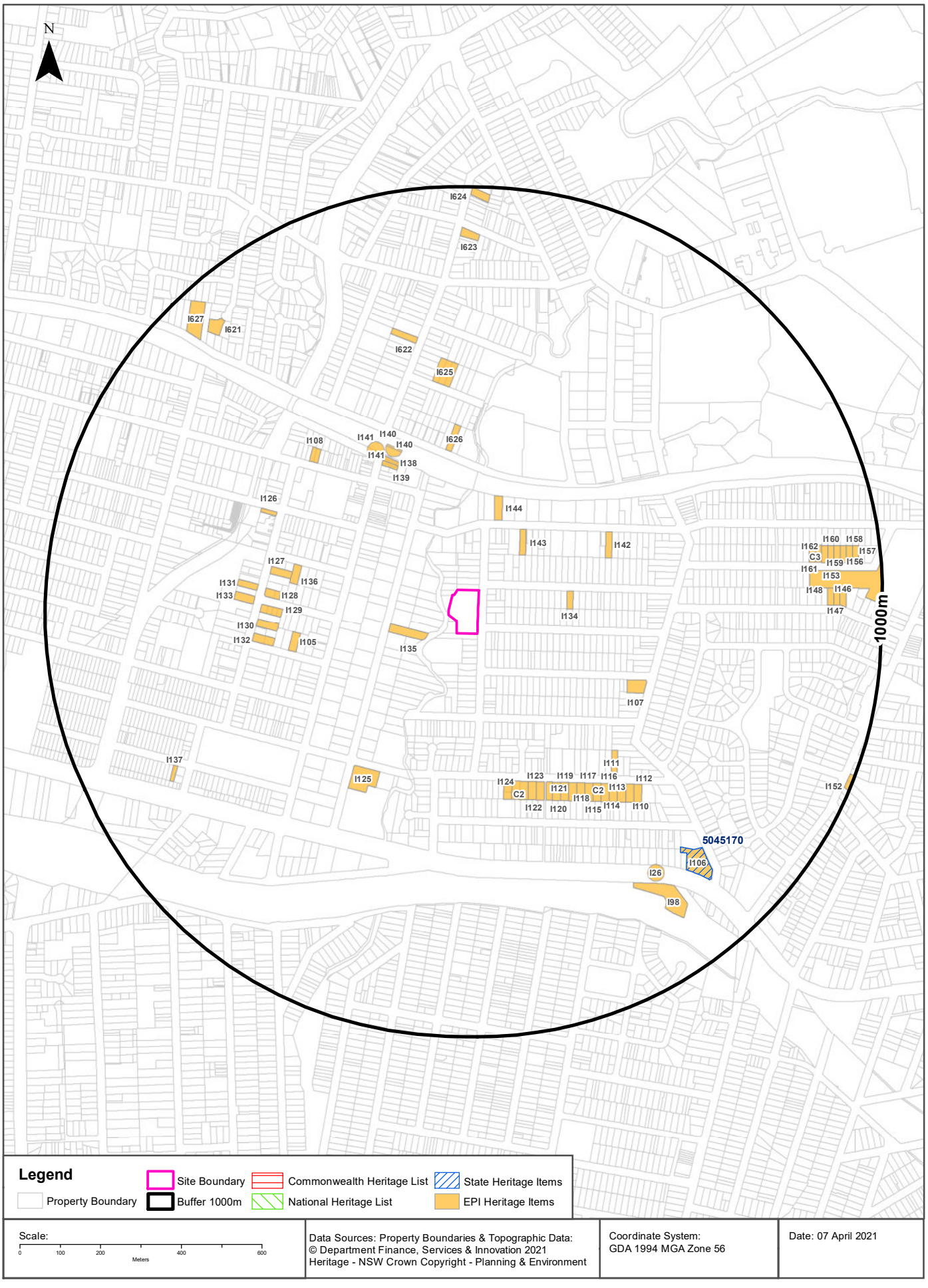
Heritage Items

23-27 Lytton Street, Wentworthville, NSW 2145



Heritage

23-27 Lytton Street, Wentworthville, NSW 2145

Commonwealth Heritage List

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

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

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

What are the National Heritage List Items located within the dataset buffer?
Note. Please click on Place Id to activate a hyperlink to online website.

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

Heritage Data Source: Australian Government Department of the Environment and Energy - Heritage Branch
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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
5045170	Essington	2,4,6,8 Bridge Road Westmead	CUMBERLAND	02/04/1999	00204	477	730m	South East

Heritage Data Source: NSW Crown Copyright - Office of Environment & Heritage
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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
I135	Federation cottage	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	68m	West
I143	'Dalremos', Federation/Queen Anne bungalow	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	133m	North East
I144	Federation/Queen Anne bungalow	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	178m	North

Map Id	Name	Classification	Significance	EPI Name	Published Date	Commenced Date	Currency Date	Distance	Direction
I134	Federation period cottage	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	218m	East
I142	Inter-war bungalow	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	323m	North East
I139	'Dobson House', Federation/Inter-war period shopfront	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	334m	North West
I138	Inter-war shopfront with Federation influences	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	340m	North West
I626	Cottage	Item - General	Local	Parramatta Local Environmental Plan 2011	07/10/2011	07/10/2011	26/02/2021	343m	North
I140	Wentworthville Railway Station	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	364m	North West
I140	Wentworthville Railway Station	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	369m	North West
C2	Fullagar Road Conservation Area	Conservation Area - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	370m	South
I124	Inter-war bungalow	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	370m	South
I105	Federation bungalow	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	370m	West
I136	St Andrew's Presbyterian Church, Federation Carpenter Gothic church, circa 1923	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	380m	West
I141	Memorial fountain	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	382m	North West
I123	Inter-war bungalow	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	387m	South
I107	'Yoorooga', late Victorian cottage	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	387m	South East
I125	Electricity substation	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	393m	South West
I122	Inter-war bungalow	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	394m	South
I127	Masonic Temple	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	400m	West
C2	Fullagar Road Conservation Area	Conservation Area - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	404m	South East
I121	Inter-war bungalow	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	411m	South East
I129	Federation period bungalow	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	412m	West
I141	Memorial fountain	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	413m	North West
I128	Inter-war bungalow	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	419m	West
I120	Inter-war bungalow	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	421m	South East

Map Id	Name	Classification	Significance	EPI Name	Published Date	Commenced Date	Currency Date	Distance	Direction
I130	Federation period/Queen Anne style bungalow	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	422m	West
I119	Inter-war bungalow	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	432m	South East
I132	'Nelyambo', Federation period bungalow	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	434m	West
I111	Late Victorian cottage	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	440m	South East
I118	Inter-war bungalow	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	443m	South East
I117	Inter-war bungalow	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	455m	South East
I116	Inter-war bungalow	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	468m	South East
I108	Former post office, circa 1926	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	469m	North West
I131	Inter-war cottage	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	477m	West
I126	Federation Arts and Crafts shop building	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	480m	North West
I115	Inter-war bungalow	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	481m	South East
I133	Federation period residence	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	482m	West
I114	Inter-war bungalow	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	494m	South East
I625	Short Street Group	Item - General	Local	Parramatta Local Environmental Plan 2011	07/10/2011	07/10/2011	26/02/2021	504m	North
I113	Inter-war bungalow	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	508m	South East
I112	Inter-war bungalow	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	522m	South East
I110	Inter-war bungalow	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	537m	South East
I622	Former Produce Store	Item - General	Local	Parramatta Local Environmental Plan 2011	07/10/2011	07/10/2011	26/02/2021	620m	North
I26	Milestone group, Parramatta to Greystanes	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	718m	South East
I98	'The Wattles', Victorian/Georgian residence	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	728m	South East
I106	"Essington", late Victorian/Federation Residence, garden setting and trees	Item - General	State	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	730m	South East
I137	Federation period cottage	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	767m	South West
I153	Westmead Public School, circa 1917	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	818m	East

Map Id	Name	Classification	Significance	EPI Name	Published Date	Commenced Date	Currency Date	Distance	Direction
I162	Inter-war bungalow	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	820m	East
C3	Toohey's Plam Estate Group Conservation Area	Conservation Area - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	820m	East
I161	Inter-war bungalow	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	851m	East
I148	Inter-war bungalow	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	863m	East
I621	Tralee Gardens Preschool Centre	Item - General	Local	Parramatta Local Environmental Plan 2011	07/10/2011	07/10/2011	26/02/2021	864m	North West
I160	'Maxville', Inter-war bungalow	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	866m	East
I623	House	Item - General	Local	Parramatta Local Environmental Plan 2011	07/10/2011	07/10/2011	26/02/2021	867m	North
I147	Inter-war bungalow	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	879m	East
I159	'Girraween', Inter-war bungalow	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	881m	East
I627	Castrella	Item - General	Local	Parramatta Local Environmental Plan 2011	07/10/2011	07/10/2011	26/02/2021	889m	North West
I146	Inter-war bungalow	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	894m	East
I158	'Silver Grove', Inter-war bungalow	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	896m	East
I157	Inter-war bungalow	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	912m	East
I156	Inter-war bungalow	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	927m	East
I624	Cottage	Item - General	Local	Parramatta Local Environmental Plan 2011	07/10/2011	07/10/2011	26/02/2021	964m	North
I152	'Deskford', Cabrini Nursing Home, circa 1876'1900	Item - General	Local	Holroyd Local Environmental Plan 2013	05/04/2013	05/08/2013	09/10/2015	983m	South East

Heritage Data Source: NSW Crown Copyright - Planning & Environment
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Natural Hazards

23-27 Lytton Street, Wentworthville, NSW 2145

Bush Fire Prone Land

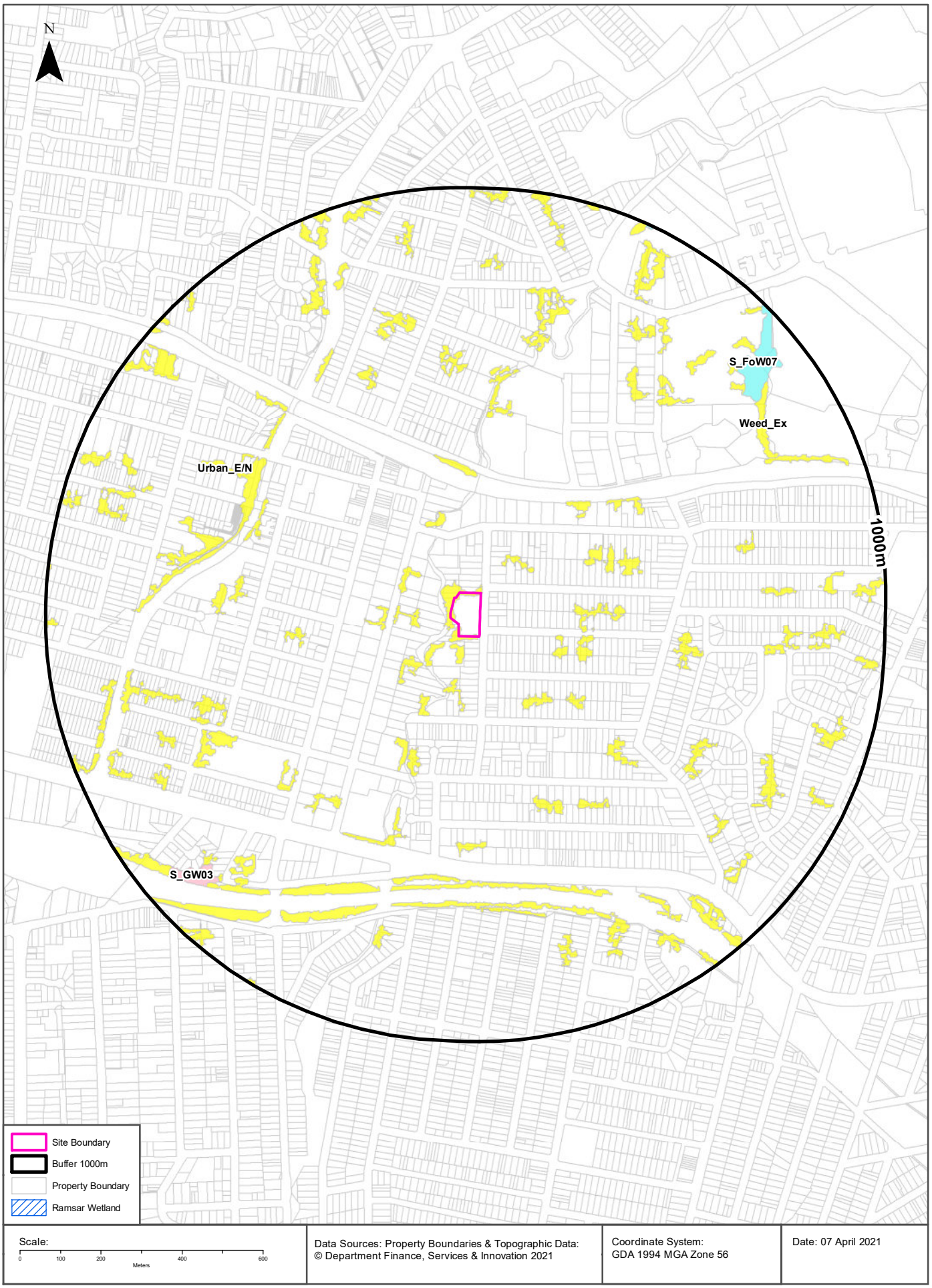
What are the nearest Bush Fire Prone Land Categories that exist within the dataset buffer?

Bush Fire Prone Land Category	Distance	Direction
No records in buffer		

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

Ecological Constraints - Vegetation & Ramsar Wetlands

23-27 Lytton Street, Wentworthville, NSW 2145



Ecological Constraints

23-27 Lytton Street, Wentworthville, NSW 2145

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	Dir
Urban_E/N	Urban_E/N: Urban Exotic/Native			00: Not assessed	00: Not assessed	0: Not assessed	Urban Exotic/Native	0m	On-site
Weed_Ex	Weed_Ex: Weeds and Exotics			00: Not assessed	00: Not assessed	0: Not assessed	Exotic Species >90%cover	779m	North East
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.glaucaEucalypts	810m	North East
S_GW03	S_GW03: Cumberland Shale Plains Woodland	Cumberland Plain Woodland	Cumberland Plain Woodland/ Shale Gravel Forest (possible)	13: Dry shrubs and grasses	24: Urban mixed use	4: Very high	E.tereticornis/E.moluccannaE.crebra/E.eugeinioides	829m	South West
Weed_Ex	Weed_Ex: Weeds and Exotics			20: Weeds and exotics	20: Previously cleared 1943	3: High	Exotic Species >90%cover	986m	North
S_FoW07	S_FoW07: Cumberland Swamp Oak Riparian Forest	River Flat Eucalypt Forest		20: Weeds and exotics	20: Previously cleared 1943	3: High	C.glaucaEucalypts	990m	North East

Native Vegetation of the Sydney Metropolitan Area : NSW Office of Environment and Heritage
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Ramsar Wetlands

What Ramsar Wetland areas exist within the dataset buffer?

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

Ramsar Wetlands Data Source: © Commonwealth of Australia - Department of Agriculture, Water and the Environment

Ecological Constraints

23-27 Lytton Street, Wentworthville, NSW 2145

Groundwater Dependent Ecosystems Atlas

Type	GDE Potential	Geomorphology	Ecosystem Type	Aquifer Geology	Distance	Direction
N/A	No records in buffer					

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

23-27 Lytton Street, Wentworthville, NSW 2145

Inflow Dependent Ecosystems Likelihood

Type	IDE Likelihood	Geomorphology	Ecosystem Type	Aquifer Geology	Distance	Direction
N/A	No records in buffer					

Inflow Dependent Ecosystems Likelihood Data Source: The Bureau of Meteorology
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Ecological Constraints

23-27 Lytton Street, Wentworthville, NSW 2145

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	Actitis hypoleucos	Common Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
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	Arenaria interpres	Ruddy Turnstone	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	Calidris acuminata	Sharp-tailed Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calidris canutus	Red Knot	Not Listed	Not Sensitive	Endangered	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calidris ferruginea	Curlew Sandpiper	Endangered	Not Sensitive	Critically Endangered	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calidris melanotos	Pectoral Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;JAMBA
Animalia	Aves	Calidris ruficollis	Red-necked Stint	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calidris tenuirostris	Great Knot	Vulnerable	Not Sensitive	Critically Endangered	ROKAMBA;CAMBA; JAMBA
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	Chlidonias leucopterus	White-winged Black Tern	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Circus assimilis	Spotted Harrier	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Daphoenositta chrysoptera	Varied Sittella	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Epthianura albifrons	White-fronted Chat	Endangered Population, 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	Gelochelidon nilotica	Gull-billed Tern	Not Listed	Not Sensitive	Not Listed	CAMBA
Animalia	Aves	Glossopsitta pusilla	Little Lorikeet	Vulnerable	Not Sensitive	Not Listed	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
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	Hydroprogne caspia	Caspian Tern	Not Listed	Not Sensitive	Not Listed	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	Limicola falcinellus	Broad-billed Sandpiper	Vulnerable	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Limosa lapponica	Bar-tailed Godwit	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Limosa limosa	Black-tailed Godwit	Vulnerable	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Lophoictinia isura	Square-tailed Kite	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Motacilla flava	Yellow Wagtail	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
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	
Animalia	Aves	Numenius madagascariensis	Eastern Curlew	Not Listed	Not Sensitive	Critically Endangered	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Numenius phaeopus	Whimbrel	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
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	Pluvialis fulva	Pacific Golden Plover	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Pluvialis squatarola	Grey Plover	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Polytelis swainsonii	Superb Parrot	Vulnerable	Category 3	Vulnerable	
Animalia	Aves	Rostratula australis	Australian Painted Snipe	Endangered	Not Sensitive	Endangered	
Animalia	Aves	Sterna hirundo	Common Tern	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Sternula albifrons	Little Tern	Endangered	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Stictonetta naevosa	Freckled Duck	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Thalasseus bergii	Crested Tern	Not Listed	Not Sensitive	Not Listed	JAMBA
Animalia	Aves	Tringa glareola	Wood Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Tringa nebularia	Common Greenshank	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Tringa stagnatilis	Marsh Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Tyto longimembris	Eastern Grass Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Tyto novaehollandiae	Masked Owl	Vulnerable	Category 3	Not Listed	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Aves	Tyto tenebricosa	Sooty Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Xenus cinereus	Terek Sandpiper	Vulnerable	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
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	Petauroides volans	Greater Glider	Not Listed	Not Sensitive	Vulnerable	
Animalia	Mammalia	Phascogale tapoatafa	Brush-tailed Phascogale	Vulnerable	Not Sensitive	Not Listed	
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	Aspidites ramsayi	Woma	Vulnerable	Not Sensitive	Not Listed	
Animalia	Reptilia	Caretta caretta	Loggerhead Turtle	Endangered	Not Sensitive	Endangered	
Animalia	Reptilia	Chelonia mydas	Green Turtle	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Reptilia	Tiliqua occipitalis	Western Blue-tongued Lizard	Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Acacia bynoeana	Bynoe's Wattle	Endangered	Not Sensitive	Vulnerable	
Plantae	Flora	Acacia pubescens	Downy Wattle	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Argyrotegium nitidulum	Shining Cudweed	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Callistemon linearifolius	Netted Bottle Brush	Vulnerable	Category 3	Not Listed	
Plantae	Flora	Dillwynia tenuifolia		Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Dillwynia tenuifolia		Endangered Population, 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	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Plantae	Flora	Grammitis stenophylla	Narrow-leaf Finger Fern	Endangered	Category 3	Not Listed	
Plantae	Flora	Grevillea beadleana	Beadle's Grevillea	Endangered	Category 3	Endangered	
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	Pimelea curviflora var. curviflora		Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Pimelea spicata	Spiked Rice-flower	Endangered	Not Sensitive	Endangered	
Plantae	Flora	Pomaderris brunnea	Brown Pomaderris	Endangered	Not Sensitive	Vulnerable	
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	
Plantae	Flora	Triplarina imbricata	Creek Triplarina	Endangered	Not Sensitive	Endangered	
Plantae	Flora	Wahlenbergia multicaulis	Tadgell's Bluebell	Endangered Population	Not Sensitive	Not Listed	
Plantae	Flora	Wilsonia backhousei	Narrow-leafed Wilsonia	Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Zannichellia palustris		Endangered	Not Sensitive	Not Listed	

Data does not include NSW category 1 sensitive species.

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

Location Confidences

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

LC Code	Location Confidence
Premise Match	Georeferenced to the site location / premise or part of site
Area Match	Georeferenced to an approximate or general area
Road Match	Georeferenced to a road or rail corridor
Road Intersection	Georeferenced to a road intersection
Buffered Point	A point feature buffered to x metres
Adjacent Match	Land adjacent to a georeferenced feature
Network of Features	Georeferenced to a network of features
Suburb Match	Georeferenced to a suburb boundary
As Supplied	Spatial data supplied by provider

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12. These Terms are subject to New South Wales law.

Land Title Records

ABN: 36 092 724 251
Ph: 02 9099 7400
(Ph: 0412 199 304)

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

Summary of Owners Report

Address: - 23 to 27 Lytton Street, Wentworthville

Description: - Lot 1 D.P. 787784

As regards the part numbered (1) on the attached Cadastral Records Enquiry Report

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
05.08.1918 (1918 to 1951)	Henry Joseph Clifford (Railway Clerk)	Vol 2497 Fol 10
06.04.1951 (1951 to 1962)	Raymond Graham Rutter (Insurance Clerk)	Vol 2497 Fol 10 Now Vol 6390 Fol 183
03.02.1962 (1962 to 1963)	Marian Frances Booth (Widow)	Vol 6390 Fol 183
26.04.1963 (1963 to 1968)	Francis Ellul (No occupation noted) Frances Ellul (Married Woman)	Vol 6390 Fol 183
17.07.1968 (1968 to 1978)	Charles D'Anastasi (Labourer) Antonia Grace D'Anastasi (Married Woman)	Vol 6390 Fol 183
07.04.1978 (1978 to 1980)	Anthony John Zammit (Taxi Driver) Lynda June Zammit (Married Woman)	Vol 6390 Fol 183
24.03.1980 (1980 to 1989)	Baulkham Hills Private Hospital Limited Now Baulkham Hills Private Hospital Pty Limited	Vol 6390 Fol 183 Now 1/787784

As regards the part numbered (2) on the attached Cadastral Records Enquiry Report

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
05.08.1918 (1918 to 1953)	Henry Joseph Clifford (Railway Clerk)	Vol 2497 Fol 10 Now Vol 6390 Fol 182
02.07.1953 (1953 to 1960)	Hilda Isabelle Clifford (Widow) (Transmission Application not investigated)	Vol 6390 Fol 182
25.06.1960 (1960 to 1970)	Frederick Gordon Lynch (Postmaster) Elizabeth Foster Lloyd Lynch (Married Woman)	Vol 6390 Fol 182
16.01.1970 (1970 to 1979)	Wentworthville Community Hospital No. 1 Pty Limited	Vol 6390 Fol 182 Now Vol 12333 Fol 212
18.07.1979 (1979 to 1989)	Baulkham Hills Private Hospital Limited Now Baulkham Hills Private Hospital Pty Limited	Vol 12333 Fol 212 Now 1/787784

ABN: 36 092 724 251
Ph: 02 9099 7400
(Ph: 0412 199 304)

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

As regards the part numbered (3) on the attached Cadastral Records Enquiry Report

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
09.03.1915 (1915 to 1927)	Alice May Clifford (Married Woman)	Vol 2559 Fol 24
09.07.1927 (1927 to 1945)	John Joseph Corcoran (Shipping Clerk)	Vol 2559 Fol 24 Now Vol 3989 Fol 182
28.05.1945 (1945 to 1950)	John Rowling (Varnisher)	Vol 3989 Fol 182
07.07.1952 (1952 to 1952)	Howard Noel Smith (Carrier)	Vol 3989 Fol 182
15.07.1952 (1952 to 1952)	Herbert Alexander Humphries (Brick Carter) Betty May Humphries (Married Woman) May Byrne (Widow)	Vol 3989 Fol 182
18.11.1952 (1952 to 1960)	Robert Harley Williams (Abrasive Worker) Joan Alexandra Williams (Married Woman)	Vol 3989 Fol 182
22.05.1970 (1970 to 1979)	Wentworthville Community Hospital No. 1 Pty Limited	Vol 3989 Fol 182 Now Vol 12333 Fol 212
18.07.1979 (1979 to 1989)	Baulkham Hills Private Hospital Limited Now Baulkham Hills Private Hospital Pty Limited	Vol 12333 Fol 212 Now 1/787784

As regards the part numbered (4) on the attached Cadastral Records Enquiry Report

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
09.03.1915 (1915 to 1937)	Alice May Clifford (Married Woman)	Vol 2559 Fol 24 Now Vol 3989 Fol 192
13.04.1937 (1937 to 1938)	Ada Jane Bernard (Married Woman) (Transmission Application not investigated)	Vol 3989 Fol 192
02.05.1938 (1938 to 1942)	Francis George Hayes (Retired Grazier)	Vol 3989 Fol 192
16.04.1942 (1942 to 1943)	Francis George Dupert Harris (Engineer) Robert Elmer Hayes (Engineer) (Transmission Application not investigated)	Vol 3989 Fol 192
28.07.1943 (1943 to 1956)	Francis George Dupert Harris (Engineer)	Vol 3989 Fol 192
05.12.1956 (1956 to 1956)	Bessie Turnbull (Married Woman)	Vol 3989 Fol 192
12.12.1956 (1956 to 1964)	Paul Emil Pfueller (Company Director) Royston George Brooke Templeman (Solicitor)	Vol 3989 Fol 192 Now Vol 9742 Fol 189
23.03.1964 (1964 to 1968)	Community Private Hospital Holdings Pty Limited	Vol 9742 Fol 189
23.04.1968 (1968 to 1979)	Wentworthville Community Hospital No. 1 Pty Limited	Vol 9742 Fol 189 Now Vol 12333 Fol 212
18.07.1979 (1979 to 1989)	Baulkham Hills Private Hospital Limited Now Baulkham Hills Private Hospital Pty Limited	Vol 12333 Fol 212 Now 1/787784

ABN: 36 092 724 251
Ph: 02 9099 7400
(Ph: 0412 199 304)

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

As regards the part numbered (5) on the attached Cadastral Records Enquiry Report

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
04.06.1929 (1929 to 1947)	Louise Annabella Cecil-Hunt (Widow)	Vol 4285 Fol 121
06.07.1947 (1947 to 1948)	Henry James Hungerford (Storekeeper)	Vol 4285 Fol 121
18.05.1948 (1948 to 1955)	Clara Muriel May Long (Married Woman)	Vol 4285 Fol 121
26.05.1955 (1955 to 1960)	Cecil Gabriel Morrisey (Mechanical Engineer) Nora Elizabeth Murray Married Woman)	Vol 4285 Fol 121 Now Vol 7077 Fol 79
12.05.1960 (1960 to 1964)	Community Private Hospital Holdings Pty Limited	Vol 7077 Fol 79
23.03.1964 (1964 to 1979)	Wentworthville Community Hospital No. 1 Pty Limited	Vol 7077 Fol 79 Now Vol 12333 Fol 212
18.07.1979 (1979 to 1989)	Baulkham Hills Private Hospital Limited Now Baulkham Hills Private Hospital Pty Limited	Vol 12333 Fol 212 Now 1/787784

As regards the part numbered (6) on the attached Cadastral Records Enquiry Report

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
04.06.1929 (1929 to 1947)	Louise Annabella Cecil-Hunt (Widow)	Vol 4285 Fol 121
06.07.1947 (1947 to 1948)	Henry James Hungerford (Storekeeper)	Vol 4285 Fol 121
18.05.1948 (1948 to 1955)	Clara Muriel May Laing (Married Woman)	Vol 4285 Fol 121
24.05.1955 (1955 to 1956)	John Keith Wells (Builder)	Vol 4285 Fol 121 Now Vol 7077 Fol 78
17.07.1956 (1956 to 1967)	Athol Brian Barnes (Club Secreatary) Kathleen Mary Barnes (Married Woman)	Vol 7077 Fol 78
26.08.1967 (1967 to 1981)	Kathleen Mary Barnes (Widow)	Vol 7077 Fol 78
14.04.1981 (1981 to 1986)	Gary Edwards Christine Adele Edwards	Vol 7077 Fol 78
05.02.1986 (1986 to 1989)	Baulkham Hills Private Hospital Pty Limited	Vol 7077 Fol 78 Now 1/787784

ABN: 36 092 724 251
Ph: 02 9099 7400
(Ph: 0412 199 304)

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

As regards the part numbered (7) on the attached Cadastral Records Enquiry Report

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
15.03.1918 (1918 to 1925)	Corlaynda Rowe (Spinster) Now Coralynda Affleck (Married Woman)	Vol 2472 Fol 14
14.04.1925 (1925 to 1947)	Fanny Louisa Batkin (Married Woman)	Vol 2472 Fol 14
04.06.1947 (1947 to 1955)	Cecil Gabriel Morrisey (Fitter)	Vol 2472 Fol 14
30.09.1955 (1955 to 1961)	Charles Henry George Northover (Retired Farmer)	Vol 2472 Fol 14
02.03.1961 (1961 to 1978)	Milner Nola Northover (Spinster) (Section 94 Application not investigated)	Vol 2472 Fol 14 Now Vol 9530 Fol 131
05.10.1978 (1978 to 1985)	Mary Emma Newman (Widow) Bronwyn Rhonda Mary Newman (Spinster) (Transmission Application not investigated)	Vol 9530 Fol 131
06.12.1985 (1985 to 1989)	Baulkham Hills Private Hospital Pty Limited	Vol 9530 Fol 131 Now 1/787784

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
24.12.1989 (1989 to date)	# Health Care Corporation Pty Limited	1/787784

 # Denotes current registered proprietor

Leases: - NIL

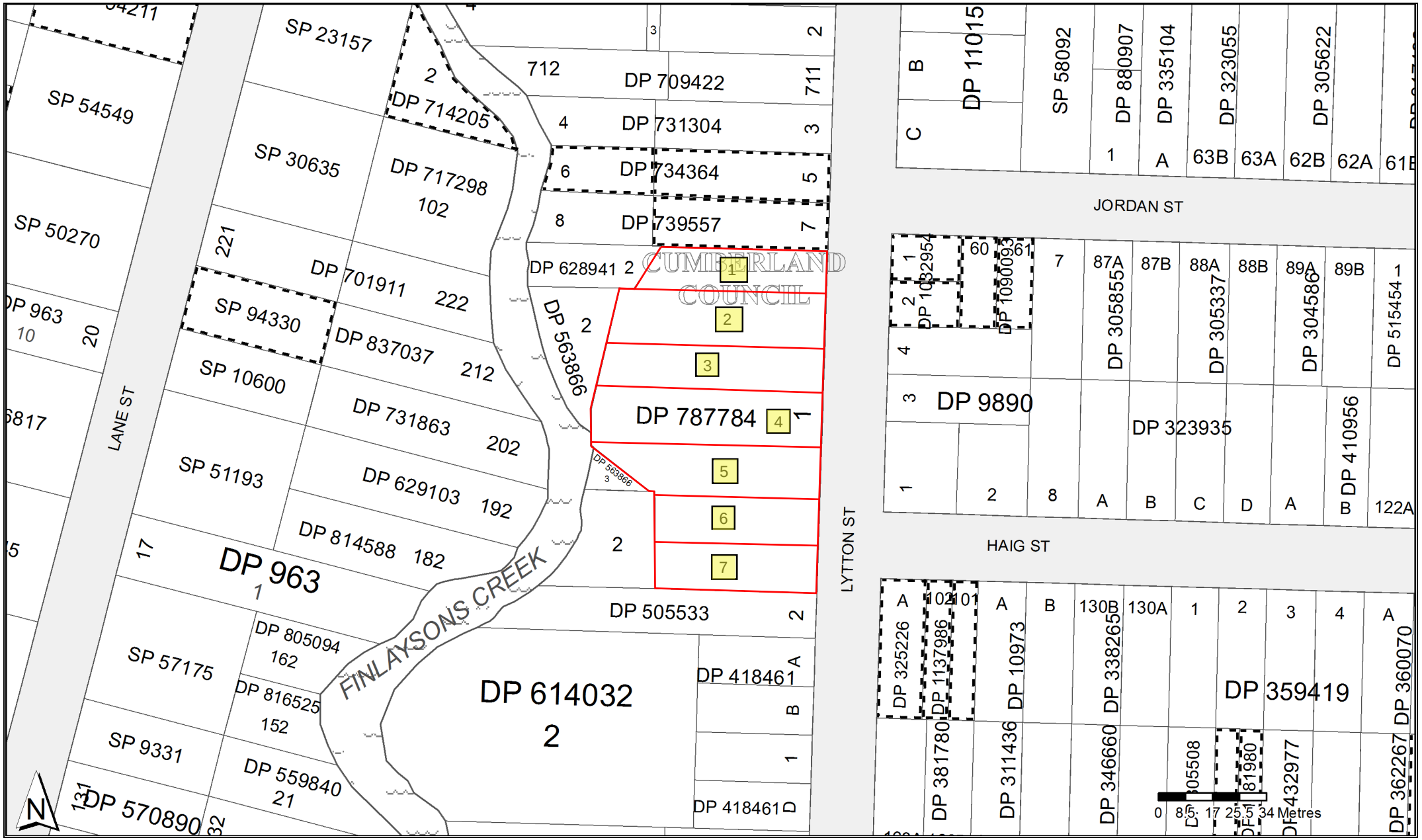
Easements: -

- 07.06.1955 (G 307375) Easement
- 21.11.1973 (M 955707) Easement for Electricity Purposes

Yours Sincerely
Mark Groll
21 April 2021

Cadastral Records Enquiry Report : Lot 1 DP 787784

Locality : WENTWORTHVILLE
Parish : ST JOHN
LGA : CUMBERLAND
County : CUMBERLAND



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This information is provided as a searching aid only.Whilst every endeavour is made to ensure that current map, plan and titling information is accurately reflected, the Registrar General cannot guarantee the information provided. For ALL ACTIVITY PRIOR TO SEPTEMBER 2002 you must refer to the RGs Charting and Reference Maps

InfoTrack
Req:R714656 /Doc:DP 0787784 P /Rev:29-Jun-1992 /NSW LRS /Pgs:ALL /Prt:21-Apr-2021 15:02 /Seq:1 of 1
© Office of the Registrar-General /Src:INFOTRACK /Ref:23-27 Lytton Street, Wentworthville

PLAN FORM 2

Plan Drawing only to appear in this space

*OFFICE USE ONLY

DP 787784

Registered: 10-4-1989

C.A.: No. 5160 OF 23-1-1989

Title System: TORRENS

Purpose: SUBDIVISION

Ref. Map: U9152-61*

Last Plan: DP628941, DP505533 DP392685

PLAN OF SUBDIVISION AND CONSOLIDATION OF LOT 1 D.P. 628941, LOT A D.P.392685 AND LOT 1 D.P. 505533

Reduction Ratio 1: 600
Lengths are in metres.

Mun./Shire ~~City~~: HOLROYD

Locality: WENTWORTHVILLE

Parish: ST. JOHN

County: CUMBERLAND

This is sheet 1 of my plan in sheets.
(Delete if inapplicable).

I, MALCOLM GORDON DRUMMOND

of KEOWN & DRUMMOND P/L 37A PITT ST SYDNEY

a surveyor registered under the Surveyors Act, 1929, as amended, hereby certify that the survey represented in this plan is accurate and has been made ~~from plans~~ by me (2) under my immediate supervision in accordance with the Survey Practice Regulations, 1933, and was completed on the 27th OCTOBER, 1988

Signature: [signature]

Surveyor registered under Surveyors Act, 1929, as amended.
Datum Line of Azimuth: A - B
*Strike out either (1) or (2). †Insert date of survey.

Panel for use only for statements of intention to dedicate public roads or to create public reserves, drainage reserves, easements or restrictions as to user.

IT IS INTENDED TO CREATE LOT 2 AS A PUBLIC RESERVE

The Common Seal of Hospital Corporation Australia Pty Limited was hereto affixed pursuant to a resolution of the directors in the presence of:

Secretary

Director

SURVEYOR'S REFERENCE 5276

Signatures and seals only.

Council Clerk's Certificate

I hereby certify that —

(a) the requirements of the Local Government Act, 1919 (other than the requirements for the registration of plans), and

*(b) the requirements of section 34B of the ~~Metropolitan Water, Sewerage and Drainage Act, 1924~~, as amended, ~~Hunter District Water, Sewerage and Drainage Act, 1938~~, as amended

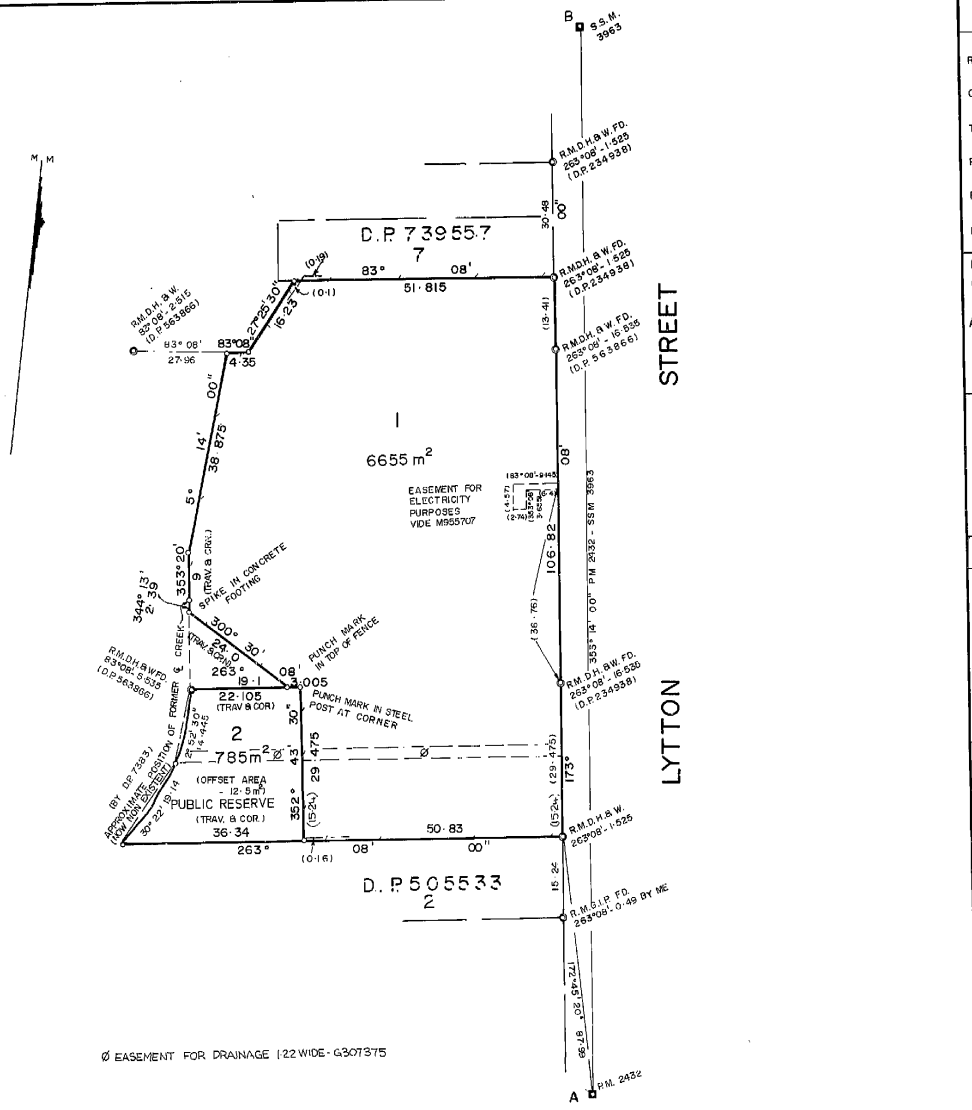
have been complied with by the applicant in relation to the proposed SUBDIVISION (Insert "new road", "subdivision" or "consolidation lot") set out herein

Subdivision No. 5160

Date 23-1-89

(Signature) [signature] Council Clerk

*This part of certificate to be deleted where the application is only for a consolidated lot or the opening of a new road or where the land to be subdivided is wholly outside the areas of operations of the Metropolitan Water Sewerage and Drainage Board and the Hunter District Water Board.
†Delete if inapplicable.



MPD

5160 WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

This negative is a photograph made as a permanent record of a document in the custody of the Registrar General this day. 11th April, 1989

Req:R709697 /Doc:CT 12333-212 CT /Rev:10-Jan-2011 /NSW LRS /Pgs:ALL /Prt:21-Apr-2021 08:54 /Seq:1 of 2
© Office of the Registrar-General /Src:INFOTRACK /Ref:23-27 Lytton Street, Wentworthville

12333812

[redacted]ICATE OF TITLE

NEW SOUTH WALES

[redacted]L PROPERTY ACT, 1900

Vol. 12333 Fol. 212

Appln No. 18460

Prior Titles Vol.3989 Fol.182
Vol.6390 Fol.182
Vol.7077 Fol. 79
Vol.9742 Fol.189

Edition issued 21-1-1974.

CANCELLED

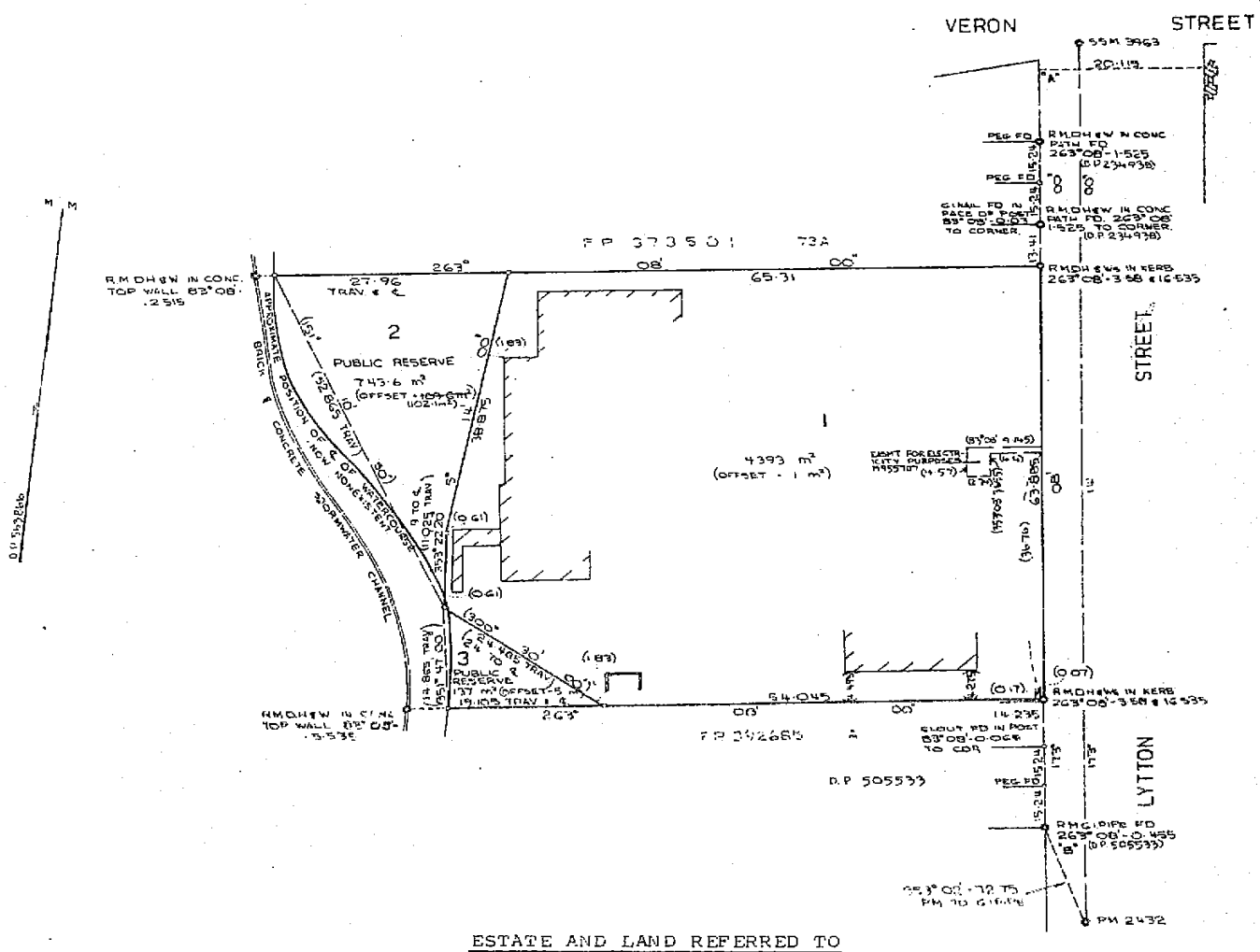
I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

Registrar General.

(Page 1) Vol. 12333 Fol. 212

PLAN SHOWING LOCATION OF LAND

LENGTHS ARE IN METRES



ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 1 in Deposited Plan 563866 in the Municipality of Holroyd Parish of St.John and County of Cumberland being part of Portions 301 and 302 granted to William Fullagar on 6-7-1859.

FIRST SCHEDULE

~~WENTWORTHVILLE COMMUNITY HOSPITAL NO. 1 PTY. LIMITED.~~

SECOND SCHEDULE

1. Reservations and conditions, if any, contained in the Crown Grant above referred to.
2. ~~Mortgage No.M646313 of the part of the land above described formerly comprised in Certificates of Title Volume 3989 Folio 182 and Volume 6390 Folio 182 to Bank of New South Wales. Entered 23-3-1972.~~ Discharged R279012
3. Easement for Electricity Purposes created by Transfer No.M955707 affecting the part of the land above described shown as "Easement for Electricity Purposes M955707" in the plan hereon.
4. ~~Mortgage No.L22703 of the part of the land above described formerly comprised in Certificates of Title Volume 7077 Folio 79 and Volume 9742 Folio 189 to Bank of New South Wales. Entered 18-7-1968.~~ Discharged R279014

WARNING: THIS DOCUMENT MUST NOT BE REMOVED FROM THE LAND TITLES OFFICE.
PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON
NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED.

R279015 — 120 — 133 — 2

T308219 C/ND

DP6-894 Lgd 4/11/2

Vol. 12333 Fol. 212

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	ENTERED	Signature of Registrar General
~~Baulkham Hills Private Hospital Limited~~	Transfer	R279015	—	18-7-1979	
Baulkham Hills Private Hospital Pty. Limited by Application T308219. Registered 29-11-1982.					

SECOND SCHEDULE (continued)

INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	PARTICULARS	ENTERED	Signature of Registrar General	CANCELLATION		
			This deed is cancelled as to Whole New certificate registered on 14/12/82 Particulars Dep called Lot/s 1-2 14559 6 to 7					

(Page 2 of 2 pages)

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

Req:R709697 /Doc:CT 12333-212 CT /Rev:10-Jan-2011 /NSW LRS /Pgs:ALL /Prt:21-Apr-2021 08:54 /Seq:2 of 2
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Req:R709703 /Doc:CT 09742-189 CT /Rev:19-Jan-2011 /NSW LRS /Pgs:ALL /Prt:21-Apr-2021 08:55 /Seq:1 of 2
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C.

[redacted]TIFICATE OF TITLE

NEW SOUTH WALES
Application No.18460
Prior title Vol.3989 Fol.192

[redacted]PERTY ACT, 1900, as amended.

09742 189

Vol. 9742 Fol. 189

1st Edition issued 7-7-1964

J636371 CANCELLED

Vol. 9742 Fol. 189

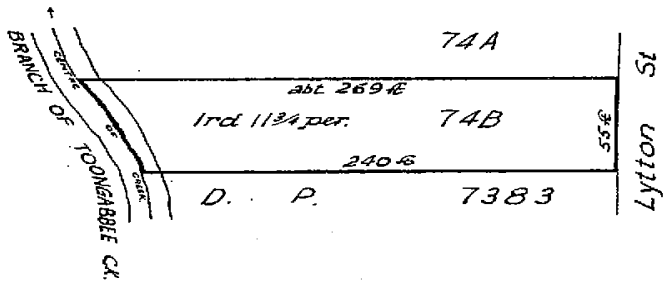
(Page 1)

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



J636371

Scale: 80 feet to one inch.

ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 74B in Deposited Plan 100790 in the Municipality of Holroyd Parish of St. John and County of Cumberland being part Portions 39 and 40 separately granted to William Fullagar on 6-7-1859.

Registrar General.

FIRST SCHEDULE (continued overleaf)

~~PAUL EMIL PFUELLER of Hunters Hill, Company Director, and ROYSTON GEORGE BROOKE TEMPLEMAN of Parramatta, Solicitor, as Joint Tenants.~~

Registrar General.

SECOND SCHEDULE (continued overleaf)

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

Registrar General.

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

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

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

ST 1608 V. C. N. BLIGHT, GOVERNMENT PRINTER

Vol. 9742 Fol 189

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	ENTERED	Signature of Registrar-General
~~Community Private Hospitals Holdings Pty. Limited~~	~~Transfer~~	~~J636375~~	~~23-3-1964~~	~~22-7-1964~~	
Wentworthville Community Hospital No. 1 Pty. Limited	Transfer	L22702	23-4-1968	18-7-1968	

This deed is cancelled as to the whole

New Certificates of Title have issued on 21-1-1974

for lots in Deposited Plan No. 563866 as follows:-

Lots 1 to 3 Vol. 12333 Fol 212024 respectively.

REGISTRAR GENERAL

J636375

K264909

L22700 -701 -702 -703

DP563866

SECOND SCHEDULE (continued)

INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	PARTICULARS	ENTERED	Signature of Registrar-General	CANCELLATION		
~~Mortgage~~	~~J636377~~	~~22-4-1964~~	~~to General Credits (Australia) Pty Ltd~~	~~22-7-1964~~		Discharged	K197961	
~~Mortgage~~	~~K197962~~	~~10-12-1965~~	~~to Carton Holdings Pty Limited~~	~~23-12-1965~~		Discharged	L22700	
~~Mortgage~~	~~K294909~~	~~11-3-1966~~	~~to Patricia Josephine McKenzie of Kingsford Married Woman~~	~~1-6-1966~~		Discharged	L22701	
Mortgage	L22703	8-4-1968	to Bank of New South Wales	18-7-1968				

(Page 2 of 2 pages)

FORM No. 183A

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

Req:R709703 /Doc:CT 09742-189 CT /Rev:19-Jan-2011 /NSW LRS /Pgs:ALL /Prt:21-Apr-2021 08:55 /Seq:2 of 2
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Req:R709671 /Doc:CT 09530-131 CT /Rev:08-Feb-2011 /NSW LRS /Pgs:ALL /Prt:21-Apr-2021 08:52 /Seq:1 of 2
© Office of the Registrar-General /Src:INFOTRACK /Ref:23-27 Lytton Street, Wentworthville

M

NEW SOUTH WALES

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

CERTIFICATE OF TITLE

REAL PROPERTY ACT, 1900, as amended.

Vol. 9530 Fol. 131

1st Edition issued 2-10-1963.

(Page 1) Vol. 9530 Fol. 131

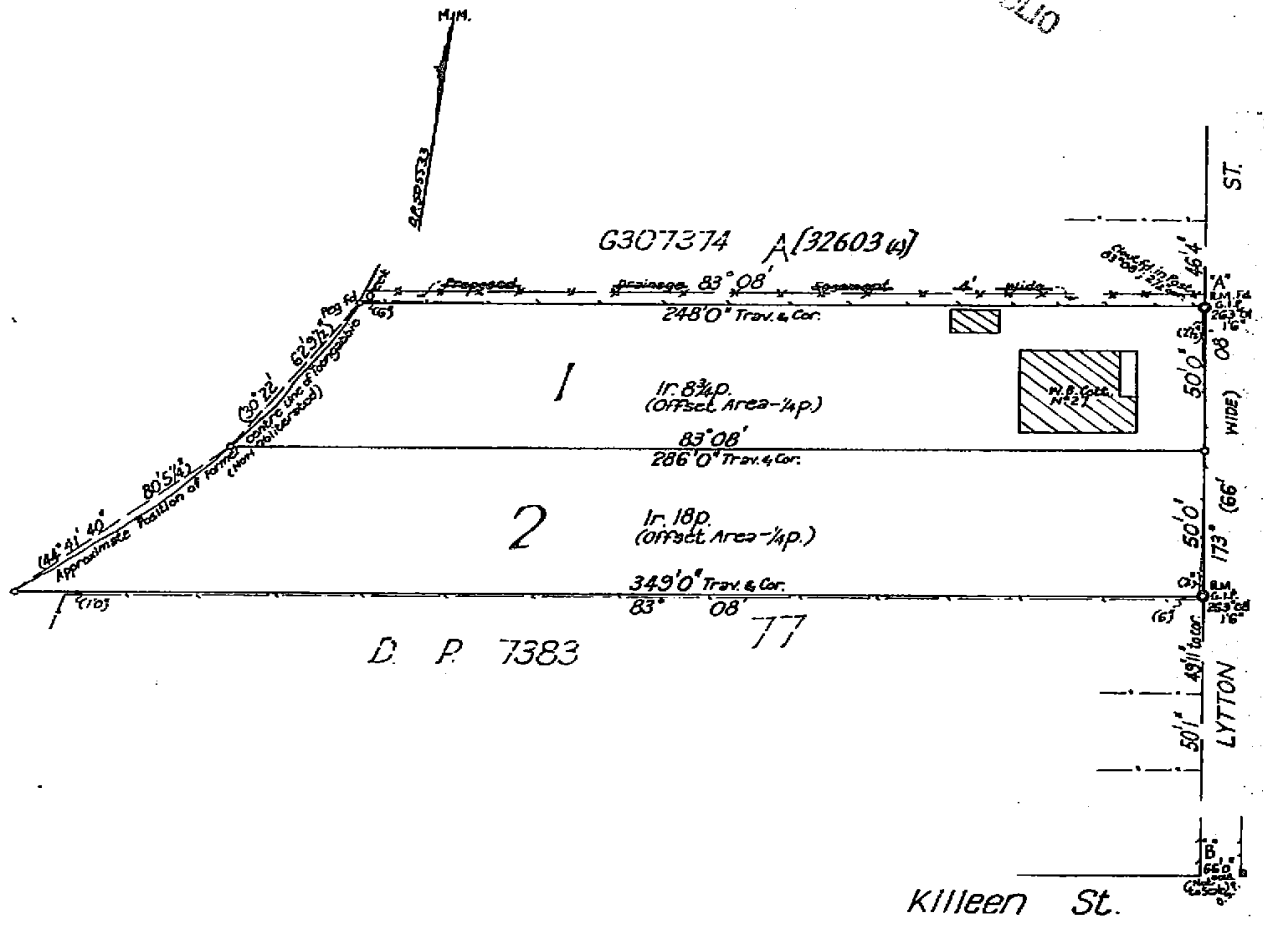
I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

Witness J.B. Bailey

Registrar-General

SEE AUTO FOLIO

PLAN SHOWING LOCATION OF LAND



ESTATE AND LAND REFERRED TO.

Estate in Fee Simple in Lot 1 in Deposited Plan 505533 at Wentworthville in the Municipality of Holroyd Parish of St. John and County of Cumberland.

FIRST SCHEDULE (Continued overleaf)

~~MILNER NOLA NORTHOVER, of Wentworthville, Spinster.~~

Registrar General.

GRY

SECOND SCHEDULE (Continued overleaf)

1. Reservations and conditions, if any, contained in the Crown Grant(s) referred to in the said Deposited Plan.
2. ~~Caveat No. H723396 by the Registrar General. Entered 2-3-1961.~~ Withdrawn Q 892370

Registrar General.

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

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

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

ST 1408 V. C. N. BLIGHT, GOVERNMENT PRINTER

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	ENTERED	Signature of Registrar-General
Mary Emma Newman, Widow of [illegible] Wentworthville and Bronwyn Rhonda Mary Hosmer, Spinster, both of Wentworthville as joint tenants	Transmission	Q892370	—	5-10-1978	
Baulkham Hills Private Hospital Pty. Limited by Transfer W61105. Registered 6.12.1985.					

Q892370TAR
W61105T
R

Fol. 131
Vol. 9530

SECOND SCHEDULE (continued)

INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	PARTICULARS	ENTERED	Signature of Registrar-General	CANCELLATION
			SEE AUTO FILM			

(Page 2 of 2 pages)

FORM No. 184A

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

Req:R709671 /Doc:CT 09530-131 CT /Rev:08-Feb-2011 /NSW LRS /Pgs:ALL /Prt:21-Apr-2021 08:52 /Seq:2 of 2
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Req:R709672 /Doc:CT 14959-006 CT /Rev:19-Jan-2011 /NSW LRS /Pgs:ALL /Prt:21-Apr-2021 08:52 /Seq:1 of 2
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14959006

[redacted]FICATE OF TITLE

NEW SOUTH WALES — [redacted]AL PROPERTY ACT, 1900

First Title : Old System

Prior Titles: Vol. 6390 Fol.183
Vol.12333 Fol.212

14959 6
Vol. Fol.

EDITION ISSUED
14 12 1982

I certify that the person named in the First Schedule is the registered proprietor of an estate in fee simple (or such other estate or interest as is set out below) in the land described subject to the recordings appearing in the Second Schedule and to the provisions of the Real Property Act, 1900.

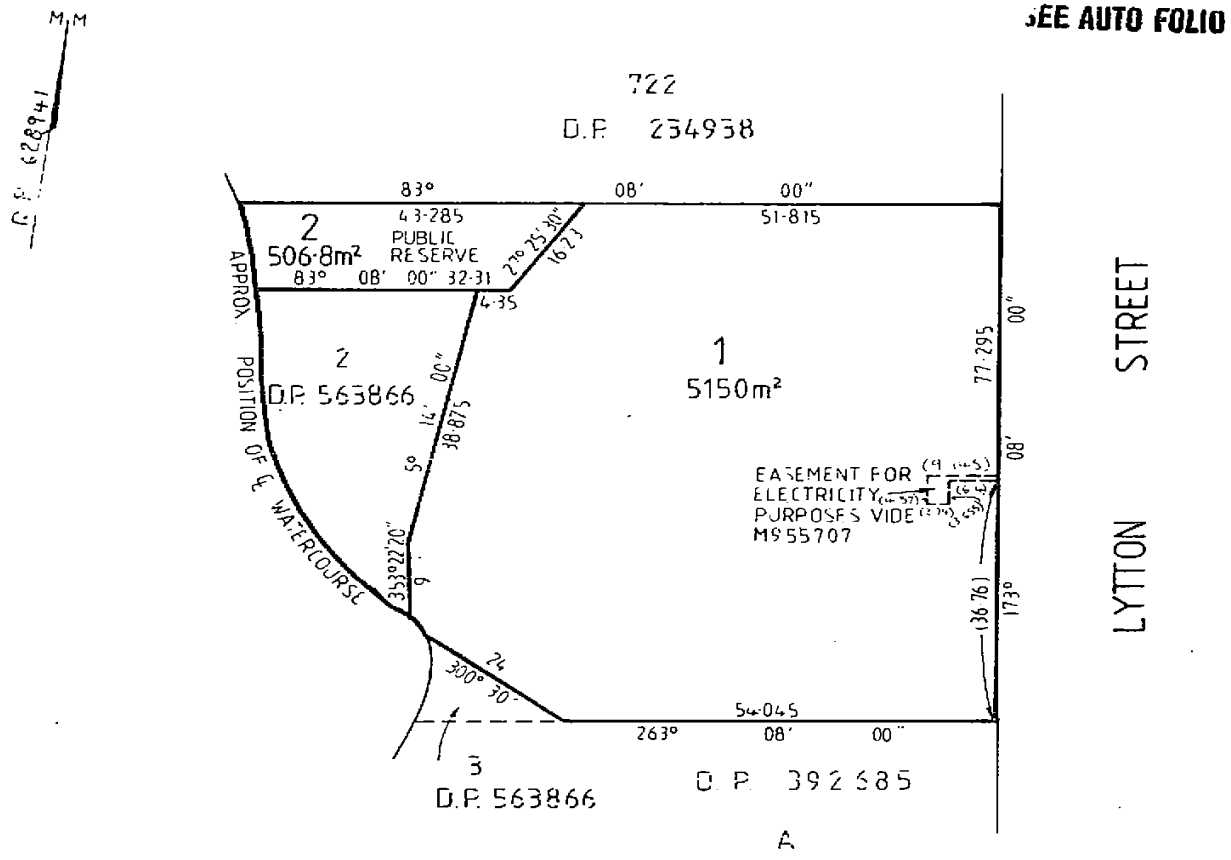
Registrar General.

CANCELLED

SEE AUTO FOLIO

PLAN SHOWING LOCATION OF LAND

LENGTHS ARE IN METRES



LAND REFERRED TO

Lot 1 in Deposited Plan 628941 at Wentworthville in the Municipality of Holroyd Parish of St.John and County of Cumberland.

FIRST SCHEDULE

BAULKHAM HILLS PRIVATE HOSPITAL PTY. LIMITED.

SECOND SCHEDULE

1. Reservations and conditions, if any, contained in the Crown Grant.
2. M955707 Easement for electricity purposes affecting the part of the land above described shown so burdened in Deposited Plan 628941.

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

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

(Page 1) Vol. 14959 Fol. 6

RG 2/64

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99346D 8.81 D. West, Government Printer

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	Registrar General

SECOND SCHEDULE (continued)

PARTICULARS	Registrar General	CANCELLATION
CANCELLED SEE AUTO FOLIO		

NOTATIONS AND UNREGISTERED DEALINGS

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
21/4/2021 3:01PM

FOLIO: 1/505533

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 9530 FOL 131

Recorded	Number	Type of Instrument	C.T. Issue
28/3/1988		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
17/6/1988		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
14/4/1989	DP787784	DEPOSITED PLAN	FOLIO CANCELLED
10/11/1993		AMENDMENT: LOCAL GOVT AREA	

*** END OF SEARCH ***

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Received: 21/04/2021 15:01:21

Historical Title

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE
21/4/2021 3:01PM

FOLIO: 1/787784

First Title(s): OLD SYSTEM
Prior Title(s): 1/505533 1/628941
VOL 7077 FOL 78

Recorded	Number	Type of Instrument	C.T. Issue
17/4/1989	DP787784	DEPOSITED PLAN	FOLIO CREATED EDITION 1
16/5/1989	Y368033	DEPARTMENTAL DEALING	EDITION 2
27/7/1989	Y358366	CAVEAT	
14/12/1989	Y746636	TRANSFER	EDITION 3
22/8/1997	3346863	MORTGAGE	EDITION 4
2/11/2000	7196116	DISCHARGE OF MORTGAGE	EDITION 5
17/1/2001	7353805	CAVEAT	
7/3/2006	AC75569	APPLICATION FOR PREPARATION OF LAPSING NOTICE	
7/3/2006	AB885667	MORTGAGE	EDITION 6
29/12/2007	AD667984	DISCHARGE OF MORTGAGE	EDITION 7
10/2/2016	AK206439	POSITIVE COVENANT	
10/2/2016	AK206440	RESTRICTION ON USE OF LAND BY/VESTED IN PRESCRIBED AUTHORITY	
15/6/2016	AK509587	DEPARTMENTAL DEALING	

*** END OF SEARCH ***

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Title Search

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 1/787784

SEARCH DATE	TIME	EDITION NO	DATE
21/4/2021	10:08 AM	7	29/12/2007

LAND

LOT 1 IN DEPOSITED PLAN 787784
AT WENTWORTHVILLE
LOCAL GOVERNMENT AREA CUMBERLAND
PARISH OF ST JOHN COUNTY OF CUMBERLAND
TITLE DIAGRAM DP787784

FIRST SCHEDULE

HEALTH CARE CORPORATION PTY. LIMITED (T Y746636)

SECOND SCHEDULE (4 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 EASEMENT(S) AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM CREATED BY:
G307375 -FOR DRAINAGE 1.22 WIDE
M955707 -FOR ELECTRICITY PURPOSES
* 3 AK206439 POSITIVE COVENANT
* 4 AK206440 RESTRICTION(S) ON THE USE OF LAND

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

* 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.

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Section 10.7 Certificates / Council Records

CUMBERLAND
CITY COUNCIL

APPLICANT: **Jk Environments**
PO Box 976
NORTH RYDE BC NSW 1670

PLANNING CERTIFICATE

Issued under section 10.7(2) & (5) Environmental Planning and Assessment Act 1979

Property:	**23-27 Lytton Street WENTWORTHVILLE NSW 2145**
Title:	**Lot 1 DP 787784**
Land No:	89214
Certificate No:	PC2021/1667
Certificate Date:	06/04/2021
Applicant's Ref:	E27318PH th

SECTION 10.7(2)

In accordance with the requirements of section 10.7(2) of the Environmental Planning and Assessment Act (1979) ("the Act"), the following prescribed matters relate to the land at the date of this certificate.

ITEM 1 - Names of relevant planning instruments and DCPs

1. The following environmental planning instruments apply to the carrying out of development on the land:

Holroyd Local Environmental Plan 2013

State Environmental Planning Policy No. 19 – Bushland in Urban Areas
State Environmental Planning Policy No. 30 – Intensive Agriculture
State Environmental Planning Policy No. 33 – Hazardous and Offensive Development
State Environmental Planning Policy No. 50 – Canal Estates
State Environmental Planning Policy No. 55 – Remediation of Land
State Environmental Planning Policy No. 62 – Sustainable Aquaculture
State Environmental Planning Policy No. 64 – Advertising and Signage
State Environmental Planning Policy No. 65 – Design Quality of Residential Flat Development
State Environmental Planning Policy No. 70 – Affordable Housing (Revised Schemes)
State Environmental Planning Policy – SEPP (Housing for Seniors or People with a Disability) 2004
State Environmental Planning Policy – Building Sustainability Index: BASIX 2004
State Environmental Planning Policy – (Mining, Petroleum Production and Extractive Industries) 2007
State Environmental Planning Policy – (Infrastructure) 2007
State Environmental Planning Policy – (Temporary Structures) 2007
State Environmental Planning Policy – (Exempt and Complying Development Codes) 2008
State Environmental Planning Policy – (Repeal of Concurrence and Referral Provisions) 2008
State Environmental Planning Policy – (Affordable Rental Housing) 2009
State Environmental Planning Policy – (Vegetation in Non-Rural Areas) 2017
State Environmental Planning Policy – (Educational Establishments and Child Care Facilities) 2017
State Environmental Planning Policy – (Primary Production and Rural Development) 2019
State Environmental Planning Policy – (State and Regional Development) 2011
State Environmental Planning Policy – (Concurrences) 2018
State Environmental Planning Policy No. 21 – Caravan Parks

Sydney Regional Environmental Plan No. 9 – Extractive Industry (No. 2 – 1995)
Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005

2. The following proposed environmental planning instruments apply to the carrying out of development on the land and are or have been the subject of community consultation or on public exhibition under the Environmental Planning and Assessment Act 1979:

Cumberland Local Environmental Plan (PP_2019_CUMBE_006_00)

3. The following development control plans apply to the carrying out of development on the land:

Holroyd Development Control Plan 2013

ITEM 2 - Zoning and land use under relevant LEPs

1. (a) Zoning details in the instruments identified in ITEM 1(1) above

Holroyd Zone R4 High Density Residential

Objectives of zone
To provide for the housing needs of the community within a high density residential environment.
To provide a variety of housing types within a high density residential environment.
To enable other land uses that provide facilities or services to meet the day to day needs of residents.

Permitted without consent
Home occupations

Permitted with consent
Attached dwellings; Boarding houses; Building identification signs; Business identification signs; Centre-based child care facilities; Community facilities; Environmental protection works; Exhibition homes; Home businesses; Home industries; Hostels; Kiosks; Multi dwelling housing; Neighbourhood shops; Oyster aquaculture; Places of public worship; Recreation areas; Residential flat buildings; Respite day care centres; Roads; Seniors housing; Shop top housing

Prohibited
Pond-based aquaculture; Tank-based aquaculture Any development not specified in item 2 or 3

Additional permitted uses

No additional uses apply

(b) Are there development standards applying to the land, which fix minimum land dimensions for the erection of a dwelling house on the land?

No fixed minimum land dimensions apply to this land

(c) Does the land include or comprise critical habitat?

The land does not include or comprise critical habitat

(d) Is the land within a heritage conservation area?

The land is not within a heritage conservation area

(e) Is there a heritage item situated on the land?

There are no heritage items situated on the land

2. (a) Zoning details in the instruments identified in ITEM 1(2) above

Zone R4 High Density Residential

1 Objectives of zone

- To provide for the housing needs of the community within a high density residential environment.
- To provide a variety of housing types within a high density residential environment.
- To enable other land uses that provide facilities or services to meet the day to day needs of residents.

- To ensure that non-residential land uses are located in a context and setting that minimises impacts on the amenity of a high density residential environment.

2 Permitted without consent
Home occupations

3 Permitted with consent
Attached dwellings; Bed and breakfast accommodation; Boarding houses; Building identification signs; Business identification signs; Centre-based child care facilities; Community facilities; Dual occupancies; Dwelling houses; Educational establishments; Emergency services facilities; Environmental protection works; Exhibition homes; Flood mitigation works; Home-based child care; Home businesses; Home industries; Hostels; Hotel or motel accommodation; Kiosks; Multi dwelling housing; Neighbourhood shops; Oyster aquaculture; Places of public worship; Public Administration buildings, recreation areas; Recreation facilities (indoor); Recreation facilities (outdoor); Residential flat buildings; Respite day care centres; Roads; Semi-detached dwellings; Seniors housing; Shop top housing; Water recycling facilities; Any other development not specified in item 2 or 4.

4 Prohibited
Agriculture; Air transport facilities; Amusement centres; Animal boarding or training establishments; Boat building and repair facilities; Boat sheds; Camping grounds; Car parks; Caravan parks; Cemeteries; Charter and tourism boating facilities; Commercial premises; Correctional centres; Crematoria; Depots; Eco-tourist facilities; Electricity generating works; Entertainment facilities; Environmental facilities; Exhibition villages; Extractive industries; Farm buildings; Forestry; Freight transport facilities; Function centres; Heavy industrial storage establishments; Highway service centres; Home occupations (sex services); Industrial retail outlets; Industrial training facilities; Industries; Information and education facilities; Marinas; Mooring pens; Moorings; Mortuaries; Open cut mining; Passenger transport facilities; Pond-based aquaculture; Port facilities; Recreation facilities (major); Registered clubs; Research stations; Residential accommodation; Restricted premises; Rural industries; Service stations; Sewerage systems; Sex services premises; Signage; Storage premises; Tank-based aquaculture; Tourist and visitor accommodation; Transport depots; Vehicle body repair workshops; Vehicle repair stations; Veterinary hospitals; Warehouse or distribution centres; Waste or resource management facilities; Water recreation structures; Water supply systems; Wharf or boating facilities; Wholesale supplies

Additional permitted uses

No draft additional uses apply

(b) Are there development standards applying to the land, which fix minimum land dimensions for the erection of a dwelling house on the land?

No fixed minimum land dimensions apply to the land under a draft environmental planning instrument

(c) Does the land include or comprise critical habitat?

The land does not include or comprise critical habitat under a draft environmental planning instrument

(d) Is the land within a draft heritage conservation area?

The land is not within a draft heritage conservation area

(e) Is there a draft heritage item situated on the land?

There are no draft heritage items situated on the land

ITEM 2A - Zoning and land use under State Environmental Planning Policy (Sydney Region Growth Centres) 2006

Is the land identified within any zone under Part 3 of State Environmental Planning Policy (Sydney Region Growth Centres) 2006, a Precinct Plan, or a Proposed Precinct Plan that is or has been the subject of community consultation or on public exhibition under the Act?

No

ITEM 3 – Complying Development Exclusions

Is the land, land on which complying development may be carried out under clauses 1.17A(1)(c) to (e),(2),(3) and (4), 1.18 (1)(c3) and 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008?

Housing Code
Yes, under the Housing Code complying development may be carried out on the land.

Low Rise Housing Diversity Code
Yes, under the Low Rise Housing Diversity Code complying development may be carried out on the land.

Rural Housing Code
Yes, under the Rural Housing Code complying development may be carried out on the land.

Housing Alterations Code
Yes, under the Housing Alterations Code complying development may be carried out on the land.

General Development Code
Yes, under the General Development Code complying development may be carried out on the land.

Commercial and Industrial Alterations Code
Yes, under the General Commercial and Industrial Code complying development may be carried out on the land.

Commercial and Industrial (New Buildings and Additions) Code
Yes, under the General Commercial and Industrial (New Buildings and Additions) Code complying development may be carried out on the land.

Container Recycling Facilities Code
Yes, under the Container Recycling Facilities Code complying development may be carried out on the land.

Subdivisions Code
Yes, under the Subdivisions Code complying development may be carried out on the land.

Demolition Code
Yes, under the Demolition Code complying development may be carried out on the land.

Fire Safety Code
Yes, under the Fire Safety Code complying development may be carried out on the land.

ITEM 4 – (Repealed)

ITEM 4A – (Repealed)

ITEM 4B – Annual charges under Local Government Act 1993 for coastal protection services that relate to existing coastal protection works

Has the owner (or any previous owner) of the land consented in writing to the land being subject to annual charges under section 496B of the Local Government Act 1993 for coastal protection services that relate to existing coastal protection works (within the meaning of section 553B of that Act)?

No

ITEM 5 – Mine subsidence

Is the land proclaimed to be in a mine subsidence district within the meaning of the Coal Mine Subsidence Compensation Act 2017?

No

ITEM 6 – Road widening and road realignment

Is the land affected by any road widening or road realignment under:

(a) Division 2 of Part 3 of the Roads Act 1993; or
(b) Any environmental planning instrument; or
(c) Any resolution of the Council?

No

ITEM 7 – Council and other public authority policies on hazard risk restrictions

(a) Whether or not the land is affected by a policy adopted by the Council that restricts the development of the land because of the likelihood of:-

(i)	land slip	No
(ii)	bushfire	No
(iii)	tidal inundation	No
(iv)	subsidence	No
(v)	acid sulphate soils	No
(vi)	land contamination	No
(vii)	Other Risk	No

(b) Whether or not the land is affected by a policy adopted by any other public authority and notified to the Council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the Council that restricts the development of the land because of the likelihood of:-

(i)	land slip	No
(ii)	bushfire	No
(iii)	tidal inundation	No
(iv)	subsidence	No
(v)	acid sulphate soils	No
(vi)	land contamination	No
(vii)	Other Risk	No

ITEM 7A – Flood related development controls information

1. Whether or not development on the land or part of the land for the purposes of dwelling houses, dual occupancies, multi dwelling housing or residential flat buildings (not including development for the purposes of group homes or seniors housing) is subject to flood related development controls.

Yes

2. Whether or not development on the land or part of the land for any other purpose is subject to flood related development controls.

Yes

ITEM 8 – Land reserved for acquisition

Is there an environmental planning instrument, or proposed environmental planning instrument referred to in clause 1 which makes provision in relation to the acquisition of the land by a public authority, as referred to in section 3.15 of the Environmental Planning and Assessment Act 1979?

No

ITEM 9 – Contributions plans

The name of each contributions plan applying to the land is:-

Cumberland Local Infrastructure Contributions Plan 2020

ITEM 9A - Biodiversity certified land

Is the land biodiversity certified land under Part 8 of the Biodiversity Conservation Act 2016 (including land certified under Part 7AA of the Threatened Species Conservation Act 1995)?

No

ITEM 10 – Biodiversity stewardship sites

Has Council been notified by the Chief Executive of the Office of Environment and Heritage that the land is a biodiversity stewardship site under a biodiversity stewardship agreement under Part 5 of the Biodiversity Conservation Act 2016 (including biobanking agreements under Part 7A of the Threatened Species Conservation Act 1995)?

No

ITEM 10A – Native vegetation clearing set asides

Under section 60ZC of the Local Land Service Act 2013, has Council been notified by Local Land Services (or is it registered in the public register under that section) that the land contains a set aside area?

No

ITEM 11 – Bush fire prone land

(a)	***All of the land is bush fire prone land.***	No
(b)	***Some of the land is bush fire prone land.***	No
(c)	***None of the land is bush fire prone land.***	Yes

ITEM 12 – Property vegetation plans

Has Council been notified (by the person or body that approved the plan) of the existence of a property vegetation plan approved under Part 4 of the Native Vegetation Act 2003 (and that continues in force) applying to the land?

No

ITEM 13 – Orders under Trees (Disputes Between Neighbours) Act 2006

Has Council been notified that an order has been made under the Trees (Disputes Between Neighbours) Act 2006 to carry out work in relation to a tree on the land?

No

ITEM 14 – Directions under Part 3A

Is there a direction by the Minister in force under section 75P (2) (c1) of the Environmental Planning and Assessment Act 1979 that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect?

No

ITEM 15 – Site compatibility certificates and conditions for seniors housing

(a) Has a current site compatibility certificate (seniors housing), of which the Council is aware, been issued under State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 in respect of proposed development on the land?

No

(b) Have any terms of a kind referred to in clause 18(2) of State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 been imposed as a condition of consent to a development application granted after 11 October 2007 in respect of the land?

No

ITEM 16 – Site compatibility certificates for infrastructure, schools or TAFE establishments

Has a valid site compatibility certificate (infrastructure) or a site compatibility certificate (schools or TAFE establishments), of which the Council is aware, been issued?

No

ITEM 17 – Site compatibility certificates and conditions for affordable rental housing

1. Has a current site compatibility certificate (affordable rental housing), of which the Council is aware, been issued in respect of proposed development on the land?

No

2. Have any terms of a kind referred to in clause 17(1) or 38(1) of State Environmental Planning Policy (Affordable Rental Housing) 2009 been imposed as a condition of consent to a development application in respect of the land?

No

ITEM 18 – Paper subdivision information

Has a development plan been adopted that applies to the land or that is proposed to be subject to a consent ballot?

No

ITEM 19 – Site verification certificates

Has Council been made aware of a current site verification certificate that has been issued in respect of the land?

No

ITEM 20 – Loose – fill asbestos insulation

Has Council been notified that the land includes any residential premises (within the meaning of Division 1A of Part 8 of the Home Building Act 1989) that are listed on the register that is required to be maintained under that Division?

No

ITEM 21 – Affected building notices and building product rectification orders

1. Is any affected building notice in force in respect of the land?

No

2. Is any building product rectification order in force in respect of the land that has not been fully complied with?

No

3. Has a notice of intention to make a building product rectification order been given in respect of that land that is outstanding?

No

ITEM 22 - State Environmental Planning Policy (Western Sydney Aerotropolis) 2020

For land to which *State Environmental Planning Policy (Western Sydney Aerotropolis) 2020* applies, whether the land is –

(a) in an ANEF or ANEC contour of 20 or greater as referred to in clause 19 of that Policy, or
(b) shown on the *Lighting Intensity and Wind Shear Map* under that Policy, or
(c) shown on the *Obstacle Limitation Surface Map* under that Policy, or
(d) in the "public safety area" on the *Public Safety Area Map* under that Policy, or
(e) in the "3 kilometre wildlife buffer zone" or the "13 kilometre wildlife buffer zone" on the *Wildlife Buffer Zone Map* under that Policy.

The land is not affected.

NOTE 1 – Matters arising under the Contaminated Land Management Act 1997

Section 59(2) of the Contaminated Land Management Act 1997 prescribes the following additional matters to be specified in planning certificates:-

(a) At the date of this certificate, is the land (or part of the land) to which this certificate relates significantly contaminated land?

No

(b) At the date of this certificate, is the land to which this certificate relates subject to a management order?

No

(c) At the date of this certificate, is the land to which this certificate relates the subject of an approved voluntary management proposal?

No

(d) At the date of this certificate, is the land to which this certificate relates subject to an ongoing maintenance order?

No

(e) At the date of this certificate, is the land to which this certificate relates the subject of a site audit statement and a copy of such a statement has been provided to the Council?

No

SECTION 10.7(5) INFORMATION

In accordance with section 10.7(5) of the Act the following advice is given on other relevant matters affecting the land.

1. Coastal matters and projected sea level rise

Council has been notified that the Department of Planning has adopted the New South Wales Coastal Planning Guideline: Adapting to Sea Level Rise (August 2010). The guideline can be viewed at www.planning.nsw.gov.au. The applicant should also refer to projected sea level rise low, medium and high scenario maps on http://www.ozcoasts.org.au/climate/Map_images/Sydney/mapLevel2.jsp for further information.

2. Acid Sulfate

No, the land is not affected by Acid Sulfate Soils

3. Other Advice

Council's records suggest that the subject land may be liable to flooding based on the information from a flood study in the area. On written request, Council will supply the designated flood levels for the area, which should be used with an appropriate survey plan to better interpret the flood affectation of the land.

GENERAL INFORMATION

The absence of any reference to a matter affecting the land shall not imply that the land is not affected by that matter not referred to in this certificate.

Information provided under section 10.7(2) is in accordance with the matters prescribed under schedule 4 of the Environmental Planning and Assessment Regulation 2000 and is provided only to the extent that the Council has been notified by the Department of Public Works or Department of Planning.

When advice in accordance with section 10.7(5) is requested the Council is under no obligation to furnish any advice. If advice is provided Council draws your attention to section 10.7(6) and schedule 6 of the *Environmental Planning and Assessment Act 1979* which have the effect that Council shall not incur any liability in respect of advice provided in good faith pursuant to section 10.7(5), including the furnishing of advice in respect of contaminated land.

Any enquiries regarding State and Regional Environmental Planning Policies should be directed to the Department of Planning at **http:// www.planning.nsw.gov.au**

Please contact Council's Strategic Planning section for further information about this Planning Certificate.

Hamish McNulty
GENERAL MANAGER

The Council of the Municipality of Holroyd

All communications to be addressed to the Town Clerk

23.

Tel. 637-0441 Ext. .....
(Mr. Cole.)
IN REPLY PLEASE QUOTE
NO. G69 42 1334.

Council Chambers
Merrylands 2160

Richard Gailey & Associates,
Architects,
1 Central Avenue,
LANE COVE. 2066.

4th May, 1970.

DEVELOPMENT CONSENT No. 70/44

On behalf of Wentworthville Community Hospital No. 1 Pty. Ltd.

The Council of the Municipality of Holroyd, being the Responsible Authority for the purposes of Part XIIA of the Local Government Act, 1919, as amended, and Clause 41 of the County of Cumberland Planning Scheme Ordinance in respect to the land described as - lot 74A, M.P.S.(R.P.)16771, lot 73B, M.P.S.(R.P.)73501, lot 74B, M.P.S.(R.P.)16771 and lot B, M.P.S.(R.P.)92685, on the west side of Lytton Street between Killeen Street & Veron Street,

HEREBY GRANTS CONSENT for the use of land for a three stage redevelopment as an extended hospital - in this instance, Stage I,

subject to the following conditions.-

1.- The Council raises no objection in principle to the overall development and redevelopment of the hospital, but issues consent for Stage I only at this time,
2.- Each additional Stage will be considered on its merits at the time of application and off-street parking and other requirements will be assessed on the circumstances at the time.
3.- With future applications, while the Council prefers off-street parking for staff and visitors' vehicles to be adjacent to the development, it will consider parking areas located in close proximity to the hospital on the merits of each application.
4.- Landscaping, car parking and driveways to conform to at least Council's minimum requirements and to follow basicly the layout as shown on plan numbers 302 A1 and A2 prepared by Richard Gailey, Architect, submitted with development application.
5.- Construction of parking areas and driveways to Engineer's requirements, full details to be submitted with building application.
6.- Demolition of existing cottages.
7.- Development to be restricted to area proposed to be zoned Residential "A" under the Council's Local Scheme.
8.- Transfer to Council of the open space land at the rear.
9.- Submission of a satisfactory building application under Part XI of the Local Government Act.
10.- Compliance with the requirements of the Department of Public Health.
11.- Compliance with the requirements of the Board of Fire Commissioners.
12.- Submission of a approval of an acceptable plan for the disposal of roof and surface water into a suitable drain under the control of the Council.
13.- Design of incinerator to the requirements of the Department of Public Health, Air Pollution Control Branch.

Yours faithfully,

P. A. Arnett

(P. A. Arnett)
TOWN CLERK

CK:VW

Engr

Town Planners

The Council of the Municipality of Holroyd

All communications to be addressed to the Town Clerk

682.4255
Tel. Ext. 66
(Town Planners)
IN REPLY PLEASE QUOTE
NO. 76/558

Council Chambers
Merrylands 2160

Date: 24th February, 1981

Baulkham Hills Private Hospital,
3rd Floor,
15 Blue Street,
NORTH SYDNEY 2060

Development Consent No. 81/46

Development Application No. 108

Dear Sir,

ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979

Pursuant to Section 92 of the Act notice is hereby given of the determination by the Council of the Municipality of Holroyd, being the consent authority, of the abovementioned development application relating to the land described as follows:-

Lot 73A, M.P.S.(R.P.) 73501 and Lot 1, D.P.563866 on the western side of Lytton Street, being Nos. 15 to 23.

The development application has been determined by granting of consent subject to the conditions specified in the attached Schedule "A".

The reasons for the imposition of the conditions are set out.

Endorsement of date of Consent 24th February, 1981

Yours faithfully,

I. R. Wilson

I. R. Wilson,
TOWN CLERK per JA.

Encls.

NOTE: Section 97 of the Act confers on an applicant who is dissatisfied with the determination of a consent authority a right of appeal to the Land and Environment Court.

The Council of the Municipality of Holroyd

Tel. 682.4255 Ext. 66
Town Planners.
IN REPLY PLEASE QUOTE
No. 76/558

Council Chambers
Merrylands, 2160

ALL COMMUNICATIONS TO BE ADDRESSED TO THE TOWN CLERK

Date 24th February, 1981

Baulkham Hills Private Hospital.

No.: 81/46

SCHEDULE "A"

HOLROYD PLANNING SCHEME

DEVELOPMENT CONSENT

The Council of the Municipality of Holroyd, being the responsible Authority for the purposes of the Environmental Planning and Assessment Act, 1979, in respect to the land described as Lot 73A, M.P.S.(R.P.) 73501 and Lot 1, D.P.563866 on the western side of Lytton Street, being Nos. 15 to 23.

HEREBY GRANTS CONSENT for the ~~use of~~ redevelopment of the abovementioned site (Wentworthville Community Hospital);

Subject to the following conditions:-

These conditions have been required in the public interest to protect the amenity of the neighbourhood and to ensure compliance with the provisions of the Holroyd Planning Scheme. (This consent shall be void if the above development is not substantially commenced within 12 months.)

1. Consent is granted for the redevelopment of the Wentworthville Community Hospital to provide for a private hospital containing a maximum of 86 beds.

2. An Accoustical Engineer's Report is to be submitted which examines the effects of the proposed plant room and cooling tower on the nearby residents. In this regard the noise emitted shall at no time exceed the ambient noise level. Should the above not prove to be feasible then the plant room and cooling tower are to be relocated to a position where no noise nuisance results.

3. A 1.8 metre high fence or screen wall is to be provided along the northern property boundary. This is required to minimise the effects of the parking area on the occupiers of No. 11 Lytton Street.

4. A detailed plan of landscaping is to be submitted with the Building Application. The landscaping plan shall be prepared by a qualified landscape architect and shall include the following features:-

   (a) Screen landscaping to the southern and northern property boundaries.
   (b) Retention of the existing trees located along the southern property boundary.
   (c) Details of additional planting in the front setback area.

5. Submission of a Building Application under Part XI of the Local Government Act.

6. Provision of a 150mm high concrete or kerb wall along the perimeter of the landscaped area to prevent vehicular encroachments.

7. Parking spaces 1 to 9 may be reserved for the Use of Doctors Only. The remaining car-parking on the site is to be unrestricted for the use of staff, patients and visitors.

The Council of the Municipality of Holroyd

Incorporated 1872

29th October, 1985

All communications to be addressed to the Town Clerk
P.O. Box 42,
Merrylands. 2160.

DX 28339 Parramatta
Tel. 682 4255
Ext: 66
Refer: C Meyers
File: 513-15-D

Hospital Corporation of Australia Pty Ltd
15 Blue Street
NORTH SYDNEY NSW 2060

SCHEDULE "A"
HOLROYD PLANNING SCHEME

DEVELOPMENT CONSENT NO.: 85/259
DEVELOPMENT APPLICATION NO.: 245

The Council of the Municipality of Holroyd, being the Responsible Authority for the purposes of the Environmental Planning and Assessment Act, 1979, in respect to the land described as Lot 1, DP 628941; Pt Lot A, FP 392685; and Pt Lot 1, DP 505533, situated on the western side of Lytton Street between Veron Street and Fullagar Road.

HEREBY GRANTS CONSENT for alterations and additions to the Wentworthville Community Hospital,

subject to the following conditions:-

These conditions have been required in the public interest to protect the amenity of the neighbourhood and to ensure compliance with the provisions of the Holroyd Planning Scheme. (This consent shall be void if the above development is not substantially commenced within 24 months.)

1. BUILDING LINE: The building line for the purposes of Section 308 of the Local Government Act, has been fixed at 7.62 metres to Lytton Street.

   That part of the site between the road alignment and the building line shall be landscaped and maintained. It shall be kept free of buildings, roads and paths (except access directly across the landscaped strip), parked vehicles and the like. Full details of landscaping must be submitted for consideration with the Building Application. A dwarf wall is required around the edges of the landscaped areas to prevent vehicular access within this area.

All communications to be addressed to the Town Clerk
P.O. Box 42,
Merrylands. 2160.

DX 28339 Parramatta
Tel. 682 4255
Ext:
Refer:
File:

2. OFF-STREET PARKING: Adequate provision shall be made on the site and behind the building line for the parking of employees' and visitors' vehicles. A plan showing the details of parking facilities must be submitted with the Building Application referred to in Condition 12. The parking area and access roads are to be constructed, sealed, marked and drained, to Council's satisfaction. A total of at least 86 spaces is required on the site, in accordance with the floor area of plans submitted with this application, and including the 12 spaces existing on the lower level adjoining the southern side of the hospital.

3. STORMWATER DRAINAGE: No line of natural drainage nor any drainage channel, pipeline or other work is to be filled in, diverted or otherwise interfered with, except by construction of a pipeline of size, materials and location approved by the Council. Approval of Engineering plans and specifications for construction will be required before release of the building application.

4. COMPLIANCE WITH THE CLEAN AIR ACT: No furnace, kiln, steam boiler, chemical plant, sand blast or plant for spraying paint or the like is to be installed without the written consent of the Council. Plans and specifications for any such equipment to be submitted and approved before installation.

5. REFUSE AND TRADE WASTE:

   (a) Refuse and trade waste material shall be stored to the satisfaction of Council's Chief Health Surveyor either within the building or in an area outside the building suitably screened and approved by Council.

   (b) Refuse and trade waste shall be removed from the premises at regular intervals to the satisfaction of the Council's Chief Health Surveyor.

6. ROOF AND SURFACE WATER: Submission with the Building Application of an acceptable plan showing disposal of roof and surface water from the site into a suitable drain under the control of the Council.

7. FENCES: No fence may be erected in front of the building line without Council's consent. Fences on the street alignment are to be removed. A chainwire fence is to be erected between properties 25 and 27 Lytton Street and the open space area to the south and west.

8. ELECTRICITY SUBSTATION: Applicant should consult with Prospect County Council with regard to electricity requirements. Pad-type substations and other structures will not be permitted in front of the building line referred to in Condition 1, except in special circumstances known to the County Council. No

All communications to be addressed to the Town Clerk
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DX 28339 Parramatta
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Ext:
Refer:
File:

permission is granted with this consent as a separate application is required for location of these facilities.

9. UNDERGROUND DUCTS: Satisfactory arrangements must be made with Prospect County Council for the installation of underground ducts in the footpath prior to the construction of any concrete works on the footpath.

10. VEHICULAR CROSSINGS: Provision of full-width, heavy-duty crossings across the footpath at entrances to the Council's Engineer's requirements.

11. AMENITY OF THE NEIGHBOURHOOD: All activity is to be conducted so that it causes no interference to the existing and future amenity of the nearby and adjoining residential occupations and the neighbourhood in general.

12. BUILDING APPLICATION: This consent is subject to the lodgement of an acceptable building application under Part XI of the Local Government Act. Details are to be given concerning the estimated number of persons to be employed and the nature of waste (whether liquid or solid). In addition to the requirements herein made, the building application shall include a comprehensive site plan showing details of the following requirements:-

    (a) Parking facilities.
    (b) Fences, screen walls and dwarf walls.
    (c) Landscaping proposals.
    (d) Driveways.
    (e) Amenities as required by the Department of Industrial Relations.
    (f) Toilet arrangements to the satisfaction of Council's Chief Inspector.
    (g) Walls of building facing public roads to be built of brick or masonry.

13. IDENTIFICATION NUMBER: Identification number or numbers are to be conspicuously displayed at the front of the premises in accordance with Section 249B of the Local Government Act, 1919, as amended.

14. Dedication of that area behind 25 and 27 Lytton Street shown as Open Space Reservation on the Holroyd Planning Scheme. This is to be done in conjunction with consolidation of Lot 1, Dp 628941; Pt Lot A, FP 392685; and Pt Lot 1, DP 505533 into one lot on title. This plan is to be registered prior to use or occupation of the new additions, the subject of this approval.

15. The land to be dedicated as open space is to be cleared of blackberries, levelled and trimmed to the satisfaction of Council's Engineer, prior to use or occupation

All communications to be addressed to the Town Clerk
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Refer:
File:

of the new additions, the subject of this approval.

16. All existing trees to be retained where possible. A separate application is to be lodged with Council for removal of any trees which will hinder this development.

17. The new car parking area on 25 and 27 Lytton Street is to be constructed at natural surface level. The driveway giving access to it is to be relocated to the southern side of the site adjoining the public reserve.

18. All existing and redundant inverts and crossings are to be replaced with kerb and gutter, footpaving and turf.

19. Replacement of all damaged kerb and gutter.

20. Provision of new concrete footpaving to the satisfaction of Council's Engineer.

21. The 12 existing car parking spaces on the lower level are to be retained as employee car parking and used as such.

22. The building application is to contain an amended site plan which excludes part of Lot 2, DP 628941, being land previously dedicated as public reserve.

23. The building application referred to in condition 12 must comply in all respects with the provisions of Ordinance 70 applicable to a Class IXa building outside a fire zone.

    (In this regard, the Council will not be able to deal with the building application until it has received and considered a report from the Board of Fire Commissioners of NSW relating to the suitability or otherwise of the means of egress proposed, in accordance with the provisions of Clause 24.51 of Ordinance 70).

The Council of the Municipality of Holroyd

All communications to be addressed to the Town Clerk
P.O. Box 42,
Merrylands. 2160.

Incorporated 1872

DX 28339 Parramatta
Tel. 682 4255
Fax. 637-3200
Ext: 239
Refer: K. Kerzinger
File: 513-15-D

11th April, 1988

David G Evans & Associates Aust Pty Ltd
P O Box 529
HOMEBUSH SOUTH 2140

SCHEDULE "A"

HOLROYD PLANNING SCHEME

DEVELOPMENT CONSENT NO: 88/101
DEVELOPMENT APPLICATION NO. 105

The Council of the Municipality of Holroyd, being the responsible Authority for the purposes of the Environmental Planning & Assessment Act, 1979, in respect to the land described as

Lot 1, D.P. 628941; Pt. Lot A, F.P. 392685 and Pt. Lot 1, D.P. 505533 and known as 15-27 Lytton Street, Wentworthville.

HEREBY GRANTS CONSENT for the excavation into an earth bank at the existing lower ground floor level to construct a workshop and general storage area.

subject to the following 3 conditions:

These conditions have been required in the public interest to protect the amenity of the neighbourhood and to ensure compliance with the provisions of the Holroyd Planning Scheme. (This consent shall be void if the above development is not substantially commenced within 24 months).

1. Submission of a satisfactory building application under Part XI of the Local Government Act.

2. Compliance with relevant conditions contained in Development Consent No. 85/259, copy enclosed.

3. Restoration of landscaping areas damaged as a result of these works and the removal of all fill material excavated away from this site.

Note. Your attention is drawn to Condition No. 14 of Development Consent No. 85/259. It appears that the site has not yet been consolidated or the rear open space land dedicated. Council therefore requires the submission of the plan of subdivision prior to the release of the building application. A cash bond of $2,000 is also to be paid prior to release of the building application to ensure registration of the subdivison within 6 months.

T. P

The Council of the Municipality of Holroyd

All communications to be addressed to the Town Clerk
P.O. Box 42,
Merrylands. 2160.

Incorporated 1872

DX 28339 Parramatta
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Ext: 239
Refer: K. Kerzinger
File: 513-15-D

11th April, 1988

David G Evans & Associates Aust Pty Ltd
P O Box 529
HOMEBUSH SOUTH 2140

Dear Sir/Madam,

DEVELOPMENT CONSENT NO. 88/101
DEVELOPMENT APPLICATION NO. 105

ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979

Pursuant to Section 92 of the Act notice is hereby given of the determination by the Council of the Municipality of Holroyd, being the consent authority, of the abovementioned development application relating to the land described as follows:-

Lot 1, D.P. 628941; Pt. Lot A, F.P. 392685 and Pt. Lot 1, D.P. 505533 and known as 15-27 Lytton Street, Wentworthville.

The development application has been determined by granting of consent subject to the conditions specified in the attached Schedule "A".

The reasons for the imposition of the conditions are set out.

Endorsement of date of Consent 11th April, 1988

Yours faithfully,

I. R. Wilson

I. R. Wilson,
TOWN CLERK. per KK.

Encl.

NOTE: Section 97 of the Act confers on an applicant who is dissatisfied with the determination of a consent authority a right of appeal to the Land and Environment Court.

T. Planning.

The Council of the Municipality of Holroyd

Incorporated 1872

Memorial Avenue, Merrylands, N.S.W. 2160 Telephone: (02) 682 4255

Ext: 540
Refer: R. Cramp
File: ST-502-116-D

23rd March, 1990

Felton Constructions
P.O. Box 4
HORSLEY PARK NSW 2164

Dear Sir/Madam,

DEVELOPMENT CONSENT NO. 90/74
DEVELOPMENT APPLICATION NO. 65.

ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979

Pursuant to Section 92 of the Act notice is hereby given of the determination by the Council of the Municipality of Holroyd, being the consent authority, of the abovementioned development application relating to the land described as follows:-

Lot 90, DP.247972 and known as 116 Long Street, Smithfield.

The development application has been determined by granting of consent subject to the conditions specified in the attached Schedule "A".

The reasons for the imposition of the conditions are set out.

Endorsement of date of Consent 23rd March, 1990.

Yours faithfully,

G.R. Towle
TOWN CLERK.

Encl.

NOTE: Section 97 of the Act confers on an applicant who is dissatisfied with the determination of a consent authority a right of appeal to the Land and Environment Court.

TPD0421943

The Council of the Municipality of Holroyd

Incorporated 1872

Memorial Avenue, Merrylands, N.S.W. 2160 Telephone: (02) 682 4255

Ext: 540
Refer: R. Cramp
File: ST-502-116-D

23rd March, 1990

Felton Constructions
P.O. Box 4
HORSLEY PARK NSW 2164

SCHEDULE "A"

HOLROYD PLANNING SCHEME

DEVELOPMENT CONSENT NO: 90/74
DEVELOPMENT APPLICATION NO. 65

The Council of the Municipality of Holroyd, being the responsible Authority for the purposes of the Environmental Planning & Assessment Act, 1979, in respect to the land described as:-

Lot 90, DP.247972 and known as 116 Long Street, Smithfield.

HEREBY GRANTS CONSENT for the erection of an awning over an existing loading bay area.

subject to the following 6 conditions:

These conditions have been required in the public interest to protect the amenity of the neighbourhood and to ensure compliance with the provisions of the Holroyd Planning Scheme. (This consent shall be void if the above development is not substantially commenced within 24 months).

1. BUILDING LINE: The building line for the purposes of Section 308 of the Local Government Act, has been fixed at 15 metres to Long Street.

   That part of the site between the road alignment and the building line shall be landscaped and maintained free of buildings, parked vehicles, signs and stored materials for use as Open Space.

TPD0421943

2. OFF-STREET PARKING: Adequate provision shall be made on the site and behind the building line for the parking of employees' and visitors' vehicles. The minimum provision required is 1 car space (2.5m x 5.5m) for each 70 square metres of floor area, or 1 car space for every two employees, whichever is the greater. A plan showing the details of parking facilities must be submitted with the Building Application referred to in Condition 16. The parking area and access roads are to be constructed, sealed, marked and drained, to Council's satisfaction. The area is to be used for employees' vehicles only and not for storage of new or used materials, finished goods or commercial vehicles. A total of at least 23 spaces is required on the site, in accordance with the floor area of plans submitted with this application, being 21 spaces for the existing development and 2 spaces for this stage.

3. ROOF WATER: Submission with the Building Application of an acceptable plan showing disposal of roof water from the site into a suitable drain under the control of the Council or into the existing stormwater system if adequate to the Inspector's satisfaction.

4. BUILDING APPLICATION: The submission of a satisfactory Building Application under Part XI of the Local Government Act.

5. The area beneath the proposed awning is not to be used for the storage of materials at any time. All materials are to be stored wholly within the existing building at all times.

6. Loading and unloading activities are not to obstruct the movement of vehicles circulating on the site.

Environmental & Planning Services Department

Our Reference: DA 2005/500
Contact: Natalie Stanowski
Telephone: 9840 9827

ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979
NOTICE OF DETERMINATION OF APPLICATION

15 February 2005

Ramsay Health Care Ltd
C/- Chris Hornsby Architect Pty Ltd
71 Greville Street
CHATSWOOD NSW 2067

Dear Sir/Madam

Pursuant to Section 81 of the Act, Council has granted conditional approval to your Development Application described as follows:

PROPERTY: **Lot 1, DP 787784**

STREET ADDRESS: **23-27 Lytton Street, Wentworthville**

DEVELOPMENT CONSENT NO. **2005/500**

DECISION DATE: **15 February 2005** **Delegated Authority**

PROPOSED DEVELOPMENT: **Internal alterations to existing hospital and addition of external gas bottle storage facility**

CLASSIFICATION: **Class 9**

This Development Application is APPROVED in accordance with the Environmental Planning & Assessment Act 1979 and is subject to compliance with the requirements of Holroyd City Council, the Building Code of Australia, the Local Government Act 1993, and the following conditions as set out hereunder and/or endorsed upon the attached plans.

PRELIMINARY

1. This consent shall lapse if the above development is not substantially commenced within two (2) years of the date shown hereon. Any person entitled to act on the consent may apply to Council at least thirty (30) days before this two year period expires, for an extension of one year.

2. Development shall take place generally in accordance with the attached endorsed plans prepared by Chris Hornsby Architect Pty Ltd, Drawing Number 0320/DA/1 and 0320/DA/2, revision B.

3. All building work shall be carried out in accordance with the requirements of the Building Code of Australia. Fully detailed plans including fire safety details shall be submitted with the Construction Certificate application.

Appointment of Council or a Private Certifier as the Principal Certifying Authority (PCA)

4. Either Council or a Private Certifier is to be appointed as the Principal Certifying Authority (PCA) for the development in accordance with Section 109E of the Act.

   Accordingly, wherever reference is made to the Principal Certifying Authority in this Consent, it refers to Council or the Private Certifier as chosen by you.

   Note: Once you have chosen either Council or a Private Certifier as the PCA, you cannot change from one to the other, or from one Private Certifier or another, without the approval of DIPNR.

5. The applicant shall consult with, as required:
   (a) Sydney Water Corporation Limited
   (b) Integral Energy
   (c) Natural Gas Company
   (d) A local telecommunications carrier

   regarding their requirements for the provision of services to the development and the location of existing services that may be affected by proposed works, either on site or on the adjacent public road(s).

6. The proposed structure/s are to be located clear of existing Council easements. Special footings will be required where the proposed/existing structures are adjacent to a drainage easement. The footings shall be taken down to the invert level of the existing drainage structure or to solid rock, whichever is the lesser. The footing depth may decrease by 500mm for every 1000mm increment in distance the footing is from the easement boundary.
   The footing system is to be designed by a practising professional structural engineer.

7. Building materials, builders sheds, waste bins, site fencing, gates or any material of any description shall not be left or placed on any footway, road or nature strip. Footways and nature strips shall be maintained, including the cutting of vegetation, so as not to become unsightly or a hazard for pedestrians. Offenders will be prosecuted.

PRIOR TO ISSUE/RELEASE OF CONSTRUCTION CERTIFICATE

The following conditions must be complied with prior to the issue of a Construction Certificate. In many cases the conditions require certain details to be included with or incorporated in the detailed plans and specifications which accompany the Construction Certificate:-

Payment of Bonds, Fees and Long Service Levy

8. The Principal Certifying Authority is to ensure and obtain written proof that all bonds, fees and contributions as required by this consent have been paid to the applicable authority. This includes all Long Service Levy payments to be made to the Long Service Payments Corporation.

Consistency with Endorsed Development Consent Plans

9. The Principal Certifying Authority must ensure that any certified plans forming part of the Construction Certificate, are in accordance with the Development Consent plans.

Required Submissions to Certifying Authority

10. A fully detailed Waste Management Plan, prepared in accordance with Holroyd Development Control Plan No. 35 shall be submitted with the Construction Certificate application.

11. An erosion and sediment control plan (in duplicate) shall be submitted to the Principal Certifying Authority prior to the issue/release of the Construction Certificate and is to be prepared by a suitably qualified person in accordance with the guidelines set out in Holroyd City Council's "Erosion and Sedimentation Control Policy". The plan shall include as a minimum the following:-
    - Locality
    - Contours (initial and final)
    - Existing vegetation
    - Existing site drainage
    - Land slope gradient
    - Location of topsoil stockpiles
    - Erosion control measures
    - Sediment control measures
    - Location of crushed rock construction entrance
    - Location of roads, driveways and accessways and all impervious surfaces
    - Details of site revegetation program
    - Outline of a program of maintenance for the erosion and sediment controls

Fire Safety Upgrading & Essential Services

12. The Construction Certificate is to include a schedule specifying all of the essential fire or other safety measures (both current and proposed) that are required for the building or premises to ensure the safety of persons in the building in the event of fire.

PRIOR TO WORKS COMMENCING

The following conditions are to be complied with prior to any works commencing on the site:

Appointment of Principal Certifying Authority and Notification of Commencement of Work

13. The person having the benefit of the development consent, not the principal contractor (builder), must: -

(a) appoint a Principal Certifying Authority in accordance with Section 81A(2)(b) of the Act.

(b) Have the Principal Certifying Authority complete the 'Accredited Certifier Details' on the approved form provided by Council for this purpose, an original of which is attached to this Development Consent.

(c) Notify Council of the appointment of the Principal Certifying Authority and of the intention to commence building work, such notification is to be given to Council at least two (2) working days prior to the proposed commencement date, and be on the approved form provided by Council for this purpose, an original of which is attached to this Development Consent.

If nominated, Council can provide this service for you and act as the Principal Certifying Authority.

N.B. The Principal Certifying Authority must also notify the person having the benefit of the Development Consent of any mandatory critical stage inspections and other inspections that are to be carried out in respect of the building work such notification must comply with Clause 103A of the Regulations.

Notification of Principal Contractor (Builder)/Owner-Builder

14. The person having the benefit of the Development Consent must:-

(a) notify the Principal Certifying Authority that the person will carry out the work as an owner-builder, if that is the case;

OR

(b) Appoint a Principal Contractor for the building work (who must be the holder of a contractor licence if any residential building work is involved), and notify the Principal Contractor of any mandatory critical stage inspections and other inspections that are to be carried out in respect of the building work.

(c) notify the Principal Certifying Authority of any such appointment.

Where Council is the Principal Certifying Authority, such notification is to be on the approved form provided by Council for this purpose, an original of which is attached to this Development Consent.

Required Submissions to Council or the Principal Certifying Authority

15. To facilitate a complete assessment and enable the Certifying Authority to check compliance on site, truss validation and design, details certified by a qualified practising structural engineer shall

be submitted to Council or the Principal Certifying Authority for examination and approval. Details shall include:

a) job address and builder's name
b) design wind velocity
c) terrain category
d) truss spacing
e) roof pitch
f) material of roof
g) roof batten/purlin spacing
h) material of ceiling
i) job number

Fencing of Sites

16. Fencing of sites is required to prevent public access when the site is unoccupied and building works are not in progress. In this regard the MINIMUM acceptable standard of fencing to the site is properly constructed chain wire fencing 1.8m high, clad internally with Hessian or Geotextile fabric. All openings are to be provided with gates, such gates are not at any time to swing out from the site or obstruct the footpath or roadway.

Signs to be Erected on Sites

17. A sign must be erected in a prominent position on any site on which building work, subdivision work or demolition work is being carried out:

(a) showing the name, address and telephone number of the Principal Certifying Authority for the work, and

(b) showing the name of the principal contractor (if any) for any building work and a telephone number on which that person may be contacted **outside working hours and at any time for business purposes**, and

(c) stating that unauthorised entry to the work site is prohibited.

The sign must be rigid and durable and be read easily by anyone in any public road or other public place adjacent to the site.

Any such sign is to be maintained while the building work, subdivision work or demolition work is being carried out, but must be removed when the work has been completed.

This clause does not apply in relation to building work, subdivision work or demolition work that is carried out inside an existing building that does not affect the external walls of the building.

Note: Principal Certifying Authorities and Principal Contractors must also ensure that signs required by this clause are erected and maintained (clause 227A of the Regulations currently imposes a maximum penalty of $1,100).

Prohibited Signage

18. Advertising, Real Estate Agents, Architects, Designers, site suppliers and any other signage not mentioned in the conditions, is not to be placed or displayed on the site, such that the signage is visible from any public place. Offenders may be prosecuted.

Protection of Public Places

19. A hoarding or fence must be erected between the work site and any public place, if the work involved in the erection or demolition of the building; is likely to cause pedestrian or vehicular traffic in a public place to be obstructed or rendered inconvenient, or involves the enclosure of a public place.
If necessary, an awning is to be erected, sufficient to prevent any substance from, or in connection with, the work falling into the public place.
The work site must be kept lit between sunset and sunrise if it is likely to be hazardous to persons in the public place.

Site Control Measures

20. Suitable erosion and sediment control measures shall be provided at all vehicular entry/exit points and all other measures required with and/or shown on plans accompanying the Construction Certificate, to control soil erosion and sedimentation, are to be in place prior to the commencement of construction works. Such controls are to be provided in accordance with Holroyd City Council's "Erosion & Sediment Control Policy."
Note: On-the-spot fines may be issued by council where measures are absent or inadequate.

Footpaving, Kerbing and Guttering

21. Protection must be provided for Council footpaving, kerbing and guttering. Wooden mats must also be provided at all entrances where the site fronts paved footpaths.

22. Finished street levels shall not be assumed. The owner or builder must make application to Council's Engineering Services Department for street levels.

DURING CONSTRUCTION

The following conditions are applicable during construction:-

Endorsed Plans & Specifications

23. A copy of the endorsed stamped plans and specifications, together with a copy of the Development Consent and Construction Certificate are to be retained on site at all times.

Hours of Work & Display of Council Supplied Sign

24. For the purpose of preserving the amenity of neighbouring occupations building work including the delivery of materials to and from the site is to be restricted to the hours of 7.00am to 6.00pm Mondays to Fridays and 8.00am to 4.00pm Saturdays. Work on the site on Sundays and Public

Holidays is prohibited. **Note: Demolition work is not permitted on weekends or Public Holidays - refer to specific demolition condition for approved hours.**

The yellow "Hours of Building Work" sign (supplied by Council with the approval), is to be displayed in a prominent position at the front of the site for the duration of the work.

Site Control

25. All soil erosion measures required in accordance with the approved sediment and erosion control plan and any other relevant conditions of this Consent are to be put in place prior to commencement of construction works are to be maintained during the entire construction period until disturbed areas are restored by turfing, paving or revegetation. This includes the provision of turf laid on the nature strip adjacent to the kerb.

26. Builder's refuse disposal and storage facilities are to be provided on the development site for the duration of construction works and all rubbish shall be removed from the site upon completion of the project.

27. Stockpiles of sand, soil and other material shall be stored clear of any drainage line or easement, tree protection zone, water bodies, footpath, kerb or road surface and shall have erosion and sediment control measures in place to prevent the movement of such materials onto the aforementioned areas and adjoining land.

28. The approved Waste Management Plan must be implemented and complied with during all stages of works on site.

Compliance with Critical Stage Inspections and other Inspections nominated by the Principal Certifying Authority

29. Section 109E(d) of the Act requires certain specific inspections (prescribed by clause 162A of the Regulations) and known as 'Critical Stage Inspections' to be carried out for building work. Prior to permitting commencement of the work your Principal Certifying Authority is required to give notice of these inspections pursuant to clause 103A of the Regulations.

N.B. An Occupation Certificate cannot be issued and the building may not be able to be used or occupied where any mandatory critical stage inspections or other inspections required by the Principal Certifying Authority are not carried out.

Where Council is nominated as Principal Certifying Authority, notification of all inspections required is provided with the Construction Certificate approval.

PRIOR TO ISSUE OF OCCUPATION CERTIFICATE

The following conditions are to be complied with prior to the issue of an interim/final occupation certificate:-

Principal Certifying Authority

30. An Occupation Certificate is to be issued by the Principal Certifying Authority prior to the occupation of the building.

31. A Compliance Certificate or similar documentary evidence is to be issued by the Accredited Certifier stating that all building and site works have been carried out in accordance with the Development Consent and Construction Certificate.

Compliance Certificates/ Documentary Evidence

32. A certificate shall be submitted to the Principal Certifying Authority stating that safety glazing has been used in the building in accordance with AS1288 - "Glass in Buildings - Selection and Installation".

Fire Safety

33. Submission to Council of a Final Fire Safety Certificate pursuant to Clause 170 of the Environmental Planning and Assessment Regulation 2000 in respect of each essential fire or other safety measure listed on the Fire Safety Schedule attached hereto/to the Construction Certificate.
NOTE:
    1. Such Certificate shall state, pursuant to Clause 80E in relation to each essential fire safety measure mentioned in the certificate –
        (a) that the service has been assessed by a properly qualified person (chosen by the owner of the building);and,
        (b) that the service was found to be, when assessed, capable of performing to at least the standard required by the current fire safety schedule for the building for which the certificate is issued.

    2. The person who carries out the assessment must inspect and verify the performance of each fire safety measure being assessed, and must test the operation of each new item of equipment installed in the building premises that is included in the current fire safety schedules for the building.

    3. The assessment must have been carried out within the three (3) months prior to the date on which the final fire safety certificate is issued.

CONDITIONS RELATING TO USE

The following conditions are applicable to the use of the development:-

Emergency Procedures

34. The owner of a building to which an essential fire safety measure is applicable must not fail to maintain each essential fire safety measure in the building premises to a standard not less than that specified in the Fire Safety Schedule.

Safety and Amenity

35. All truck and fork lift movements shall be restricted to between the approved hours of operation.

36. The construction and installation of the compressed oxygen storage area is to comply with AS 2896:1998 – Medical and gas systems – Installation and testing of non-flammable medical gas pipeline systems.

37. Within one (1) week of operation of the oxygen storage area, a certificate of compliance from a suitably qualified person shall be submitted to Council indicating that the equipment shall be installed in accordance with AS 2896:1998 – Medical and gas systems – Installation and testing of non-flammable medical gas pipeline systems.

38. Delivery trucks shall enter and exit the site in a forward direction only.

39. All truck deliveries shall be made during the approved hours of operation of the hospital.

General

40. Compliance with relevant conditions of Development Consent (and associated modifications) for the hospital.

ADVISORY NOTES

Other Necessary Approvals

A. The applicant's attention is drawn to the need to obtain Council's separate approval for any ancillary activity not approved by this consent, including:

(a) Works, including the pruning or removal of any tree(s) not authorised in the preceding conditions or on the approved plans. Council's Tree Preservation Order protects trees by definition taller than 3.5m or having a trunk circumference exceeding 500mm measured one metre above ground level. If in doubt contact Council's Tree Management Officer.
(b) Any fencing located forward of the proposed building and exceeding the limitations specified in Schedule 1 of Development Control Plan No. 32 *"Guidelines for Exempt and Complying Development"*.
(c) The erection of any advertising sign, not being exempt from the need to obtain approval.
(d) The installation of any furnace, kilns, steam boiler, chemical plant, sand blast, spray painting booth or the like.

NOTE: * If you carry out building work as an owner builder and sell your home within seven (7) years from the date of completion (date of final occupation certificate), then a Certificate of Insurance must be attached to your Contract of Sale.

B. Section 97 of the Act provides that an applicant who is dissatisfied with the Council's determination of the Development Application may appeal to the Land and Environment Court within twelve (12) months of the date of determination, or as otherwise prescribed.

C. Section 82A of the Act provides that an applicant may request, within twelve (12) months of the date of determination of the Development Application, that the Council review its determination (this does not apply to integrated or designated development). A fee is required for this review.

D. The applicant and Owner are advised that the Commonwealth Disability Discrimination Act 1992 may apply to this particular proposal. Approval of this application does not imply or confer compliance with this Act. Applicants and owners should satisfy themselves as to compliance and make their own enquiries to the Human Rights and Equal Opportunity Commission. Attention is also drawn to the provisions of Parts 2, 3 and 4 of Australian Standard 1428 - Design for Access and Mobility.

E. Information regarding the location of underground services may be obtained from Sydney One Call Service (NSW Dial Before You Dig), telephone 1100, Fax 1300 652 077. Inquirers should provide SOCS with the street/road name and number, side of street/road and the nearest cross street/road.

F. A Construction Certificate shall be obtained in accordance with Section 81A (2)(a) of the Act, prior to the commencement of any work on site. Council can provide this service for you.

Yours faithfully

D Trezise
GENERAL MANAGER

Per:
MANAGER DEVELOPMENT

M◐KENZIE
GROUP CONSULTING

COMPLYING DEVELOPMENT CERTIFICATE No. 11/4539-1

Issued under the Environmental Planning and Assessment Act 1979 Sections 85, 85A

Owner

Name:	Health Care Corporation Pty Ltd
Address:	Level 9, 154 Pacific Highway, St Leonards NSW 2065

Property details

Address	Northside West Clinic, 23-27 Lytton Street, Wentworthville NSW 2145
Municipality:	Holroyd City Council

Description and value of development

Description:	Addition of New Emsuites to Existing Wardrooms
Value of work:	$15,000.00

Determination

Approved/Refused:	Approved
Date of Determination:	1 November 2011

Plans and specifications approved

- Drawing prepared by Team 2; numbered: SK-01 & SK-02

Attachments

1. Conditions of approval (includes conditions prescribed, or required to be attached by the Regulation or relevant EPI or DCP including any condition relation to the payment of a s 94 contribution or other monetary contributions.
2. Schedule of essential fire safety measures.
3. Application form for Complying Development Certificate.
4. Record of Site Inspection made by Accredited Certifier in accordance with Clause 129B (EP&A Regulation's 2000) prior to issue of Complying Development Certificate.
5. Form 15A Annual/Supplementary Fire Safety Statement prepared by Alliance Alarms Fire Systems dated 11 October 2011.

Environmental planning instrument decision made under

List Complying & Exempt Development DCP; SEPP; LEP: State Environmental Planning Policy (Exempt and Compleitng Devleopment) 2008.

The land use zone within which the land is situated is Zone No.5 (a) (Specialty Uses Zone – Hospital)

Complying Development Certificate

Certificate no.:	11/4539-1
Date of Determination:	1 November 2011

MANAGING COMPLIANCE

Ref: Document1

McKENZIE
GROUP CONSULTING

APPLICATION FORM / APPOINTMENT OF PRINCIPAL CERTIFYING AUTHORITY / NOTICE OF COMMENCEMENT

Environmental Planning and Assessment Act 1979 Sections Clause 79J of EP&A Regulation 2000

I/We the undersigned hereby make application to McKenzie Group Consulting (NSW) Pty Ltd for:

Office Use Only	
Date of Receipt:	/ /
Date of Receipt:	27/10/2004
Date of Receipt:	/ /
Date of Receipt:	/ /

- ☐ Construction Certificate
- ☑ Complying Development Certificate
- ☐ Occupation Certificate - Interim
- ☐ - Final
- ☒ To appoint Mike Cooley from McKenzie Group Consulting (NSW) Pty Ltd as the Principal Certifying Authority for the project.

Applicant	Name: NORTHSIDE WEST CLINIC Address: C/- TEAM 2 DESIGN ARC CHANTER ST CROWS NEST NSW 2065 Tel: 9437 8166 Fax: Note: The applicant must be the property owner or a person authorized by the owner to lodge the application. However a building contractor cannot be the applicant unless they are the owner of the property.
Owner of building (if not Applicant)	Name: X Health Care Corporation PTY LTD Address: Level 9, 154 PACIFIC HWY ST LEONARDS NSW 2065 Tel: 02 9433 3444 Fax: 02 9433 3460
Consent of all Owner(s)/Applicant (Signatures)	I/~~We~~ consent to this application Name: Signature NSW Development Manager
Subject land	Address: 23-27 LYTTON STREET WENTWORTHVILLE NSW 2145 Lot/Portion: X Section: DP No:: X Municipality HOLROYD

ABN: 18 002 407 779

Level 6 / 189 Kent Street Sydney New South Wales 2000
Telephone 02 8298 6800 Facsimile 02 8298 6809 email@mckenzie-group.com.au
www.mckenzie-group.com.au

Offices in Melbourne and Brisbane

Certificate / Certifying Authority

I, Mike Gooley certify that the proposed development is complying development and that if carried out in accordance with the plans and specifications will comply with all development standards, any standards in a DCP and all requirements of the Regulation under the Environmental Planning and Assessment Act 1979; and will upon completion be a class 9A building.

Signature

Mike Gooley
Accredited Certifier Grade 1
BPB Registration No. 0143
McKenzie Group Consulting (NSW) Pty Ltd
ACN 093 211 995

Date of this Certificate: **1 November 2011**
Certificate Number: **11/4539-1**

Date this Certificate will lapse: **1 November 2016**

Note: Prior to commencement of work sections 86 (1) and (2) of the Environmental Planning and Assessment Act 1979 must be satisfied (see form 7).

ATTACHMENT 1
Existing Fire Safety Schedule
(Pursuant to Clause 168 of the Environmental Planning and Assessment Regulation 2000)

	Essential Fire Safety Measures	Standard of Performance
1.	Fire Detection Systems	AS 1670.1
2.	Emergency Lighting	AS 2293.2
3.	Exit Signs	AS 2293.1
4.	Fire Pumpsets	ASW 2941
5.	Fire Blankets	AS 2444
6.	Fire Hose Reels	AS 2441
7.	Fire Hydrant Systems	AS 2419.1
8.	Portable Fire Extinguishers	AS 2444
9.	(Fire and Smoke Doorsets) Passive Fire and Smoke Containment Systems)	AS 1905.1

Proposed Fire Safety Schedule

(Pursuant to Clause 168 of the Environmental Planning and Assessment Regulation 2000)

	Essential Fire Safety Measures	Standard of Performance
1.	Fire Detection Systems	AS 1670.1
2.	Emergency Lighting	AS 2293.2
3.	Exit Signs	AS 2293.1
4.	Fire Pumpsets	ASW 2941
5.	Fire Blankets	AS 2444
6.	Fire Hose Reels	AS 2441
7.	Fire Hydrant Systems	AS 2419.1
8.	Portable Fire Extinguishers	AS 2444
9.	(Fire and Smoke Doorsets) Passive Fire and Smoke Containment Systems)	AS 1905.1

Description of development ☑ Building work	Description: [illegible]
Building Code of Australia building classification (As nominated on the development consent)	Part: ALL Use: MENTAL HEALTH UNIT BCA Class: N/A
Development Consent	Consent No: N/A Date of determination:
Construction Certificate/ Complying Development Certificate	Certificate No: Date of determination:
Principal Certifying Authority	Name: I, Mike Cooley of McKenzie Group Consulting (NSW) Pty Ltd - ACN 093 211 995, consent to being appointed as the Principal Certifying Authority. Address: Level 6, 189 Kent Street, Sydney NSW 2000 Tel: 02 8298 6800 Signed: Accredited Certifier Grade BPB Registration No. 0143
Value of work (building)	$: X 426,000-00
Date work is to commence	Date: NOVEMBER 2011
Builder / Principal Contractor	Name: [illegible] Address: [illegible] License No/Permit No: (Where applicable) N/A
Compliance with Development Consent or Complying Development Certificate	Have all conditions required to be satisfied prior to the commencement of work been satisfied? ☐ Yes ☐ No (Conditions may include payment of security, s 94 contributions, endorsement of building work plans by water supply authority, etc)
Home Building Act 1989 Requirements **(see note 1)**	Principal Certifying Authority has been advised of the requirements of Cl 78C of the Regulation? ☐ Yes ☐ No ☑ Not Applicable
Schedule	The attached schedule is required to be completed for the purposes of providing information to the Australian Bureau of Statistics.
Right of appeal	Under s 109K where the certifying authority is a council an applicant may appeal to the Land and Environment Court against the refusal to issue a Construction Certificate within 12 months from the date of the decision.

X _____ Signature of Applicant/Owner

_____ Name of Applicant/Owner MANAGER

26-10-2011 Date

Schedule to Application

Particulars of the Proposal

What is the area of the land (m^2): [illegible]

Gross floor area of existing building (m^2):

What are the current uses of all or parts of the building(s)/land? (If vacant state vacant)

Location: [illegible] Use: [illegible]

Location: Use:

Location: Use:

Location: Use:

Does the site contain a dual occupancy? ☐ Yes ☑ No

What is the gross floor area of the proposed addition or new building (m^2): [illegible]

What are the proposed uses of all parts of the building(s)/land?

Location: [illegible] Use: [illegible]

Location: Use:

Location: Use:

Location: Use:

Materials to be Used

Place a tick (✓) in the box which best describes the materials the new work will be constructed of:

	Walls	Code
☐	full brick/single brick/concrete block	11
☐	brick veneer	12
☐	concrete/masonry	20
☐	fibrous cement/hardiplank	30
☐	timber/weatherboard	40
☐	curtain glass	50
☐	steel	60
☐	cladding-aluminum	70
☑	other	80
☐	unknown	90

	Roof	Code
☐	concrete/ terracotta tiles or shingle	10
☐	concrete/slate	20
☑	fibrous cement	30
☐	steel	60
☐	aluminum	70
☐	fibreglass/other	80

	Floor	Code
☐	timber	10
☑	concrete	20
☐	other	80
☐	unknown	90

	Frame	Code
☑	timber	40
☐	steel	60
☐	other	80
☐	unknown	90

Notes for completing APPLICATION FORM / APPOINTMENT OF PRINCIPAL CERTIFYING AUTHORITY / NOTICE OF COMMENCEMENT

Building Work
In the case of an application for a construction certificate for **building work:**

a) copies of compliance certificates relied upon

b) four (4) copies of detailed plans and specifications

The plan for the building must be drawn to a suitable scale and consist of a general plan and a block plan. The general plan of the building is to:

- show a plan of each floor section
- show a plan of each elevation of the building
- show the levels of the lowest floor and of any yard or unbuilt on area belonging to that floor and the levels of the adjacent ground
- indicate the height, design, construction and provision for fire safety and fire resistance (if any)

Where the proposed building work involves any alteration or addition to, or rebuilding of, an existing building the general plan is to be coloured or otherwise marked to the satisfaction of the certifying authority to adequately distinguish the proposed alteration, addition or rebuilding.

Where the proposed building work involves a modification to previously approved plans and specifications the general plans must be coloured or otherwise marked to the satisfaction of the certifying authority to adequately distinguish the modification.

The specification is:

- to describe the construction and materials of which the building is to be built and the method of drainage, sewerage and water supply
- state whether the materials proposed to be used are new or second hand and give particulars of any second hand and give particulars of any second hand materials to be used

c) where the application involves an alternative solution to meet the performance requirements of the BCA, the application must also be accompanied by:
   - details of the performance requirements that the alternative solution is intended to meet, and
   - details of the assessment methods used to establish compliance with those performance requirements

d) evidence of any accredited component, process or design sought to be relied upon

e) except in the case of an application for, or in respect of, a Class 1a or Class 10 building:
   - a list of any fire safety measures that are proposed to be implemented in the building or on the land on which the building is situated, and
   - if the application relates to a proposal to carry out any alteration or rebuilding of, or addition to, an existing building, a separate list of such of those measures as are currently implemented in the building or on the land on which the building is situated.

The list must describe the extent, capability and basis of design of each of the measures concerned.

Fire Safety Schedule
Schedule of existing/proposed or modified Fire Safety measures

(for any existing building and the land on which it is situated)

	Essential Fire Safety Measures	Nominate the current Standard of Performance (e.g. BCA and AS)	Proposed Altered/Modified Essential Fire Safety Measure
1.	Access Panels, Doors and Hoppers		☐ Yes ☐ No
2.	Automatic Fail Safe Devices		☐ Yes ☐ No
3.	Automatic Fire Detection and Alarm System		☐ Yes ☐ No
4.	Automatic Fire Suppression System		☐ Yes ☐ No
5.	Building Occupant Warning System		☐ Yes ☐ No
6.	Emergency Lifts		☐ Yes ☐ No
7.	Emergency Lighting		☐ Yes ☐ No
8.	EWIS (Sound Systems and Intercom Systems for Emergency Purpose)		☐ Yes ☐ No
9.	Emergency Evacuation Plan		☐ Yes ☐ No
10.	Exit Signs		☐ Yes ☐ No
11.	Fire Control Centres and Rooms		☐ Yes ☐ No
12.	Fire Blankets		☐ Yes ☐ No
13.	Fire Dampers		☐ Yes ☐ No
14.	Fire Doors		☐ Yes ☐ No
15.	Fire Hose Reels		☐ Yes ☐ No
16.	Fire Hydrant System		☐ Yes ☐ No
17.	Fire Seals, Collars		☐ Yes ☐ No
18.	Fire Shutters		☐ Yes ☐ No
19.	Fire Windows		☐ Yes ☐ No
20.	Lightweight Construction		☐ Yes ☐ No
21.	Mechanical Air Handling System		☐ Yes ☐ No
22.	Paths of Travel		☐ Yes ☐ No
23.	Perimeter Vehicular Access for emergency vehicles		☐ Yes ☐ No
24.	Portable Fire Extinguishers		☐ Yes ☐ No
25.	Pressurising Systems		☐ Yes ☐ No
26.	Required Exit Doors (power operated)		☐ Yes ☐ No
27.	Residential Automatic Sprinkler System		☐ Yes ☐ No
28.	Safety Curtains in Proscenium Openings		☐ Yes ☐ No
29.	Self-Closing Fire Hoppers		☐ Yes ☐ No
30.	Smoke and Heat Vents		☐ Yes ☐ No
31.	Smoke Hazard Management System		☐ Yes ☐ No
32.	Smoke and/or Heat Alarms		☐ Yes ☐ No
33.	Smoke Dampers		☐ Yes ☐ No
34.	Smoke Detectors and Heat Detectors		☐ Yes ☐ No
35.	Smoke Doors		☐ Yes ☐ No
36.	Solid Core Doors		☐ Yes ☐ No
37.	Stand-by Power System		☐ Yes ☐ No
38.	Wall-Wetting Sprinkler and Drencher Systems		☐ Yes ☐ No
39.	Warning and Operational Signs		☐ Yes ☐ No
40.	Other		☐ Yes ☐ No

Attach a copy of **annual fire safety statement** for the building or confirm this an accurate statement of all the existing fire safety schedule implemented in the whole building and the land on which it is situated.

Please attach.

Sign: .....

Name: .....

Date: .....

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: D21/072437

26 May 2021

Mr Harry Leonard
JK Environments Pty Ltd
hleonard@jkenvironments.com.au

Dear Mr Leonards

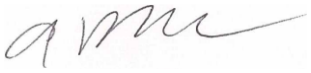
RE SITE: 23-27 Lytton Street Wentworthville NSW 2145

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

A search of the records held by SafeWork NSW has not located any records pertaining to the above-mentioned premises.

For further information or if you have any questions, please call us on 13 10 50 or email licensing@safework.nsw.gov.au

Yours sincerely



Gabriela Draper

Licensing Representative
Licensing and Funds, Better Regulation
SafeWork NSW

Appendix C: Laboratory Results Summary Tables

ABBREVIATIONS AND EXPLANATIONS

Abbreviations used in the Tables:

ABC:	Ambient Background Concentration
ACM:	Asbestos Containing Material
ADWG:	AustralianDrinking Water Guidelines
AF:	Asbestos Fines
ANZG	Australian and New Zealand Guidelines
B(a)P:	Benzo(a)pyrene
CEC:	Cation Exchange Capacity
CRC:	Cooperative Research Centre
CT:	Contaminant Threshold
EILs:	Ecological Investigation Levels
ESLs:	Ecological Screening Levels
FA:	Fibrous Asbestos
GIL:	Groundwater Investigation Levels
GSW:	General Solid Waste
HILs:	Health Investigation Levels
HSLs:	Health Screening Levels
HSL-SSA:	Health Screening Level-SiteSpecific Assessment
kg/L	kilograms per litre
NA:	Not Analysed
NC:	Not Calculated
NEPM:	National Environmental Protection Measure
NHMRC:	National Health and Medical Research Council
NL:	Not Limiting
NSL:	No Set Limit
OCP:	Organochlorine Pesticides
OPP:	Organophosphorus Pesticides
PAHs:	Polycyclic Aromatic Hydrocarbons
%w/w:	weight per weight
ppm:	Parts per million
PCBs:	Polychlorinated Biphenyls
PCE:	Perchloroethylene (Tetrachloroethylene or Teterachloroethene)
pH_{KCL} :	pH of filtered 1:20, 1M KCL extract, shaken overnight
pH_{ox} :	pH of filtered 1:20 1M KCl after peroxide digestion
PQL:	Practical Quantitation Limit
RS:	Rinsate Sample
RSL:	Regional Screening Levels
RSW:	Restricted Solid Waste
SAC:	Site Assessment Criteria
SCC:	Specific Contaminant Concentration
S_{Cr}:	Chromium reducible sulfur
S_{POS}:	Peroxide oxidisable Sulfur
SSA:	Site Specific Assessment
SSHSLs:	Site Specific Health Screening Levels
TAA:	Total Actual Acidity in 1M KCL extract titrated to pH6.5
TB:	Trip Blank
TCA:	1,1,1 Trichloroethane (methyl chloroform)
TCE:	Trichloroethylene (Trichloroethene)
TCLP:	Toxicity Characteristics Leaching Procedure
TPA:	Total Potential Acidity, 1M KCL peroxide digest
TS:	Trip Spike
TRH:	Total Recoverable Hydrocarbons
TSA:	Total Sulfide Acidity (TPA-TAA)
UCL:	Upper Level Confidence Limit on Mean Value
USEPA	United States Environmental Protection Agency
VOCC:	Volatile Organic Chlorinated Compounds
WHO:	World Health Organisation

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 refered 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.

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TABLE S1
SOIL LABORATORY RESULTS COMPARED TO NEPM 2013.
HIL-D: 'Commercial/Industrial'

All data in mg/kg unless stated otherwise			HEAVY METALS								PAHs		ORGANOCHLORINE PESTICIDES (OCPs)							OP PESTICIDES (OPPs)	TOTAL PCBs	ASBESTOS FIBRES
			Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Total PAHs	Carcinogenic PAHs	HCB	Endosulfan	Methoxychlor	Aldrin & Dieldrin	Chlordane	DDT, DDD & DDE	Heptachlor	Chlorpyrifos		
PQL - Envirolab Services			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 Criteria (SAC)			3000	900	3600	240000	1500	730	6000	400000	4000	40	80	2000	2500	45	530	3600	50	2000	7	Detected/Not Detected
Sample Reference	**Sample Depth**	**Sample Description**																				
BH201	0.1-0.2	Fill: Gravelly sand	<4	<0.4	**45**	**25**	**4**	<0.1	**45**	**37**	**0.4**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH201 - [LAB_DUP]	0.1-0.2	Fill: Gravelly sand	<4	<0.4	**48**	**18**	**3**	<0.1	**42**	**30**	**0.1**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH201	0.1-0.5	Fill: Gravelly sand	NA	NA	**NA**	**NA**	**NA**	NA	**NA**	**NA**	**NA**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Not Detected
BH201	0.5-0.6	Fill: Silty clay	<4	<0.4	**12**	**9**	**9**	<0.1	**6**	**11**	**<0.05**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH201	0.5-1.0	Fill: Gravelly sand	NA	NA	**NA**	**NA**	**NA**	NA	**NA**	**NA**	**NA**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Not Detected
BH201	1.4-1.5	Fill: Sand	**6**	<0.4	**10**	**12**	**11**	<0.1	**4**	**11**	**<0.05**	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH202	0.1-0.3	Fill: Sand	<4	<0.4	**10**	**16**	**34**	**0.1**	**7**	**140**	**<0.05**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH202	0.05-0.5	Fill: Silty clay	NA	NA	**NA**	**NA**	**NA**	NA	**NA**	**NA**	**NA**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Not Detected
BH202	0.5-0.6	Silty clay	<4	<0.4	**11**	**12**	**32**	**0.1**	**4**	**59**	**<0.05**	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH202	0.8-0.9	Fill: Gravelly sand	<4	<0.4	**14**	**10**	**22**	<0.1	**5**	**25**	**<0.05**	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH203	0.1-0.2	Fill: Gravelly sand	<4	<0.4	**11**	**17**	**22**	**0.2**	**6**	**140**	**0.2**	<0.5	<0.1	<0.1	<0.1	<0.1	**0.1**	<0.1	<0.1	<0.1	<0.1	NA
BH203	0-0.5	Fill: Gravelly sand	NA	NA	**NA**	**NA**	**NA**	NA	**NA**	**NA**	**NA**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Not Detected
SDUP1	-	Fill: Gravelly sand	<4	<0.4	**40**	**23**	**5**	<0.1	**40**	**38**	**0.4**	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FCF203	0-0.5	Material	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Detected
Total Number of Samples			9	9	9	9	9	9	9	9	9	9	5	5	5	5	5	5	5	5	5	5
Maximum Value			6	<PQL	48	25	34	0.2	45	140	0.4	<PQL	<PQL	<PQL	<PQL	<PQL	0.1	<PQL	<PQL	<PQL	<PQL	Detected

Concentration above the SAC **VALUE**
Concentration above the PQL **Bold**

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TABLE S2
SOIL LABORATORY RESULTS COMPARED TO HSLs
All data in mg/kg unless stated otherwise

					C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	Field PID Measurement
PQL - Envirolab Services					25	50	0.2	0.5	1	1	1	ppm
NEPM 2013 HSL Land Use Category					**HSL-D: COMMERCIAL/INDUSTRIAL**							
Sample Reference	**Sample Depth**	**Sample Description**	**Depth Category**	**Soil Category**								
BH201	0.1-0.2	Fill: Gravelly sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH201 - [LAB_DUP]	0.1-0.2	Fill: Gravelly sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	-
BH201	0.5-0.6	Fill: Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH201	1.4-1.5	Fill: Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH202	0.1-0.3	Fill: Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH202	0.5-0.6	Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH202	0.8-0.9	Fill: Gravelly sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH203	0.1-0.2	Fill: Gravelly sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
SDUP1	-	Fill: Gravelly sand	0m to <1m	Sand	<25	**78**	<0.2	<0.5	<1	<3	<1	-
Total Number of Samples					9	9	9	9	9	9	9	7
Maximum Value					<PQL	78	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL

Concentration above the SAC **VALUE**
Concentration above the PQL **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_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene
BH201	0.1-0.2	Fill: Gravelly sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH201 - [LAB_DUP]	0.1-0.2	Fill: Gravelly sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH201	0.5-0.6	Fill: Silty clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH201	1.4-1.5	Fill: Sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH202	0.1-0.3	Fill: Sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH202	0.5-0.6	Silty clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH202	0.8-0.9	Fill: Gravelly sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH203	0.1-0.2	Fill: Gravelly sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
SDUP1	-	Fill: Gravelly sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL

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TABLE S3
SOIL LABORATORY RESULTS COMPARED TO MANAGEMENT LIMITS
All data in mg/kg unless stated otherwise

			C_6-C_{10} (F1) plus BTEX	>C_{10}-C_{16} (F2) plus napthalene	>C_{16}-C_{34} (F3)	>C_{34}-C_{40} (F4)
PQL - Envirolab Services			25	50	100	100
NEPM 2013 Land Use Category			**COMMERCIAL/INDUSTRIAL**			
Sample Reference	**Sample Depth**	**Soil Texture**				
BH201	0.1-0.2	Coarse	<25	<50	**130**	**180**
BH201 - [LAB_DUP]	0.1-0.2	Coarse	<25	<50	**170**	**370**
BH201	0.5-0.6	Coarse	<25	<50	**<100**	**<100**
BH201	1.4-1.5	Coarse	<25	<50	**<100**	**<100**
BH202	0.1-0.3	Coarse	<25	<50	**<100**	**<100**
BH202	0.5-0.6	Coarse	<25	<50	**<100**	**<100**
BH202	0.8-0.9	Coarse	<25	<50	**<100**	**<100**
BH203	0.1-0.2	Coarse	<25	<50	**100**	**<100**
SDUP1	-	Coarse	<25	**78**	**120**	**270**
Total Number of Samples			9	9	9	9
Maximum Value			<PQL	78	170	370

Concentration above the SAC **VALUE**
Concentration above the PQL **Bold**

MANAGEMENT LIMIT ASSESSMENT CRITERIA

Sample Reference	**Sample Depth**	**Soil Texture**	C_6-C_{10} (F1) plus BTEX	>C_{10}-C_{16} (F2) plus napthalene	>C_{16}-C_{34} (F3)	>C_{34}-C_{40} (F4)
BH201	0.1-0.2	Coarse	700	1000	3500	10000
BH201 - [LAB_DUP]	0.1-0.2	Coarse	700	1000	3500	10000
BH201	0.5-0.6	Coarse	700	1000	3500	10000
BH201	1.4-1.5	Coarse	700	1000	3500	10000
BH202	0.1-0.3	Coarse	700	1000	3500	10000
BH202	0.5-0.6	Coarse	700	1000	3500	10000
BH202	0.8-0.9	Coarse	700	1000	3500	10000
BH203	0.1-0.2	Coarse	700	1000	3500	10000
SDUP1	-	Coarse	700	1000	3500	10000

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TABLE S4
SOIL LABORATORY RESULTS COMPARED T0 DIRECT CONTACT CRITERIA
All data in mg/kg unless stated otherwise

Analyte		C_6-C_{10}	>C_{10}-C_{16}	>C_{16}-C_{34}	>C_{34}-C_{40}	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	PID
PQL - Envirolab Services		25	50	100	100	0.2	0.5	1	1	1	
CRC 2011 -Direct contact Criteria		26,000	20,000	27,000	38,000	430	99,000	27,000	81,000	11,000	
Site Use		**COMMERCIAL/INDUSTRIAL - DIRECT SOIL CONTACT**									
Sample Reference	**Sample Depth**										
BH201	0.1-0.2	<25	<50	**130**	**180**	<0.2	<0.5	<1	<3	<1	0
BH201 - [LAB_DUP]	0.1-0.2	<25	<50	**170**	**370**	<0.2	<0.5	<1	<3	<1	-
BH201	0.5-0.6	<25	<50	**<100**	**<100**	<0.2	<0.5	<1	<3	<1	0
BH201	1.4-1.5	<25	<50	**<100**	**<100**	<0.2	<0.5	<1	<3	<1	0
BH202	0.1-0.3	<25	<50	**<100**	**<100**	<0.2	<0.5	<1	<3	<1	0
BH202	0.5-0.6	<25	<50	**<100**	**<100**	<0.2	<0.5	<1	<3	<1	0
BH202	0.8-0.9	<25	<50	**<100**	**<100**	<0.2	<0.5	<1	<3	<1	0
BH203	0.1-0.2	<25	<50	**100**	**<100**	<0.2	<0.5	<1	<3	<1	0
SDUP1	-	<25	**78**	**120**	**270**	<0.2	<0.5	<1	<3	<1	-
Total Number of Samples		9	9	9	9	9	9	9	9	9	7
Maximum Value		<PQL	78	170	370	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL

Concentration above the SAC **VALUE**
Concentration above the PQL **Bold**

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TABLE S5
ASBESTOS QUANTIFICATION - FIELD OBSERVATIONS AND LABORATORY RESULTS
HIL-D:Commercial/Industrial

FIELD DATA															LABORATORY DATA										
Date Sampled	Sample reference	Sample Depth	Visible ACM in top 100mm	Approx. Volume of Soil (L)	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)	Mass Asbestos in 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)	FA and AF Estimation %(w/w)
SAC			**No**					**0.05**			**0.001**			**0.001**											**0.05**	**0.001**
20/04/2021	BH201	0.1-0.5	No	10	4,520	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	267374	BH201	0.1-0.5	833.36	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected: Synthetic mineral fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
20/04/2021	BH201	0.5-1.0	No	10	4,050	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	267374	BH201	0.5-1.0	545.24	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
20/04/2021	BH202	0.05-0.5	No	10	4,120	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	267374	BH202	0.05-0.5	657.62	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
20/04/2021	BH203	0-0.5	No	10	3,400	2.7	0.405	0.0119	No ACM <7mm observed	--	--	No FA observed	--	--	267374	BH203	0-0.5	620.95	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

Concentration above the SAC **VALUE**

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

Land Use Category				COMMERCIAL/INDUSTRIAL																	
							AGED HEAVY METALS-EILs						EILs		ESLs							
				pH	CEC (cmolc/kg)	Clay Content (% clay)	Arsenic	Chromium	Copper	Lead	Nickel	Zinc	Naphthalene	DDT	C_6-C_{10} (F1)	$>C_{10}$-C_{16} (F2) plus napthalene	$>C_{16}$-C_{34} (F3)	$>C_{34}$-C_{40} (F4)	Benzene	Toluene	Ethylbenzene	Total Xylenes	B(a)P
PQL - Envirolab Services				-	1	-	4	1	1	1	1	1	1	0.1	25	50	100	100	0.2	0.5	1	1	0.05
Ambient Background Concentration (ABC)				-	-	-	NSL	13	28	163	5	122	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL
Sample Reference	**Sample Depth**	**Sample Description**	**Soil Texture**																				
BH201	0.1-0.2	Fill: Gravelly sand	Coarse	NA	NA	NA	<4	**45**	**25**	**4**	**45**	**37**	<1	<0.1	<25	<50	**130**	**180**	<0.2	<0.5	<1	<3	**<0.1**
BH201 - [LAB_DUP]	0.1-0.2	Fill: Gravelly sand	Coarse	NA	NA	NA	<4	**48**	**18**	**3**	**42**	**30**	<1	<0.1	<25	<50	**170**	**370**	<0.2	<0.5	<1	<3	**<0.05**
BH201	0.5-0.6	Fill: Silty clay	Coarse	NA	NA	NA	<4	**12**	**9**	**9**	**6**	**11**	<1	<0.1	<25	<50	**<100**	**<100**	<0.2	<0.5	<1	<3	**<0.05**
BH201	1.4-1.5	Fill: Sand	Coarse	NA	NA	NA	**6**	**10**	**12**	**11**	**4**	**11**	<1	NA	<25	<50	**<100**	**<100**	<0.2	<0.5	<1	<3	**<0.05**
BH202	0.1-0.3	Fill: Sand	Coarse	NA	NA	NA	<4	**10**	**16**	**34**	**7**	**140**	<1	<0.1	<25	<50	**<100**	**<100**	<0.2	<0.5	<1	<3	**<0.05**
BH202	0.5-0.6	Silty clay	Coarse	NA	NA	NA	<4	**11**	**12**	**32**	**4**	**59**	<1	NA	<25	<50	**<100**	**<100**	<0.2	<0.5	<1	<3	**<0.05**
BH202	0.8-0.9	Fill: Gravelly sand	Coarse	NA	NA	NA	<4	**14**	**10**	**22**	**5**	**25**	<1	NA	<25	<50	**<100**	**<100**	<0.2	<0.5	<1	<3	**<0.05**
BH203	0.1-0.2	Fill: Gravelly sand	Coarse	NA	NA	NA	<4	**11**	**17**	**22**	**6**	**140**	<1	<0.1	<25	<50	**100**	**<100**	<0.2	<0.5	<1	<3	**0.05**
SDUP1	-	Fill: Gravelly sand	Coarse	NA	NA	NA	<4	**40**	**23**	**5**	**40**	**38**	<1	NA	<25	**78**	**120**	**270**	<0.2	<0.5	<1	<3	**<0.05**
Total Number of Samples				0	0	0	9	9	9	9	9	9	9	5	9	9	9	9	9	9	9	9	9
Maximum Value				NA	NA	NA	6	48	25	34	45	140	<PQL	<PQL	<PQL	78	170	370	<PQL	<PQL	<PQL	<PQL	0.05

Concentration above the SAC **VALUE**
Concentration above the PQL **Bold**
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**	pH	CEC (cmolc/kg)	Clay Content (% clay)	Arsenic	Chromium	Copper	Lead	Nickel	Zinc	Naphthalene	DDT	C_6-C_{10} (F1)	$>C_{10}$-C_{16} (F2) plus napthalene	$>C_{16}$-C_{34} (F3)	$>C_{34}$-C_{40} (F4)	Benzene	Toluene	Ethylbenzene	Total Xylenes	B(a)P
BH201	0.1-0.2	Fill: Gravelly sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	72
BH201 - [LAB_DUP]	0.1-0.2	Fill: Gravelly sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	72
BH201	0.5-0.6	Fill: Silty clay	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	72
BH201	1.4-1.5	Fill: Sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	1700	3300	75	135	165	180	72
BH202	0.1-0.3	Fill: Sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	72
BH202	0.5-0.6	Silty clay	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	1700	3300	75	135	165	180	72
BH202	0.8-0.9	Fill: Gravelly sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	1700	3300	75	135	165	180	72
BH203	0.1-0.2	Fill: Gravelly sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	72
SDUP1	-	Fill: Gravelly sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	1700	3300	75	135	165	180	72

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TABLE S7
SOIL LABORATORY RESULTS COMPARED TO WASTE CLASSIFICATION GUIDELINES
All data in mg/kg unless stated otherwise

			HEAVY METALS								PAHs		OC/OP PESTICIDES				Total PCBs	TRH					BTEX COMPOUNDS				ASBESTOS FIBRES
			Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Total PAHs	B(a)P	Total Endosulfans	Chloropyrifos	Total Moderately Harmful	Total Scheduled		C_6-C_9	C_{10}-C_{14}	C_{15}-C_{28}	C_{29}-C_{36}	Total C_{10}-C_{36}	Benzene	Toluene	Ethyl benzene	Total Xylenes	
PQL - Envirolab Services			4	0.4	1	1	1	0.1	1	1	-	0.05	0.1	0.1	0.1	0.1	0.1	25	50	100	100	50	0.2	0.5	1	1	100
General Solid Waste CT1			100	20	100	NSL	100	4	40	NSL	200	0.8	60	4	250	50	50	650		NSL		10,000	10	288	600	1,000	-
General Solid Waste SCC1			500	100	1900	NSL	1500	50	1050	NSL	200	10	108	7.5	250	50	50	650		NSL		10,000	18	518	1,080	1,800	-
Restricted Solid Waste CT2			400	80	400	NSL	400	16	160	NSL	800	3.2	240	16	1000	50	50	2600		NSL		40,000	40	1,152	2,400	4,000	-
Restricted Solid Waste SCC2			2000	400	7600	NSL	6000	200	4200	NSL	800	23	432	30	1000	50	50	2600		NSL		40,000	72	2,073	4,320	7,200	-
Sample Reference	**Sample Depth**	**Sample Description**																									
BH201	0.1-0.2	Fill: Gravelly sand	<4	<0.4	**45**	**25**	**4**	<0.1	**45**	**37**	**0.4**	**<0.1**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	**150**	**150**	<0.2	<0.5	<1	<3	NA
BH201 - [LAB_DUP]	0.1-0.2	Fill: Gravelly sand	<4	<0.4	**48**	**18**	**3**	<0.1	**42**	**30**	**0.1**	**<0.05**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	**210**	**210**	<0.2	<0.5	<1	<3	NA
BH201	0.1-0.5	Fill: Gravelly sand	NA	NA	**NA**	**NA**	**NA**	NA	**NA**	**NA**	**NA**	**NA**	NA	NA	NA	NA	NA	NA	NA	NA	**NA**	**NA**	NA	NA	NA	NA	Not Detected
BH201	0.5-0.6	Fill: Silty clay	<4	<0.4	**12**	**9**	**9**	<0.1	**6**	**11**	**<0.05**	**<0.05**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	**<100**	**<50**	<0.2	<0.5	<1	<3	NA
BH201	0.5-1.0	Fill: Gravelly sand	NA	NA	**NA**	**NA**	**NA**	NA	**NA**	**NA**	**NA**	**NA**	NA	NA	NA	NA	NA	NA	NA	NA	**NA**	**NA**	NA	NA	NA	NA	Not Detected
BH201	1.4-1.5	Fill: Sand	**6**	<0.4	**10**	**12**	**11**	<0.1	**4**	**11**	**<0.05**	**<0.05**	NA	NA	NA	NA	NA	<25	<50	<100	**<100**	**<50**	<0.2	<0.5	<1	<3	NA
BH202	0.1-0.3	Fill: Sand	<4	<0.4	**10**	**16**	**34**	**0.1**	**7**	**140**	**<0.05**	**<0.05**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	**<100**	**<50**	<0.2	<0.5	<1	<3	NA
BH202	0.05-0.5	Fill: Silty clay	NA	NA	**NA**	**NA**	**NA**	NA	**NA**	**NA**	**NA**	**NA**	NA	NA	NA	NA	NA	NA	NA	NA	**NA**	**NA**	NA	NA	NA	NA	Not Detected
BH202	0.5-0.6	Silty clay	<4	<0.4	**11**	**12**	**32**	**0.1**	**4**	**59**	**<0.05**	**<0.05**	NA	NA	NA	NA	NA	<25	<50	<100	**<100**	**<50**	<0.2	<0.5	<1	<3	NA
BH202	0.8-0.9	Fill: Gravelly sand	<4	<0.4	**14**	**10**	**22**	<0.1	**5**	**25**	**<0.05**	**<0.05**	NA	NA	NA	NA	NA	<25	<50	<100	**<100**	**<50**	<0.2	<0.5	<1	<3	NA
BH203	0.1-0.2	Fill: Gravelly sand	<4	<0.4	**11**	**17**	**22**	**0.2**	**6**	**140**	**0.2**	**0.05**	<0.1	<0.1	<0.1	**0.1**	<0.1	<25	<50	<100	**<100**	**<50**	<0.2	<0.5	<1	<3	NA
BH203	0-0.5	Fill: Gravelly sand	NA	NA	**NA**	**NA**	**NA**	NA	**NA**	**NA**	**NA**	**NA**	NA	NA	NA	NA	NA	NA	NA	NA	**NA**	**NA**	NA	NA	NA	NA	Not Detected
SDUP1	-	Fill: Gravelly sand	<4	<0.4	**40**	**23**	**5**	<0.1	**40**	**38**	**0.4**	**<0.05**	NA	NA	NA	NA	NA	<25	76	<100	**160**	**236**	<0.2	<0.5	<1	<3	NA
FCF203	0-0.5	Material	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Detected
Total Number of Samples			9	9	9	9	9	9	9	9	9	9	5	5	5	5	5	9	9	9	9	9	9	9	9	9	4
Maximum Value			6	<PQL	48	25	34	0.2	45	140	0.4	0.05	<PQL	<PQL	<PQL	0.1	<PQL	<PQL	76	<PQL	210	236	<PQL	<PQL	<PQL	<PQL	Not Detected

Concentration above the CT1 — **VALUE**
Concentration above SCC1 — **VALUE**
Concentration above the SCC2 — **VALUE**
Concentration above PQL — **Bold**

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TABLE S8

SOIL LABORATORY TCLP RESULTS

All data in mg/L unless stated otherwise

			Nickel
PQL - Envirolab Services			0.02
TCLP1 - General Solid Waste			2
TCLP2 - Restricted Solid Waste			8
TCLP3 - Hazardous Waste			>8
Sample Reference	**Sample Depth**	**Sample Description**	
BH201	0.1-0.2	Fill: Gravelly sand	**0.06**
Total Number of samples			6
Maximum Value			0.09

General Solid Waste	**VALUE**
Restricted Solid Waste	**VALUE**
Hazardous Waste	**VALUE**
Concentration above PQL	**Bold**

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TABLE Q1
SOIL 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	Copper	Lead	Mercury	Nickel	Zinc
	PQL Envirolab SYD		*25*	*50*	*100*	*100*	*0.2*	*0.5*	*1*	*2*	*1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.2*	*0.05*	*0.1*	*0.1*	*0.1*	*4*	*0.4*	*1*	*1*	*1*	*0.1*	*1*	*1*
	PQL Envirolab 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*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.2*	*0.1*	*0.1*	*0.1*	*0.1*	*4.0*	*0.4*	*1.0*	*1.0*	*1.0*	*0.1*	*1.0*	*1.0*
Intra laboratory duplicate	BH201	0.1-0.2	<25	<50	130	180	<0.2	<0.5	<1	<2	<1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<4	<0.4	45	25	4	<0.1	45	37
	SDUP1	-	<25	78	120	270	<0.2	<0.5	<1	<2	<1	0.2	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	<4	<0.4	40	23	5	<0.1	40	38
	MEAN		nc	51.5	125	225	nc	nc	nc	nc	nc	0.125	nc	nc	nc	0.2	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	42.5	24	4.5	nc	42.5	37.5
	RPD %		nc	103%	8%	40%	nc	nc	nc	nc	nc	120%	nc	nc	nc	0%	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	12%	8%	22%	nc	12%	3%
Field Blank	TBS1 20/04/21	-	NA	NA	NA	NA	<0.2	<0.5	<1	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trip Spike	TS1 20/04/21		-	-	-	-	82%	83%	93%	94%	92%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Result outside of QA/QC acceptance criteria

ABBREVIATIONS AND EXPLANATIONS

Abbreviations used in the Tables:

ADWG: AustralianDrinking Water Guidelines
ANZG Australian and New Zealand Guidelines
B(a)P: Benzo(a)pyrene
CRC: Cooperative Research Centre
ESLs: Ecological Screening Levels
GIL: Groundwater Investigation Levels
HILs: Health Investigation Levels
HSLs: Health Screening Levels
HSL-SSA: Health Screening Level-SiteSpecific Assessment
NA: Not Analysed
NC: Not Calculated
NEPM: National Environmental Protection Measure
NHMRC: National Health and Medical Research Council
NL: Not Limiting
NSL: No Set Limit
OCP: Organochlorine Pesticides
OPP: Organophosphorus Pesticides
PAHs: Polycyclic Aromatic Hydrocarbons
ppm: Parts per million
PCBs: Polychlorinated Biphenyls
PCE: Perchloroethylene (Tetrachloroethylene or Tetrachloroethene)
PQL: Practical Quantitation Limit
RS: Rinsate Sample
RSL: Regional Screening Levels
SAC: Site Assessment Criteria
SSA: Site Specific Assessment
SSHSLs Site Specific Health Screening Levels
TB: Trip Blank
TCA: 1,1,1 Trichloroethane (methyl chloroform)
TCE: Trichloroethylene (Trichloroethene)
TS: Trip Spike
TRH: Total Recoverable Hydrocarbons
UCL: Upper Level Confidence Limit on Mean Value
USEPA United States Environmental Protection Agency
VOCC: Volatile Organic Chlorinated Compounds
WHO: World Health Organisation

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

	PQL Envirolab Services	ANZG 2018 Fresh Waters	SAMPLES			
			MW101	MW101 - [LAB_DUP]	MW103	WDUP1
Inorganic Compounds and Parameters						
pH		6.5 - 8.5	6.3	NA	6.4	NA
Electrical Conductivity (µS/cm)	1	NSL	**12000**	NA	8300	NA
Turbidity (NTU)		NSL	NA	NA	NA	NA
Metals and Metalloids						
Arsenic (As III)	1	24	<1	NA	<1	<1
Cadmium	0.1	0.2	<0.1	NA	0.2	0.2
Chromium (SAC for Cr III adopted)	1	3.3	<1	NA	<1	<1
Copper	1	1.4	<1	NA	<1	<1
Lead	1	3.4	<1	NA	<1	<1
Total Mercury (inorganic)	0.05	0.06	<0.05	NA	<0.05	<0.05
Nickel	1	11	**22**	NA	6	6
Zinc	1	8	**18**	NA	13	14
Monocyclic Aromatic Hydrocarbons (BTEX Compounds)						
Benzene	1	950	<1	<1	<1	<1
Toluene	1	180	<1	<1	<1	<1
Ethylbenzene	1	80	<1	<1	<1	<1
m+p-xylene	2	75	<2	<2	<2	<2
o-xylene	1	350	<1	<1	<1	<1
Total xylenes	2	NSL	<2	<2	<2	<2
Volatile Organic Compounds (VOCs), including chlorinated VOCs						
Dichlorodifluoromethane	10	NSL	<10	<10	<10	NA
Chloromethane	10	NSL	<10	<10	<10	NA
Vinyl Chloride	10	100	<10	<10	<10	NA
Bromomethane	10	NSL	<10	<10	<10	NA
Chloroethane	10	NSL	<10	<10	<10	NA
Trichlorofluoromethane	10	NSL	<10	<10	<10	NA
1,1-Dichloroethene	1	700	<1	<1	<1	NA
Trans-1,2-dichloroethene	1	NSL	<1	<1	<1	NA
1,1-dichloroethane	1	90	<1	<1	<1	NA
Cis-1,2-dichloroethene	1	NSL	<1	<1	<1	NA
Bromochloromethane	1	NSL	<1	<1	<1	NA
Chloroform	1	370	<1	<1	<1	NA
2,2-dichloropropane	1	NSL	<1	<1	<1	NA
1,2-dichloroethane	1	1900	<1	<1	<1	NA
1,1,1-trichloroethane	1	270	<1	<1	<1	NA
1,1-dichloropropene	1	NSL	<1	<1	<1	NA
Cyclohexane	1	NSL	<1	<1	<1	NA
Carbon tetrachloride	1	240	<1	<1	<1	NA
Benzene	1	950	<1	<1	<1	NA
Dibromomethane	1	NSL	<1	<1	<1	NA
1,2-dichloropropane	1	900	<1	<1	<1	NA
Trichloroethene	1	330	<1	<1	<1	NA
Bromodichloromethane	1	NSL	<1	<1	<1	NA
trans-1,3-dichloropropene	1	NSL	<1	<1	<1	NA
cis-1,3-dichloropropene	1	NSL	<1	<1	<1	NA
1,1,2-trichloroethane	1	6500	<1	<1	<1	NA
Toluene	1	180	<1	<1	<1	NA
1,3-dichloropropane	1	1100	<1	<1	<1	NA
Dibromochloromethane	1	NSL	<1	<1	<1	NA
1,2-dibromoethane	1	NSL	<1	<1	<1	NA
Tetrachloroethene	1	70	<1	<1	<1	NA
1,1,1,2-tetrachloroethane	1	NSL	<1	<1	<1	NA
Chlorobenzene	1	55	<1	<1	<1	NA
Ethylbenzene	1	80	<1	<1	<1	NA
Bromoform	1	NSL	<1	<1	<1	NA
m+p-xylene	2	75	<2	<2	<2	NA
Styrene	1	NSL	<1	<1	<1	NA
1,1,2,2-tetrachloroethane	1	400	<1	<1	<1	NA
o-xylene	1	350	<1	<1	<1	NA
1,2,3-trichloropropane	1	NSL	<1	<1	<1	NA
Isopropylbenzene	1	30	<1	<1	<1	NA
Bromobenzene	1	NSL	<1	<1	<1	NA
n-propyl benzene	1	NSL	<1	<1	<1	NA
2-chlorotoluene	1	NSL	<1	<1	<1	NA
4-chlorotoluene	1	NSL	<1	<1	<1	NA
1,3,5-trimethyl benzene	1	NSL	<1	<1	<1	NA
Tert-butyl benzene	1	NSL	<1	<1	<1	NA
1,2,4-trimethyl benzene	1	NSL	<1	<1	<1	NA
1,3-dichlorobenzene	1	260	<1	<1	<1	NA
Sec-butyl benzene	1	NSL	<1	<1	<1	NA
1,4-dichlorobenzene	1	60	<1	<1	<1	NA
4-isopropyl toluene	1	NSL	<1	<1	<1	NA
1,2-dichlorobenzene	1	160	<1	<1	<1	NA
n-butyl benzene	1	NSL	<1	<1	<1	NA
1,2-dibromo-3-chloropropane	1	NSL	<1	<1	<1	NA
1,2,4-trichlorobenzene	1	85	<1	<1	<1	NA
Hexachlorobutadiene	1	NSL	<1	<1	<1	NA
1,2,3-trichlorobenzene	1	3	<1	<1	<1	NA
Polycyclic Aromatic Hydrocarbons (PAHs)						
Naphthalene	0.2	16	<0.2	NA	<0.2	<0.2
Acenaphthylene	0.1	NSL	<0.1	NA	<0.1	<0.1
Acenaphthene	0.1	NSL	<0.1	NA	<0.1	<0.1
Fluorene	0.1	NSL	<0.1	NA	<0.1	<0.1
Phenanthrene	0.1	0.6	<0.1	NA	<0.1	<0.1
Anthracene	0.1	0.01	<0.1	NA	<0.1	<0.1
Fluoranthene	0.1	1	<0.1	NA	<0.1	<0.1
Pyrene	0.1	NSL	<0.1	NA	<0.1	<0.1
Benzo(a)anthracene	0.1	NSL	<0.1	NA	<0.1	<0.1
Chrysene	0.1	NSL	<0.1	NA	<0.1	<0.1
Benzo(b,j+k)fluoranthene	0.2	NSL	<0.2	NA	<0.2	<0.2
Benzo(a)pyrene	0.1	0.1	<0.1	NA	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	0.1	NSL	<0.1	NA	<0.1	<0.1
Dibenzo(a,h)anthracene	0.1	NSL	<0.1	NA	<0.1	<0.1
Benzo(g,h,i)perylene	0.1	NSL	<0.1	NA	<0.1	<0.1

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

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TABLE G2
GROUNDWATER LABORATORY RESULTS COMPARED TO HSLs
All data in µg/L unless stated otherwise

				C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	
PQL - Envirolab Services				10	50	1	1	1	2	1	PID
NEPM 2013 - Land Use Category				HSL-D: COMMERCIAL/INDUSTRIAL							
Sample Reference	**Water Depth**	**Depth Category**	**Soil Category**								
MW101	4.535	2m to <4m	Sand	<10	<50	<1	<1	<1	<2	<1	2
MW101 - [LAB_DUP]	4.535	2m to <4m	Sand	<10	NA	<1	<1	<1	<2	<1	NA
MW103	4.17	2m to <4m	Sand	<10	<50	<1	<1	<1	<2	<1	98
WDUP1	-	2m to <4m	Sand	<10	<50	<1	<1	<1	<2	<1	NA
Total Number of Samples				4	3	4	4	4	4	4	2
Maximum Value				<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	98

Concentration above the SAC **VALUE**
Site specific assesment (SSA) required **VALUE**
Concentration above the PQL **Bold**
The guideline corresponding to the elevated value is highlighted in grey in the Groundwater Assessment Criteria Table below

HSL GROUNDWATER ASSESSMENT CRITERIA

Sample Reference	**Water Depth**	**Depth Category**	**Soil Category**	C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene
MW101	4.535	2m to <4m	Sand	6000	NL	5000	NL	NL	NL	NL
MW101 - [LAB_DUP]	4.535	2m to <4m	Sand	6000	NA	5000	NL	NL	NL	NL
MW103	4.17	2m to <4m	Sand	6000	NL	5000	NL	NL	NL	NL
WDUP1	-	2m to <4m	Sand	6000	NL	5000	NL	NL	NL	NL

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TABLE Q2
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	Zinc
	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*	*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*	*1*
Intra	MW103	<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	0.2	<1	<1	<1	<0.05	6	13
laboratory	WDUP1	<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	0.2	<1	<1	<1	<0.05	6	14
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	0.2	nc	nc	nc	nc	6	13.5
	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	0%	nc	nc	nc	nc	0%	7%
Field	TB-W1	0	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	0
Blank	28/04/2021																																

Result outside of QA/QC acceptance criteria Value

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Appendix D: Borehole Logs

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ENVIRONMENTAL LOG

Log No. 201

Environmental logs are not to be used for geotechnical purposes

Client: ERILYAN

Project: PROPOSED NORTHSIDE WEST STAGE 2 DEVELOPMENT

Location: 23-27 LYTTON STREET, WENTWORTHVILLE, NSW

Job No.: E27318PH **Method:** SPIRAL AUGER **R.L. Surface:** ~20.2 m

Date: 20/4/21 **Datum:** AHD

Plant Type: JK205 **Logged/Checked By:** B.Z./A.B.

Groundwater Record	SAMPLES ES	ASS	ASB	SAL	DB	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 OF AUGERING							20			-	ASPHALTIC CONCRETE: 80mm.t FILL: Gravelly sand, fine to coarse grained, dark brown, fine to coarse grained sub-angular and angular igneous gravel, with occasional cobbles, trace of ash and clay.	M			ROADBASE TYPE MATERIAL
						N = 13 4,5,8						w<PL			APPEARS MODERATELY COMPACTED
							19	1		CI-CH	FILL: Silty clay, medium plasticity, dark brown mottled red brown, trace of fine to medium grained sub-angular and angular igneous and ironstone gravel.	w~PL	Hd		SCREEN: 4.52kg 0.1-0.5m NO FCF
											Silty CLAY: medium to high plasticity, brown and red brown, trace of fine grained sub-angular ironstone gravel.				SCREEN: 4.05kg 0.5-1.0m NO FCF
						N = 26 7,12,14	18	2			as above, but grey and brown.			>600 >600 >600	RESIDUAL
						N = 21 5,8,13	17	3			as above, but grey, with occasional clayey silt bands.		VSt - Hd	240 320 420	
ON COMPLETION OF CORING						N > 25 6,10,15/ 100mm REFUSAL	16	4			as above. but dark grey.			400 430 350	
							15	5		-	Extremely Weathered siltstone: silty CLAY, medium to high plasticity, grey, with ironstone bands.	XW	Hd	>600	ASHFIELD SHALE VERY LOW 'TC' BIT RESISTANCE BANDS
											SILTSTONE: dark grey, trace of iron indurated bands.	DW	L - M		LOW RESISTANCE
							14	6			as above, but dark grey.		M		MODERATE RESISTANCE

JK 9.02.4 LIB:GLB Log JK AUGERHOLE - MASTER E27318PH WENTWORTHVILLE.GPJ <<DrawingFile>> 18/05/2021 10:30 10.01.00.01 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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ENVIRONMENTAL LOG

Log No. 201

Environmental logs are not to be used for geotechnical purposes

Client: ERILYAN

Project: PROPOSED NORTHSIDE WEST STAGE 2 DEVELOPMENT

Location: 23-27 LYTTON STREET, WENTWORTHVILLE, NSW

Job No.: E27318PH **Method:** SPIRAL AUGER **R.L. Surface:** ~20.2 m

Date: 20/4/21 **Datum:** AHD

Plant Type: JK205 **Logged/Checked By:** B.Z./A.B.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	SAMPLES DB	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
											SILTSTONE: as above REFER TO CORED BOREHOLE LOG				

JK 9.02.4 LIB:GLB Log JK AUGERHOLE - MASTER E27318PH WENTWORTHVILLE.GPJ <<DrawingFile>> 18/05/2021 10:30 10.01.00.01 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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CORED ENVIRONMENTAL LOG

Log No. 201 3 / 3

Environmental logs are not to be used for geotechnical purposes

Client: ERILYAN

Project: PROPOSED NORTHSIDE WEST STAGE 2 DEVELOPMENT

Location: 23-27 LYTTON STREET, WENTWORTHVILLE, NSW

Job No.: E27318PH **Core Size:** NMLC **R.L. Surface:** ~20.2 m

Date: 20/4/21 **Inclination:** VERTICAL **Datum:** AHD

Plant Type: JK205 **Bearing:** N/A **Logged/Checked By:** B.Z./A.B.

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 $I_s(50)$	DEFECT DETAILS SPACING (mm)	DESCRIPTION Type, orientation, defect shape and roughness, defect coatings and seams, openness and thickness Specific / General	Formation
					START CORING AT 7.10m			VL -0.1, L -0.3, M -1, H -3, VH -10, EH	600, 200, 60, 20		
90% RETURN		13			SILTSTONE: dark grey mottled brown, sub-horizontally laminated, with fine grained grey sandstone.	SW	M	0.60		(7.16m) XWS, 0°, 3 mm.t (7.29m) Be, 0°, Un, R, Fe Sn (7.30m) Be, 0°, Un, R, Fe Sn (7.31m) Be, 0°, Un, R, Fe Sn (7.42m) J, 71°, Ir, Vr, Fe Sn (7.51m) J, 45°, Ir, Vr, Fe Sn (7.66m) XWS, 0°, 2 mm.t (7.73m) J, 34°, Un, R, Fe Sn (7.84m) CS, 0°, 2 mm.t (7.85m) CS, 0°, 2 mm.t (7.91m) Cr, 0°, 20 mm.t (8.05m) XWS, 0°, 20 mm.t	Ashfield Shale
								0.30			
		8									
		12			NO CORE 0.26m						
					SILTSTONE: dark grey, sub-horizontally laminated, with fine grained grey sandstone.	SW FR	M	0.50		(8.38m) XWS, 0°, 2 mm.t (8.39m) XWS, 0°, 2 mm.t (8.53m) XWS, 0° (8.68m) J, 34°, Un, R, Clay Ct	Ashfield Shale
								0.20			
		9						0.30		(9.02m) XWS, 0°, 2 mm.t (9.09m) XWS, 0°, 3 mm.t (9.11m) J, 51°, Ir, Vr, Cn	
		11								(9.43m) XWS, 0°, 2 mm.t	
								0.80		(9.75m) XWS, 0°, 2 mm.t	
		10									
		10						0.70		(10.08m) Cr, 0°, 12 mm.t (10.30m) XWS, 0°, 14 mm.t (10.37m) XWS, 0°, 5 mm.t	
								0.50			
		11						0.20		(11.00m) J, 38°, Un, R, Cn	
		9								(11.22m) J, 40°, Un, R, Cn (11.30m) J, 28°, Un, R, Cn	
					END OF ENVIRONMENTAL HOLE AT 11.36 m						
		12									
		8									
		13									
		7									

JK 9.02.4 LIB:GLB Log JK CORED BOREHOLE - MASTER E27318PH WENTWORTHVILLE.GPJ <<DrawingFile>> 18/05/2021 10:30 10.01.00.01 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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FRACTURES NOT MARKED ARE CONSIDERED TO BE DRILLING AND HANDLING BREAKS

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ENVIRONMENTAL LOG

Log No. 202 **1 / 1**

Environmental logs are not to be used for geotechnical purposes

Client: ERILYAN

Project: PROPOSED NORTHSIDE WEST STAGE 2 DEVELOPMENT

Location: 23-27 LYTTON STREET, WENTWORTHVILLE, NSW

Job No.: E27318PH **Method:** HAND AUGER **R.L. Surface:** ~19.2 m

Date: 20/4/21 **Datum:** AHD

Plant Type: - **Logged/Checked By:** B.Z./A.B.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	SAMPLES DB	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						REFER TO DCP TEST RESULTS	19				FILL: Sand, fine to medium grained, dark brown, with fine to medium grained sub-angular and angular igneous gravel. clay, tile and brick fragments.	M			TIMBER MULCH COVER APPEARS POORLY COMPACTED SCREEN: 4.12kg 0-0.5m
											FILL: Silty clay, medium plasticity, dark brown mottled red brown, trace of fine grained igneous and ironstone gravel.	w<PL			
								1		CH	Silty CLAY: high plasticity, brown and red brown, trace of fine grained sub-angular ironstone gravel, and ash.	w>PL	St - VSt	180 190 220	NO FCF RESIDUAL
							18				as above, but yellow brown and grey, without ash.	w~PL			HP READINGS ON DISTURBED SAMPLES FROM HAND AUGER
								2						180 190 220	
							17							180 150 210	
								3			END OF ENVIRONMENTAL HOLE AT 3.00 m				
							16								
								4							
							15								
								5							
							14								
								6							
							13								

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ENVIRONMENTAL LOG

Log No. 203

1 / 1

Environmental logs are not to be used for geotechnical purposes

Client: ERILYAN

Project: PROPOSED NORTHSIDE WEST STAGE 2 DEVELOPMENT

Location: 23-27 LYTTON STREET, WENTWORTHVILLE, NSW

Job No.: E27318PH **Method:** HAND AUGER **R.L. Surface:** ~19.1 m

Date: 20/4/21 **Datum:** AHD

Plant Type: - **Logged/Checked By:** B.Z./A.B.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	SAMPLES DB	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						REFER TO DCP TEST RESULTS	19				FILL: Gravelly sand, fine to coarse grained, dark brown, fine to coarse grained sub-angular and angular igneous gravel, trace of fibre cement fragments.	M			TIMBER MULCH COVER APPEARS MODERATELY COMPACTED
											FILL: Silty clay, medium to high plasticity, dark brown and red brown, trace of fine to medium grained igneous, sandstone and ironstone gravel.	w<PL			SCREEN: 3.4kg 0-0.5m FCF203
							18	1			END OF ENVIRONMENTAL HOLE AT 0.80 m				HAND AUGER REFUSAL
							17	2							
							16	3							
							15	4							
							14	5							
							13	6							

JK 9.02.4 LIB:GLB Log JK AUGERHOLE - MASTER E27318PH WENTWORTHVILLE.GPJ <<DrawingFile>> 18/05/2021 10:30 10.01.00.01 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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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

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° 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 'N_c' 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

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

SOIL

FILL

TOPSOIL

CLAY (CL, CI, CH)

SILT (ML, MH)

SAND (SP, SW)

GRAVEL (GP, GW)

SANDY CLAY (CL, CI, CH)

SILTY CLAY (CL, CI, CH)

CLAYEY SAND (SC)

SILTY SAND (SM)

GRAVELLY CLAY (CL, CI, CH)

CLAYEY GRAVEL (GC)

SANDY SILT (ML, MH)

PEAT AND HIGHLY ORGANIC SOILS (Pt)

ROCK

CONGLOMERATE

SANDSTONE

SHALE/MUDSTONE

SILTSTONE

CLAYSTONE

COAL

LAMINITE

LIMESTONE

PHYLLITE, SCHIST

TUFF

GRANITE, GABBRO

DOLERITE, DIORITE

BASALT, ANDESITE

QUARTZITE

OTHER MATERIALS

BRICKS OR PAVERS

CONCRETE

ASPHALTIC CONCRETE

CLASSIFICATION OF COARSE AND FINE GRAINED SOILS

Major Divisions		Group Symbol	Typical Names	Field Classification of Sand and Gravel	Laboratory Classification	
Coarse grained soil (more than 65% of soil excluding oversize fraction is greater than 0.075mm)	GRAVEL (more than half of coarse fraction is larger than 2.36mm	GW	Gravel 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	$C_u > 4$ $1 < C_c < 3$
		GP	Gravel and gravel-sand mixtures, little or no fines, uniform gravels	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
		GM	Gravel-silt mixtures and gravel-sand-silt mixtures	'Dirty' materials with excess of non-plastic fines, zero to medium dry strength	≥ 12% fines, fines are silty	Fines behave as silt
		GC	Gravel-clay mixtures and gravel-sand-clay mixtures	'Dirty' materials with excess of plastic fines, medium to high dry strength	≥ 12% fines, fines are clayey	Fines behave as clay
	SAND (more than half of coarse fraction is smaller than 2.36mm)	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	$C_u > 6$ $1 < C_c < 3$
		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
		SM	Sand-silt mixtures	'Dirty' materials with excess of non-plastic fines, zero to medium dry strength	≥ 12% fines, fines are silty	N/A
		SC	Sand-clay mixtures	'Dirty' materials with excess of plastic fines, medium to high dry strength	≥ 12% fines, fines are clayey	

Major Divisions		Group Symbol	Typical Names	Field Classification of Silt and Clay			Laboratory Classification
				Dry Strength	Dilatancy	Toughness	% < 0.075mm
ine grained soils (more than 35% of soil excluding oversize fraction is less than 0.075mm)	SILT and CLAY (low to medium plasticity)	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
		CL, CI	Inorganic clay of low to medium plasticity, gravelly clay, sandy clay	Medium to high	None to slow	Medium	Above A line
		OL	Organic silt	Low to medium	Slow	Low	Below A line
	SILT and CLAY (high plasticity)	MH	Inorganic silt	Low to medium	None to slow	Low to medium	Below A line
		CH	Inorganic clay of high plasticity	High to very high	None	High	Above A line
		OH	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	–	–	–	–

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:

$$C_U = \frac{D_{60}}{D_{10}} \qquad and \qquad C_C = \frac{(D_{30})^2}{D_{10}\, D_{60}}$$

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:

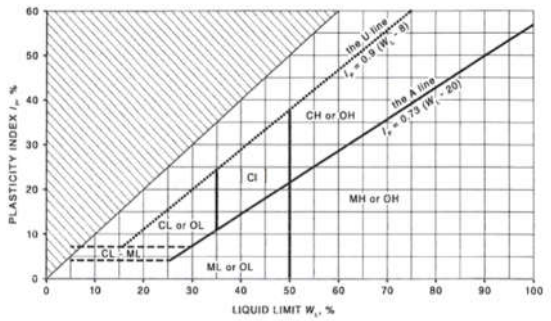
1 For a coarse grained soil with a fines content between 5% and 12%, the soil is given a dual classification comprising the two group symbols separated by a dash; for example, for a poorly graded gravel with between 5% and 12% silt fines, the classification is GP-GM.

2 Where the grading is determined from laboratory tests, it is defined by coefficients of curvature (C_c) and uniformity (C_u) derived from the particle size distribution curve.

3 Clay soils with liquid limits > 35% and ≤ 50% may be classified as being of medium plasticity.

4 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	Definition
Groundwater Record		Standing water level. Time delay following completion of drilling/excavation may be shown.
		Extent of borehole/test pit collapse shortly after drilling/excavation.
		Groundwater seepage into borehole or test pit noted during drilling or excavation.
Samples	ES	Sample taken over depth indicated, for environmental analysis.
	U50	Undisturbed 50mm diameter tube sample taken over depth indicated.
	DB	Bulk disturbed sample taken over depth indicated.
	DS	Small disturbed bag sample taken over depth indicated.
	ASB	Soil sample taken over depth indicated, for asbestos analysis.
	ASS	Soil sample taken over depth indicated, for acid sulfate soil analysis.
	SAL	Soil sample taken over depth indicated, for salinity analysis.
	PFAS	Soil sample taken over depth indicated, for analysis of Per- and Polyfluoroalkyl Substances.
Field Tests	N = 17 4, 7, 10	Standard Penetration Test (SPT) performed between depths indicated by lines. Individual figures show blows per 150mm penetration. 'Refusal' refers to apparent hammer refusal within the corresponding 150mm depth increment.
	N_c = 5 7 3R	Solid Cone Penetration Test (SCPT) performed between depths indicated by lines. Individual figures show blows per 150mm penetration for 60° solid cone driven by SPT hammer. 'R' refers to apparent hammer refusal within the corresponding 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)	w > PL $w \approx$ PL w < PL $w \approx$ 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.
(Coarse Grained Soils)	D M W	DRY – runs freely through fingers. MOIST – does not run freely but no free water visible on soil surface. WET – free water visible on soil surface.
Strength (Consistency) Cohesive Soils	VS S F St VSt Hd Fr ( )	VERY SOFT – unconfined compressive strength ≤ 25kPa. SOFT – unconfined compressive strength > 25kPa and ≤ 50kPa. FIRM – unconfined compressive strength > 50kPa and ≤ 100kPa. STIFF – unconfined compressive strength > 100kPa and ≤ 200kPa. VERY STIFF – unconfined compressive strength > 200kPa and ≤ 400kPa. HARD – unconfined compressive strength > 400kPa. FRIABLE – strength not attainable, soil crumbles. Bracketed symbol indicates estimated consistency based on tactile examination or other assessment.
Density Index/ Relative Density (Cohesionless Soils)	VL L MD D VD ( )	**Density Index (I_D) Range (%)** / **SPT 'N' Value Range (Blows/300mm)** VERY LOOSE ≤ 15 / 0 – 4 LOOSE > 15 and ≤ 35 / 4 – 10 MEDIUM DENSE > 35 and ≤ 65 / 10 – 30 DENSE > 65 and ≤ 85 / 30 – 50 VERY DENSE > 85 / > 50 Bracketed symbol indicates estimated density based on ease of drilling or other assessment.

Log Column	Symbol	Definition
Hand Penetrometer Readings	300 250	Measures reading in kPa of unconfined compressive strength. Numbers indicate individual test results on representative undisturbed material unless noted otherwise.
Remarks	'V' bit	Hardened steel 'V' shaped bit.
	'TC' bit	Twin pronged tungsten carbide bit.
	T_{60}	Penetration of auger string in mm under static load of rig applied by drill head hydraulics without rotation of augers.
	Soil Origin	The geological origin of the soil can generally be described as: RESIDUAL – soil formed directly from insitu weathering of the underlying rock. No visible structure or fabric of the parent rock. EXTREMELY WEATHERED – soil formed directly from insitu weathering of the underlying rock. Material is of soil strength but retains the structure and/or fabric of the parent rock. ALLUVIAL – soil deposited by creeks and rivers. ESTUARINE – soil deposited in coastal estuaries, including sediments caused by inflowing creeks and rivers, and tidal currents. MARINE – soil deposited in a marine environment. AEOLIAN – soil carried and deposited by wind. COLLUVIAL – 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. LITTORAL – beach deposited soil.

Classification of Material Weathering

Term		Abbreviation		Definition
Residual Soil		RS		Material is weathered to such an extent that it has soil properties. Mass 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 (Note 1)	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		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		FR		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

Term	Abbreviation	Uniaxial Compressive Strength (MPa)	Guide to Strength	
			Point Load Strength Index $Is_{(50)}$ (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	M	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	H	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 Report(s) & COC Documents

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CERTIFICATE OF ANALYSIS 267374

Client Details

Client	JK Environments
Attention	Harry Leonard
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	**E27318PH, Wentworthville**
Number of Samples	41 Soil, 1 Material
Date samples received	22/04/2021
Date completed instructions received	22/04/2021

Analysis Details

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

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

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

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	29/04/2021
Date of Issue	29/04/2021

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Authorised By

Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		267374-1	267374-3	267374-6	267374-7	267374-9
Your Reference	UNITS	BH201	BH201	BH201	BH202	BH202
Depth		0.1-0.2	0.5-0.6	1.4-1.5	0.1-0.3	0.5-0.6
Date Sampled		20/04/2021	20/04/2021	20/04/2021	20/04/2021	20/04/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/04/2021	23/04/2021	23/04/2021	23/04/2021	23/04/2021
Date analysed	-	26/04/2021	26/04/2021	26/04/2021	26/04/2021	26/04/2021
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} 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	%	121	118	116	117	114

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		267374-10	267374-12	267374-39	267374-40	267374-41
Your Reference	UNITS	BH202	BH203	SDUP1	TBS1	TS1
Depth		0.8-0.9	0.1-0.2	-	-	-
Date Sampled		20/04/2021	20/04/2021	20/04/2021	20/04/2021	20/04/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/04/2021	23/04/2021	23/04/2021	23/04/2021	23/04/2021
Date analysed	-	26/04/2021	26/04/2021	26/04/2021	26/04/2021	26/04/2021
TRH C_6 - C_9	mg/kg	<25	<25	<25	[NA]	[NA]
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	[NA]	[NA]
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	[NA]	[NA]
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	82%
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	83%
Ethylbenzene	mg/kg	<1	<1	<1	<1	93%
m+p-xylene	mg/kg	<2	<2	<2	<2	94%
o-Xylene	mg/kg	<1	<1	<1	<1	92%
naphthalene	mg/kg	<1	<1	<1	<1	[NA]
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	[NA]
Surrogate aaa-Trifluorotoluene	%	115	113	119	120	113

svTRH (C10-C40) in Soil						
Our Reference		267374-1	267374-3	267374-6	267374-7	267374-9
Your Reference	UNITS	BH201	BH201	BH201	BH202	BH202
Depth		0.1-0.2	0.5-0.6	1.4-1.5	0.1-0.3	0.5-0.6
Date Sampled		20/04/2021	20/04/2021	20/04/2021	20/04/2021	20/04/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/04/2021	23/04/2021	23/04/2021	23/04/2021	23/04/2021
Date analysed	-	23/04/2021	23/04/2021	23/04/2021	23/04/2021	23/04/2021
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	130	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	240	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	240	<50	<50	<50	<50
Surrogate o-Terphenyl	%	92	102	94	95	93

svTRH (C10-C40) in Soil				
Our Reference		267374-10	267374-12	267374-39
Your Reference	UNITS	BH202	BH203	SDUP1
Depth		0.8-0.9	0.1-0.2	-
Date Sampled		20/04/2021	20/04/2021	20/04/2021
Type of sample		Soil	Soil	Soil
Date extracted	-	23/04/2021	23/04/2021	23/04/2021
Date analysed	-	24/04/2021	24/04/2021	24/04/2021
TRH C_{10} - C_{14}	mg/kg	<50	<50	76
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	160
TRH >C_{10} -C_{16}	mg/kg	<50	<50	78
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	78
TRH >C_{16} -C_{34}	mg/kg	<100	100	120
TRH >C_{34} -C_{40}	mg/kg	<100	<100	270
Total +ve TRH (>C10-C40)	mg/kg	<50	100	470
Surrogate o-Terphenyl	%	98	95	99

PAHs in Soil						
Our Reference		267374-1	267374-3	267374-6	267374-7	267374-9
Your Reference	UNITS	BH201	BH201	BH201	BH202	BH202
Depth		0.1-0.2	0.5-0.6	1.4-1.5	0.1-0.3	0.5-0.6
Date Sampled		20/04/2021	20/04/2021	20/04/2021	20/04/2021	20/04/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/04/2021	23/04/2021	23/04/2021	23/04/2021	23/04/2021
Date analysed	-	23/04/2021	23/04/2021	23/04/2021	23/04/2021	23/04/2021
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	0.06	<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	0.4	<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	%	112	118	116	115	118

PAHs in Soil				
Our Reference		267374-10	267374-12	267374-39
Your Reference	UNITS	BH202	BH203	SDUP1
Depth		0.8-0.9	0.1-0.2	-
Date Sampled		20/04/2021	20/04/2021	20/04/2021
Type of sample		Soil	Soil	Soil
Date extracted	-	23/04/2021	23/04/2021	23/04/2021
Date analysed	-	23/04/2021	23/04/2021	23/04/2021
Naphthalene	mg/kg	<0.1	<0.1	0.2
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	0.2
Anthracene	mg/kg	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	0.2	0.4
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	117	115	110

Organochlorine Pesticides in soil					
Our Reference		267374-1	267374-3	267374-7	267374-12
Your Reference	UNITS	BH201	BH201	BH202	BH203
Depth		0.1-0.2	0.5-0.6	0.1-0.3	0.1-0.2
Date Sampled		20/04/2021	20/04/2021	20/04/2021	20/04/2021
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	23/04/2021	23/04/2021	23/04/2021	23/04/2021
Date analysed	-	23/04/2021	23/04/2021	23/04/2021	23/04/2021
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	88	89	90	89

Organophosphorus Pesticides in Soil					
Our Reference		267374-1	267374-3	267374-7	267374-12
Your Reference	UNITS	BH201	BH201	BH202	BH203
Depth		0.1-0.2	0.5-0.6	0.1-0.3	0.1-0.2
Date Sampled		20/04/2021	20/04/2021	20/04/2021	20/04/2021
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	23/04/2021	23/04/2021	23/04/2021	23/04/2021
Date analysed	-	23/04/2021	23/04/2021	23/04/2021	23/04/2021
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	88	89	90	89

PCBs in Soil					
Our Reference		267374-1	267374-3	267374-7	267374-12
Your Reference	UNITS	BH201	BH201	BH202	BH203
Depth		0.1-0.2	0.5-0.6	0.1-0.3	0.1-0.2
Date Sampled		20/04/2021	20/04/2021	20/04/2021	20/04/2021
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	23/04/2021	23/04/2021	23/04/2021	23/04/2021
Date analysed	-	23/04/2021	23/04/2021	23/04/2021	23/04/2021
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	88	89	90	89

Acid Extractable metals in soil						
Our Reference		267374-1	267374-3	267374-6	267374-7	267374-9
Your Reference	UNITS	BH201	BH201	BH201	BH202	BH202
Depth		0.1-0.2	0.5-0.6	1.4-1.5	0.1-0.3	0.5-0.6
Date Sampled		20/04/2021	20/04/2021	20/04/2021	20/04/2021	20/04/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/04/2021	23/04/2021	23/04/2021	23/04/2021	23/04/2021
Date analysed	-	26/04/2021	26/04/2021	26/04/2021	26/04/2021	26/04/2021
Arsenic	mg/kg	<4	<4	6	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	45	12	10	10	11
Copper	mg/kg	25	9	12	16	12
Lead	mg/kg	4	9	11	34	32
Mercury	mg/kg	<0.1	<0.1	<0.1	0.1	0.1
Nickel	mg/kg	45	6	4	7	4
Zinc	mg/kg	37	11	11	140	59

Acid Extractable metals in soil				
Our Reference		267374-10	267374-12	267374-39
Your Reference	UNITS	BH202	BH203	SDUP1
Depth		0.8-0.9	0.1-0.2	-
Date Sampled		20/04/2021	20/04/2021	20/04/2021
Type of sample		Soil	Soil	Soil
Date prepared	-	23/04/2021	23/04/2021	23/04/2021
Date analysed	-	26/04/2021	26/04/2021	26/04/2021
Arsenic	mg/kg	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4
Chromium	mg/kg	14	11	40
Copper	mg/kg	10	17	23
Lead	mg/kg	22	22	5
Mercury	mg/kg	<0.1	0.2	<0.1
Nickel	mg/kg	5	6	40
Zinc	mg/kg	25	140	38

Moisture						
Our Reference		267374-1	267374-3	267374-6	267374-7	267374-9
Your Reference	UNITS	BH201	BH201	BH201	BH202	BH202
Depth		0.1-0.2	0.5-0.6	1.4-1.5	0.1-0.3	0.5-0.6
Date Sampled		20/04/2021	20/04/2021	20/04/2021	20/04/2021	20/04/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/04/2021	23/04/2021	23/04/2021	23/04/2021	23/04/2021
Date analysed	-	26/04/2021	26/04/2021	26/04/2021	26/04/2021	26/04/2021
Moisture	%	5.9	17	13	8.8	17

Moisture				
Our Reference		267374-10	267374-12	267374-39
Your Reference	UNITS	BH202	BH203	SDUP1
Depth		0.8-0.9	0.1-0.2	-
Date Sampled		20/04/2021	20/04/2021	20/04/2021
Type of sample		Soil	Soil	Soil
Date prepared	-	23/04/2021	23/04/2021	23/04/2021
Date analysed	-	26/04/2021	26/04/2021	26/04/2021
Moisture	%	21	14	6.7

Asbestos ID - soils NEPM - ASB-001					
Our Reference		267374-2	267374-4	267374-8	267374-13
Your Reference	UNITS	BH201	BH201	BH202	BH203
Depth		0.1-0.5	0.5-1.0	0.05-0.5	0-0.5
Date Sampled		20/04/2021	20/04/2021	20/04/2021	20/04/2021
Type of sample		Soil	Soil	Soil	Soil
Date analysed	-	29/04/2021	29/04/2021	29/04/2021	29/04/2021
Sample mass tested	g	833.36	545.24	657.62	620.95
Sample Description	-	Grey coarse-grained soil & rocks	Grey 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 Organic fibres detected Synthetic mineral fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos[#1]	g/kg	<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
ACM >7mm Estimation*	g	–	–	–	–
FA and AF Estimation*	g	–	–	–	–
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001

Misc Inorg - Soil						
Our Reference		267374-18	267374-20	267374-23	267374-24	267374-27
Your Reference	UNITS	BH201	BH201	BH201	BH201	BH201
Depth		1.0-1.2	1.8-2.0	3.35-3.45	4.0-4.1	6.1-6.5
Date Sampled		20/04/2021	20/04/2021	20/04/2021	20/04/2021	20/04/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	26/04/2021	26/04/2021	26/04/2021	26/04/2021	26/04/2021
Date analysed	-	26/04/2021	26/04/2021	26/04/2021	26/04/2021	26/04/2021
pH 1:5 soil:water	pH Units	5.3	5.9	5.8	6.0	7.2
Chloride, Cl 1:5 soil:water	mg/kg	390	300	990	1,100	630
Sulphate, SO4 1:5 soil:water	mg/kg	270	430	140	170	110
Resistivity in soil*	ohm m	25	23	15	14	20

Misc Inorg - Soil					
Our Reference		267374-30	267374-33	267374-35	267374-38
Your Reference	UNITS	BH202	BH202	BH202	BH203
Depth		0.8-0.9	1.4-1.6	2.4-2.5	0.5-0.7
Date Sampled		20/04/2021	20/04/2021	20/04/2021	20/04/2021
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	26/04/2021	26/04/2021	26/04/2021	26/04/2021
Date analysed	-	26/04/2021	26/04/2021	26/04/2021	26/04/2021
pH 1:5 soil:water	pH Units	6.8	5.4	5.5	7.8
Chloride, Cl 1:5 soil:water	mg/kg	120	280	790	47
Sulphate, SO4 1:5 soil:water	mg/kg	140	130	180	130
Resistivity in soil*	ohm m	60	39	16	70

CEC						
Our Reference		267374-18	267374-24	267374-27	267374-30	267374-35
Your Reference	UNITS	BH201	BH201	BH201	BH202	BH202
Depth		1.0-1.2	4.0-4.1	6.1-6.5	0.8-0.9	2.4-2.5
Date Sampled		20/04/2021	20/04/2021	20/04/2021	20/04/2021	20/04/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	27/04/2021	27/04/2021	27/04/2021	27/04/2021	27/04/2021
Date analysed	-	27/04/2021	27/04/2021	27/04/2021	27/04/2021	27/04/2021
Exchangeable Ca	meq/100g	1.4	0.1	0.3	7.5	0.8
Exchangeable K	meq/100g	0.1	<0.1	0.2	0.2	0.1
Exchangeable Mg	meq/100g	4.7	1.7	3.7	5.2	3.3
Exchangeable Na	meq/100g	1.4	0.81	1.6	0.50	0.75
Cation Exchange Capacity	meq/100g	7.6	2.6	5.9	13	4.9

CEC		
Our Reference		267374-38
Your Reference	UNITS	BH203
Depth		0.5-0.7
Date Sampled		20/04/2021
Type of sample		Soil
Date prepared	-	27/04/2021
Date analysed	-	27/04/2021
Exchangeable Ca	meq/100g	9.7
Exchangeable K	meq/100g	0.3
Exchangeable Mg	meq/100g	4.5
Exchangeable Na	meq/100g	0.23
Cation Exchange Capacity	meq/100g	15

Texture and Salinity*						
Our Reference		267374-18	267374-20	267374-23	267374-24	267374-27
Your Reference	UNITS	BH201	BH201	BH201	BH201	BH201
Depth		1.0-1.2	1.8-2.0	3.35-3.45	4.0-4.1	6.1-6.5
Date Sampled		20/04/2021	20/04/2021	20/04/2021	20/04/2021	20/04/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/04/2021	23/04/2021	23/04/2021	23/04/2021	23/04/2021
Date analysed	-	23/04/2021	23/04/2021	23/04/2021	23/04/2021	23/04/2021
Electrical Conductivity 1:5 soil:water	µS/cm	400	430	680	720	500
Texture Value	-	7.0	7.0	7.0	8.0	9.0
Texture	-	MEDIUM CLAY	MEDIUM CLAY	MEDIUM CLAY	LIGHT MEDIUM CLAY	CLAY LOAM
ECe	dS/m	2.8	3.0	4.8	5.8	4.5
Class	-	SLIGHTLY SALINE	SLIGHTLY SALINE	MODERATELY SALINE	MODERATELY SALINE	MODERATELY SALINE

Texture and Salinity*					
Our Reference		267374-30	267374-33	267374-35	267374-38
Your Reference	UNITS	BH202	BH202	BH202	BH203
Depth		0.8-0.9	1.4-1.6	2.4-2.5	0.5-0.7
Date Sampled		20/04/2021	20/04/2021	20/04/2021	20/04/2021
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	23/04/2021	23/04/2021	23/04/2021	23/04/2021
Date analysed	-	23/04/2021	23/04/2021	23/04/2021	23/04/2021
Electrical Conductivity 1:5 soil:water	µS/cm	170	260	630	140
Texture Value	-	7.0	7.0	7.0	7.0
Texture	-	MEDIUM CLAY	MEDIUM CLAY	MEDIUM CLAY	MEDIUM CLAY
ECe	dS/m	<2	<2	4.4	<2
Class	-	NON SALINE	NON SALINE	MODERATELY SALINE	NON SALINE

Asbestos ID - materials		
Our Reference		267374-42
Your Reference	UNITS	FCF203
Depth		0-0.5
Date Sampled		20/04/2021
Type of sample		Material
Date analysed	-	27/04/2021
Mass / Dimension of Sample	-	25x15x5mm
Sample Description	-	Beige fibre cement material
Asbestos ID in materials	-	Chrysotile asbestos detected Amosite asbestos detected Crocidolite asbestos detected
Trace Analysis	-	[NT]

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) **NOTE** #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-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell at 25°C in accordance with APHA latest edition 2510 and Rayment & Lyons.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell at 25oC in accordance with APHA 22nd ED 2510 and Rayment & Lyons. Resistivity is calculated from Conductivity (non NATA). Resistivity (calculated) may not correlate with results otherwise obtained using Resistivity-Current method, depending on the nature of the soil being analysed.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Inorg-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B. Waters samples are filtered on receipt prior to analysis. Alternatively determined by colourimetry/turbidity using Discrete Analyser.
INORG-123	Determined using a "Texture by Feel" method.
Metals-020	Determination of various metals by ICP-AES.
Metals-020	Determination of exchangeable cations and cation exchange capacity in soils using 1M Ammonium Chloride exchange and ICP-AES analytical finish.
Metals-021	Determination of Mercury by Cold Vapour AAS.

Method ID	Methodology Summary
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.
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 are actually at the PQL. This is the most conservative 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 are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. 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.

Method ID	Methodology Summary
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 CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date extracted	-			23/04/2021	1	23/04/2021	23/04/2021		23/04/2021	[NT]
Date analysed	-			26/04/2021	1	26/04/2021	26/04/2021		26/04/2021	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	<25	1	<25	<25	0	83	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	<25	1	<25	<25	0	83	[NT]
Benzene	mg/kg	0.2	Org-023	<0.2	1	<0.2	<0.2	0	85	[NT]
Toluene	mg/kg	0.5	Org-023	<0.5	1	<0.5	<0.5	0	78	[NT]
Ethylbenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	80	[NT]
m+p-xylene	mg/kg	2	Org-023	<2	1	<2	<2	0	86	[NT]
o-Xylene	mg/kg	1	Org-023	<1	1	<1	<1	0	82	[NT]
naphthalene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	121	1	121	120	1	119	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date extracted	-			26/04/2021	1	23/04/2021	23/04/2021		23/04/2021	[NT]
Date analysed	-			27/04/2021	1	23/04/2021	23/04/2021		23/04/2021	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	1	<50	<50	0	130	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	1	<100	<100	0	93	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	1	130	210	47	92	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	1	<50	<50	0	130	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	1	<100	170	52	93	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	1	240	370	43	92	[NT]
Surrogate o-Terphenyl	%		Org-020	90	1	92	93	1	120	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date extracted	-			23/04/2021	1	23/04/2021	23/04/2021		23/04/2021	[NT]
Date analysed	-			23/04/2021	1	23/04/2021	23/04/2021		23/04/2021	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	83	[NT]
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	86	[NT]
Fluorene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	88	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	1	0.1	0.1	0	103	[NT]
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	93	[NT]
Pyrene	mg/kg	0.1	Org-022/025	<0.1	1	0.1	<0.1	0	102	[NT]
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	73	[NT]
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	0.06	<0.05	18	92	[NT]
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	121	1	112	114	2	120	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date extracted	-			23/04/2021	1	23/04/2021	23/04/2021		23/04/2021	[NT]
Date analysed	-			23/04/2021	1	23/04/2021	23/04/2021		23/04/2021	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	90	[NT]
HCB	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	89	[NT]
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	93	[NT]
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	86	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	91	[NT]
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	108	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	95	[NT]
Endrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	93	[NT]
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	81	[NT]
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	78	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	91	1	88	90	2	96	[NT]

QUALITY CONTROL: Organophosphorus Pesticides in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date extracted	-			23/04/2021	1	23/04/2021	23/04/2021		23/04/2021	[NT]
Date analysed	-			23/04/2021	1	23/04/2021	23/04/2021		23/04/2021	[NT]
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	86	[NT]
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	82	[NT]
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	73	[NT]
Malathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	98	[NT]
Chlorpyriphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	103	[NT]
Parathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	71	[NT]
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	73	[NT]
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	91	1	88	90	2	96	[NT]

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date extracted	-			23/04/2021	1	23/04/2021	23/04/2021		23/04/2021	[NT]
Date analysed	-			23/04/2021	1	23/04/2021	23/04/2021		23/04/2021	[NT]
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	115	[NT]
Aroclor 1260	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	91	1	88	90	2	96	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date prepared	-			23/04/2021	1	23/04/2021	23/04/2021		23/04/2021	[NT]
Date analysed	-			26/04/2021	1	26/04/2021	26/04/2021		26/04/2021	[NT]
Arsenic	mg/kg	4	Metals-020	<4	1	<4	<4	0	102	[NT]
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	<0.4	<0.4	0	93	[NT]
Chromium	mg/kg	1	Metals-020	<1	1	45	48	6	106	[NT]
Copper	mg/kg	1	Metals-020	<1	1	25	18	33	95	[NT]
Lead	mg/kg	1	Metals-020	<1	1	4	3	29	101	[NT]
Mercury	mg/kg	0.1	Metals-021	<0.1	1	<0.1	<0.1	0	99	[NT]
Nickel	mg/kg	1	Metals-020	<1	1	45	42	7	100	[NT]
Zinc	mg/kg	1	Metals-020	<1	1	37	30	21	105	[NT]

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	267374-33
Date prepared	-			26/04/2021	30	26/04/2021	26/04/2021		26/04/2021	26/04/2021
Date analysed	-			26/04/2021	30	26/04/2021	26/04/2021		26/04/2021	26/04/2021
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	30	6.8	6.8	0	102	[NT]
Chloride, Cl 1:5 soil:water	mg/kg	10	Inorg-081	<10	30	120	110	9	109	104
Sulphate, SO4 1:5 soil:water	mg/kg	10	Inorg-081	<10	30	140	130	7	108	#
Resistivity in soil*	ohm m	1	Inorg-002	<1	30	60	63	5	[NT]	[NT]

QUALITY CONTROL: CEC						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	267374-38
Date prepared	-			27/04/2021	35	27/04/2021	27/04/2021		27/04/2021	27/04/2021
Date analysed	-			27/04/2021	35	27/04/2021	27/04/2021		27/04/2021	27/04/2021
Exchangeable Ca	meq/100g	0.1	Metals-020	<0.1	35	0.8	0.8	0	102	100
Exchangeable K	meq/100g	0.1	Metals-020	<0.1	35	0.1	0.1	0	129	103
Exchangeable Mg	meq/100g	0.1	Metals-020	<0.1	35	3.3	3.4	3	126	113
Exchangeable Na	meq/100g	0.1	Metals-020	<0.1	35	0.75	0.75	0	128	98

QUALITY CONTROL: Texture and Salinity*					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date prepared	-			23/04/2021	30	23/04/2021	23/04/2021		23/04/2021	[NT]
Date analysed	-			23/04/2021	30	23/04/2021	23/04/2021		23/04/2021	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	<1	30	170	160	6	99	[NT]
Texture Value	-		INORG-123	[NT]	30	7.0	7.0	0	[NT]	[NT]

Result Definitions

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

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & 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.

Report Comments

MISC_INORG_DRY
Percent recovery is not possible to report due to the high concentration of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

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.

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 RECEIPT ADVICE

Client Details

Client	JK Environments
Attention	Harry Leonard

Sample Login Details

Your reference	E27318PH, Wentworthville
Envirolab Reference	267374
Date Sample Received	22/04/2021
Date Instructions Received	22/04/2021
Date Results Expected to be Reported	29/04/2021

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	41 Soil, 1 Material
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	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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12 Ashley St Chatswood NSW 2067
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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	Misc Inorg - Soil	CEC	Texture and Salinity*	Asbestos ID - materials	On Hold
BH201-0.1-0.2	✓	✓	✓	✓	✓	✓	✓						
BH201-0.1-0.5								✓					
BH201-0.5-0.6	✓	✓	✓	✓	✓	✓	✓						
BH201-0.5-1.0								✓					
BH201-0.9-1.0													✓
BH201-1.4-1.5	✓	✓	✓				✓						
BH202-0.1-0.3	✓	✓	✓	✓	✓	✓	✓						
BH202-0.05-0.5								✓					
BH202-0.5-0.6	✓	✓	✓				✓						
BH202-0.8-0.9	✓	✓	✓				✓						
BH202-1.1-1.3													✓
BH203-0.1-0.2	✓	✓	✓	✓	✓	✓	✓						
BH203-0-0.5								✓					
BH203-0.5-0.7													✓
BH201-0.1-0.2													✓
BH201-0.5-0.6													✓
BH201-0.9-1.0													✓
BH201-1.0-1.2									✓	✓	✓		
BH201-1.4-1.5													✓
BH201-1.8-2.0									✓		✓		
BH201-2.5-2.6													✓
BH201-2.9-3.0													✓
BH201-3.35-3.45									✓		✓		
BH201-4.0-4.1									✓	✓	✓		
BH201-4.4-4.5													✓
BH201-5.5-5.6													✓
BH201-6.1-6.5									✓	✓	✓		
BH202-0.1-0.3													✓
BH202-0.5-0.7													✓
BH202-0.8-0.9									✓	✓	✓		
BH202-1.0-1.1													✓
BH202-1.1-1.3													✓

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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	Misc Inorg - Soil	CEC	Texture and Salinity*	Asbestos ID - materials	On Hold
BH202-1.4-1.6									✓		✓		
BH202-1.8-1.9													✓
BH202-2.4-2.5									✓	✓	✓		
BH202-2.9-3.0													✓
BH203-0.1-0.2													✓
BH203-0.5-0.7									✓	✓	✓		
SDUP1	✓	✓	✓				✓						
TBS1	✓												
TS1	✓												
FCF203-0-0.5												✓	

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:		FROM:
ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	JKE Job Number: E27318PH Date Results Required: STANDARD Page: 1 of 2	JKEnvironments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Harry Leonard

Location:	Wentworthville						Sample Preserved in Esky on Ice											
Sampler:	BZ						Tests Required											
Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 6	Combo 3	WA Asbestos (500mL)	Asbestos	BTEX	CEC	pH	ECe (texture)	Sulphate	Chloride	Resistivity	
20/04/2021	1	BH201	0.1-0.2	G		F: Gravelly sand	X											
20/04/2021	2	BH201	0.1-0.5	A	-	F: Gravelly sand			X									
20/04/2021	3	BH201	0.5-0.6	G		F: Silty clay	X											
20/04/2021	4	BH201	0.5-1.0	A	-	F: Silty clay			X									
20/04/2021	5	BH201	0.9-1.0	G		F: Silty clay												
20/04/2021	6	BH201	1.4-1.5	G		Clay		X										
20/04/2021	7	BH202	0.1-0.3	G		F: Sand	X											
20/04/2021	8	BH202	0.05-0.5	A		F: Sand			X									
20/04/2021	9	BH202	0.5-0.6	G		F: Silty clay		X										
20/04/2021	10	BH202	0.8-0.9	G		Clay		X										
20/04/2021	11	BH202	1.1-1.3	G		Clay												
20/04/2021	12	BH203	0.1-0.2	G		F: Gravelly sand	X											
20/04/2021	13	BH203	0-0.5	A		F: Gravelly sand			X									
20/04/2021	14	BH203	0.5-0.7	G		F: Silty clay												
20/04/2021	15	BH201	0.1-0.2	P		F: Gravelly sand												
20/04/2021	16	BH201	0.5-0.6	P		F: Silty clay												
20/04/2021	17	BH201	0.9-1.0	P		F: Silty clay												
20/04/2021	18	BH201	1.0-1.2	P		Clay						X	X	X	X	X	X	
20/04/2021	19	BH201	1.4-1.5	P		Clay												
20/04/2021	20	BH201	1.8-2.0	P		Clay							X	X	X	X	X	
20/04/2021	21	BH201	2.5-2.6	P		Clay												
20/04/2021	22	BH201	2.9-3.0	P		Clay												
20/04/2021	23	BH201	3.35-3.45	P		Clay							X	X	X	X	X	
20/04/2021	24	BH201	4.0-4.1	P		Clay						X	X	X	X	X	X	
20/04/2021	25	BH201	4.4-4.5	P		Clay												

ENVIROLAB GROUP
Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200
Job No: 267374
Date Received: 22/4/21
Time Received: 1225
Received by: JD
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Remarks (comments/detection limits required):	Sample Containers:
SDUP1 - Intra-laboratory duplicate	G - 250mg Glass Jar A - Ziplock Asbestos Bag P - Plastic Bag

Relinquished By: HL	Date: 22/04/2021	Time:	Received By: Jason Day	Date: 22/4/21 1225 6°C

SAMPLE AND CHAIN OF CUSTODY FORM

TO:		FROM:
ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	JKE Job Number: E27318PH Date Results Required: STANDARD Page: 1 of 2	JKEnvironments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Harry Leonard

Location:	Wentworthville						Sample Preserved in Esky on Ice										
Sampler:	BZ						Tests Required										
Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 6	Combo 3	WA Asbestos (500mL)	Asbestos	BTEX	CEC	pH	ECe (texture)	Sulphate	Chloride	Resistivity
20/04/2021	26	BH201	5.5-5.6	P	-	Clay											
20/04/2021	27	BH201	6.1-6.5	P	-	Clay						X	X	X	X	X	X
20/04/2021	28	BH202	0.1-0.3	P	-	F: Sand											
20/04/2021	29	BH202	0.5-0.7	P	-	F: Slity clay											
20/04/2021	30	BH202	0.8-0.9	P	-	Clay						X	X	X	X	X	X
20/04/2021	31	BH202	1.0-1.1	P	-	Clay											
20/04/2021	32	BH202	1.1-1.3	P	-	Clay											
20/04/2021	33	BH202	1.4-1.6	P	-	Clay							X	X	X	X	X
20/04/2021	34	BH202	1.8-1.9	P	-	Clay											
20/04/2021	35	BH202	2.4-2.5	P	-	Clay						X	X	X	X	X	X
20/04/2021	36	BH202	2.9-3.0	P	-	Clay											
20/04/2021	37	BH203	0.1-0.2	P	-	F: Gravelly sand											
20/04/2021	38	BH203	0.5-0.7	P	-	F: Silty clay						X	X	X	X	X	X
20/04/2021	39	SDUP1	-	G	-	-		X									
20/04/2021	40	TBS1	-	G	-	-					X						
20/04/2021	41	TS1	-	V	-	-					X						
20/04/2021	42	FCF203	0-0.5	A	-	Material				X							

Remarks (comments/detection limits required):	Sample Containers:
SDUP1 - Intra-laboratory duplicate	G - 250mg Glass Jar A - Ziplock Asbestos Bag P - Plastic Bag

Relinquished By: HL	Date: 22/04/2021	Time:	Received By: Jason Day	Date: 22/4/21 1225

267374

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www.envirolab.com.au

CERTIFICATE OF ANALYSIS 267374-A

Client Details

Client	JK Environments
Attention	Harry Leonard
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	**E27318PH, Wentworthville**
Number of Samples	additional analyses for 1 soil
Date samples received	22/04/2021
Date completed instructions received	18/05/2021

Analysis Details

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

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

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

Report Details

Date results requested by	20/05/2021
Date of Issue	20/05/2021

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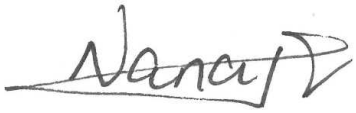
Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Results Approved By
Hannah Nguyen, Senior Chemist

Authorised By



Nancy Zhang, Laboratory Manager

Metals in TCLP USEPA1311		
Our Reference		267374-A-1
Your Reference	UNITS	BH201
Depth		0.1-0.2
Date Sampled		20/04/2021
Type of sample		Soil
Date extracted	-	20/05/2021
Date analysed	-	20/05/2021
pH of soil for fluid# determ.	pH units	9.6
pH of soil TCLP (after HCl)	pH units	1.8
Extraction fluid used	-	1
pH of final Leachate	pH units	5.2
Nickel in TCLP	mg/L	0.06

Method ID	Methodology Summary
EXTRACT.7	Toxicity Characteristic Leaching Procedure (TCLP) using Zero Headspace Extraction (zHE) using AS4439 and USEPA 1311.
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-004	Toxicity Characteristic Leaching Procedure (TCLP) using in house method INORG-004. Please note that the mass used may be scaled down from the default based on sample mass available.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.

QUALITY CONTROL: Metals in TCLP USEPA1311						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			20/05/2021	[NT]	[NT]	[NT]	[NT]	20/05/2021	[NT]
Date analysed	-			20/05/2021	[NT]	[NT]	[NT]	[NT]	20/05/2021	[NT]
Nickel in TCLP	mg/L	0.02	Metals-020 ICP-AES	<0.02	[NT]	[NT]	[NT]	[NT]	96	[NT]

Result Definitions

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

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
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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.

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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.

Envirolab Services Pty Ltd
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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	Harry Leonard

Sample Login Details

Your reference	E27318PH, Wentworthville
Envirolab Reference	267374-A
Date Sample Received	22/04/2021
Date Instructions Received	18/05/2021
Date Results Expected to be Reported	20/05/2021

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	additional analyses for 1 soil
Turnaround Time Requested	2 days
Temperature on Receipt (°C)	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	pH of soil for fluid#determ.	pH of soil TCLP (after HCl)	Extraction fluid used	pH of final Leachate	Nickel in TCLP	On Hold
BH201-0.1-0.2	✓	✓	✓	✓	✓	
BH201-0.1-0.5						✓
BH201-0.5-0.6						✓
BH201-0.5-1.0						✓
BH201-0.9-1.0						✓
BH201-1.4-1.5						✓
BH202-0.1-0.3						✓
BH202-0.05-0.5						✓
BH202-0.5-0.6						✓
BH202-0.8-0.9						✓
BH202-1.1-1.3						✓
BH203-0.1-0.2						✓
BH203-0-0.5						✓
BH203-0.5-0.7						✓
BH201-0.1-0.2						✓
BH201-0.5-0.6						✓
BH201-0.9-1.0						✓
BH201-1.0-1.2						✓
BH201-1.4-1.5						✓
BH201-1.8-2.0						✓
BH201-2.5-2.6						✓
BH201-2.9-3.0						✓
BH201-3.35-3.45						✓
BH201-4.0-4.1						✓
BH201-4.4-4.5						✓
BH201-5.5-5.6						✓
BH201-6.1-6.5						✓
BH202-0.1-0.3						✓
BH202-0.5-0.7						✓
BH202-0.8-0.9						✓
BH202-1.0-1.1						✓
BH202-1.1-1.3						✓

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Sample ID	pH of soil for fluid#determ.	pH of soil TCLP (after HCl)	Extraction fluid used	pH of final Leachate	Nickel in TCLP	On Hold
BH202-1.4-1.6						✓
BH202-1.8-1.9						✓
BH202-2.4-2.5						✓
BH202-2.9-3.0						✓
BH203-0.1-0.2						✓
BH203-0.5-0.7						✓
SDUP1						✓
TBS1						✓
TS1						✓
FCF203-0-0.5						✓

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.

Ming To

From: Nancy Zhang
Sent: Tuesday, 18 May 2021 11:31 AM
To: Ming To
Cc: Samplereceipt Distribution
Subject: FW: Results for Registration 267374 E27318PH, Wentworthville
Attachments: 267374-[R00].pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Ref: 267374-A.
TAT: 2 days.
Due: 20/05/2021
MT.

A job, please.

From: Harry Leonard <HLeonard@jkenvironments.com.au>
Sent: Tuesday, 18 May 2021 7:21 AM
To: Nancy Zhang <NZhang@envirolab.com.au>
Subject: RE: Results for Registration 267374 E27318PH, Wentworthville

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,

Would it be possible to get a TCLP analysis for Nickel on sample BH201 (0.1-0.2)?

On a 2-day turnaround is possible.

Thank you!

Regards
Harry Leonard
Senior Environmental Scientist
NSW Licensed Asbestos Assessor

Some of our staff are still working remotely, therefore, where possible, please contact staff on their mobile number.

T: +612 9888 5000
D: 0403 007 650
E: HLeonard@jkenvironments.com.au
www.jkenvironments.com.au

PO Box 976
NORTH RYDE BC NSW 1670
115 Wicks Road
MACQUARIE PARK NSW 2113

JKEnvironments

This email and any attachments are confidential and may be privileged in which case neither is intended to be waived. If you have received this message in error, please notify us and remove it from your system. It is your responsibility to check any attachments for viruses and defects before opening or sending them on. At the Company's discretion we may send a paper copy for confirmation. In the event of any discrepancy between paper and electronic versions the paper version is to take precedence.

From: Nancy Zhang <NZhang@envirolab.com.au>
Sent: Thursday, 29 April 2021 3:11 PM
To: Harry Leonard <HLeonard@jkenvironments.com.au>
Subject: Results for Registration 267374 E27318PH, Wentworthville

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CERTIFICATE OF ANALYSIS 267802

Client Details

Client	JK Environments
Attention	Harry Leonard
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	**E27813PH, Wentworthville**
Number of Samples	4 Water
Date samples received	28/04/2021
Date completed instructions received	28/04/2021

Analysis Details

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

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

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

Report Details

Date results requested by	05/05/2021
Date of Issue	04/05/2021

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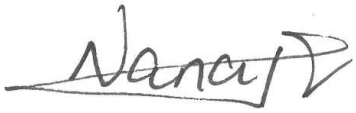
Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Results Approved By
Giovanni Agosti, Group Technical Manager
Priya Samarawickrama, Senior Chemist
Steven Luong, Organics Supervisor

Authorised By



Nancy Zhang, Laboratory Manager

NATA
ACCREDITED FOR TECHNICAL COMPETENCE

VOCs in water			
Our Reference		267802-1	267802-2
Your Reference	UNITS	MW101	MW103
Date Sampled		28/04/2021	28/04/2021
Type of sample		Water	Water
Date extracted	-	28/04/2021	28/04/2021
Date analysed	-	29/04/2021	29/04/2021
Dichlorodifluoromethane	µg/L	<10	<10
Chloromethane	µg/L	<10	<10
Vinyl Chloride	µg/L	<10	<10
Bromomethane	µg/L	<10	<10
Chloroethane	µg/L	<10	<10
Trichlorofluoromethane	µg/L	<10	<10
1,1-Dichloroethene	µg/L	<1	<1
Trans-1,2-dichloroethene	µg/L	<1	<1
1,1-dichloroethane	µg/L	<1	<1
Cis-1,2-dichloroethene	µg/L	<1	<1
Bromochloromethane	µg/L	<1	<1
Chloroform	µg/L	<1	<1
2,2-dichloropropane	µg/L	<1	<1
1,2-dichloroethane	µg/L	<1	<1
1,1,1-trichloroethane	µg/L	<1	<1
1,1-dichloropropene	µg/L	<1	<1
Cyclohexane	µg/L	<1	<1
Carbon tetrachloride	µg/L	<1	<1
Benzene	µg/L	<1	<1
Dibromomethane	µg/L	<1	<1
1,2-dichloropropane	µg/L	<1	<1
Trichloroethene	µg/L	<1	<1
Bromodichloromethane	µg/L	<1	<1
trans-1,3-dichloropropene	µg/L	<1	<1
cis-1,3-dichloropropene	µg/L	<1	<1
1,1,2-trichloroethane	µg/L	<1	<1
Toluene	µg/L	<1	<1
1,3-dichloropropane	µg/L	<1	<1
Dibromochloromethane	µg/L	<1	<1
1,2-dibromoethane	µg/L	<1	<1
Tetrachloroethene	µg/L	<1	<1
1,1,1,2-tetrachloroethane	µg/L	<1	<1
Chlorobenzene	µg/L	<1	<1
Ethylbenzene	µg/L	<1	<1

VOCs in water			
Our Reference		267802-1	267802-2
Your Reference	UNITS	MW101	MW103
Date Sampled		28/04/2021	28/04/2021
Type of sample		Water	Water
Bromoform	µg/L	<1	<1
m+p-xylene	µg/L	<2	<2
Styrene	µg/L	<1	<1
1,1,2,2-tetrachloroethane	µg/L	<1	<1
o-xylene	µg/L	<1	<1
1,2,3-trichloropropane	µg/L	<1	<1
Isopropylbenzene	µg/L	<1	<1
Bromobenzene	µg/L	<1	<1
n-propyl benzene	µg/L	<1	<1
2-chlorotoluene	µg/L	<1	<1
4-chlorotoluene	µg/L	<1	<1
1,3,5-trimethyl benzene	µg/L	<1	<1
Tert-butyl benzene	µg/L	<1	<1
1,2,4-trimethyl benzene	µg/L	<1	<1
1,3-dichlorobenzene	µg/L	<1	<1
Sec-butyl benzene	µg/L	<1	<1
1,4-dichlorobenzene	µg/L	<1	<1
4-isopropyl toluene	µg/L	<1	<1
1,2-dichlorobenzene	µg/L	<1	<1
n-butyl benzene	µg/L	<1	<1
1,2-dibromo-3-chloropropane	µg/L	<1	<1
1,2,4-trichlorobenzene	µg/L	<1	<1
Hexachlorobutadiene	µg/L	<1	<1
1,2,3-trichlorobenzene	µg/L	<1	<1
Surrogate Dibromofluoromethane	%	101	103
Surrogate toluene-d8	%	82	94
Surrogate 4-BFB	%	105	103

vTRH(C6-C10)/BTEXN in Water					
Our Reference	UNITS	267802-1	267802-2	267802-3	267802-4
Your Reference		MW101	MW103	WDUP1	TB-W1
Date Sampled		28/04/2021	28/04/2021	28/04/2021	28/04/2021
Type of sample		Water	Water	Water	Water
Date extracted	-	28/04/2021	28/04/2021	28/04/2021	28/04/2021
Date analysed	-	29/04/2021	29/04/2021	29/04/2021	29/04/2021
TRH C_6 - C_9	µg/L	<10	<10	<10	[NA]
TRH C_6 - C_{10}	µg/L	<10	<10	<10	[NA]
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10	<10	<10	[NA]
Benzene	µg/L	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2
o-xylene	µg/L	<1	<1	<1	<1
Naphthalene	µg/L	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	101	103	113	99
Surrogate toluene-d8	%	82	94	101	78
Surrogate 4-BFB	%	105	103	104	104

svTRH (C10-C40) in Water				
Our Reference		267802-1	267802-2	267802-3
Your Reference	UNITS	MW101	MW103	WDUP1
Date Sampled		28/04/2021	28/04/2021	28/04/2021
Type of sample		Water	Water	Water
Date extracted	-	29/04/2021	29/04/2021	29/04/2021
Date analysed	-	30/04/2021	30/04/2021	30/04/2021
TRH C_{10} - C_{14}	µg/L	<50	<50	<50
TRH C_{15} - C_{28}	µg/L	<100	<100	<100
TRH C_{29} - C_{36}	µg/L	<100	<100	<100
TRH >C_{10} - C_{16}	µg/L	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50	<50	<50
TRH >C_{16} - C_{34}	µg/L	<100	<100	<100
TRH >C_{34} - C_{40}	µg/L	<100	<100	<100
Surrogate o-Terphenyl	%	96	102	101

PAHs in Water - Low Level				
Our Reference	UNITS	267802-1	267802-2	267802-3
Your Reference		MW101	MW103	WDUP1
Date Sampled		28/04/2021	28/04/2021	28/04/2021
Type of sample		Water	Water	Water
Date extracted	-	29/04/2021	29/04/2021	29/04/2021
Date analysed	-	29/04/2021	29/04/2021	29/04/2021
Naphthalene	µg/L	<0.2	<0.2	<0.2
Acenaphthylene	µg/L	<0.1	<0.1	<0.1
Acenaphthene	µg/L	<0.1	<0.1	<0.1
Fluorene	µg/L	<0.1	<0.1	<0.1
Phenanthrene	µg/L	<0.1	<0.1	<0.1
Anthracene	µg/L	<0.1	<0.1	<0.1
Fluoranthene	µg/L	<0.1	<0.1	<0.1
Pyrene	µg/L	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	<0.1	<0.1	<0.1
Chrysene	µg/L	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2	<0.2	<0.2
Benzo(a)pyrene	µg/L	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5	<0.5	<0.5
Total +ve PAH's	µg/L	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	114	138	108

HM in water - dissolved				
Our Reference	UNITS	267802-1	267802-2	267802-3
Your Reference		MW101	MW103	WDUP1
Date Sampled		28/04/2021	28/04/2021	28/04/2021
Type of sample		Water	Water	Water
Date prepared	-	29/04/2021	29/04/2021	29/04/2021
Date analysed	-	29/04/2021	29/04/2021	29/04/2021
Arsenic-Dissolved	µg/L	<1	<1	<1
Cadmium-Dissolved	µg/L	<0.1	0.2	0.2
Chromium-Dissolved	µg/L	<1	<1	<1
Copper-Dissolved	µg/L	<1	<1	<1
Lead-Dissolved	µg/L	<1	<1	<1
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05
Nickel-Dissolved	µg/L	22	6	6
Zinc-Dissolved	µg/L	18	13	14

Miscellaneous Inorganics			
Our Reference	UNITS	267802-1	267802-2
Your Reference		MW101	MW103
Date Sampled		28/04/2021	28/04/2021
Type of sample		Water	Water
Date prepared	-	28/04/2021	28/04/2021
Date analysed	-	28/04/2021	28/04/2021
pH	pH Units	6.3	6.4
Electrical Conductivity	µS/cm	12,000	8,300

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell at 25°C in accordance with APHA latest edition 2510 and Rayment & Lyons.
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.

QUALITY CONTROL: VOCs in water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			28/04/2021	1	28/04/2021	29/04/2021		28/04/2021	[NT]
Date analysed	-			29/04/2021	1	29/04/2021	30/04/2021		29/04/2021	[NT]
Dichlorodifluoromethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Chloromethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Vinyl Chloride	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Bromomethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Chloroethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Trichlorofluoromethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
1,1-Dichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Trans-1,2-dichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,1-dichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	80	[NT]
Cis-1,2-dichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Bromochloromethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Chloroform	µg/L	1	Org-023	<1	1	<1	<1	0	107	[NT]
2,2-dichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	92	[NT]
1,1,1-trichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	76	[NT]
1,1-dichloropropene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Cyclohexane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Carbon tetrachloride	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Dibromomethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Trichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	105	[NT]
Bromodichloromethane	µg/L	1	Org-023	<1	1	<1	<1	0	76	[NT]
trans-1,3-dichloropropene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
cis-1,3-dichloropropene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,1,2-trichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Toluene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,3-dichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Dibromochloromethane	µg/L	1	Org-023	<1	1	<1	<1	0	107	[NT]
1,2-dibromoethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Tetrachloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	112	[NT]
1,1,1,2-tetrachloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Chlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Bromoform	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
m+p-xylene	µg/L	2	Org-023	<2	1	<2	<2	0	[NT]	[NT]
Styrene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,1,2,2-tetrachloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]

QUALITY CONTROL: VOCs in water						Duplicate			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]	[NT]
1,2,3-trichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Isopropylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Bromobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
n-propyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
2-chlorotoluene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
4-chlorotoluene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,3,5-trimethyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Tert-butyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2,4-trimethyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,3-dichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Sec-butyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,4-dichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
4-isopropyl toluene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
n-butyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dibromo-3-chloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2,4-trichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Hexachlorobutadiene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2,3-trichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	95	1	101	88	14	105	[NT]
Surrogate toluene-d8	%		Org-023	100	1	82	91	10	94	[NT]
Surrogate 4-BFB	%		Org-023	104	1	105	107	2	99	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			28/04/2021	1	28/04/2021	29/04/2021		28/04/2021	[NT]
Date analysed	-			29/04/2021	1	29/04/2021	30/04/2021		29/04/2021	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	1	<10	<10	0	84	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	1	<10	<10	0	84	[NT]
Benzene	µg/L	1	Org-023	<1	1	<1	<1	0	85	[NT]
Toluene	µg/L	1	Org-023	<1	1	<1	<1	0	96	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	77	[NT]
m+p-xylene	µg/L	2	Org-023	<2	1	<2	<2	0	82	[NT]
o-xylene	µg/L	1	Org-023	<1	1	<1	<1	0	82	[NT]
Naphthalene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	95	1	101	88	14	99	[NT]
Surrogate toluene-d8	%		Org-023	100	1	82	91	10	100	[NT]
Surrogate 4-BFB	%		Org-023	104	1	105	107	2	99	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			29/04/2021	[NT]	[NT]	[NT]	[NT]	29/04/2021	[NT]
Date analysed	-			29/04/2021	[NT]	[NT]	[NT]	[NT]	29/04/2021	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	116	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	122	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	132	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	116	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	122	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	132	[NT]
Surrogate o-Terphenyl	%		Org-020	99	[NT]	[NT]	[NT]	[NT]	72	[NT]

QUALITY CONTROL: PAHs in Water - Low Level						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	267802-2
Date extracted	-			29/04/2021	[NT]	[NT]	[NT]	[NT]	29/04/2021	29/04/2021
Date analysed	-			29/04/2021	[NT]	[NT]	[NT]	[NT]	29/04/2021	29/04/2021
Naphthalene	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	85	85
Acenaphthylene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	82	75
Fluorene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	93	80
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	110	96
Anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	110	86
Pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	118	93
Benzo(a)anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	82	72
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	117	90
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	123	[NT]	[NT]	[NT]	[NT]	74	112

QUALITY CONTROL: HM in water - dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date prepared	-			29/04/2021	[NT]	[NT]	[NT]	[NT]	29/04/2021	[NT]
Date analysed	-			29/04/2021	[NT]	[NT]	[NT]	[NT]	29/04/2021	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	91	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	[NT]	[NT]	[NT]	[NT]	91	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	86	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	86	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	93	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	[NT]	[NT]	[NT]	[NT]	98	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	89	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	89	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			28/04/2021	[NT]	[NT]	[NT]	[NT]	28/04/2021	[NT]
Date analysed	-			28/04/2021	[NT]	[NT]	[NT]	[NT]	28/04/2021	[NT]
pH	pH Units		Inorg-001	[NT]	[NT]	[NT]	[NT]	[NT]	99	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]

Result Definitions

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

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & 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.

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 RECEIPT ADVICE

Client Details

Client	JK Environments
Attention	Harry Leonard

Sample Login Details

Your reference	E27813PH, Wentworthville
Envirolab Reference	267802
Date Sample Received	28/04/2021
Date Instructions Received	28/04/2021
Date Results Expected to be Reported	05/05/2021

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	4 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	9.0
Cooling Method	Ice
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 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	VOCs in water	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	PAHs in Water - Low Level	HM in water - dissolved	pH	Electrical Conductivity
MW101	✓	✓	✓	✓	✓	✓	✓
MW103	✓	✓	✓	✓	✓	✓	✓
WDUP1		✓	✓	✓	✓		
TB-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:		FROM:
ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	JKE Job Number: E27813PH Date Results Required: STANDARD Page: 1 of 1	JKEnvironments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Harry Leonard hleonard@jkenvironments.com.au

Location:	Wentworthville	Sample Preserved in Esky on Ice
Sampler:	HW	Tests Required

Date Sampled	Lab Ref:	Sample Number	Sample Containers	PID	Sample Description	Combo 2	Combo 3L	VOCs	pH / EC	8 Metals	PAHs	TRH/BTEX	BTEX	Hardness			
28/04/2021	1	MW101	2xG1, 4xV, H, PVC	2	Water		X	X	X								
28/04/2021	2	MW103	2xG1, 4xV, H, PVC	98	Water		X	X	X								
28/04/2021	3	WDUP1	2xG1, 4xV, H, PVC	NA	Water		X										
28/04/2021	4	TB-W1	V	NA	Water blank								X				

ENVIROLAB Environmental Services 12 Ashley St Chatswood NSW 2067 Ph: (02) 9910 6200

Job No: 207802

Date Received: 28/4/21

Time Received: 1500

Received By: LM

Temp: Cool/Ambient

Cooling: Ice/Icepack

Security: Intact/Broken/None

Remarks (comments/detection limits required):	Sample Containers:
All analysis PQLs to ANZECC (2000) Detection Limits Please	G1 - 100mL Amber Glass Bottle V - BTEX Vial H - HNO3 Wash PVC PVC - HDPE Plastic Bottles

Relinquished By:	Date:	Time:	Received By:	Date:
LM	28/4/21.	1500.	CMcLean	28/4/21

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)[17] methods and those described in *Environmental Sampling and Analysis, A Practical Guide,* (1991)[18]. 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;

[17] US EPA, (1994). *SW-846: Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.* (US EPA SW-846)

[18] 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. Comparability

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%.

$$\frac{\text{(Spike Sample Result – Sample Result) x 100}}{\text{Concentration of Spike Added}}$$

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. Duplicates

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. INTRODUCTION

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 BH201 0.1-0.2m)	Approximately 14% of primary samples	Heavy metals, TRH/BTEX, PAHs
Intra-laboratory duplicate (water)	WDUP1 (primary sample MW103)	Approximately 50% of primary samples	Heavy metals, TRH/BTEX, PAHs
Trip spike (soil)	TS1 (20/04/2021)	One for the investigation to demonstrate adequacy of preservation, storage and transport methods	BTEX
Trip blank (soil)	TBS1 (20/04/2021)	One for the investigation to demonstrate adequacy of storage and transport methods	BTEX
Trip blank (water)	TB-W1 (28/04/2021)	One for the investigation to demonstrate adequacy of storage and transport methods	BTEX

The results for the field QA/QC samples are detailed in the laboratory summary tables (Table Q1 and Table Q2) attached to the investigation report and are discussed in the subsequent sections of this Data (QA/QC) Evaluation report.

3. Data Assessment Criteria

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

Acceptable targets for field blank 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 and published drinking water guidelines for waters.

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
- 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 generally within specified holding times in accordance with Schedule B(3) of NEPM (2013) and the laboratory NATA accredited methodologies.

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. Laboratory PQLs

Appropriate PQLs were adopted for the analysis and all PQLs were below the SAC with the exception of the anthracene PQL for groundwater analysis which was 10 times greater than the ecological SAC. In light of the 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 investigation.

3. Field QA/QC Sample Results

Field Duplicates

The results indicated that field precision was acceptable. Elevated RPDs were reported for TRH (>C_{10}-C_{16}) (F2), TRH (>C_{34}-C_{40}) (F4) and naphthalene SDUP1/BH201 (0.1-0.2m). As both the primary and duplicate sample results were less than the SAC, the exceedances are not considered to have had an adverse impact on the data set as a whole. The results are considered to be attributed to minor heterogeneity in fill.

Field/Trip Blanks

During the investigation, one soil trip blank and one trip water blank were placed in the esky during sampling and transported back to the laboratory. The results were all less than the PQLs, therefore cross contamination between samples that may have significance for data validity did not occur.

Trip Spikes

The results ranged from 82% to 94% and indicated that field preservation methods were appropriate.

4. Laboratory QA/QC

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.

C. DATA QUALITY 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.

Non-conformances were reported for some field QA/QC samples. 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. Further characterisation via a DSI has been recommended.

Appendix H: Field Work Documents

JKEnvironments

Client:	Erilyan	**Job No.:**	E27318PH
Project:	Proposed Northside West Clinic Stage 2 Development	**Well No.:**	MW101
Location:	23-27 Lytton Street, Wentworthville, NSW	**Depth (m):**	7.35

WELL FINISH DETAILS

	Gatic Cover ☒	Standpipe ☐	Other (describe) ☐

WELL DEVELOPMENT DETAILS

Method:	Development Pump	**SWL – Before (m):**	4.38
Date:	20.4.21	**Time – Before:**	
Undertaken By:	AVB	**SWL – After (m):**	DRY
Total Vol. Removed:	~30L	**Time – After:**	
PID Reading (ppm):			

Comments:

DEVELOPMENT MEASUREMENTS

Volume Removed (L)	Temp (°C)	DO (mg/L)	EC (µS/cm)	pH	Eh (mV)
10L	21	1.3	10859	6.81	-61.4
20L	20.9	3.3	11047	6.64	-36.1
29L	20.9	3.0	11086	6.93	-36.8
	Pumped dry (Good recharge)				

Comments: Odours (YES / NO), NAPL/PSH (YES / NO), Sheen (YES / NO), Steady State Achieved (YES / NO)

organic

YSI Used: 5

Pumped Dry

Tested By:	AVB	**Remarks:**
Date Tested:	20.4.21	- Steady state conditions - Difference in the pH less than 0.2 units, difference in the conductiveity less than 10% and SWL stable/not in drawdown
Checked By:	HL	- Minimum 3 monitoring well volumes purged, unless well purged until it is effectively dry
Date:	12/5/2021	

JKEnvironments

Client:	Erilyan	Job No.:	E27318PH
Project:	Proposed Northside West Clinic Stage 2 Development	Well No.:	NW103
Location:	23-27 Lytton Street, Wentworthville, NSW	Depth (m):	11.24

WELL FINISH DETAILS

	Gatic Cover ☒	Standpipe ☐	Other (describe) ☐

WELL DEVELOPMENT DETAILS

Method:	Development pump	SWL – Before (m):	3.93
Date:	20.4.21	Time – Before:	
Undertaken By:	AVB	SWL – After (m):	4.38
Total Vol. Removed:	~100L	Time – After:	
PID Reading (ppm):			

Comments:

DEVELOPMENT MEASUREMENTS

Volume Removed (L)	Temp (°C)	DO (mg/L)	EC (µS/cm)	pH	Eh (mV)
10L	21.2	3.1	7675	6.52	-9.6
20L	20.8	2.3	8225	6.84	-18.0
30L	20.6	2.1	9184	6.47	-24.7
40L	20.5	1.2	9764	7.07	-29.0
50L	20.5	1.2	9388	7.06	-25.9
60L	20.5	1.0	9420	7.05	-23.6
70L	20.5	0.9	9553	6.61	3.6
80L	20.4	1.1	9520	6.59	-10.7
90L	20.5	1.2	9642	6.52	-11.4
100L	20.5	1.4	9700	6.58	-11.2

Comments: Odours (YES / NO), NAPL/PSH (YES / NO), Sheen (YES / NO) Steady State Achieved (YES / NO)

YSI Used: 5

Tested By:	AVB	**Remarks:**
Date Tested:	20.4.21	- Steady state conditions - Difference in the pH less than 0.2 units, difference in the conductiveity less than 10% and SWL stable/not in drawdown - Minimum 3 monitoring well volumes purged, unless well purged until it is effectively dry
Checked By:	HL	
Date:	12/5/2021	

JKEnvironments

Client:	Erilyan	**Job No.:**	E27318PH
Project:	Proposed Northside West Clinic Stage 2 Development	**Well No.:**	MW103
Location:	23-27 Lytton Street, Wentworthville, NSW	**Depth (m):**	11.24

WELL FINISH

	Gatic Cover ✓		Standpipe		Other (describe)

WELL PURGE DETAILS:

Method:	Low flow Peristaltic pump	**SWL – Before:**	4.17
Date:	28/4/21	**Time – Before:**	8:30am
Undertaken By:	HW	**Total Vol Removed:**	~5.0L
Pump Program No:	3.29	**PID (ppm):**	98

PURGING / SAMPLING MEASUREMENTS

Time (min)	SWL (m)	Vol (L)	Notes	Temp (°C)	DO (mg/L)	EC (µS/cm)	pH	Eh (mV)
6	4.20	0.5	clear	20.9	0.7	7102	6.02	-0.9
12	4.20	1.5	"	21.0	0.5	7125	6.03	-4.1
15	4.20	2.0	"	21.1	0.4	7138	6.04	-6.2
20	4.20	2.5	"	21.1	0.4	7158	6.04	-8.0
25	4.20	3.0	"	21.1	0.3	7135	6.04	-9.6
30	4.20	3.5	"	21.2	0.3	7180	6.03	-9.7
35	4.20	4.0	"	21.2	0.3	7184	6.04	-11.5
40	4.20	4.5	"	21.2	0.3	7182	6.04	-12.9
45	4.20	5.0	"	21.3	0.3	7205	6.04	-14.2
			Start sampling					

Comments: Odours (YES / NO), NAPL/PSH (YES / NO), Sheen (YES / NO) Steady State Achieved (YES) / NO)

Field Duplicate: [WDUP1]

Sampling Containers Used: 4x glass amber, 8x BTEX vials, 2x HNO3 plastic, -x H2SO4 plastic, 2x unpreserved plastic

YSI used: 5

Tested By: ~~Todd Hore~~ HW	**Remarks:**
Date Tested: 28/4/21	- Steady state conditions - difference in the pH less than 0.2 units, difference in conductivity less than 10% 10% and SWL stable/not in drawdown
Checked By: HL	
Date: 13/5/2021	

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Client:	Erilyan	**Job No.:**	E27318PH
Project:	Proposed Northside West Clinic Stage 2 Development	**Well No.:**	MW101
Location:	23-27 Lytton Street, Wentworthville, NSW	**Depth (m):**	7.35

WELL FINISH

	Gatic Cover ✓		**Standpipe**		**Other (describe)**

WELL PURGE DETAILS:

Method:	Low flow peristaltic pump	**SWL – Before:**	4.535
Date:	28/4/21	**Time – Before:**	9:55am
Undertaken By:	HW	**Total Vol Removed:**	~3.0L
Pump Program No:	2.43	**PID (ppm):**	2

PURGING / SAMPLING MEASUREMENTS

Time (min)	SWL (m)	Vol (L)	Notes	Temp (°C)	DO (mg/L)	EC (µS/cm)	pH	Eh (mV)
6	4.62	0.5	clear	21.1	1.3	9563	6.12	-24.8
15	4.63	0.8	"	21.1	0.5	9695	5.97	-30.1
18	4.63	1.3	"	21.0	0.4	9772	5.96	-32.3
23	4.63	1.5	"	21.1	0.4	9839	5.96	-36.9
30	4.63	1.8	"	21.0	0.3	9851	5.96	-38.3
37	4.63	2.5	"	21.1	0.3	9896	5.96	-41.1
42	4.63	2.8	"	21.1	0.3	9959	5.96	-45.3
45	4.63	3.0	"	21.0	0.3	9997	5.96	-47.8
			start sampling.					

Comments: Odours (YES / (NO)) NAPL/PSH (YES / (NO)) Sheen (YES / (NO)) Steady State Achieved ((YES) / NO)

Sampling Containers Used: 2 x glass amber, 4 x BTEX vials, 1 x HNO3 plastic, - x H2SO4 plastic, 2 x unpreserved plastic

YSI used: 5

Tested By: ~~Todd Hore~~ HW	**Remarks:**
Date Tested: 28/4/21	- Steady state conditions - difference in the pH less than 0.2 units, difference in conductivity less than 10% 10% and SWL stable/not in drawdown
Checked By: HL	
Date: 13/5/2021	

JKEnvironments

WATER QUALITY METER CALIBRATION FORM

Client:	Erilyan		
Project:	Proposed Northside West Clinic Stage 2 Development		
Location:	23-27 Lytton Street, Webtworthville, NSW		
Job Number:	E27318PH		
DISSOLVED OXYGEN			
Make: YSI 5	Model: Pro Plus		
Date of calibration: 19.4.21	Name of Calibrator: AVB		
Span value: 70% to 130%			
Measured value: 97%			
Measured reading Acceptable (Yes/No):			
pH			
Make: YSI 5	Model: Pro Plus		
Date of calibration: 19.4.21	Name of Calibrator: AVB		
Buffer 1: Theoretical pH = 7.01± 0.01	Expiry date: 06/21	Lot No: 349208	
Buffer 2: Theoretical pH = 4.01± 0.01	Expiry date: 07/21	Lot No: 336594	
Measured reading of Buffer 1: 7.03			
Measured reading of Buffer 2: 4.00			
Slope: —	Measured reading Acceptable (Yes/No):		
EC			
Make: YSI 5	Model: Pro Plus		
Date: 19.4.21	Name of Calibrator: AVB	Temperature: 23.5 °C	
Calibration solution: Conductivity Standard	Expiry date: 04/21	Lot No: 344507	
Theoretical conductivity at temperature (see solution container): 1370 µS/cm			
Measured conductivity: 1377 µS/cm	Measured reading Acceptable (Yes/No):		
REDOX			
Make: YSI 5	Model: Pro Plus		
Date of calibration: 19.4.21	Name of Calibrator: AVB		
Calibration solution: ORP Test	Expiry date: 05/25	Lot No: 5348	
Theoretical redox value: 240mV			
Measured redox reading: 240.1 mV	Measured reading Acceptable (Yes/No):		

JKEnvironments

WATER QUALITY METER CALIBRATION FORM

Client:	Ramssay Health Care		
Project:	Proposed Alterations & Additions		
Location:	23-27 Lytton Street, WENTWORTHVILLE, NSW		
Job Number:	E27318PH		
DISSOLVED OXYGEN			
Make: YSI	Model: Professional plus		
Date of calibration: 28/4/21	Name of Calibrator: HW		
Span value: 70% to 130%			
Measured value: ~~108%~~ 102%			
Measured reading Acceptable (Yes/No):			
pH			
Make: YSI	Model: Professional plus		
Date of calibration: 28/4/21	Name of Calibrator: HW		
Buffer 1: Theoretical pH = 7.01± 0.01	Expiry date: 06/21	Lot No: 249208	
Buffer 2: Theoretical pH = 4.01± 0.01	Expiry date: 03/22	Lot No: 360389	
Measured reading of Buffer 1: 7.28			
Measured reading of Buffer 2: 4.38			
Slope:	Measured reading Acceptable (Yes/No):		
EC			
Make: YSI	Model: Professional plus		
Date: 28/4/21	Name of Calibrator: HW	Temperature: 15.4 °C	
Calibration solution: Conductivity Standard	Expiry date: 04/21	Lot No: 344907	
Theoretical conductivity at temperature (see solution container): 1143 µS/cm			
Measured conductivity: 1305 µS/cm	Measured reading Acceptable (Yes/No):		
REDOX			
Make: YSI	Model: Professional plus		
Date of calibration: 28/4/21	Name of Calibrator: HW		
Calibration solution: ORP Test Solution	Expiry date: 05/25	Lot No: 5348	
Theoretical redox value: 240mV			
Measured redox reading: 236.5 mV	Measured reading Acceptable (Yes/No):		

11.24

Appendix I: ESI 2014 Report

ENVIRONMENTAL INVESTIGATION SERVICES

7 April 2014
Ref: E27318Klet

Erilyan Pty Ltd
60 Strathallen Avenue
Northbridge NSW 2063

Attention: Mr Mike Ryan

PRELIMINARY SOIL CONTAMINATION SCREENING & WASTE CLASSIFICATION
PROPOSED ADDITIONS TO NORTHSIDE WEST CLINIC
23-27 LYTTON STREET, WENTWORTHVILLE, NSW

1 INTRODUCTION

Erilyan commissioned Environmental Investigation Services (EIS)[1] to undertake a preliminary soil contamination screening (PCS) and Waste Classification for the proposed additions to the Northside West Clinic at 23-27 Lytton Street, Wentworthville, NSW ('the site').

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The site is identified as Lot 1 in DP78784 and at the time of this investigation was occupied by the existing Northside West Clinic.

The site location is shown on Figure 1 and the investigation was confined to the proposed development area as shown on Figure 2.

The investigation was undertaken generally in accordance with an EIS proposal (Ref: EP7757K) of 10 February 2014 and written acceptance from Erilyan Pty Ltd on behalf of Ramsay Health Care by email of 14 March 2014.

The aim of the investigation is to assess significant widespread soil contamination issues at the site and to provide a waste classification for the material to be excavated for the proposed development.

The PCS has not been designed to meet the NSW Environment Protection Authority (EPA) site audit requirements and will not meet SEPP55[2] or Council requirements for a detailed Environmental Site Assessment (ESA).

[1] Environmental consulting division of Jeffery & Katauskas Pty Ltd (J&K)

[2] *State Environmental Planning Policy No. 55 – Remediation of Land,* NSW Government, 1998 (SEPP55)

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EIS is a division of Jeffery and Katauskas Pty Ltd • ABN 17 003 550 801

A geotechnical investigation was undertaken in conjunction with the waste classification assessment by JK Geotechnics[3] and the results are presented in a separate report (Ref. 27318SBrpt, dated 3 April, 2014).

1.1 Proposed Development Details

The proposed development includes additions to the existing Northside West Clinic (Stage 1 works) in the north-east section of the site. A new level is proposed above the existing building. The addition will extend over the front portion of the existing building and over the existing car parking area in the north section of the site. The existing car parking beneath the addition will be retained. Some minor landscaping works are also proposed.

2 SITE INFORMATION

2.1 Site Description

The site is located to the west of Lytton Street approximately 200m to the south of the intersection with Vernon Street. The regional topography generally slopes to the west at approximately 2º to 3º towards a culvert (Finlayson's Creek), which generally appeared to flow to the north. The culvert is located approximately 25m to the west of the site boundary. The site itself slopes to the west at approximately 1º to 2º.

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At the time of the investigation the site was occupied by the existing Northside West Clinic. A cream coloured brick building with corrugated metal sheet roof occupied the central, south and west sections of the site. The building was single storey in the east portion of the site, with a subfloor space located over the west portion of the building. The subfloor space appeared to be occupied by plant equipment and storage space. The north section of the site was occupied by an asphaltic concrete car park. The entrance to the building was gained via a walkway beneath a metal canopy located in the central section of the site. Several free standing brick courtyard walls were located generally around the perimeter of the building.

What appeared to be a loading dock was located in the south section of the site. A small shed fenced with corrugated metal and cyclone metal meshing was located adjacent to the loading dock. Fuel and oil drums were stored in the shed. An additional corrugated metal shed was located at the south boundary. The shed was locked and not accessible at the time of the investigation.

A fragment of fibre cement was located within the exposed fill material associated with a concrete block retaining wall in the south-east section of the site (located beneath the

[3] Geotechnical consulting division of J&K

building ground floor slab). A second fragment of fibre cement was located on the surface to the south-west of the site of the site. The fibre cement fragment locations are shown in Figure 2. The two fibre cement fragments were removed from site and are to be suitably disposed of to landfill (as part of a periodic bulk disposal of fibre cement fragments collected during site investigations).

Landscaped areas were located at the east and north boundaries of the site. The vegetated areas comprised of small shrubs and trees up to approximately 10m in height.

The remainder of the Northside West Clinic was located to the north of the site, beyond which was a residential property. An asphalt car park was located to the south of the site beyond which were residential properties. The surrounding area generally appeared to be occupied for residential landuse.

2.2 Regional Geology

The geological map of Penrith (1991[4]) indicates the site to be underlain by Ashfield Shale of the Wianamatta Group, which typically consists of black to dark grey shale and laminite.

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3 SITE ASSESSMENT CRITERIA (SAC)

3.1 Soil Contamination Screening

The SAC adopted for this screening is outlined in the table below. The SAC has been derived from National Environmental Protection (Assessment of Site Contamination) Amendment Measure (2013[5]). The criterion for the individual contaminants analysed for this assessment are presented in the attached report tables.

Table 3-1: SAC Adopted for this Investigation

Guideline	Applicability
Health Investigation Levels (HILs)	The proposed ongoing land use is a medial facility. The HIL-D' Commercial/Industrial' criteria has been adopted for this ESA.
Health Screening Levels (HSLs)	The HIL-D' Commercial/Industrial' criteria for soil have been adopted for this ESA.
Ecological Assessment	The Ecological Investigation Levels (EILs) and Ecological Screening Levels (ESLs) have been adopted for this PCS. The criteria for

[4] *1:100,000 Geological Map of Penrith (Series 9030)),* Department of Mineral Resources (1991) [now Department of Primary Industries]

[5] National Environment Protection Council (NEPC), (2013), *National Environmental Protection (Assessment of Site Contamination) Amendment Measure 2013 (No.1).* (referred to as NEPM 2013)

Guideline	Applicability
Criteria (EAC)	'commercial/industrial' exposure setting have been adopted. The EILs for selected metals have been derived as follows: • The ABC values for high traffic (25th percentiles) areas for old suburbs of NSW published in Olszowy et. al. (1995[6]) has been adopted for this assessment; and • Soil parameters including pH, cation exchange capacity (CEC) and clay content have not been assessed as part of the EAC. On this basis, the EIL and ESL calculations have taken the 'worst case' scenario in order to generate the EAC. The EAC are presented in conjunction with the relevant report tables.
Asbestos in Soil	The 'presence/absence' of asbestos in soil has been adopted as the assessment criterion for the Preliminary Site Investigation (PSI).

3.2 Waste Classification Assessment

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Off-site disposal of fill, contaminated material, natural soil, rock excavated as part of the proposed development works is regulated by the *Protection of the Environment Operations Act* (1997[7]) and associated regulations and guidelines including the *NSW DECCW Waste Classification Guidelines - Part 1: Classifying Waste* (2009[8]). All materials should be classified in accordance with these guidelines prior to disposal.

Soils are classed into the following categories based on the chemical contaminant criteria outlined in the guidelines (refer to Table A):

Table 3-2: Waste Categories

Category	Description
General Solid Waste (non-putrescible) (GSW)	• If SCC ≤ CT1 then TCLP not needed to classify the soil as GSW • If TCLP ≤ TCLP1 and SCC ≤ SCC1 then treat as GSW
Restricted Solid Waste (non-putrescible) (RSW)	• If SCC ≤ CT2 then TCLP not needed to classify the soil as RSW • If TCLP ≤ TCLP2 and SCC ≤ SCC2 then treat as RSW
Hazardous Waste (HW)	• If SCC > CT2 then TCLP not needed to classify the soil as HW

[6] 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.

[7] *Protection of Environment Operations Act,* NSW Government, 1997 (POEO Act 1997)

[8] *Waste Classification Guidelines, Part 1: Classifying Waste,* NSW DECCW, 2009 (Waste Classification Guidelines 2009)

Category	Description
	• If TCLP > TCLP2 and/or SCC > SCC2 then treat as HW
Virgin Excavated Natural Material (VENM)	Natural material (such as clay, gravel, sand, soil or rock fines) that meet the following: • that has been excavated or quarried from areas that are not contaminated with manufactured chemicals, or with process residues, as a result of industrial, commercial mining or agricultural activities; • that does not contain sulfidic ores or other waste; and • includes excavated natural material that meets such criteria for virgin excavated natural material as may be approved from time to time by a notice published in the NSW Government Gazette.

Note:
SCC – Specific Contaminant Concentration
CT – Contaminant Threshold
TCLP – Toxicity Characteristics Leaching Procedure

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4 INVESTIGATION PROCEDURE

4.1 Subsurface Investigation and Soil Sampling Methods

Field work for this investigation was undertaken on 20 March 2014. Soil samples were obtained from four boreholes drilled for the JK geotechnical investigation. One soil sample was also obtained from a testpit excavated by the builder. See Figure 2 attached showing the sampling location.

The sample locations were drilled using a track mounted hydraulically operated drill rig equipped with spiral flight augers. Soil samples were obtained from a Standard Penetration Test (SPT) sampler or directly from the auger when conditions did not allow use of the SPT sampler.

Soil samples were collected from the fill and natural profiles encountered during the investigation. Additional fill samples were obtained when relatively deep fill (>0.5m) was encountered. Samples were also obtained when there was a distinct change in lithology or based on the observations made during the investigation. All samples were recorded on the borehole logs attached in Appendix B.

No sampling or laboratory analysis was undertaken on the fibre cement fragments identified at the site.

During sampling, soil at selected depths was split into primary and duplicate samples for field QA/QC analysis.

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. Sampling personnel used disposable nitrile gloves during sampling activities. The samples were labelled with the job number, sampling location, sampling depth and date.

4.2 VOC Screening

A portable Photoionisation Detector (PID) was used to screen the samples for the presence of VOCs and to assist with selection of samples for BTEX analysis.

The sensitivity of the PID is dependent on the organic compound and varies for different mixtures of hydrocarbons. Some compounds give relatively high readings and some can be undetectable even though present in identical concentrations. The portable PID is best used semi-quantitatively to compare samples contaminated by the same hydrocarbon source.

The PID is calibrated before use by measurement of an isobutylene standard gas. All the PID measurements are quoted as parts per million (ppm) isobutylene equivalents.

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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. The PID headspace data is presented on the COC documents attached in Appendix B.

4.3 Decontamination and Sample Preservation

Where applicable, the sampling equipment was decontaminated using a scrubbing brush and potable water and Decon 90 solution (phosphate free detergent) followed by rinsing with potable water.

Soil samples were preserved by immediate storage in an insulated sample container with ice in accordance with AS4482.1-2005 and AS4482.2-1999[9] as summarised in the following table:

Table 4-1: Soil sample preservation and storage

Analyte	Preservation	Storage
Heavy metals	Unpreserved glass jar with Teflon lined lid	Store at <4°, analysis within 28 days (mercury and Cr[VI]) and 180 days (other metals).

[9] *Guide to the Sampling and Investigation of Potentially Contaminated Soil Part2: Volatile Substances,* Standards Australia, 1999 (AS 1999)

Analyte	Preservation	Storage
VOCs (TPH/BTEX)	As above	Store at <4°, analysis within 14 days
PAHs, OCP, OPP & PCBs	As above	Store at <4°, analysis within 14 days
Asbestos	Sealed plastic bag	None

On completion of the fieldwork, the samples were delivered in the insulated sample container to a NATA registered laboratory for analysis under standard COC procedures.

4.4 Laboratory Analysis

Samples were analysed by Envirolab Services (NATA Accreditation Number – 2901) using the analytical methods detailed in Schedule B(3) of NEPM (2013). Reference should be made to the laboratory reports (Ref: 106926 and 106926-A) attached in Appendix B for further details.

EIS note that due to budgetary constraints no analysis of the soil samples obtained from BH4 was undertaken.

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5 RESULTS OF THE INVESTIGATION

5.1 Subsurface Conditions

The subsurface conditions encountered generally consisted of asphaltic concrete pavement approximately 50mm thick or concrete pavement to a maximum depth of 130mm thick. The pavement was underlain by fill material to a maximum depth of approximately 0.8m (BH4), underlain by silty clay and shale to the termination depth of the boreholes at approximately 6.0m. The fill material typically consisted of silty gravel or a gravely clay with inclusions of igneous gravel. The borehole logs are attached in Appendix A.

The subsurface conditions encountered in the test pit (TP5) generally consisted silty clay within ironstone banding beneath a concrete foundation structure.

5.2 VOC Screening

PID soil sample headspace readings are presented in the COC documents attached in Appendix B. All results were 0ppm equivalent isobutylene which indicates a lack of PID detectable VOCs.

5.3 Soil Laboratory Results

The soil laboratory results are compared to the relevant SAC in the attached report tables. A summary of the results assessed against the SAC is presented below.

Table 5-1: Summary of Soil Laboratory Results

Analyte	Results Compared to SAC
Heavy Metals	**HILs:** All results were below the HIL-D 'commercial/industrial' criteria. **EILs:** An elevated concentration of nickel was encountered in the sample BH3 (0.05-0.25m) above the EIL 'commercial/industrial' criteria. **WC:** The nickel results for BH3 (0.05-0.25m) exceeded the CT1 criteria. All nickel results were less that the SCC1 criteria. A TCLP leachate was prepared from the BH3 (0.05-0.25m) sample and analysed for nickel. The result was less than the TCLP1 criteria.
TPH/ BTEX	**HSLs:** All results were below the HIL-D 'commercial/industrial' criteria. **ESLs:** All results were below the ESL 'commercial/industrial' criteria. **WC:** All results were less than the relevant CT1 and SCC1 criteria.
PAHs	**HILs:** All results were below the HIL-D 'commercial/industrial' criteria. **HSLs:** All naphthalene results were below the HIL-D 'commercial/industrial' criteria. **EIL/ESLs:** All results were below the EIL/ESL 'commercial/industrial' criteria. **WC:** All results were less than the relevant CT1 and SCC1 criteria.
OCPs & OPPs	**HILs:** All results were below the HIL-D 'commercial/industrial' criteria. **EILs:** All DDT results were below the EIL 'commercial/industrial' criteria.

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Analyte	Results Compared to SAC
	WC: All results were less than the relevant CT1 and SCC1 criteria.
PCBs	**HILs:** All results were below the HIL-D 'commercial/industrial' criteria. **WC:** All results were less than the SCC1 criterion.
Asbestos	**PSI:** No asbestos was detected in the samples analysed for the investigation.

5.4 Review of QA/QC

A summary of the field QA/QC samples are outlined below:

Table 5-2: Field QA/QC Samples

Field QA/QC	Frequency	Sample Details
Intra-laboratory duplicates	10% of Primary Samples	Soil Samples: Dup 1 is a soil duplicate of sample BH1 (0.13-0.33m)

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An assessment of the DQIs is summarised in the following table.

Table 5-3: Assessment of DQIs

Completeness
Data and documentation completeness was achieved through the following measures: • COC records were prepared for each batch of samples sent to the labs (refer to appendices); • Laboratory sample receipt information was reviewed for each batch (refer to appendices); • NATA registered laboratories were used for all analysis; and • Visual observations and PID screening of samples was undertaken during the investigation as noted on the boreholes logs and COC documents (refer to appendices).
Comparability
Data comparability was achieved through the following measures: • Similar sampling techniques were used during the investigation; • Appropriate preservation, storage and transport methods were adopted for all samples; and • Consistent analysis techniques and reporting standards were adopted by the laboratories.
Representativeness
Data representativeness was achieved through the following measures: • The sampling plan was optimised to obtain adequate coverage of sample locations; and • The assessment included a representative coverage of analysis.

Precision
Intra-laboratory RPD Results:
The intra-laboratory soil RPD results are presented in the attached report tables. The results indicated that field precision was acceptable.

Accuracy
Accuracy was achieved through the following measures:
• Trained and qualified field staff were used for the investigation;
• Appropriate industry standard sampling equipment and decontamination procedures were adopted for the investigation as outlined in the attached appendices;
• Sampling and screening equipment are routinely factory calibrated. An in-house calibration check was undertaken prior to using onsite;
• Appropriate sample preservation, handling, holding time and COC procedures were adopted for the investigation; and
• The report was prepared generally in accordance with Reporting Guidelines 2011.

6 CONCLUSION AND RECOMMENDATIONS

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6.1 Summary of Contamination Screening

Elevated concentrations of contaminants were not encountered in the soil samples above the health based SAC as outlined in **Section 5.3**.

An elevated concentration of nickel was encountered in the shallow fill soil sample BH3 (0.05-0.25m) above the relevant EIL. Leachate testing for waste classification purposes indicated that the nickel was not currently leaching in significant concentrations. The nickel result of the natural soil samples beneath the fill in this sampling location sampling location was below the relevant EIL.

The site is located within a well established area of Sydney. EIS are of the opinion that the ecological impacts on sensitive flora and fauna species arising from this minor nickel elevation in one location are very low.

EIS also note that the most conservative guideline values published in the 'commercial/industrial criteria' were used in the assessment of the EILs and ESLs.

EIS note that no analysis for asbestos fibres was undertaken on the fibre cement fragments identified on the surface at the site. Therefore this material is presumed to contain asbestos fibres until proven otherwise.

Additional asbestos soil investigation works are required to assess the exposed soils for the presence and nature (firable and/or non-friable) of potential asbestos containing

material (ACM). If asbestos is identified at the site an Asbestos Management Plan (AMP) should be prepared to manage the potential health risk poses by ACMs.

The risk of widespread soil contamination other than potential ACMs is considered to be relatively low.

6.2 Preliminary Waste Classification

6.2.1 Preliminary Classification of Fill Soil for Off-Site Disposal

Although asbestos was not detected in the fill soil analysed for this preliminary contamination screening and waste classification assessment. Potential ACMs have been identified at the site. Until proven otherwise the fill material should be treated as potentially containing asbestos materials.

The waste classification is summarised in the following table:

Table 6-1: Waste Classification of Fill

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Extent	Classification[1]	Disposal Option
Fill material at the site containing asbestos	General Solid Waste (non-putrescible) (GSW) containing asbestos	A licensed NSW EPA landfill capable of receiving the waste stream. The landfill should be contacted to obtain the required approvals prior to commencement of excavation.

Note:
1. Waste Classification Guidelines 2009

If the fill material is removed from the site it must be disposed of to a NSW EPA licensed facility. It is the responsibility of the receiving facility to ensure that the material meets their EPA license conditions. EIS accepts no liability whatsoever for illegal or inappropriate disposal of excavated material.

6.2.2 Classification of Natural Soil and Bedrock for Off-Site Disposal

The waste classification is summarised in the following table:

Table 6-2: Waste Classification of Natural Material

Extent	Classification[1]	Disposal Option
Natural silty clay soil and shale bedrock	Virgin excavated natural material (VENM)	VENM is considered suitable for re-use on-site, or alternatively, the information included in this report may be used to assess whether the material is suitable for beneficial reuse at another site as fill material.

Extent	Classification[1]	Disposal Option
		Alternatively, the natural material can be disposed of as VENM to a facility licensed by the NSW EPA to receive the waste stream.

Note:
1. Waste Classification Guidelines 2009

Material classed as VENM must not be mixed with any fill material (including building rubble) as this will invalidate the VENM classification. Where doubt exists about the difference between fill and VENM material an environmental/geotechnical engineer should be contacted.

6.3 General Information

Fill and contaminated soil disposal costs are significant and may affect project viability. These costs should be assessed at an early stage of the project development to avoid significant future unexpected additional costs.

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Section 143 of the POEO Act1997 states that if waste is transported to a place that cannot lawfully be used as a waste facility for that waste, then the transporter and owner of the waste are each guilty of an offence. The transporter and owner of the waste have a duty to ensure that the waste is disposed of in an appropriate manner. EIS accepts no liability whatsoever for the unlawful disposal of any waste from any site.

7 LIMITATIONS

The report limitations are outlined below:

- EIS 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;
- 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 EIS proposal; and terms of contract between EIS 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, EIS has not undertaken any verification process, except where specifically stated in the report;
- EIS 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;
- EIS 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;
- EIS 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. EIS 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;
- 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;
- Copyright in this report is the property of EIS. EIS has used a degree of care, skill and diligence normally exercised by consulting professionals in similar circumstances and locality. No other warranty expressed or implied is made or intended. Subject to payment of all fees due for the investigation, the client alone shall have a licence to use this report;
- If the client, or any person, provides a copy of this report to any third party, such third party must not rely on this report except with the express written consent of EIS; and
- Any third party who seeks to rely on this report without the express written consent of EIS does so entirely at their own risk and to the fullest extent permitted by law, EIS accepts no liability whatsoever, in respect of any loss or damage suffered by any such third party.

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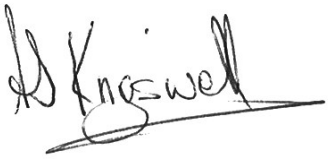
If you have any questions concerning the contents of this letter please do not hesitate to contact us.

Yours faithfully
ENVIRONMENTAL INVESTIGATION SERVICES



Mitch Delaney
Environmental Scientist

Adrian Kingswell
Principal

Attachments:
Report Figures
Report Tables
Appendices

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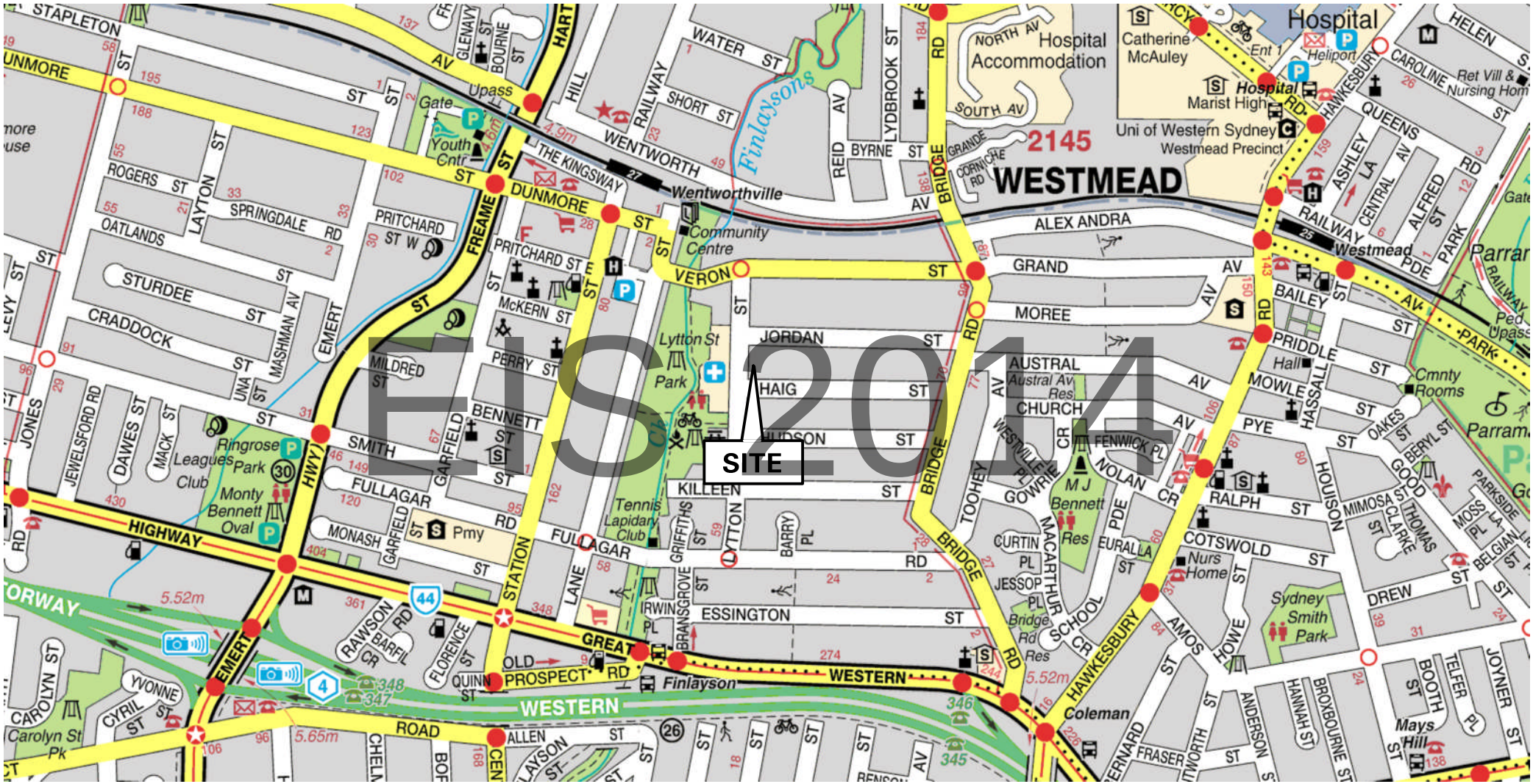
REPORT FIGURES

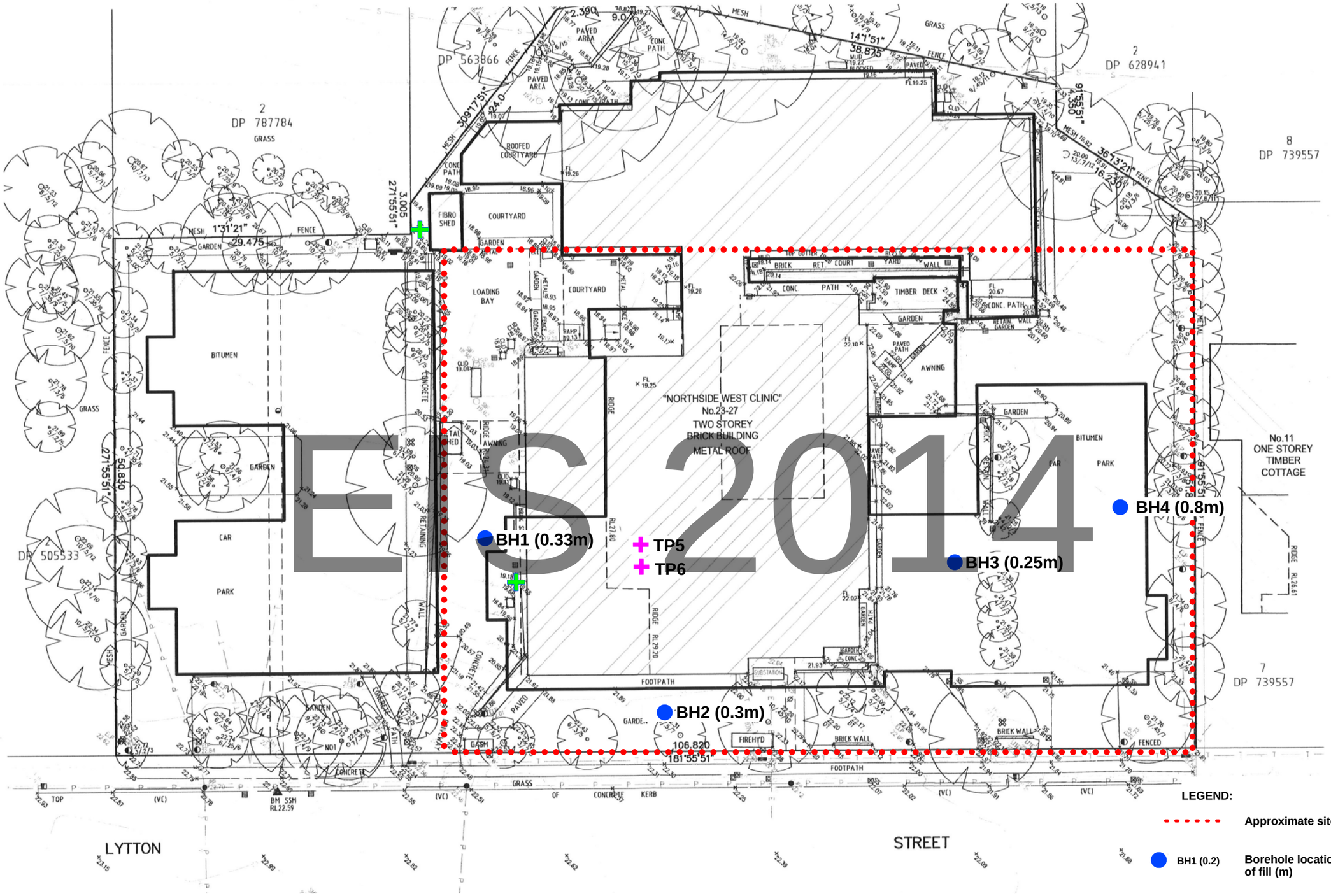


NOTES:
Figure 1 has been recreated from UBD on disc (version 5.0). Figure is not to scale.

UBD Map ref: 210 G1

Reference should be made to the report text for a full understanding of this plan.

ENVIRONMENTAL INVESTIGATION SERVICES	Project Number: E27318K	Title: SITE LOCATION PLAN
	Figure: 1	Address: 23-27 LYTTON STREET, WENTWORTHVILLE, NSW



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NOTES:
Figure 2 has been recreated from a survey plan for the site prepared by LTS Lockey.

The borehole locations presented on this plan have been established from site measurements only and should not be construed as survey points.

Reference should be made to the report text for a full understanding of this plan.

LEGEND:

- **Approximate site boundary**
- **BH1 (0.2)** — **Borehole location, number and depth of fill (m)**
- **TP1 (0.2)** — **Testpit location, number and depth of fill (m)**
- **Potential asbestos contaning fibre cement fragment identifed.**

Approximate Scale (m) @ A3: 0 4 8 12 16 20

ENVIRONMENTAL INVESTIGATION SERVICES

Project Number:	Title:
E27318K	BOREHOLE LOCATION PLAN
Figure: 2	Address: 23-27 LYTTON STREET, WENTWORTHVILLE, NSW

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REPORT TABLES

TABLE A

CHEMICAL CONTAMINANT CRITERIA FOR WASTE CLASSIFICATION

Waste Classification Guidelines Part 1: Classifying Waste DECC NSW July 2009

All data in mg/kg unless stated otherwise

CONTAMINANT	GENERAL SOLID WASTE			RESTRICTED SOLID WASTE		
	CT1 (mg/kg)	TCLP1 (mg/L)	SCC1 (mg/kg)	CT2 (mg/kg)	TCLP2 (mg/L)	SCC2 (mg/kg)
Heavy Metals						
Arsenic	100	5	500	400	20	2,000
Beryllium	20	1	100	80	4	400
Cadmium	20	1	100	80	4	400
Chromium VI	100	5	1,900	400	20	7,600
Cyanide (total)	320	16	5,900	1280	64	23,600
Cyanide (Amenable)	70	3.5	300	280	14	1,200
Fluoride	3,000	150	10,000	12,000	600	40,000
Lead	100	5	1,500	400	20	6,000
Mercury	4	0.2	50	16	0.8	200
Molybdenum	100	5	1,000	400	20	4,000
Nickel	40	2	1,050	160	8	4,200
Selenium	20	1	50	80	4	200
Silver	100	5	180	400	20	720
Monocyclic Aromatic Hydrocarbons						
Benzene	10	0.5	18	40	2	72
Toluene	288	14.4	518	1,152	57.6	2,073
Ethyl benzene	600	30	1,080	2,400	120	4,320
Total xylenes	1,000	50	1,800	4,000	200	7,200
Petroleum Hydrocarbons (TPH)						
Light Fraction TPH (C6-C9)	nsl	nsl	650	nsl	nsl	2,600
Mid to Heavy Fraction TPH (C10-C36)	nsl	nsl	10,000	nsl	nsl	40,000
Polycyclic Aromatic Hydrocarbons (PAHs)						
Benzo(a)pyrene	0.8	0.04	10	3.2	0.16	23
Total PAHs	nsl	nsl	200	nsl	nsl	800
Others						
Polychlorinated biphenyls	nsl	nsl	<50	nsl	nsl	<50
Phenol (non-halogenated)	288	14.4	518	1,152	57.6	2,073
Scheduled chemicals	nsl	nsl	<50	nsl	nsl	<50

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Explanation:

1). General Solid Waste (GSW):

- If SCC ≤ CT1 then TCLP not needed to classify the material as GSW
- If TCLP ≤ TCLP1 and SCC ≤ SCC1 then treat as GSW

2). Restricted Solid Waste (RSW):

- If SCC ≤ CT2 then TCLP not needed to classify the material as RSW
- If TCLP ≤ TCLP2 and SCC ≤ SCC2 then treat as RSW

3). Hazardous Waste (HW):

- If SCC > CT2 then TCLP not needed to classify the material as HW
- If TCLP > TCLP2 and/or SCC > SCC2 then treat as HW

Abbreviations:

SCC – Specific Contaminant Concentration

CT – Contaminant Threshold

TCLP – Toxicity Characteristics Leaching Procedure

nsl - No Set Limit

DECC - NSW Department of Environment and Climate Change (now OEH)

TABLE B
SOIL LABORATORY RESULTS COMPARED TO HILs
All data in mg/kg unless stated otherwise

			HEAVY METALS								PAHs		ORGANOCHLORINE PESTICIDES (OCPs)							OP PESTICIDES (OPPs)	TOTAL PCBs	ASBESTOS FIBRES
			Arsenic	Cadmium	Chromium VI [2]	Copper	Lead	Mercury	Nickel	Zinc	Total PAHs	B(a)P TEQ [3]	HCB	Endosulfan	Methoxychlor	Aldrin & Dieldrin	Chlordane	DDT, DDD & DDE	Heptachlor	Chlorpyrifos		
PQL - Envirolab Services			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 Criteria (SAC) [1]			3000	900	3600	240000	1500	730	6000	400000	4000	40	80	2000	2500	45	530	3600	50	2000	7	Detected/Not Detected
Sample Reference	**Sample Depth**	**Sample Description**																				
BH1	0.13-0.33	Fill	LPQL	LPQL	30	24	11	LPQL	25	30	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	Not Detected
BH1	0.5-0.7	Natural	LPQL	LPQL	5	34	22	LPQL	3	27	LPQL	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH2	0.1-0.3	Fill	6	0.4	23	21	34	LPQL	9	43	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	Not Detected
BH3	0.05-0.25	Fill	LPQL	LPQL	84	24	6	LPQL	80	42	0.6	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	Not Detected
BH3	0.5-0.95	Natural	5	LPQL	23	9	17	LPQL	6	10	LPQL	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP2	0.015-0.02	Natural	LPQL	LPQL	2	5	10	LPQL	LPQL	5	LPQL	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DUP1	-		LPQL	LPQL	38	28	13	LPQL	33	39	LPQL	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Number of Samples			7	7	7	7	7	7	7	7	7	7	3	3	3	3	3	3	3	3	3	3
Maximum Value			6	0.4	84	34	34	0	80	43	0.6	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NC

Explanation:

1 - Site Assessment Criteria (SAC): NEPM 2013, HIL-D: 'Commercial/Industrial'

2 - The 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.

3 - B(a)P TEQ - Benzo(a)pyrene Toxicity Equivalence Quotient has been calculated based on 8 carcinogenic PAHs and their Toxic Equivalence Factors (TEFs) outlined in NEPM 2013

Concentration above the SAC **VALUE**

Abbreviations:

PAHs: Polycyclic Aromatic Hydrocarbons
B(a)P: Benzo(a)pyrene
PQL: Practical Quantitation Limit
LPQL: Less than PQL
OPP: Organophosphorus Pesticides
OCP: Organochlorine Pesticides
PCBs: Polychlorinated Biphenyls
UCL: Upper Level Confidence Limit on Mean Value
HILs: Health Investigation Levels
NA: Not Analysed
NC: Not Calculated
NSL: No Set Limit
SAC: Site Assessment Criteria
NEPM: National Environmental Protection Measure

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TABLE C
SOIL LABORATORY RESULTS COMPARED TO HSLs
All data in mg/kg unless stated otherwise

				C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	PID [2]
PQL - Envirolab Services				25	50	0.2	0.5	1	3	1	
HSL Land Use Category [1]				COMMERCIAL/INDUSTRIAL							
Sample Reference	**Sample Depth**	**Depth Category**	**Soil Category**								
BH1	0.13-0.33	0m to < 1m	Sand	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH1	0.5-0.7	0m to < 1m	Sand	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH2	0.1-0.3	0m to < 1m	Sand	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH3	0.05-0.25	0m to < 1m	Sand	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0.3	0
BH3	0.5-0.95	0m to < 1m	Sand	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
TP2	0.015-0.02	0m to < 1m	Sand	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
Total Number of Samples				6	6	6	6	6	6	6	6
Maximum Value				LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0.3	LPQL

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Explanation:
1 - Site Assessment Criteria (SAC): NEPM 2013
2 - Field PID values obtained during the investigation

Concentration above the SAC VALUE
The guideline corresponding to the elevated value is highlighted in grey in the Site Assessment Criteria Table below

Abbreviations:
UCL: Upper Level Confidence Limit on Mean Value
HSLs: Health Screening Levels
NA: Not Analysed
PQL: Practical Quantitation Limit
LPQL: Less than PQL
SAC: Site Assessment Criteria
NC: Not Calculated
NL: Not Limiting
NEPM: National Environmental Protection Measure

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SITE ASSESSMENT CRITERIA

				C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene
PQL - Envirolab Services				25	50	0.2	0.5	1	3	1
HSL Land Use Category [1]				COMMERCIAL/INDUSTRIAL						
Sample Reference	**Sample Depth**	**Depth Category**	**Soil Category**							
BH1	0.13-0.33	0m to < 1m	Sand	260	NL	3	NL	NL	230	NL
BH1	0.5-0.7	0m to < 1m	Sand	260	NL	3	NL	NL	230	NL
BH2	0.1-0.3	0m to < 1m	Sand	260	NL	3	NL	NL	230	NL
BH3	0.05-0.25	0m to < 1m	Sand	260	NL	3	NL	NL	230	NL
BH3	0.5-0.95	0m to < 1m	Sand	260	NL	3	NL	NL	230	NL
TP2	0.015-0.02	0m to < 1m	Sand	260	NL	3	NL	NL	230	NL

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TABLE D
SOIL LABORATORY RESULTS COMPARED TO WASTE CLASSIFICATION GUIDELINES (2009)
All data in mg/kg unless stated otherwise

			HEAVY METALS								PAHs		OCPs				TOTAL	Total	TPH					BTEX COMPOUNDS				ASBESTOS FIBRES
			Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Total PAHs	B(a)P	Aldrin & Dieldrin	Chlordane	DDT, DDD & DDE	Heptachlor	OPPs	PCBs	C_6-C_9	C_{10}-C_{14}	C_{15}-C_{28}	C_{29}-C_{36}	Total C_{10}-C_{36}	Benzene	Toluene	Ethyl benzene	Total Xylenes	
PQL - Envirolab Services			4	0.4	1	1	1	0.1	1	1	-	0.05	0.1	0.1	0.1	0.1	0.1	0.1	25	50	100	100	250	0.2	0.5	1	3	100
General Solid Waste CT1 [1]			100	20	100	NSL	100	4	40	NSL	NSL	0.8	NSL	NSL	NSL	NSL	detect[2]	NSL	NSL		NSL		NSL	10	288	600	1000	-
General Solid Waste SCC1 [1]			500	100	1900	NSL	1500	50	1050	NSL	200	10	Scheduled Chemicals <50					50	650		NSL		10000	18	518	1080	1800	-
Restricted Solid Waste CT2 [1]			400	80	400	NSL	400	16	160	NSL	NSL	3.2	NSL	NSL	NSL	NSL	detect[2]	NSL	NSL		NSL		NSL	40	1152	2400	4000	-
Restricted Solid Waste SCC2 [1]			2000	400	7600	NSL	6000	200	4200	NSL	800	23	Scheduled Chemicals <50					50	2600		NSL		40000	72	2073	4320	7200	-
Sample Reference	**Sample Depth**	**Sample Description**																										
BH1	0.13-0.33	Fill	LPQL	LPQL	30	24	11	LPQL	25	30	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	Not Detected
BH1	0.5-0.7	Natural	LPQL	LPQL	5	34	22	LPQL	3	27	LPQL	LPQL	NA	NA	NA	NA	NA	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH2	0.1-0.3	Fill	6	0.4	23	21	34	LPQL	9	43	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	110	110	LPQL	LPQL	LPQL	LPQL	Not Detected
BH3	0.05-0.25	Fill	LPQL	LPQL	84	24	6	LPQL	**80**	42	0.6	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	Not Detected
BH3	0.5-0.95	Natural	5	LPQL	23	9	17	LPQL	6	10	LPQL	LPQL	NA	NA	NA	NA	NA	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
TP2	0.015-0.02	Natural	LPQL	LPQL	2	5	10	LPQL	LPQL	5	LPQL	LPQL	NA	NA	NA	NA	NA	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
DUP1	-		LPQL	LPQL	38	28	13	LPQL	33	39	LPQL	LPQL	NA	NA	NA	NA	NA	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
Total Number of samples			7	7	7	7	7	7	7	7	7	7	3	3	3	3	3	3	7	7	7	7	7	7	7	7	7	3
Maximum Value			6	0.4	84	34	34	LPQL	80	43	0.6	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	110	110	LPQL	LPQL	LPQL	LPQL	NC

EXPLANATION:

1 - NSW DECCW Waste Classification Guidelines (2009)

2 - Some Individual OPPs have CT1 & CT2 values. Reference should be made to the Waste Classification Guidelines in the event of any detections

Concentration above the CT1 — VALUE
Concentration above SCC1 — VALUE
Concentration above the SCC2 — VALUE

Abbreviations:

PAHs: Polycyclic Aromatic Hydrocarbons
B(a)P: Benzo(a)pyrene
PQL: Practical Quantitation Limit
LPQL: Less than PQL
OPP: Organophosphorus Pesticides
PID: Photoionisation Detector
PCBs: Polychlorinated Biphenyls
UCL: Upper Level Confidence Limit on Mean Value
ALPQL: All values less than PQL
NA: Not Analysed
NC: Not Calculated
NSL: No Set Limit
SAC: Site Assessment Criteria
TPH: Total Petroleum Hydrocarbons
BTEX: Monocyclic Aromatic Hydrocarbons
OCP: Organochlorine Pesticides
CT: Contaminant Threshold
SCC: Specific Contaminant Concentration
HILs: Health Investigation Levels
NEPM: National Environmental Protection Measure

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TABLE E
SOIL LABORATORY TCLP RESULTS
All data in mg/L unless stated otherwise

			Nickel
PQL - Envirolab Services			0.02
TCLP1 - General Solid Waste [1]			2
TCLP2 - Restricted Solid Waste [1]			8
TCLP3 - Hazardous Waste [1]			>8
Sample Reference	**Sample Depth**	**Sample Description**	
BH3	0.05-0.25	Fill	0.06
Total Number of samples			1
Maximum Value			LPQL

EXPLANATION:

1 - NSW DECCW Waste Classification Guidelines (2009)

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General Solid Waste	**VALUE**
Restricted Solid Waste	**VALUE**
Hazardous Waste	**VALUE**

ABBREVIATIONS:

PQL: Practical Quantitation Limit
LPQL: Less than PQL
B(a)P: Benzo(a)pyrene
NC: Not Calculated
NA: Not Analysed
TCLP: Toxicity Characteristics Leaching Procedure

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

Land Use Category [1]			COMMERCIAL/INDUSTRIAL																		
						AGED HEAVY METALS-EILs						EILs		ESLs							
			pH	CEC ($cmol_c/kg$)	Clay Content (% clay)	Arsenic	Chromium	Copper	Lead	Nickel	Zinc	Naphthalene	DDT	C_6-C_{10} (F1)	$>C_{10}$-C_{16} (F2)	$>C_{16}$-C_{34} (F3)	$>C_{34}$-C_{40} (F4)	Benzene	Toluene	Ethylbenzene	Total Xylenes	B(a)P
PQL - Envirolab Services			-	1	-	4	1	1	1	1	1	0.1	0.1	25	50	100	100	0.2	0.5	1	3	0.05
Ambient Background Concentration (ABC) [2]			-	-	-	NSL	13	28	NSL	5	122	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL
Sample Reference	**Sample Depth**	**Soil Texture**																				
BH1	0.13-0.33	Coarse	NA	NA	NA	LPQL	30	24	11	25	30	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH1	0.5-0.7	Fine	NA	NA	NA	LPQL	5	34	22	3	27	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH2	0.1-0.3	Coarse	NA	NA	NA	6	23	21	34	9	43	LPQL	LPQL	LPQL	LPQL	LPQL	170	LPQL	LPQL	LPQL	LPQL	LPQL
BH3	0.05-0.25	Coarse	NA	NA	NA	LPQL	84	24	6	80	42	0.2	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH3	0.5-0.95	Fine	NA	NA	NA	5	23	9	17	6	10	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
TP2	0.015-0.02	Fine	NA	NA	NA	LPQL	2	5	10	LPQL	5	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
DUP1	-	Fine	NA	NA	NA	LPQL	38	28	13	33	39	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
Total Number of Samples			NA	NA	NA	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
Maximum Value			NA	NA	NA	6	84	34	34	80	43	0.2	LPQL	LPQL	LPQL	LPQL	170	LPQL	LPQL	LPQL	LPQL	LPQL

Explanation:

1 - Site Assessment Criteria (SAC): NEPM 2013

2 - ABC Values for selected metals has 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)

Concentration above the SAC **VALUE**

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

Abbreviations:

EILs: Ecological Investigation Levels
B(a)P: Benzo(a)pyrene
PQL: Practical Quantitation Limit
UCL: Upper Level Confidence Limit on Mean Value
ESLs: Ecological Screening Levels
NA: Not Analysed
LPQL: Less than PQL
SAC: Site Assessment Criteria
NEPM: National Environmental Protection Measure
NC: Not Calculated
NSL: No Set Limit
ABC: Ambient Background Concentration

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EIL AND ESL ASSESSMENT CRITERIA

Land Use Category [1]			COMMERCIAL/INDUSTRIAL																		
						AGED HEAVY METALS-EILs						EILs		ESLs							
			pH	CEC ($cmol_c/kg$)	Clay Content (% clay)	Arsenic	Chromium	Copper	Lead	Nickel	Zinc	Naphthalene	DDT	C_6-C_{10} (F1)	$>C_{10}$-C_{16} (F2)	$>C_{16}$-C_{34} (F3)	$>C_{34}$-C_{40} (F4)	Benzene	Toluene	Ethylbenzene	Total Xylenes	B(a)P
PQL - Envirolab Services			-	1	-	4	1	1	1	1	1	0.1	0.1	25	50	100	100	0.2	0.5	1	3	0.05
Ambient Background Concentration (ABC) [2]			-	-	-	NSL	13	28	NSL	5	122	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL
Sample Reference	**Sample Depth**	**Soil Texture**																				
BH1	0.13-0.33	Coarse	NA	NA	NA	160	323	113	1800	60	232	370	640	215	170	1700	3300	75	135	165	180	0.7
BH1	0.5-0.7	Fine	NA	NA	NA	160	323	113	1800	60	232	370	640	215	170	2500	6600	95	135	185	95	0.7
BH2	0.1-0.3	Coarse	NA	NA	NA	160	323	113	1800	60	232	370	640	215	170	1700	3300	75	135	165	180	0.7
BH3	0.05-0.25	Coarse	NA	NA	NA	160	323	113	1800	60	232	370	640	215	170	1700	3300	75	135	165	180	0.7
BH3	0.5-0.95	Fine	NA	NA	NA	160	323	113	1800	60	232	370	640	215	170	2500	6600	95	135	185	95	0.7
TP2	0.015-0.02	Fine	NA	NA	NA	160	323	113	1800	60	232	370	640	215	170	2500	6600	95	135	185	95	0.7
DUP1	-	Fine	NA	NA	NA	160	323	113	1800	60	232	370	640	215	170	2500	6600	95	135	185	95	0.7

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TABLE G
SOIL INTRA-LABORATORY DUPLICATE RESULTS & RPD CALCULATIONS
All results in mg/kg unless stated otherwise

SAMPLE	ANALYSIS	Envirolab PQL	INITIAL	REPEAT	MEAN	RPD %
Sample Ref = BH1 (0.13-0.33m)	Arsenic	4	LPQL	LPQL	NC	NC
Dup Ref = DUP1	Cadmium	0.4	LPQL	LPQL	NC	NC
	Chromium	1	30	38	34	23.5
Envirolab Report: 106926	Copper	1	24	28	26	15.4
	Lead	1	11	13	12	16.7
	Mercury	0.1	LPQL	LPQL	NC	NC
	Nickel	1	25	33	29	27.6
	Zinc	1	30	39	34.5	26.1
	Naphthalene	0.1	LPQL	LPQL	NC	NC
	Acenaphthylene	0.1	LPQL	LPQL	NC	NC
	Acenaphthene	0.1	LPQL	LPQL	NC	NC
	Fluorene	0.1	LPQL	LPQL	NC	NC
	Phenanthrene	0.1	LPQL	LPQL	NC	NC
	Anthracene	0.1	LPQL	LPQL	NC	NC
	Fluoranthene	0.1	LPQL	LPQL	NC	NC
	Pyrene	0.1	LPQL	LPQL	NC	NC
	Benzo(a)anthracene	0.1	LPQL	LPQL	NC	NC
	Chrysene	0.1	LPQL	LPQL	NC	NC
	Benzo(b)&(k)fluorant	0.2	LPQL	LPQL	NC	NC
	Benzo(a)pyrene	0.05	LPQL	LPQL	NC	NC
	Indeno(123-cd)pyrene	0.1	LPQL	LPQL	NC	NC
	Dibenzo(ah)anthracene	0.1	LPQL	LPQL	NC	NC
	Benzo(ghi)perylene	0.1	LPQL	LPQL	NC	NC
	Benzo(a)pyrene TEQ	0.5	LPQL	LPQL	NC	NC
	Total PAHs	2.05	LPQL	LPQL	NC	NC

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EXPLANATION:

The RPD value is calculated as the absolute value of the difference between the initial and repeat results divided by the average value expressed as a percentage. The following acceptance criteria will be used to assess the RPD results:

Results > 10 times PQL = RPD value < = 50% are acceptable
Results between 5 & 10 times PQL = RPD value < = 75% are acceptable
Results < 5 times PQL = RPD value < = 100% are acceptable

RPD Results Above the Acceptance Criteria **VALUE**

ABBREVIATIONS:

PQL: Practical Quantitation Limit
LPQL: Less than PQL
NA: Not Analysed
NC: Not Calculated
OCP: Organochlorine Pesticides
OPP: Organophosphorus Pesticides
PCBs: Polychlorinated Biphenyls
TPH: Total Petroleum Hydrocarbons

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APPENDIX A

Borehole Logs and Explanatory Notes

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BOREHOLE LOG

Borehole No. 1
1/1

Client: ERILYAN PTY LTD
Project: PROPOSED ADDITIONS TO NORTHSIDE WEST CLINIC
Location: 23 TO 27 LYTTON STREET, WENTWORTHVILLE, NSW

Job No. 27318SB
Date: 20-3-14
Method: SPIRAL AUGER JK305
Logged/Checked by: R.A.P./D.B.
R.L. Surface: ≈ 19.1m
Datum: AHD

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLET -ION						0			CONCRETE: 130mm.t				5mm DIA. REINFORCEMENT, 100mm TOP COVER
								-	FILL: Gravelly clay, medium plasticity, light grey and orange brown, fine to coarse grained shale and igneous gravel.	MC>PL			
								CH		MC<PL	H		RESIDUAL
					N = 16 6,7,9				SILTY CLAY: high plasticity, light grey and orange brown, trace of fine to coarse grained ironstone gravel.			450 450 470	
						1							
					N = 26 9,12,14				as above, but dark brown and orange brown.				TOO FRIABLE FOR HP TESTING
						2		-	SHALE: dark grey, with M strength iron indurated bands.	DW	VL-L		VERY LOW 'TC' BIT RESISTANCE WITH LOW BANDS
						3							
						4			SHALE: dark grey.		L-M		LOW RESISTANCE WITH MODERATE BANDS
▼ AFTER 40 MINS						5							
											M		MODERATE TO HIGH RESISTANCE
						6			END OF BOREHOLE AT 6.0m				
						7							

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BOREHOLE LOG

Borehole No. 2
1/1

Client: ERILYAN PTY LTD
Project: PROPOSED ADDITIONS TO NORTHSIDE WEST CLINIC
Location: 23 TO 27 LYTTON STREET, WENTWORTHVILLE, NSW

Job No. 27318SB
Date: 20-3-14
Method: SPIRAL AUGER JK305
Logged/Checked by: R.A.P./D.B.
R.L. Surface: ≈ 22.0m
Datum: AHD

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■					0			CONCRETE: 100mm.t				NO OBSERVED REINFORCEMENT
								-	FILL: Gravelly clay, low plasticity, yellow brown and grey, fine to coarse grained ironstone and shale gravel.	MC>PL			
								CH		MC≈PL	H		APPEARS POORLY COMPACTED
	■			■	N = 21 9,10,11				SILTY CLAY: high plasticity, yellow brown, with fine to medium grained ironstone gravel.			>600 >600 >600	RESIDUAL
						1			SILTY CLAY: high plasticity orange brown mottled light grey, trace of fine to coarse grained ironstone gravel.	MC<PL			
	■				N = 15 6,8,7							>600 >600 >600	
						2			as above, but light grey mottled orange brown.				
				■	N = 37 8,15,22	3						>600 >600 >600	
				■				-	SHALE: light grey, with M strength iron indurated bands.	XW	EL-VL		
									as above, but dark grey.	DW	L		LOW 'TC' BIT RESISTANCE
▼ AFTER 1.5 HRS				■		4							
						5					L-M		LOW RESISTANCE WITH MODERATE BANDS
						6			END OF BOREHOLE AT 6.0m				
						7							

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BOREHOLE LOG

Borehole No. 3
1/1

Client: ERILYAN PTY LTD
Project: PROPOSED ADDITIONS TO NORTHSIDE WEST CLINIC
Location: 23 TO 27 LYTTON STREET, WENTWORTHVILLE, NSW

Job No. 27318SB
Date: 20-3-14
Method: SPIRAL AUGER JK305
Logged/Checked by: R.A.P./D.B.
R.L. Surface: ≈ 21.5m
Datum: AHD

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION AND AFTER 1 HR	■					0			ASPHALTIC CONCRETE: 50mm.t	D			APPEARS WELL COMPACTED RESIDUAL
									FILL: Silty gravel, fine to coarse grained igneous gravel.				
				■	N = 22 6,9,13			CH	SILTY CLAY: high plasticity, yellow brown mottled red brown, trace of fine to coarse grained ironstone gravel.	MC<PL	H	>600 >600 >600	
						1							
				■	N = 31 10,15,16				as above, but red brown mottled light grey and orange brown.			>600 >600 >600	
						2							
				■	N = 17 3,7,10	3						>600 >600 >600	
						4			SILTY CLAY: high plasticity, light grey mottled orange brown and red brown, trace of fine to coarse grained ironstone gravel.				
				■	N > 28 8,12, 16/140mm							>600 >600 >600	
					REFUSAL	5		-	SHALE: dark grey, with iron indurated bands.	XW	EL-VL		
				■						DW	L-M		LOW 'TC' BIT RESISTANCE
						6			END OF BOREHOLE AT 6.0m				
						7							

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BOREHOLE LOG

Borehole No. 4
1/2

Client: ERILYAN PTY LTD
Project: PROPOSED ADDITIONS TO NORTHSIDE WEST CLINIC
Location: 23 TO 27 LYTTON STREET, WENTWORTHVILLE, NSW

Job No. 27318SB
Date: 20-3-14
Method: SPIRAL AUGER JK305
Logged/Checked by: R.A.P./D.B.
R.L. Surface: ≈ 21.0m
Datum: AHD

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■					0		-	ASPHALTIC CONCRETE: 50mm.t FILL: Silty gravel, fine to coarse grained, dark grey.	D			APPEARS MODERATELY TO WELL COMPACTED
				■	N = 27 12,17,10								
	■					1		CH	SILTY CLAY: high plasticity, yellow brown mottled light grey and red brown, trace of fine to coarse grained ironstone gravel.	MC<PL	H		RESIDUAL
				■	N = 19 7,9,10							>600 >600 >600	
						2							
				■	N = 21 7,9,12	3			as above, but light grey mottled yellow brown and red brown.			460 480 >600	
						4				MC>PL	F-St	110 90 110	
				■	N = 24 8,10,14								
						5		-	SHALE: brown and dark grey. SHALE:dark grey, with M strength iron indurated bands.	XW DW	EL VL		VERY LOW RESISTANCE WITH MODERATE BANDS
				■		6					L		LOW RESISTANCE
											M		MODERATE RESISTANCE
						7							

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BOREHOLE LOG

Borehole No. 4
2/2

Client: ERILYAN PTY LTD
Project: PROPOSED ADDITIONS TO NORTHSIDE WEST CLINIC
Location: 23 TO 27 LYTTON STREET, WENTWORTHVILLE, NSW

Job No. 27318SB
Date: 20-3-14
Method: SPIRAL AUGER JK305
Logged/Checked by: R.A.P./D.B.
R.L. Surface: ≈ 21.0m
Datum: AHD

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
				■					SHALE: dark grey, with iron indurated bands.	DW	M		
									SHALE: dark grey.				
									END OF BOREHOLE AT 7.5m				
						8							
						9							
						10							
						11							
						12							
						13							
						14							

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REPORT EXPLANATION NOTES

INTRODUCTION

These notes have been provided to amplify the geotechnical report in regard to classification methods, field procedures and certain matters relating to the Comments and Recommendations section. Not all notes are necessarily relevant to all reports.

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. Geotechnical engineering involves 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, the SAA Site Investigation Code. 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 geotechnical practice.

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Soil types are described according to the predominating particle size and behaviour as set out in the attached Unified Soil Classification Table qualified by the grading of other particles present (e.g. sandy clay) as set out below:

Soil Classification	Particle Size
Clay	less than 0.002mm
Silt	0.002 to 0.075mm
Sand	0.075 to 2mm
Gravel	2 to 60mm

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	less than 4
Loose	4 – 10
Medium dense	10 – 30
Dense	30 – 50
Very Dense	greater than 50

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

Classification	Unconfined Compressive Strength kPa
Very Soft	less than 25
Soft	25 – 50
Firm	50 – 100
Stiff	100 – 200
Very Stiff	200 – 400
Hard	Greater than 400
Friable	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 thinly bedded to laminated siltstone.

SAMPLING

Sampling is carried out during drilling or from other excavations to allow engineering examination (and laboratory testing where required) of the soil or rock.

Disturbed samples taken during drilling provide information on plasticity, grain size, colour, moisture content, minor constituents and, depending upon the degree of disturbance, some information on strength and structure. Bulk samples are similar but of greater volume required for some test procedures.

Undisturbed samples are taken by pushing a thin-walled sample tube, usually 50mm diameter (known as a U50), into the soil and withdrawing it with a sample of the soil contained in a relatively undisturbed state. Such samples yield information on structure and strength, and are necessary for laboratory determination of shear strength and compressibility. Undisturbed sampling is generally effective only in cohesive soils.

Details of the type and method of sampling used are given on the attached logs.

INVESTIGATION METHODS

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

Test Pits: These are normally excavated with a backhoe or a tracked excavator, allowing close examination of the insitu soils 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 an 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. Premature refusal of the hand augers can occur on a variety of materials such as hard clay, gravel or ironstone, 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 relatively lower 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.

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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 fragments. 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 determined 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 such as Revert or Biogel. 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, an NMLC triple tube core barrel, which gives a core of about 50mm diameter, 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 CORE LOSS. The location of losses are determined on site by the supervising engineer; where the location is uncertain, the loss is placed at the top end 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, "Methods of Testing Soils for Engineering Purposes" – Test F3.1.

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 63kg 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.

Occasionally, the drop hammer is used to drive 50mm diameter thin walled sample tubes (U50) in clays. In such circumstances, the test results are shown on the borehole logs in brackets.

A modification to the SPT test is where the same driving system is used with a solid 60° 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 "N_c" on the borehole logs, together with the number of blows per 150mm penetration.

Static Cone Penetrometer Testing and Interpretation: Cone penetrometer testing (sometimes referred to as a Dutch Cone) described in this report has been carried out using an Electronic Friction Cone Penetrometer (EFCP). The test is described in Australian Standard 1289, Test F5.1.

In the tests, a 35mm diameter rod with a conical tip is pushed continuously into the soil, the reaction being provided by a specially designed truck or rig which is fitted with an hydraulic ram system. Measurements are made of the end bearing resistance on the cone and the frictional resistance on a separate 134mm long sleeve, immediately behind the cone. Transducers in the tip of the assembly are electrically connected by wires passing through the centre of the push rods to an amplifier and recorder unit mounted on the control truck.

As penetration occurs (at a rate of approximately 20mm per second) the information is output as incremental digital records every 10mm. The results given in this report have been plotted from the digital data.

The information provided on the charts comprise:

- Cone resistance – the actual end bearing force divided by the cross sectional area of the cone – expressed in MPa.
- Sleeve friction – the frictional force on the sleeve divided by the surface area – expressed in kPa.
- Friction ratio – the ratio of sleeve friction to cone resistance, expressed as a percentage.

  The ratios of the sleeve resistance to cone resistance will vary with the type of soil encountered, with higher relative friction in clays than in sands. Friction ratios of 1% to 2% are commonly encountered in sands and occasionally very soft clays, rising to 4% to 10% in stiff clays and peats. Soil descriptions based on cone resistance and friction ratios are only inferred and must not be considered as exact.

Correlations between EFCP and SPT values can be developed for both sands and clays but may be site specific.

Interpretation of EFCP values can be made to empirically derive modulus or compressibility values to allow calculation of foundation settlements.

Stratification can be inferred from the cone and friction traces and from experience and information from nearby boreholes etc. Where shown, this information is presented for general guidance, but must be regarded as interpretive. The test method provides a continuous profile of engineering properties but, where precise information on soil classification is required, direct drilling and sampling may be preferable.

Portable Dynamic Cone Penetrometers: Portable Dynamic Cone Penetrometer (DCP) tests are carried out by driving a rod into the ground with a sliding hammer and counting the blows for successive 100mm increments of penetration.

Two relatively similar tests are used:

- Cone penetrometer (commonly known as the Scala Penetrometer) – a 16mm rod with a 20mm diameter cone end is driven with a 9kg hammer dropping 510mm (AS1289, Test F3.2). The test was developed initially for pavement subgrade investigations, and correlations of the test results with California Bearing Ratio have been published by various Road Authorities.
- Perth sand penetrometer – a 16mm diameter flat ended rod is driven with a 9kg hammer, dropping 600mm (AS1289, Test F3.3). This test was developed for testing the density of sands (originating in Perth) and is mainly used in granular soils and filling.

LOGS

The borehole or test pit logs presented herein are an engineering and/or geological interpretation of the sub-surface 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 attached explanatory notes define the terms and symbols used in preparation of the logs.

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 water observations are to be made.

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More reliable measurements can be made by installing standpipes which are read after stabilising 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 determine the extent of the fill.

The presence of fill materials is usually regarded with caution as the possible variation in density, strength and material type is much greater than with natural soil deposits. Consequently, there is an increased risk of adverse engineering characteristics or behaviour. If the volume and quality of fill is of importance to a project, then frequent test pit excavations are preferable to boreholes.

LABORATORY TESTING

Laboratory testing is normally carried out in accordance with Australian Standard 1289 *'Methods of Testing Soil for Engineering Purposes'*. Details of the test procedure used are given on the individual report forms.

ENGINEERING REPORTS

Engineering reports are prepared by qualified personnel and are based on the information obtained and on current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal (eg. a three storey building) the information and interpretation may not be relevant if the design proposal is changed (eg to a twenty storey building). If this happens, the company will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical aspects and recommendations or suggestions for design and construction. However, the Company cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions – the potential for this will be partially dependent on borehole spacing and sampling frequency as well as investigation technique.
- Changes in policy or interpretation of policy by statutory authorities.
- The actions of persons or contractors responding to commercial pressures.

If these occur, the company will be pleased to assist with investigation or advice to resolve any problems occurring.

SITE ANOMALIES

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, the company requests that it immediately be notified. Most problems are much more readily resolved when conditions are exposed that at some later stage, well after the event.

REPRODUCTION OF INFORMATION FOR CONTRACTUAL PURPOSES

Attention is drawn to the document *'Guidelines for the Provision of Geotechnical Information in Tender Documents'*, published by the Institution of Engineers, Australia. Where information obtained from this investigation is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. The company would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Copyright in all documents (such as drawings, borehole or test pit logs, reports and specifications) provided by the Company shall remain the property of Jeffery and Katauskas Pty Ltd. Subject to the payment of all fees due, the Client alone shall have a licence to use the documents provided for the sole purpose of completing the project to which they relate. License to use the documents may be revoked without notice if the Client is in breach of any objection to make a payment to us.

REVIEW OF DESIGN

Where major civil or structural developments are proposed or where only a limited investigation has been completed or where the geotechnical conditions/ constraints are quite complex, it is prudent to have a joint design review which involves a senior geotechnical engineer.

SITE INSPECTION

The company will always be pleased to provide engineering inspection services for geotechnical aspects of work to which this report is related.

Requirements could range from:

i) a site visit to confirm that conditions exposed are no worse than those interpreted, to

ii) a visit to assist the contractor or other site personnel in identifying various soil/rock types such as appropriate footing or pier founding depths, or

iii) full time engineering presence on site.

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GRAPHIC LOG SYMBOLS FOR SOILS AND ROCKS

SOIL

FILL

TOPSOIL

CLAY (CL, CH)

SILT (ML, MH)

SAND (SP, SW)

GRAVEL (GP, GW)

SANDY CLAY (CL, CH)

SILTY CLAY (CL, CH)

CLAYEY SAND (SC)

SILTY SAND (SM)

GRAVELLY CLAY (CL, CH)

CLAYEY GRAVEL (GC)

SANDY SILT (ML)

PEAT AND ORGANIC SOILS

ROCK

CONGLOMERATE

SANDSTONE

SHALE

SILTSTONE, MUDSTONE, CLAYSTONE

LIMESTONE

PHYLLITE, SCHIST

TUFF

GRANITE, GABBRO

DOLERITE, DIORITE

BASALT, ANDESITE

QUARTZITE

DEFECTS AND INCLUSIONS

CLAY SEAM

SHEARED OR CRUSHED SEAM

BRECCIATED OR SHATTERED SEAM/ZONE

IRONSTONE GRAVEL

ORGANIC MATERIAL

OTHER MATERIALS

CONCRETE

BITUMINOUS CONCRETE, COAL

COLLUVIUM

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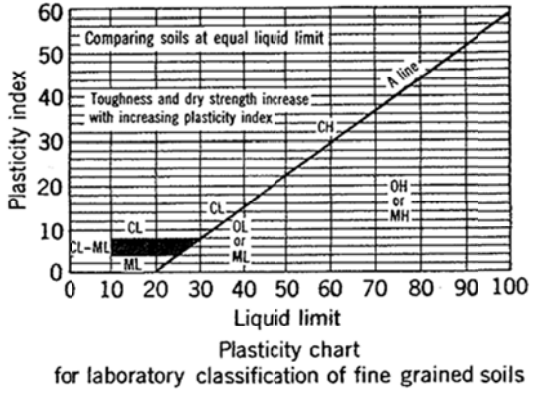
Field Identification Procedures (Excluding particles larger than 75 μm and basing fractions on estimated weights)						Group Symbols[a]	Typical Names	Information Required for Describing Soils	Laboratory Classification Criteria
Coarse-grained soils More than half of material is *larger* than 75 μm sieve size[b] (The smallest particle visible to naked eye)	Gravels More than half of coarse fraction is larger than 4 mm sieve size	Clean gravels (little or no fines)	Wide range in grain size and substantial amounts of all intermediate particle sizes			*GW*	Well graded gravels, gravel-sand mixtures, little or no fines	Give typical name; indicate approximate percentages of sand and gravel; maximum size; angularity, surface condition, and hardness of the coarse grains; local or geologic name and other pertinent descriptive information; and symbols in parentheses For undisturbed soils add information on stratification, degree of compactness, cementation, moisture conditions and drainage characteristics Example: *Silty sand*, gravelly; about 20% hard, angular gravel particles 12 mm maximum size; rounded and subangular sand grains coarse to fine, about 15% non-plastic fines with low dry strength; well compacted and moist in place; alluvial sand; (*SM*)	Use grain size curve in identifying the fractions as given under field identification Determine percentages of gravel and sand from grain size curve Depending on percentage of fines (fraction smaller than 75 μm sieve size) coarse grained soils are classified as follows: Less than 5% *GW, GP, SW, SP* More than 12% *GM, GC, SM, SC* 5% to 12% *Borderline* cases requiring use of dual symbols $C_U = \frac{D_{60}}{D_{10}}$ Greater than 4 $C_C = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ Between 1 and 3 Not meeting all gradation requirements for *GW* Atterberg limits below "A" line, or *PI* less than 4 Atterberg limits above "A" line, with *PI* greater than 7 Above "A" line with *PI* between 4 and 7 are *borderline* cases requiring use of dual symbols $C_U = \frac{D_{60}}{D_{10}}$ Greater than 6 $C_C = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ Between 1 and 3 Not meeting all gradation requirements for *SW* Atterberg limits below "A" line or *PI* less than 5 Atterberg limits below "A" line with *PI* greater than 7 Above "A" line with *PI* between 4 and 7 are *borderline* cases requiring use of dual symbols
		Gravels with fines (appreciable amount of fines)	Predominantly one size or a range of sizes with some intermediate sizes missing			*GP*	Poorly graded gravels, gravel-sand mixtures, little or no fines		
			Nonplastic fines (for identification procedures see *ML* below)			*GM*	Silty gravels, poorly graded gravel-sand-silt mixtures		
			Plastic fines (for identification procedures, see *CL* below)			*GC*	Clayey gravels, poorly graded gravel-sand-clay mixtures		
	Sands More than half of coarse fraction is smaller than 4 mm sieve size	Clean sands (little or no fines)	Wide range in grain sizes and substantial amounts of all intermediate particle sizes			*SW*	Well graded sands, gravelly sands, little or no fines		
			Predominantly one size or a range of sizes with some intermediate sizes missing			*SP*	Poorly graded sands, gravelly sands, little or no fines		
		Sands with fines (appreciable amount of fines)	Nonplastic fines (for identification procedures, see *ML* below)			*SM*	Silty sands, poorly graded sand-silt mixtures		
			Plastic fines (for identification procedures, see *CL* below)			*SC*	Clayey sands, poorly graded sand-clay mixtures		
Fine-grained soils More than half of material is *smaller* than 75 μm sieve size (The 75 μm sieve size is about the smallest particle visible to naked eye)	Identification Procedures on Fraction Smaller than 380 μm Sieve Size		Dry Strength (crushing characteristics)	Dilatancy (reaction to shaking)	Toughness (consistency near plastic limit)				
	Silts and clays liquid limit less than 50		None to slight	Quick to slow	None	*ML*	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands with slight plasticity	Give typical name; indicate degree and character of plasticity, amount and maximum size of coarse grains; colour in wet condition, odour if any, local or geologic name, and other pertinent descriptive information, and symbol in parentheses For undisturbed soils add information on structure, stratification, consistency in undisturbed and remoulded states, moisture and drainage conditions Example: *Clayey silt*, brown; slightly plastic; small percentage of fine sand; numerous vertical root holes; firm and dry in place; loess; (*ML*)	
			Medium to high	None to very slow	Medium	*CL*	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays		
			Slight to medium	Slow	Slight	*OL*	Organic silts and organic silt-clays of low plasticity		
	Silts and clays liquid limit greater than 50		Slight to medium	Slow to none	Slight to medium	*MH*	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts		
			High to very high	None	High	*CH*	Inorganic clays of high plasticity, fat clays		
			Medium to high	None to very slow	Slight to medium	*OH*	Organic clays of medium to high plasticity		
Highly Organic Soils			Readily identified by colour, odour, spongy feel and frequently by fibrous texture			*Pt*	Peat and other highly organic soils		



Plasticity chart
for laboratory classification of fine grained soils

Note: 1 Soils possessing characteristics of two groups are designated by combinations of group symbols (eg. GW-GC, well graded gravel-sand mixture with clay fines).
2 Soils with liquid limits of the order of 35 to 50 may be visually classified as being of medium plasticity.

LOG SYMBOLS

LOG COLUMN	SYMBOL	DEFINITION
Groundwater Record	▼	Standing water level. Time delay following completion of drilling may be shown.
	C	Extent of borehole collapse shortly after drilling.
	▶	Groundwater seepage into borehole or excavation noted during drilling or excavation.
Samples	ES	Soil sample taken over depth indicated, for environmental analysis.
	U50	Undisturbed 50mm diameter tube sample taken over depth indicated.
	DB	Bulk disturbed sample taken over depth indicated.
	DS	Small disturbed bag sample taken over depth indicated.
	ASB	Soil sample taken over depth indicated, for asbestos screening.
	ASS	Soil sample taken over depth indicated, for acid sulfate soil analysis.
	SAL	Soil sample taken over depth indicated, for salinity analysis.
Field Tests	N = 17 4, 7, 10	Standard Penetration Test (SPT) performed between depths indicated by lines. Individual figures show blows per 150mm penetration. 'R' as noted below.
	N_c = 5 7 3R	Solid Cone Penetration Test (SCPT) performed between depths indicated by lines. Individual figures show blows per 150mm penetration for 60 degree solid cone driven by SPT hammer. 'R' refers to apparent hammer refusal within the corresponding 150mm depth increment.
	VNS = 25	Vane shear reading in kPa of Undrained Shear Strength.
	PID = 100	Photoionisation detector reading in ppm (Soil sample headspace test).
Moisture Condition (Cohesive Soils)	MC>PL	Moisture content estimated to be greater than plastic limit.
	MC≈PL	Moisture content estimated to be approximately equal to plastic limit.
	MC<PL	Moisture content estimated to be less than plastic limit.
(Cohesionless Soils)	D	DRY – Runs freely through fingers.
	M	MOIST – Does not run freely but no free water visible on soil surface.
	W	WET – Free water visible on soil surface.
Strength (Consistency) Cohesive Soils	VS	VERY SOFT – Unconfined compressive strength less than 25kPa
	S	SOFT – Unconfined compressive strength 25-50kPa
	F	FIRM – Unconfined compressive strength 50-100kPa
	St	STIFF – Unconfined compressive strength 100-200kPa
	VSt	VERY STIFF – Unconfined compressive strength 200-400kPa
	H	HARD – Unconfined compressive strength greater than 400kPa
	( )	Bracketed symbol indicates estimated consistency based on tactile examination or other tests.
Density Index/ Relative Density (Cohesionless Soils)		**Density Index (I_D) Range (%)** / **SPT 'N' Value Range (Blows/300mm)**
	VL	Very Loose <15 0-4
	L	Loose 15-35 4-10
	MD	Medium Dense 35-65 10-30
	D	Dense 65-85 30-50
	VD	Very Dense >85 >50
	( )	Bracketed symbol indicates estimated density based on ease of drilling or other tests.
Hand Penetrometer Readings	300 250	Numbers indicate individual test results in kPa on representative undisturbed material unless noted otherwise.
Remarks	'V' bit	Hardened steel 'V' shaped bit.
	'TC' bit	Tungsten carbide wing bit.
	T 60	Penetration of auger string in mm under static load of rig applied by drill head hydraulics without rotation of augers.

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LOG SYMBOLS continued

ROCK MATERIAL WEATHERING CLASSIFICATION

TERM	SYMBOL	DEFINITION
Residual Soil	RS	Soil developed on extremely weathered rock; the mass structure and substance fabric are no longer evident; there is a large change in volume but the soil has not been significantly transported.
Extremely weathered rock	XW	Rock is weathered to such an extent that it has "soil" properties, ie it either disintegrates or can be remoulded, in water.
Distinctly weathered rock	DW	Rock strength usually changed by weathering. The rock may be highly discoloured, usually by ironstaining. Porosity may be increased by leaching, or may be decreased due to deposition of weathering products in pores.
Slightly weathered rock	SW	Rock is slightly discoloured but shows little or no change of strength from fresh rock.
Fresh rock	FR	Rock shows no sign of decomposition or staining.

ROCK STRENGTH

Rock strength is defined by the Point Load Strength Index (Is 50) and refers to the strength of the rock substance in the direction normal to the bedding. The test procedure is described by the International Journal of Rock Mechanics, Mining, Science and Geomechanics. Abstract Volume 22, No 2, 1985.

TERM	SYMBOL	Is (50) MPa	FIELD GUIDE
Extremely Low:	EL		Easily remoulded by hand to a material with soil properties.
		0.03	
Very Low:	VL		May be crumbled in the hand. Sandstone is "sugary" and friable.
		0.1	
Low:	L		A piece of core 150mm long x 50mm dia. may be broken by hand and easily scored with a knife. Sharp edges of core may be friable and break during handling.
		0.3	
Medium Strength:	M		A piece of core 150mm long x 50mm dia. can be broken by hand with difficulty. Readily scored with knife.
		1	
High:	H		A piece of core 150mm long x 50mm dia. core cannot be broken by hand, can be slightly scratched or scored with knife; rock rings under hammer.
		3	
Very High:	VH		A piece of core 150mm long x 50mm dia. may be broken with hand-held pick after more than one blow. Cannot be scratched with pen knife; rock rings under hammer.
		10	
Extremely High:	EH		A piece of core 150mm long x 50mm dia. is very difficult to break with hand-held hammer. Rings when struck with a hammer.

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ABBREVIATIONS USED IN DEFECT DESCRIPTION

ABBREVIATION	DESCRIPTION	NOTES
Be	Bedding Plane Parting	Defect orientations measured relative to the normal to the long core axis (ie relative to horizontal for vertical holes)
CS	Clay Seam	
J	Joint	
P	Planar	
Un	Undulating	
S	Smooth	
R	Rough	
IS	Ironstained	
XWS	Extremely Weathered Seam	
Cr	Crushed Seam	
60t	Thickness of defect in millimetres	

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APPENDIX B

Laboratory Reports and Chain of Custody Documents

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

CERTIFICATE OF ANALYSIS 106926

Client:
Environmental Investigation Services
PO Box 976
North Ryde BC
NSW 1670

Attention: Mitch Delaney

Sample log in details:

Your Reference:	**E27318K, Wentworthville**
No. of samples:	11 soils
Date samples received / completed instructions received	21/03/14 / 21/03/14

This report supersedes the previous report R00 due to a change in sample ID (ELS #10).

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.

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Report Details:

Date results requested by: / Issue Date:	28/03/14 / 31/03/14
Date of Preliminary Report:	Not Issued

NATA accreditation number 2901. This document shall not be reproduced except in full.
Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:

Jacinta Hurst
Laboratory Manager

NATA
ACCREDITED FOR TECHNICAL COMPETENCE

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	106926-1	106926-2	106926-3	106926-6	106926-7
Your Reference	----------	BH1	BH1	BH2	BH3	BH3
Depth	----------	0.13-0.33	0.5-0.7	0.1-0.3	0.05-0.25	0.5-0.95
Date Sampled		20/03/2014	20/03/2014	20/03/2014	20/03/2014	20/03/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/03/2014	24/03/2014	24/03/2014	24/03/2014	24/03/2014
Date analysed	-	26/03/2014	26/03/2014	26/03/2014	26/03/2014	26/03/2014
TRHC$_6$ - C$_9$	mg/kg	<25	<25	<25	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25	<25	<25	<25
vTPHC$_6$ - C$_{10}$ 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
Surrogate aaa-Trifluorotoluene	%	93	94	102	105	93

vTRH(C6-C10)/BTEXN in Soil			
Our Reference:	UNITS	106926-10	106926-11
Your Reference	----------	TP5	DUP1
Depth	----------	0.015-0.02	-
Date Sampled		20/03/2014	20/03/2014
Type of sample		Soil	Soil
Date extracted	-	24/03/2014	24/03/2014
Date analysed	-	26/03/2014	26/03/2014
TRHC$_6$ - C$_9$	mg/kg	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25
Benzene	mg/kg	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1
m+p-xylene	mg/kg	<2	<2
o-Xylene	mg/kg	<1	<1
naphthalene	mg/kg	<1	<1
Surrogate aaa-Trifluorotoluene	%	99	96

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svTRH (C10-C40) in Soil						
Our Reference:	UNITS	106926-1	106926-2	106926-3	106926-6	106926-7
Your Reference	----------	BH1	BH1	BH2	BH3	BH3
Depth	----------	0.13-0.33	0.5-0.7	0.1-0.3	0.05-0.25	0.5-0.95
Date Sampled		20/03/2014	20/03/2014	20/03/2014	20/03/2014	20/03/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/03/2014	24/03/2014	24/03/2014	24/03/2014	24/03/2014
Date analysed	-	25/03/2014	25/03/2014	25/03/2014	25/03/2014	25/03/2014
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	<100	110	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100	<100	<100	<100	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	<100	170	<100	<100
Surrogate o-Terphenyl	%	92	95	96	93	97

svTRH (C10-C40) in Soil			
Our Reference:	UNITS	106926-10	106926-11
Your Reference	----------	TP5	DUP1
Depth	----------	0.015-0.02	-
Date Sampled		20/03/2014	20/03/2014
Type of sample		Soil	Soil
Date extracted	-	24/03/2014	24/03/2014
Date analysed	-	25/03/2014	25/03/2014
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	<100
Surrogate o-Terphenyl	%	96	97

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PAHs in Soil						
Our Reference:	UNITS	106926-1	106926-2	106926-3	106926-6	106926-7
Your Reference	----------	BH1	BH1	BH2	BH3	BH3
Depth	----------	0.13-0.33	0.5-0.7	0.1-0.3	0.05-0.25	0.5-0.95
Date Sampled		20/03/2014	20/03/2014	20/03/2014	20/03/2014	20/03/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/03/2014	24/03/2014	24/03/2014	24/03/2014	24/03/2014
Date analysed	-	25/03/2014	25/03/2014	25/03/2014	25/03/2014	25/03/2014
Naphthalene	mg/kg	<0.1	<0.1	<0.1	0.2	<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	0.2	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	0.2	<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+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
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	NIL (+)VE	NIL (+)VE	NIL (+)VE	0.54	NIL (+)VE
Surrogate p-Terphenyl-d14	%	118	97	96	108	110

EIS 2014

PAHs in Soil			
Our Reference:	UNITS	106926-10	106926-11
Your Reference	----------	TP5	DUP1
Depth	----------	0.015-0.02	-
Date Sampled		20/03/2014	20/03/2014
Type of sample		Soil	Soil
Date extracted	-	24/03/2014	24/03/2014
Date analysed	-	25/03/2014	25/03/2014
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+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
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5
Total +ve PAH's	mg/kg	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	107	108

EIS 2014

Organochlorine Pesticides in soil				
Our Reference:	UNITS	106926-1	106926-3	106926-6
Your Reference	----------	BH1	BH2	BH3
Depth	----------	0.13-0.33	0.1-0.3	0.05-0.25
Date Sampled		20/03/2014	20/03/2014	20/03/2014
Type of sample		Soil	Soil	Soil
Date extracted	-	24/03/2014	24/03/2014	24/03/2014
Date analysed	-	25/03/2014	25/03/2014	25/03/2014
HCB	mg/kg	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	98	100	100

EIS 2014

Organophosphorus Pesticides				
Our Reference:	UNITS	106926-1	106926-3	106926-6
Your Reference	----------	BH1	BH2	BH3
Depth	----------	0.13-0.33	0.1-0.3	0.05-0.25
Date Sampled		20/03/2014	20/03/2014	20/03/2014
Type of sample		Soil	Soil	Soil
Date extracted	-	24/03/2014	24/03/2014	24/03/2014
Date analysed	-	25/03/2014	25/03/2014	25/03/2014
Diazinon	mg/kg	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	98	100	100

EIS 2014

PCBs in Soil				
Our Reference:	UNITS	106926-1	106926-3	106926-6
Your Reference	----------	BH1	BH2	BH3
Depth	----------	0.13-0.33	0.1-0.3	0.05-0.25
Date Sampled		20/03/2014	20/03/2014	20/03/2014
Type of sample		Soil	Soil	Soil
Date extracted	-	24/03/2014	24/03/2014	24/03/2014
Date analysed	-	25/03/2014	25/03/2014	25/03/2014
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1
Arochlor 1221	mg/kg	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1	<0.1
Surrogate TCLMX	%	98	100	100

EIS 2014

Acid Extractable metals in soil						
Our Reference:	UNITS	106926-1	106926-2	106926-3	106926-6	106926-7
Your Reference	----------	BH1	BH1	BH2	BH3	BH3
Depth	----------	0.13-0.33	0.5-0.7	0.1-0.3	0.05-0.25	0.5-0.95
Date Sampled		20/03/2014	20/03/2014	20/03/2014	20/03/2014	20/03/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	24/03/2014	24/03/2014	24/03/2014	24/03/2014	24/03/2014
Date analysed	-	24/03/2014	24/03/2014	24/03/2014	24/03/2014	24/03/2014
Arsenic	mg/kg	<4	<4	6	<4	5
Cadmium	mg/kg	<0.4	<0.4	0.4	<0.4	<0.4
Chromium	mg/kg	30	5	23	84	23
Copper	mg/kg	24	34	21	24	9
Lead	mg/kg	11	22	34	6	17
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	25	3	9	80	6
Zinc	mg/kg	30	27	43	42	10

Acid Extractable metals in soil			
Our Reference:	UNITS	106926-10	106926-11
Your Reference	----------	TP5	DUP1
Depth	----------	0.015-0.02	-
Date Sampled		20/03/2014	20/03/2014
Type of sample		Soil	Soil
Date digested	-	24/03/2014	24/03/2014
Date analysed	-	24/03/2014	24/03/2014
Arsenic	mg/kg	<4	<4
Cadmium	mg/kg	<0.4	<0.4
Chromium	mg/kg	2	38
Copper	mg/kg	5	28
Lead	mg/kg	10	13
Mercury	mg/kg	<0.1	<0.1
Nickel	mg/kg	<1	33
Zinc	mg/kg	5	39

EIS 2014

Moisture						
Our Reference:	UNITS	106926-1	106926-2	106926-3	106926-6	106926-7
Your Reference	----------	BH1	BH1	BH2	BH3	BH3
Depth	----------	0.13-0.33	0.5-0.7	0.1-0.3	0.05-0.25	0.5-0.95
Date Sampled		20/03/2014	20/03/2014	20/03/2014	20/03/2014	20/03/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	24/03/2014	24/03/2014	24/03/2014	24/03/2014	24/03/2014
Date analysed	-	25/03/2014	25/03/2014	25/03/2014	25/03/2014	25/03/2014
Moisture	%	22	14	20	4.6	16

Moisture			
Our Reference:	UNITS	106926-10	106926-11
Your Reference	----------	TP5	DUP1
Depth	----------	0.015-0.02	-
Date Sampled		20/03/2014	20/03/2014
Type of sample		Soil	Soil
Date prepared	-	24/03/2014	24/03/2014
Date analysed	-	25/03/2014	25/03/2014
Moisture	%	12	19

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Asbestos ID - soils				
Our Reference:	UNITS	106926-1	106926-3	106926-6
Your Reference	----------	BH1	BH2	BH3
Depth	----------	0.13-0.33	0.1-0.3	0.05-0.25
Date Sampled		20/03/2014	20/03/2014	20/03/2014
Type of sample		Soil	Soil	Soil
Date analysed	-	25/03/2014	25/03/2014	25/03/2014
Sample mass tested	g	Approx 40g	Approx 40g	Approx 40g
Sample Description	-	Beige clayey soil & rocks	Brown clayey soil & rocks	Grey fine-grained soil & rocks
Asbestos ID in soil	-	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
Trace Analysis	-	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected

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Method ID	Methodology Summary
Org-016	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-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-003	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-012 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 12 hours.
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.

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QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			24/03/2014	106926-1	24/03/2014 || 24/03/2014	LCS-8	24/03/2014
Date analysed	-			26/03/2014	106926-1	26/03/2014 || 26/03/2014	LCS-8	26/03/2014
TRHC$_6$ - C$_9$	mg/kg	25	Org-016	<25	106926-1	<25 || <25	LCS-8	137%
TRHC$_6$ - C$_{10}$	mg/kg	25	Org-016	<25	106926-1	<25 || <25	LCS-8	137%
Benzene	mg/kg	0.2	Org-016	<0.2	106926-1	<0.2 || <0.2	LCS-8	140%
Toluene	mg/kg	0.5	Org-016	<0.5	106926-1	<0.5 || <0.5	LCS-8	136%
Ethylbenzene	mg/kg	1	Org-016	<1	106926-1	<1 || <1	LCS-8	137%
m+p-xylene	mg/kg	2	Org-016	<2	106926-1	<2 || <2	LCS-8	136%
o-Xylene	mg/kg	1	Org-016	<1	106926-1	<1 || <1	LCS-8	137%
naphthalene	mg/kg	1	Org-014	<1	106926-1	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	98	106926-1	93 || 94 || RPD: 1	LCS-8	124%
QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			24/03/2014	106926-1	24/03/2014 || 24/03/2014	LCS-8	24/03/2014
Date analysed	-			25/03/2014	106926-1	25/03/2014 || 25/03/2014	LCS-8	25/03/2014
TRHC$_{10}$ - C$_{14}$	mg/kg	50	Org-003	<50	106926-1	<50 || <50	LCS-8	107%
TRHC$_{15}$ - C$_{28}$	mg/kg	100	Org-003	<100	106926-1	<100 || <100	LCS-8	111%
TRHC$_{29}$ - C$_{36}$	mg/kg	100	Org-003	<100	106926-1	<100 || <100	LCS-8	129%
TRH>C$_{10}$-C$_{16}$	mg/kg	50	Org-003	<50	106926-1	<50 || <50	LCS-8	107%
TRH>C$_{16}$-C$_{34}$	mg/kg	100	Org-003	<100	106926-1	<100 || <100	LCS-8	111%
TRH>C$_{34}$-C$_{40}$	mg/kg	100	Org-003	<100	106926-1	<100 || <100	LCS-8	129%
Surrogate o-Terphenyl	%		Org-003	93	106926-1	92 || 96 || RPD: 4	LCS-8	83%
QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			24/03/2014	106926-1	24/03/2014 || 24/03/2014	LCS-8	24/03/2014
Date analysed	-			25/03/2014	106926-1	25/03/2014 || 25/03/2014	LCS-8	25/03/2014
Naphthalene	mg/kg	0.1	Org-012 subset	<0.1	106926-1	<0.1 || <0.1	LCS-8	104%
Acenaphthylene	mg/kg	0.1	Org-012 subset	<0.1	106926-1	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012 subset	<0.1	106926-1	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012 subset	<0.1	106926-1	<0.1 || <0.1	LCS-8	102%
Phenanthrene	mg/kg	0.1	Org-012 subset	<0.1	106926-1	<0.1 || <0.1	LCS-8	102%
Anthracene	mg/kg	0.1	Org-012 subset	<0.1	106926-1	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012 subset	<0.1	106926-1	<0.1 || <0.1	LCS-8	97%

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QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Pyrene	mg/kg	0.1	Org-012 subset	<0.1	106926-1	<0.1 || <0.1	LCS-8	100%
Benzo(a)anthracene	mg/kg	0.1	Org-012 subset	<0.1	106926-1	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012 subset	<0.1	106926-1	<0.1 || <0.1	LCS-8	98%
Benzo(b+k)fluoranthene	mg/kg	0.2	Org-012 subset	<0.2	106926-1	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	Org-012 subset	<0.05	106926-1	<0.05 || <0.05	LCS-8	104%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012 subset	<0.1	106926-1	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012 subset	<0.1	106926-1	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012 subset	<0.1	106926-1	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	97	106926-1	118 || 95 || RPD: 22	LCS-8	97%
QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			24/03/2014	106926-1	24/03/2014 || 24/03/2014	LCS-8	24/03/2014
Date analysed	-			25/03/2014	106926-1	25/03/2014 || 25/03/2014	LCS-8	25/03/2014
HCB	mg/kg	0.1	Org-005	<0.1	106926-1	<0.1 || <0.1	[NR]	[NR]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	106926-1	<0.1 || <0.1	LCS-8	89%
gamma-BHC	mg/kg	0.1	Org-005	<0.1	106926-1	<0.1 || <0.1	[NR]	[NR]
beta-BHC	mg/kg	0.1	Org-005	<0.1	106926-1	<0.1 || <0.1	LCS-8	68%
Heptachlor	mg/kg	0.1	Org-005	<0.1	106926-1	<0.1 || <0.1	LCS-8	94%
delta-BHC	mg/kg	0.1	Org-005	<0.1	106926-1	<0.1 || <0.1	[NR]	[NR]
Aldrin	mg/kg	0.1	Org-005	<0.1	106926-1	<0.1 || <0.1	LCS-8	98%
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	106926-1	<0.1 || <0.1	LCS-8	120%
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	106926-1	<0.1 || <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	106926-1	<0.1 || <0.1	[NR]	[NR]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	106926-1	<0.1 || <0.1	[NR]	[NR]
pp-DDE	mg/kg	0.1	Org-005	<0.1	106926-1	<0.1 || <0.1	LCS-8	95%
Dieldrin	mg/kg	0.1	Org-005	<0.1	106926-1	<0.1 || <0.1	LCS-8	91%
Endrin	mg/kg	0.1	Org-005	<0.1	106926-1	<0.1 || <0.1	LCS-8	97%
pp-DDD	mg/kg	0.1	Org-005	<0.1	106926-1	<0.1 || <0.1	LCS-8	105%
Endosulfan II	mg/kg	0.1	Org-005	<0.1	106926-1	<0.1 || <0.1	[NR]	[NR]
pp-DDT	mg/kg	0.1	Org-005	<0.1	106926-1	<0.1 || <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	106926-1	<0.1 || <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	106926-1	<0.1 || <0.1	LCS-8	92%
Methoxychlor	mg/kg	0.1	Org-005	<0.1	106926-1	<0.1 || <0.1	[NR]	[NR]
Surrogate TCMX	%		Org-005	95	106926-1	98 || 98 || RPD: 0	LCS-8	95%

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QUALITY CONTROL Organophosphorus Pesticides	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base || Duplicate || %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			24/03/2014	106926-1	24/03/2014 || 24/03/2014	LCS-8	24/03/2014
Date analysed	-			25/03/2014	106926-1	25/03/2014 || 25/03/2014	LCS-8	25/03/2014
Diazinon	mg/kg	0.1	Org-008	<0.1	106926-1	<0.1 || <0.1	[NR]	[NR]
Dimethoate	mg/kg	0.1	Org-008	<0.1	106926-1	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	<0.1	106926-1	<0.1 || <0.1	[NR]	[NR]
Ronnel	mg/kg	0.1	Org-008	<0.1	106926-1	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos	mg/kg	0.1	Org-008	<0.1	106926-1	<0.1 || <0.1	LCS-8	101%
Fenitrothion	mg/kg	0.1	Org-008	<0.1	106926-1	<0.1 || <0.1	LCS-8	80%
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	106926-1	<0.1 || <0.1	[NR]	[NR]
Ethion	mg/kg	0.1	Org-008	<0.1	106926-1	<0.1 || <0.1	LCS-8	71%
Surrogate TCMX	%		Org-008	95	106926-1	98 || 98 || RPD: 0	LCS-8	95%
QUALITY CONTROL PCBs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base || Duplicate || %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			24/03/2014	106926-1	24/03/2014 || 24/03/2014	LCS-8	24/03/2014
Date analysed	-			25/03/2014	106926-1	25/03/2014 || 25/03/2014	LCS-8	25/03/2014
Arochlor 1016	mg/kg	0.1	Org-006	<0.1	106926-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1221	mg/kg	0.1	Org-006	<0.1	106926-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1232	mg/kg	0.1	Org-006	<0.1	106926-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1242	mg/kg	0.1	Org-006	<0.1	106926-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1248	mg/kg	0.1	Org-006	<0.1	106926-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1254	mg/kg	0.1	Org-006	<0.1	106926-1	<0.1 || <0.1	LCS-8	96%
Arochlor 1260	mg/kg	0.1	Org-006	<0.1	106926-1	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%		Org-006	95	106926-1	98 || 98 || RPD: 0	LCS-8	91%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base || Duplicate || %RPD	Spike Sm#	Spike % Recovery
Date digested	-			24/03/2014	106926-1	24/03/2014 || 24/03/2014	LCS-5	24/03/2014
Date analysed	-			24/03/2014	106926-1	24/03/2014 || 24/03/2014	LCS-5	24/03/2014
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	106926-1	<4 || <4	LCS-5	104%
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	106926-1	<0.4 || <0.4	LCS-5	110%
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	106926-1	30 || 38 || RPD: 24	LCS-5	108%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	106926-1	24 || 36 || RPD: 40	LCS-5	108%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	106926-1	11 || 15 || RPD: 31	LCS-5	105%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	106926-1	<0.1 || <0.1	LCS-5	94%

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QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	106926-1	25 || 33 || RPD: 28	LCS-5	108%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	106926-1	30 || 38 || RPD: 24	LCS-5	109%

QUALITY CONTROL Moisture	UNITS	PQL	METHOD	Blank
Date prepared	-			[NT]
Date analysed	-			[NT]
Moisture	%	0.1	Inorg-008	[NT]

QUALITY CONTROL Asbestos ID - soils	UNITS	PQL	METHOD	Blank
Date analysed	-			[NT]

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	106926-3	24/03/2014
Date analysed	-	[NT]	[NT]	106926-3	26/03/2014
TRHC$_6$ - C$_9$	mg/kg	[NT]	[NT]	106926-3	95%
TRHC$_6$ - C$_{10}$	mg/kg	[NT]	[NT]	106926-3	95%
Benzene	mg/kg	[NT]	[NT]	106926-3	102%
Toluene	mg/kg	[NT]	[NT]	106926-3	94%
Ethylbenzene	mg/kg	[NT]	[NT]	106926-3	92%
m+p-xylene	mg/kg	[NT]	[NT]	106926-3	92%
o-Xylene	mg/kg	[NT]	[NT]	106926-3	96%
naphthalene	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%	[NT]	[NT]	106926-3	96%

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	106926-3	24/03/2014
Date analysed	-	[NT]	[NT]	106926-3	25/03/2014
TRHC$_{10}$ - C$_{14}$	mg/kg	[NT]	[NT]	106926-3	113%
TRHC$_{15}$ - C$_{28}$	mg/kg	[NT]	[NT]	106926-3	119%
TRHC$_{29}$ - C$_{36}$	mg/kg	[NT]	[NT]	106926-3	116%
TRH>C$_{10}$-C$_{16}$	mg/kg	[NT]	[NT]	106926-3	113%
TRH>C$_{16}$-C$_{34}$	mg/kg	[NT]	[NT]	106926-3	119%
TRH>C$_{34}$-C$_{40}$	mg/kg	[NT]	[NT]	106926-3	116%
Surrogate o-Terphenyl	%	[NT]	[NT]	106926-3	87%

EIS 2014

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	106926-3	24/03/2014
Date analysed	-	[NT]	[NT]	106926-3	25/03/2014
Naphthalene	mg/kg	[NT]	[NT]	106926-3	108%
Acenaphthylene	mg/kg	[NT]	[NT]	[NR]	[NR]
Acenaphthene	mg/kg	[NT]	[NT]	[NR]	[NR]
Fluorene	mg/kg	[NT]	[NT]	106926-3	108%
Phenanthrene	mg/kg	[NT]	[NT]	106926-3	105%
Anthracene	mg/kg	[NT]	[NT]	[NR]	[NR]
Fluoranthene	mg/kg	[NT]	[NT]	106926-3	102%
Pyrene	mg/kg	[NT]	[NT]	106926-3	105%
Benzo(a)anthracene	mg/kg	[NT]	[NT]	[NR]	[NR]
Chrysene	mg/kg	[NT]	[NT]	106926-3	100%
Benzo(b+k)fluoranthene	mg/kg	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	mg/kg	[NT]	[NT]	106926-3	108%
Indeno(1,2,3-c,d)pyrene	mg/kg	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	[NT]	[NT]	106926-3	99%
QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	106926-3	24/03/2014
Date analysed	-	[NT]	[NT]	106926-3	25/03/2014
HCB	mg/kg	[NT]	[NT]	[NR]	[NR]
alpha-BHC	mg/kg	[NT]	[NT]	106926-3	95%
gamma-BHC	mg/kg	[NT]	[NT]	[NR]	[NR]
beta-BHC	mg/kg	[NT]	[NT]	106926-3	72%
Heptachlor	mg/kg	[NT]	[NT]	106926-3	101%
delta-BHC	mg/kg	[NT]	[NT]	[NR]	[NR]
Aldrin	mg/kg	[NT]	[NT]	106926-3	104%
Heptachlor Epoxide	mg/kg	[NT]	[NT]	106926-3	126%
gamma-Chlordane	mg/kg	[NT]	[NT]	[NR]	[NR]
alpha-chlordane	mg/kg	[NT]	[NT]	[NR]	[NR]
Endosulfan I	mg/kg	[NT]	[NT]	[NR]	[NR]
pp-DDE	mg/kg	[NT]	[NT]	106926-3	100%
Dieldrin	mg/kg	[NT]	[NT]	106926-3	96%
Endrin	mg/kg	[NT]	[NT]	106926-3	102%
pp-DDD	mg/kg	[NT]	[NT]	106926-3	110%
Endosulfan II	mg/kg	[NT]	[NT]	[NR]	[NR]
pp-DDT	mg/kg	[NT]	[NT]	[NR]	[NR]
Endrin Aldehyde	mg/kg	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulphate	mg/kg	[NT]	[NT]	106926-3	92%

EIS 2014

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Methoxychlor	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate TCMX	%	[NT]	[NT]	106926-3	99%
QUALITY CONTROL Organophosphorus Pesticides	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	106926-3	24/03/2014
Date analysed	-	[NT]	[NT]	106926-3	25/03/2014
Diazinon	mg/kg	[NT]	[NT]	[NR]	[NR]
Dimethoate	mg/kg	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos-methyl	mg/kg	[NT]	[NT]	[NR]	[NR]
Ronnel	mg/kg	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos	mg/kg	[NT]	[NT]	106926-3	107%
Fenitrothion	mg/kg	[NT]	[NT]	106926-3	83%
Bromophos-ethyl	mg/kg	[NT]	[NT]	[NR]	[NR]
Ethion	mg/kg	[NT]	[NT]	106926-3	72%
Surrogate TCMX	%	[NT]	[NT]	106926-3	99%
QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	106926-3	24/03/2014
Date analysed	-	[NT]	[NT]	106926-3	25/03/2014
Arochlor 1016	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1221	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1232	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1242	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1248	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1254	mg/kg	[NT]	[NT]	106926-3	102%
Arochlor 1260	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%	[NT]	[NT]	106926-3	96%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	[NT]	[NT]	106926-3	24/03/2014
Date analysed	-	[NT]	[NT]	106926-3	24/03/2014
Arsenic	mg/kg	[NT]	[NT]	106926-3	88%
Cadmium	mg/kg	[NT]	[NT]	106926-3	91%
Chromium	mg/kg	[NT]	[NT]	106926-3	85%
Copper	mg/kg	[NT]	[NT]	106926-3	108%
Lead	mg/kg	[NT]	[NT]	106926-3	92%
Mercury	mg/kg	[NT]	[NT]	106926-3	94%
Nickel	mg/kg	[NT]	[NT]	106926-3	90%
Zinc	mg/kg	[NT]	[NT]	106926-3	100%

EIS 2014

Report Comments:

Asbestos ID was analysed by Approved Identifier: Paul Ching
Asbestos ID was authorised by Approved Signatory: Paul Ching

INS: Insufficient sample for this test
NA: Test not required
<: Less than
PQL: Practical Quantitation Limit
RPD: Relative Percent Difference
>: Greater than
NT: Not tested
NA: Test not required
LCS: Laboratory Control Sample

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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.

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.

EIS 2014

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC 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.

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

SAMPLE RECEIPT ADVICE

Client:

Environmental Investigation Services
PO Box 976
North Ryde BC NSW 1670

ph: 02 9888 5000
Fax: 02 9888 5001

Attention: Mitch Delaney

Sample log in details:

Your reference:	**E27318K, Wentworthville**
Envirolab Reference:	**106926**
Date received:	21/03/14
Date results expected to be reported:	**28/03/14**

EIS 2014

Samples received in appropriate condition for analysis:	YES
No. of samples provided	11 soils
Turnaround time requested:	Standard
Temperature on receipt (°C)	18.4
Cooling Method:	Ice
Sampling Date Provided:	YES

Comments:

Samples will be held for 1 month for water samples and 2 months for soil samples from date of receipt of samples.

Contact details:

Please direct any queries to Aileen Hie or Jacinta Hurst
ph: 02 9910 6200 fax: 02 9910 6201
email: ahie@envirolabservices.com.au or jhurst@envirolabservices.com.au

SAMPLE AND CHAIN OF CUSTODY FORM

TO:
Envirolab Services Pty Ltd
12 Ashley Street
Chatswood NSW 2067
Phone: (02) 99106200
Fax: (02) 99106201

Attention: Aileen

EIS Job Number: E 27318K

Date Results Required: STANDARD.

Sheet 1 / 1

FROM:
Environmental Investigation Services
Rear 115 Wicks Road
Macquarie Park NSW 2113
Phone: (02) 9888 5000
Fax: (02) 9888 5004

Contact: Mitch Delaney

Project: Proposed Additions
Location: Wentworthville.
Sampler: RP

Sample Preservation:
In esky on ice

Tests Required

Date Sampled	Lab Ref:	Borehole/ Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 3	Combo 6a	Combo 13	8 Metals	TPH	BTEX	PAHs	OCP/OPP/ PCBs	Asbestos	TCLP 6 Metals	TCLP PAHs	
20/3/14	1	BH1	0.1/0.3	Glass jar + Asb Bag	0	F Soil		X										
	2	↓	0.5/0.7	Glass jar + Asb Bag	0	N	X											
	3	BH2	0.1/0.3	Glass jar + Asb Bag	0	F		X										
	4	↓	0.5/0.95	Glass jar + Asb Bag	0	N												
	5	↓	1.5/1.95	Glass jar + Asb Bag	0	N												
	6	BH3	0.05/0.25	Glass jar + Asb Bag	0	F		X										
	7	↓	0.5/0.95	Glass jar + Asb Bag	0	N	X											
		↓	0.8/1.0	Glass jar + Asb Bag														
	8	BH4	0.05/0.25	Glass jar + Asb Bag	0	F												
	9	↓	0.8/1.0	Glass jar + Asb Bag	0	N												
		↓	0.5/0.95	Glass jar + Asb Bag														
	10	TP2	0.05/0.2	Glass jar + Asb Bag	0		X											
	11	DUP1	—	Glass jar + Asb Bag	—		X											
				Glass jar + Asb Bag														
				Glass jar + Asb Bag														
				Glass jar + Asb Bag														
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				Glass jar + Asb Bag														
				Glass jar + Asb Bag														

EIS 2014

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 106926
Date Received: 21/3/14
Time Received: 16:00
Received by: PT
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Remarks (comments/detection limits required): please email results to mdelaney@jkgroup.net.au

Relinquished By:	Date:	Time:	Received By:	
MD	21/3/14	PM	PT 21/3/14	16:00

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

CERTIFICATE OF ANALYSIS 106926-A

Client:
Environmental Investigation Services
PO Box 976
North Ryde BC
NSW 1670

Attention: Mitch Delaney

Sample log in details:

Your Reference:	**E27318K, Wentworthville**
No. of samples:	Additional Testing on 1 Soil
Date samples received / completed instructions received	21/03/14 / 28/03/14

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.

FIS 2014

Report Details:

Date results requested by: / Issue Date:	1/04/14 / 31/03/14
Date of Preliminary Report:	Not Issued

NATA accreditation number 2901. This document shall not be reproduced except in full.
Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:

Jacinta Hurst
Laboratory Manager

Metals in TCLP USEPA1311		
Our Reference:	UNITS	106926-A-6
Your Reference	----------	BH3
Depth	----------	0.05-0.25
Date Sampled		20/03/2014
Type of sample		Soil
Date extracted	-	31/03/2014
Date analysed	-	31/03/2014
pH of soil for fluid# determ.	pH units	10.0
pH of soil for fluid # determ. (acid)	pH units	1.6
Extraction fluid used	-	1
pH of final Leachate	pH units	5.2
Nickel in TCLP	mg/L	0.06

EIS 2014

Method ID	Methodology Summary
Inorg-004	Toxicity Characteristic Leaching Procedure (TCLP) using AS 4439 and USEPA 1311 and in house method INORG-004.
EXTRACT.7	Toxicity Characteristic Leaching Procedure (TCLP).
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA 22nd ED, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.

EIS 2014

QUALITY CONTROL Metals in TCLP USEPA1311	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			31/03/2014	[NT]	[NT]	LCS-W1	31/03/2014
Date analysed	-			31/03/2014	[NT]	[NT]	LCS-W1	31/03/2014
Nickel in TCLP	mg/L	0.02	Metals-020 ICP-AES	<0.02	[NT]	[NT]	LCS-W1	100%

EIS 2014

Report Comments:

Asbestos ID was analysed by Approved Identifier:	Not applicable for this job
Asbestos ID was authorised by Approved Signatory:	Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NA: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

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EIS 2014

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Aileen Hie

From: Mitchell Delaney [mdelaney@jkgroup.net.au]
Sent: Friday, 28 March 2014 10:17 AM
To: Aileen Hie
Subject: Additional leachate testing required '106926 - E27318K, Wentworthville'

Importance: High

Hi Aileen,

-6

Can I please request a TCLP test on the sample BH3 (0.05-0.25m) for Nickel only on a 48H TA.

Any issues please give me a call.

Thanks

Regards,

Mitchell Delaney
Environmental Scientist

Environmental Investigation Services
CONSULTING ENVIRONMENTAL ENGINEERS AND SCIENTISTS

Tel: 02 9888 5000 PO Box 976 115 Wicks Road
Fax: 02 9888 5001 North Ryde BC NSW 1670 Macquarie Park NSW 2113
mdelaney@jkgroup.net.au
www.jkgeotechnics.com.au

This email and any attachments are confidential and may be privileged in which case neither is intended to be waived. If you have received this message in error, please notify us and remove it from your system. It is your responsibility to check any attachments for viruses and defects before opening or sending them on. At the Company's discretion we may send a paper copy for confirmation. In the event of any discrepancy between paper and electronic versions the paper version is to take precedence.

EIS 2014

Envirolab Ref: 106926A
Due: 1/4/14
48hr TAT.

Appendix J: ESI 2015 Report

ENVIRONMENTAL INVESTIGATION SERVICES

16 March 2015
Ref: E27318Klet2

Erilyan Pty Ltd
60 Strathallen Avenue
Northbridge NSW 2063

Attention: Mr Mike Ryan

PRELIMINARY SOIL CONTAMINATION SCREENING & WASTE CLASSIFICATION
PROPOSED ADDITIONS TO NORTHSIDE WEST CLINIC – STAGE 2 WORKS
23-27 LYTTON STREET, WENTWORTHVILLE, NSW

1 INTRODUCTION

Erilyan Pty Ltd commissioned Environmental Investigation Services (EIS)[1] to undertake a preliminary soil contamination screening (PCS) and Waste Classification for the proposed additions to the Northside West Clinic at 23-27 Lytton Street, Wentworthville, NSW ('the site').

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The site is identified as Lot 1 in DP78784 and at the time of this investigation was occupied by the existing Northside West Clinic.

EIS have undertaken a PCS for the Stage 1 works to the north of the subject site at Northside West Clinic (EIS Ref: E27318Klet, dated 7 April 2014). A summary of the results of the investigation is provided in **Section 2.1.**

The site location is shown on Figure 1 and the investigation was confined to the proposed development area as shown on Figure 2.

The investigation was undertaken generally in accordance with an EIS proposal (Ref: EP8742K) of 18 February 2015 and written acceptance from Erilyan Pty Ltd by email of 23 February 2015.

The aim of the investigation is to assess significant widespread soil contamination issues at the site and to provide a waste classification for the material to be excavated for the proposed development.

[1] Environmental consulting division of Jeffery & Katauskas Pty Ltd (J&K)

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EIS is a division of Jeffery and Katauskas Pty Ltd • ABN 17 003 550 801

The PCS has not been designed to meet the NSW Environment Protection Authority (EPA) site audit requirements and will not meet SEPP55[2] or Council requirements for a detailed Environmental Site Assessment (ESA).

A geotechnical investigation was undertaken in conjunction with the waste classification assessment by JK Geotechnics[3] and the results are presented in a separate report (Ref. 27318SB1rpt, dated March 2015).

1.1 Proposed Development Details

The proposed development forms part of the stage 2 alterations and additions to the existing Northside West Clinic.

EIS understand that the proposed development includes the removal of the existing temporary buildings and asphalt carpark. A new three storey building is to be constructed at the site over three levels of basement car parking. We understand that excavations for the proposed basement will be required to approximately 8m to 9m below the existing site levels.

2 SITE INFORMATION

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2.1 Background Information (EIS, April 2014[4])

EIS have undertaken a PCS for the Stage 1 works to the north of the subject site at Northside West Clinic.

The investigation included the soil sampling from four boreholes (BH1 to BH4) drilled for the JK geotechnical investigation. One soil sample was also obtained from a testpit excavated by the builder. EIS note that due to budgetary constraints no analysis of the soil samples obtained from BH4 was undertaken.

During the site inspection a fragment of fibre cement was identified within the exposed fill material associated with a concrete block retaining wall in the south-east section of the site (located beneath the building ground floor slab). A second fragment of fibre cement was located on the surface to the south-west of the site.

The sampling locations and the fibre cement fragment locations are shown in Figure 2.

Elevated concentrations of contaminants were not encountered in the soil samples above the health based Site Assessment Criteria (SAC).

[2] *State Environmental Planning Policy No. 55 – Remediation of Land,* NSW Government, 1998 (SEPP55)

[3] Geotechnical consulting division of J&K

[4] Report to Erilyan Pty Ltd on Preliminary Soil Contamination Screening & Waste Classification for Proposed Additions to Northside West Clinic at 23-27 Lytton Street, Wentworthville, NSW, Ref: E27318Klet, dated 7 April 2014

An elevated concentration of nickel was encountered in the shallow fill soil sample BH3 (0.05-0.25m) above the relevant Ecological Investigation Level (EIL).

No analysis for asbestos fibres was undertaken on the fibre cement fragments identified on the surface at the site. Therefore this material was presumed to contain asbestos fibres until proven otherwise.

EIS indicated that additional asbestos soil investigation works are required to assess the exposed soils for the presence and nature (friable and/or non-friable) of potential asbestos containing material (ACM). If asbestos is identified at the site an Asbestos Management Plan (AMP) should be prepared to manage the potential health risk posed by ACMs.

EIS were of the opinion that the risk of widespread soil contamination, other than potential ACMs, was considered to be relatively low.

2.2 Site Description

The site is located to the west of Lytton Street approximately 220m to the south of the intersection with Vernon Street. The regional topography generally slopes to the west at approximately 2° to 3° towards a culvert (Finlayson's Creek), which generally appeared to flow to the north. The culvert is located approximately 30m to the west of the site boundary. The site itself slopes to the west at approximately 2° to 3° towards Finlayson's Creek.

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At the time of the investigation the site was occupied by an asphalt paved carpark. Landscaped areas were generally located around the perimeter of the site, consisting of small shrubs and trees up to approximately 10m in height. Temporary site sheds constructed of corrugated metal were located in the north-west corner section of the site.

No visible fibre cement fragments were identified on the surface of the site during the site inspection.

Lytton Street Park was located immediately to the south and west of the site. The park was grassed with a number of scattered trees up to 10m in height located within the park.

Northside West Clinic (stage 1 works area) was located immediately to the north of the site. A concrete driveway extended from Lytton Street along the north site boundary between the site and the existing medical facility building. The driveway is up to 2.2m below the level of the subject site. What appeared to be a loading dock was located at the end of the driveway.

Lytton Street was located to the east of the site. Residential properties were located beyond Lytton Street.

The surrounding area generally appeared to be occupied for residential land use.

2.3 Regional Geology

The geological map of Penrith (1991[5]) indicates the site to be underlain by Ashfield Shale of the Wianamatta Group, which typically consists of black to dark grey shale and laminite.

3 SITE ASSESSMENT CRITERIA (SAC)

3.1 Soil Contamination Screening

The SAC adopted for this screening is outlined in the table below. The SAC has been derived from National Environmental Protection (Assessment of Site Contamination) Amendment Measure (2013[6]). The criterion for the individual contaminants analysed for this assessment are presented in the attached report tables.

Table 3-1: SAC Adopted for this Investigation

Guideline	Applicability
Health Investigation Levels (HILs)	The proposed ongoing land use is a medical facility. The HIL-D' Commercial/Industrial' criteria has been adopted for this ESA.
Health Screening Levels (HSLs)	The HIL-D' Commercial/Industrial' criteria for soil have been adopted for this ESA.
Ecological Assessment Criteria (EAC)	The Ecological Investigation Levels (EILs) and Ecological Screening Levels (ESLs) have been adopted for this PCS. The criteria for 'commercial/industrial' exposure setting have been adopted. The EILs for selected metals have been derived as follows: • The ABC values for high traffic (25th percentiles) areas for old suburbs of NSW published in Olszowy et. al. (1995[7]) has been adopted for this assessment; and • Soil parameters including pH, cation exchange capacity (CEC) and clay content have not been assessed as part of the EAC. On this basis, the EIL and ESL calculations have taken the 'worst case' scenario in order to generate the EAC. The EAC are presented in conjunction with the relevant report tables.
Asbestos in Soil	The 'presence/absence' of asbestos in soil has been adopted as the assessment criterion for the Preliminary Site Investigation (PSI).

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[5] *1:100,000 Geological Map of Penrith (Series 9030),* Department of Mineral Resources (1991) [now Department of Primary Industries]

[6] National Environment Protection Council (NEPC), (2013), *National Environmental Protection (Assessment of Site Contamination) Amendment Measure 2013 (No.1).* (referred to as NEPM 2013)

[7] 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.

3.2 Waste Classification Assessment

Off-site disposal of fill, contaminated material, natural soil, rock excavated as part of the proposed development works is regulated by the *Protection of the Environment Operations Act* (1997[8]) and associated regulations and guidelines including the *NSW DECCW Waste Classification Guidelines - Part 1: Classifying Waste* (2014[9]). All materials should be classified in accordance with these guidelines prior to disposal.

Soils are classed into the following categories based on the chemical contaminant criteria outlined in the guidelines (refer to Table A):

Table 3-2: Waste Categories

Category	Description
General Solid Waste (non-putrescible) (GSW)	• If SCC ≤ CT1 then TCLP not needed to classify the soil as GSW • If TCLP ≤ TCLP1 and SCC ≤ SCC1 then treat as GSW
Restricted Solid Waste (non-putrescible) (RSW)	• If SCC ≤ CT2 then TCLP not needed to classify the soil as RSW • If TCLP ≤ TCLP2 and SCC ≤ SCC2 then treat as RSW
Hazardous Waste (HW)	• If SCC > CT2 then TCLP not needed to classify the soil as HW • If TCLP > TCLP2 and/or SCC > SCC2 then treat as HW
Virgin Excavated Natural Material (VENM)	Natural material (such as clay, gravel, sand, soil or rock fines) that meet the following: • that has been excavated or quarried from areas that are not contaminated with manufactured chemicals, or with process residues, as a result of industrial, commercial mining or agricultural activities; • that does not contain sulfidic ores or other waste; and • includes excavated natural material that meets such criteria for virgin excavated natural material as may be approved from time to time by a notice published in the NSW Government Gazette.

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Note:
SCC – Specific Contaminant Concentration
CT – Contaminant Threshold
TCLP – Toxicity Characteristics Leaching Procedure

4 INVESTIGATION PROCEDURE

4.1 Subsurface Investigation and Soil Sampling

Field work for this investigation was undertaken on 23 and 25 February 2015. Soil samples were obtained from four boreholes drilled for the JK geotechnical investigation. Groundwater monitoring wells were installed as part of the JK geotechnical investigation at borehole locations BH101 and BH103

[8] *Protection of Environment Operations Act,* NSW Government, 1997 (POEO Act 1997)
[9] NSW EPA, (2014), *Waste Classification Guidelines, Part 1: Classifying Waste.* (referred to as Waste Classification Guidelines 2014)

for the purposes of monitoring groundwater levels. No sampling was undertaken of the groundwater. The soil sampling locations and monitoring well locations are shown on the attached Figure 2.

EIS note that sampling location BH104 was located outside of the Stage 2 development area. The results for this sampling location have been presented for reference purposes.

The sample locations were drilled using a truck mounted hydraulically operated drill rig equipped with spiral flight augers. Soil samples were obtained from a Standard Penetration Test (SPT) sampler or directly from the auger when conditions did not allow use of the SPT sampler.

Soil samples were collected from the fill and natural profiles encountered during the investigation. Samples were also obtained when there was a distinct change in lithology or based on the observations made during the investigation. All samples were recorded on the borehole 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. Sampling personnel used disposable nitrile gloves during sampling activities. The samples were labelled with the job number, sampling location, sampling depth and date.

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4.2 Screening for Volatile Organic Compounds (VOCs)

A portable Photoionisation Detector (PID) was used to screen the samples for the presence of VOCs and to assist with selection of samples for further analysis for petroleum hydrocarbons.

The sensitivity of the PID is dependent on the organic compound and varies for different mixtures of hydrocarbons. Some compounds give relatively high readings and some can be undetectable even though present in identical concentrations. The portable PID is best used semi-quantitatively to compare samples contaminated by the same hydrocarbon source.

The PID is calibrated before use by measurement of an isobutylene standard gas. All the PID measurements are quoted as parts per million (ppm) isobutylene equivalents.

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.

4.3 Decontamination and Sample Preservation

Where applicable, the sampling equipment was decontaminated using a scrubbing brush and potable water and Decon 90 solution (phosphate free detergent) followed by rinsing with potable water.

Soil samples were preserved by immediate storage in an insulated sample container with ice in accordance with AS4482.1-2005 and AS4482.2-1999[10] as summarised in the following table:

Table 4-1: Soil sample preservation and storage

Analyte	Preservation	Storage
Heavy metals	Unpreserved glass jar with Teflon lined lid	Store at <4°, analysis within 28 days (mercury and Cr[VI]) and 180 days (other metals).
Hydrocarbons, pesticides and other organics	As above	Store at <4°, analysis within 14 days
Asbestos	Sealed plastic bag	None

On completion of the fieldwork, the samples were delivered in the insulated sample container to a NATA registered laboratory for analysis under standard Chain of Custody (COC) procedures.

4.4 Laboratory Analysis

Four selected fill and four selected natural soil samples obtained from the site were analysed for the following potential contaminants of concern (PCC):

- Heavy metals including: arsenic, cadmium, chromium (total), copper, lead, mercury, nickel and zinc;
- Polycyclic Aromatic Hydrocarbons (PAHs);
- Total Recoverable Hydrocarbons (TRH) including monocyclic aromatic hydrocarbons (BTEXN);
- Organochlorine pesticides (OCPs);
- Organophosphate pesticides (OPPs);
- Polychlorinated biphenyls (PCBs);
- Asbestos; and
- Selected TCLP leachate analysis on selected PCC.

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Samples were analysed by Envirolab Services (NATA Accreditation Number – 2901) using the analytical methods detailed in the National Environmental Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013[11]).

Reference should be made to the laboratory reports (Ref: 124228 and 124228-A) attached in the appendices for further information.

[10] *Guide to the Sampling and Investigation of Potentially Contaminated Soil Part2: Volatile Substances,* Standards Australia, 1999 (AS 1999)

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

5 RESULTS OF THE INVESTIGATION

5.1 Subsurface Conditions

Asphaltic pavement 30mm thick was encountered in boreholes BH101, BH102 and BH103. A concrete slab pavement 130mm thick was encountered in borehole BH104 located in the loading dock to the north of the site. Fill material was located directly beneath the pavement. The fill extended to a maximum depth of approximately 1.3m in borehole BH102. The fill material typically consisted of clayey sandy gravel and sand. The fill contained inclusions of igneous and ironstone, sandstone and igneous gravels. Silty clay was encountered beneath the fill in all boreholes. Shale bedrock was encountered beneath the silty clay in all boreholes.

No groundwater seepage was encountered during the auger drilling and immediately after completion of auger drilling. Water was introduced into boreholes during the bedrock coring process. At the completion of coring standing water levels (SWLs) were measured in boreholes BH101 and BH103 at 3.10m and 3.25m respectively. Following the installation of the groundwater monitoring wells, core water was purged with a submersible pump. Groundwater levels were measured a short time after purging at 3.76m (MW101) and 3.34m (MW103).

Groundwater SWLs were measured on the 10 March 2015 at 3.33m (MW101) and 3.31m (MW103). A hydrocarbon odour was noted at MW103 following the removal of the monitoring well cap. No hydrocarbon odour were noted during any of the previous field work at the site.

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5.2 VOC Screening

PID soil sample headspace readings are presented in the COC documents attached in Appendix B. All results were 0ppm equivalent isobutylene which indicates a lack of PID detectable VOCs.

5.3 Soil Laboratory Results

The soil laboratory results are compared to the relevant SAC in the attached report tables. A summary of the results assessed against the SAC is presented below.

Table 5-1: Summary of Soil Laboratory Results

Analyte	Results Compared to SAC
Heavy Metals	**HILs:** All results were below the HIL-D 'commercial/industrial' criteria. **EILs:** Elevated concentrations of nickel were encountered in fill soil samples BH101 (0.1-0.2m)/ DUPA, BH102 (0.05-0.15m), BH103 (0.1-0.2m) and BH104 (0.13-0.25m) above the EIL 'commercial/industrial' criteria.

Analyte	Results Compared to SAC
	WC: The nickel results for BH101 (0.1-0.2m)/ DUPA, BH102 (0.05-0.15m), BH103 (0.1-0.2m) and BH104 (0.13-0.25m) exceeded the CT1 criteria. All nickel results were less that the SCC1 criteria. TCLP leachate were prepared from the BH101 (0.1-0.2m), BH102 (0.05-0.15m), BH103 (0.1-0.2m) and BH104 (0.13-0.25m) samples and analysed for nickel. The results were less than the TCLP1 criteria.
TPH/ BTEX	**HSLs:** All results were below the HSL-D 'commercial/industrial' criteria. **ESLs:** All results were below the ESL 'commercial/industrial' criteria. **WC:** All results were less than the relevant CT1 and SCC1 criteria.
PAHs	**HILs:** All results were below the HIL-D 'commercial/industrial' criteria. **HSLs:** All naphthalene results were below the HSL-D 'commercial/industrial' criteria. **EIL/ESLs:** All results were below the EIL/ESL 'commercial/industrial' criteria. **WC:** All results were less than the relevant CT1 and SCC1 criteria.
OCPs & OPPs	**HILs:** All results were below the HIL-D 'commercial/industrial' criteria. **EILs:** All DDT results were below the EIL 'commercial/industrial' criteria. **WC:** All results were less than the relevant CT1 and SCC1 criteria.
PCBs	**HILs:** All results were below the HIL-D 'commercial/industrial' criteria. **WC:** All results were less than the SCC1 criterion.
Asbestos	**PSI:** No asbestos was detected in the samples analysed for the investigation.

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5.4 Review of QA/QC

A summary of the field QA/QC samples are outlined below:

Table 5-2: Field QA/QC Samples

Field QA/QC	Frequency	Sample Details
Intra-laboratory duplicates	10% of Primary Samples	Soil Samples: Dup A is a soil duplicate of sample BH102 (0.05-0.15m)

An assessment of the DQIs is summarised in the following table.

Table 5-3: Assessment of DQIs

Completeness

Data and documentation completeness was achieved through the following measures:

- COC records were prepared for each batch of samples sent to the labs (refer to appendices);
- Laboratory sample receipt information was reviewed for each batch (refer to appendices);
- NATA registered laboratories were used for all analysis; and
- Visual observations and PID screening of samples was undertaken during the investigation as noted on the COC documents (refer to appendices).

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Comparability

Data comparability was achieved through the following measures:

- Similar sampling techniques were used during the investigation;
- Appropriate preservation, storage and transport methods were adopted for all samples; and
- Consistent analysis techniques and reporting standards were adopted by the laboratories.

Representativeness

Data representativeness was achieved through the following measures:

- The sampling plan was optimised to obtain adequate coverage of sample locations; and
- The assessment included a representative coverage of analysis.

Precision

Intra-laboratory RPD Results:

The intra-laboratory soil RPD results are presented in the attached report tables. The results indicated that field precision was acceptable.

Accuracy

Accuracy was achieved through the following measures:

- Trained and qualified field staff were used for the investigation;
- Appropriate industry standard sampling equipment and decontamination procedures were adopted for the investigation as outlined in the attached appendices;
- Sampling and screening equipment are routinely factory calibrated. An in-house calibration check was undertaken prior to using onsite;

- Appropriate sample preservation, handling, holding time and COC procedures were adopted for the investigation; and
- The report was prepared generally in accordance with Reporting Guidelines 2011.

6 CONCLUSION AND RECOMMENDATIONS

6.1 Summary of Soil Contamination Screening

Elevated concentrations of contaminants were not encountered in the soil samples above the health based SAC as outlined in **Section 3.1**.

Elevated concentrations of nickel were encountered in the shallow fill soil samples BH101 (0.1-0.2m)/ DUPA, BH102 (0.05-0.15m), BH103 (0.1-0.2m) and BH104 (0.13-0.25m) above the relevant EIL. Leachate testing for waste classification purposes indicated that the nickel was not currently leaching in significant concentrations. The nickel results of the natural soil samples beneath the fill in this sampling location sampling location was below the relevant EIL.

The site is located within a well established area of Sydney. EIS are of the opinion that the risk of ecological impacts on sensitive flora and fauna species arising from the minor nickel elevations at the site are low.

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EIS also note that the most conservative guideline values published in the 'commercial/industrial criteria' were used in the assessment of the EILs and ESLs.

Although asbestos was not detected in the fill soil samples analysed for this preliminary contamination screening and waste classification assessment. It should be considered that potential asbestos containing materials (ACMs) may be present within the fill material given that presumed ACMs were encountered within the Stage 1 works area immediately to the north of the site (see **Section 2.1**).

The recommendations provided in **Section 6.4** should be implemented to further assess the potential contamination risks relating to the proposed development.

6.2 Preliminary Waste Classification

6.2.1 Preliminary Classification of Fill Soil for Off-Site Disposal

The waste classification is summarised in the following table:

Table 6-1: Waste Classification of Fill

Extent	Classification[1]	Disposal Option
Fill material at the site	General Solid Waste (non-putrescible) (GSW). Conditional on a site inspection	A licensed NSW EPA landfill capable of receiving the waste stream. The landfill should be contacted to obtain the required

Extent	Classification[1]	Disposal Option
	following removal of the pavement (see Section 6.4).	approvals prior to commencement of excavation.

Note:
1. Waste Classification Guidelines 2014

Although asbestos was not detected in the fill soil samples analysed for this preliminary waste classification assessment. There is a risk that isolated fragments of ACM could be located within the fill in the stage 2 works area. The recommendations provided in **Section 6.4** should be implemented to confirm the fill soil waste classification.

If the fill material is removed from the site it must be disposed of to a NSW EPA licensed facility. It is the responsibility of the receiving facility to ensure that the material meets their EPA license conditions. EIS accepts no liability whatsoever for illegal or inappropriate disposal of excavated material.

6.2.2 Classification of Natural Soil and Bedrock for Off-Site Disposal

The waste classification is summarised in the following table:

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Table 6-2: Waste Classification of Natural Material

Extent	Classification[1]	Disposal Option
Natural silty clay soil and shale bedrock	Virgin excavated natural material (VENM)	VENM is considered suitable for re-use on-site, or alternatively, the information included in this report may be used to assess whether the material is suitable for beneficial reuse at another site as fill material. Alternatively, the natural material can be disposed of as VENM to a facility licensed by the NSW EPA to receive the waste stream.

Note:
1. Waste Classification Guidelines 2014

Material classed as VENM must not be mixed with any fill material (including building rubble) as this will invalidate the VENM classification. Where doubt exists about the difference between fill and VENM material an environmental/geotechnical engineer should be contacted.

6.3 Potential Groundwater Contamination

The assessment of Groundwater contamination conditions was outside of the scope of the PCS. Based on the recorded SWL's the proposed basement level will intercept the groundwater table.

A hydrocarbon odour was noted at monitoring well location MW103 on the 10 March 2015. No hydrocarbon odours were detected during any of the previous field works. A slight detection of TRH $>C_{16}$-C_{34} of 120mg/kg and $>C_{34}$-C_{40} of 160mg/kg was encountered in the fill soil sample BH102 (0.05-

0.15m). We note there are no HSL SAC for these heavy fraction hydrocarbon compounds. No detectable concentrations of hydrocarbon were encountered in the natural soil sample at BH102 or in any of the remaining soil samples analysed for the investigation.

Given that the proposed basement will be in contact the groundwater table and the potential volatile nature of hydrocarbon impacted groundwater, an assessment of groundwater contamination conditions should be undertaken prior to excavation.

EIS note that no potential hydrocarbon sources (eg. Under Ground Storage tanks) were identified at the site or in the immediate vicinity of the site.

In the event that groundwater seepage management or dewatering is required as part of the construction, dewatering and/or groundwater disposal approvals should be sought from the relevant authorities.

6.4 Recommendations

EIS are of the opinion that the potential for widespread contamination at the site is relatively low. However, given the potential unknown extent potential of soil and groundwater contamination at the site the following should be undertaken:

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- Following the removal of the asphalt pavement a suitably qualified environmental consultant should be engaged to inspect the surface of the site for potential ACMs. A number of shallow testpits should be excavated across the site to inspect the fill material for potential ACMs. Additional soil sampling, analysis and reporting may be required depending on the conditions encountered. Should ACMs be identified, the waste classification fill material will be revised to General Solid Waste – containing asbestos; and
- A preliminary groundwater contamination screening assessment should be undertaken to assess the groundwater conditions at the site. The groundwater contamination screening assessment should include the development and sampling of the two existing groundwater monitoring well installed at the site (MW101 and MW103).

Should a significant amount of ACMs be identified and/or significant concentrations of groundwater contamination be identified, additional investigations may be required to assess the risk to potential site receptors.

6.5 General Information

The fill material must be disposed of to a NSW EPA licensed facility. It is the responsibility of the receiving facility to ensure that the material meets their EPA license conditions. EIS accepts no liability whatsoever for illegal or inappropriate disposal of material.

Fill and contaminated soil disposal costs are significant and may affect project viability. These costs should be assessed at an early stage of the project development to avoid significant future unexpected additional costs.

Material classed as VENM must not be mixed with any fill material (including building rubble) as this will invalidate the VENM classification. Where doubt exists about the difference between fill and VENM material an environmental/geotechnical engineer should be contacted for advice.

Section 143 of the POEO Act 1997 states that if waste is transported to a place that cannot lawfully be used as a waste facility for that waste, then the transporter and owner of the waste are each guilty of an offence. The transporter and owner of the waste have a duty to ensure that the waste is disposed of in an appropriate manner. EIS accepts no liability whatsoever for the unlawful disposal of any waste from any site.

7 LIMITATIONS

The report limitations are outlined below:

- EIS 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;
- 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 EIS proposal; and terms of contract between EIS 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, EIS has not undertaken any verification process, except where specifically stated in the report;
- EIS 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;
- EIS 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;
- EIS have not and will not make any determination regarding finances associated with the site;

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- Additional investigation work may be required in the event of changes to the proposed development or landuse. EIS 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;
- 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;
- Copyright in this report is the property of EIS. EIS has used a degree of care, skill and diligence normally exercised by consulting professionals in similar circumstances and locality. No other warranty expressed or implied is made or intended. Subject to payment of all fees due for the investigation, the client alone shall have a licence to use this report;
- If the client, or any person, provides a copy of this report to any third party, such third party must not rely on this report except with the express written consent of EIS; and
- Any third party who seeks to rely on this report without the express written consent of EIS does so entirely at their own risk and to the fullest extent permitted by law, EIS accepts no liability whatsoever, in respect of any loss or damage suffered by any such third party.

If you have any questions concerning the contents of this letter please do not hesitate to contact us.

Kind Regards

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Mitch Delaney
Environmental Scientist

Adrian Kingswell
Principal

Attachments:

1) Report Figures
2) Laboratory Summary Tables
3) Appendices

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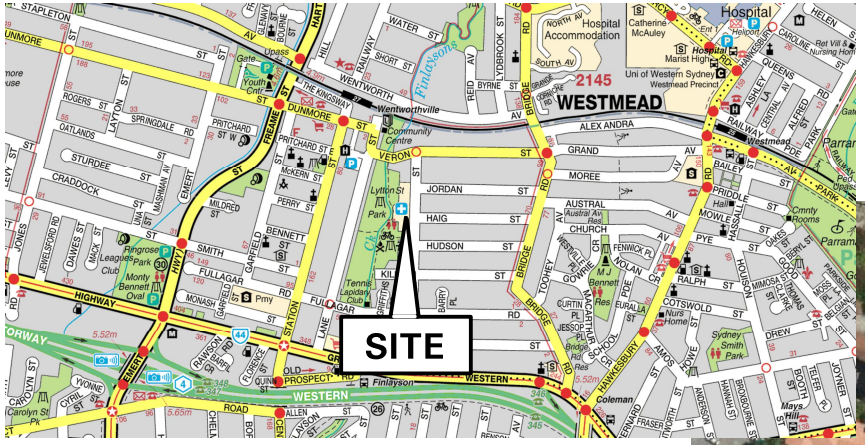
REPORT FIGURES



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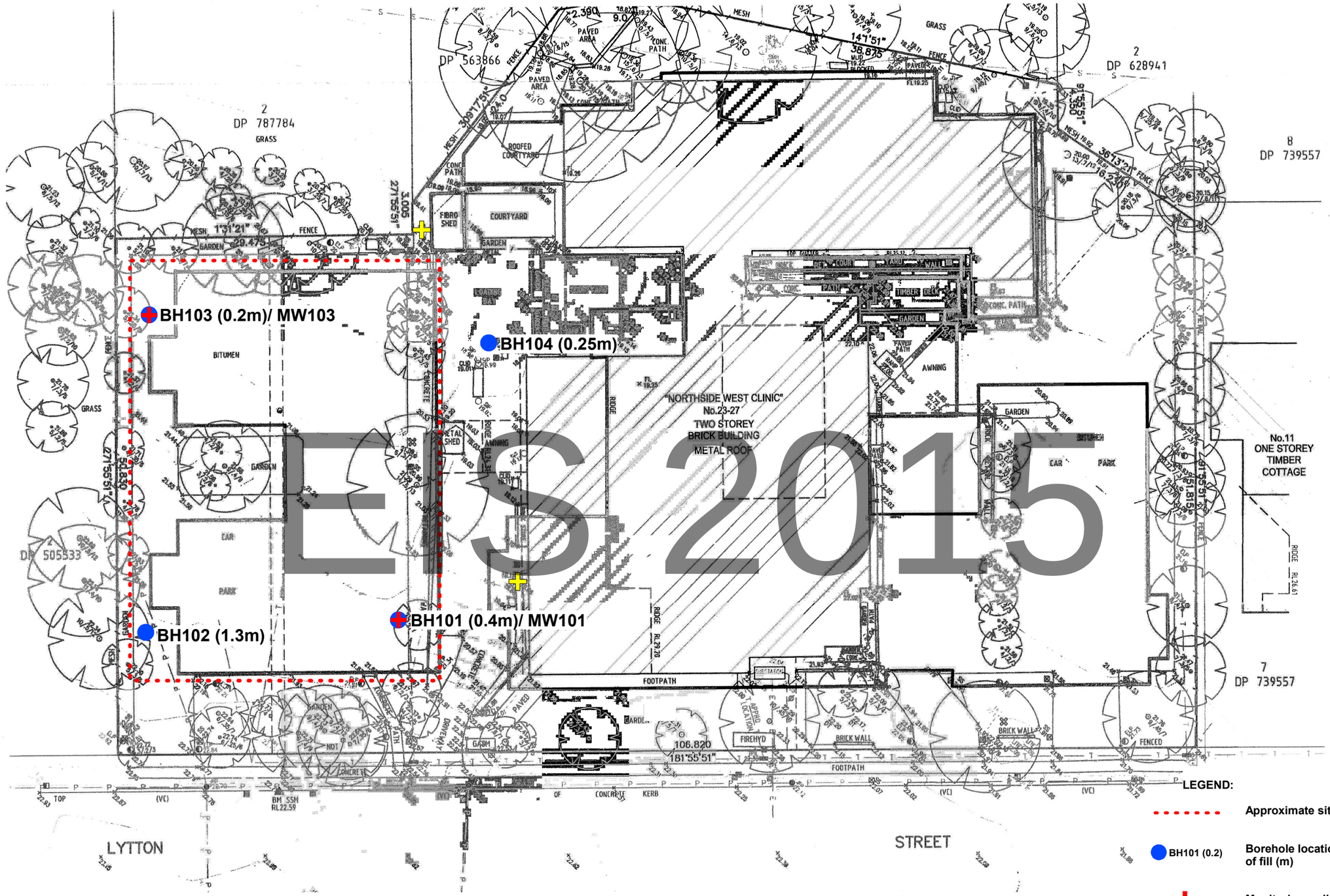
NOTES:
Figure 1 has been recreated from UBD on disc (version 5.0). Figure is not to scale.

UBD Map ref: 210 G1

Reference should be made to the report text for a full understanding of this plan.

ENVIRONMENTAL INVESTIGATION SERVICES	Project Number: **E27318Klet2**	Title: **SITE LOCATION PLAN**
	Figure: **1**	Address: **23-27 LYTTON STREET, WENTWORTHVILLE, NSW**



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NOTES:
Figure 2 has been recreated from a survey plan for the site prepared by LTS Lockey.

The borehole locations presented on this plan have been established from site measurements only and should not be construed as survey points.

Reference should be made to the report text for a full understanding of this plan.

LEGEND:

- **Approximate site boundary**
- **BH101 (0.2)** — **Borehole location, number and depth of fill (m)**
- **Monitoring well location**
- **Potential asbestos contaning fibre cement fragment identifed in EIS 2014 Stage 1 works**

Approximate Scale (m) @ A3: 0 4 8 12 16 20	ENVIRONMENTAL INVESTIGATION SERVICES	Project Number: E27318Klet2	Title: BOREHOLE LOCATION PLAN
		Figure: 2	Address: 23-27 LYTTON STREET, WENTWORTHVILLE, NSW

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LABORATORY SUMMARY TABLES

TABLE A
SOIL LABORATORY RESULTS COMPARED TO HILs
All data in mg/kg unless stated otherwise

			HEAVY METALS								PAHs		ORGANOCHLORINE PESTICIDES (OCPs)							OP PESTICIDES (OPPs)	TOTAL PCBs	ASBESTOS FIBRES
			Arsenic	Cadmium	Chromium VI [2]	Copper	Lead	Mercury	Nickel	Zinc	Total PAHs	B(a)P TEQ [3]	HCB	Endosulfan	Methoxychlor	Aldrin & Dieldrin	Chlordane	DDT, DDD & DDE	Heptachlor	Chlorpyrifos		
PQL - Envirolab Services			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 Criteria (SAC) [1]			3000	900	3600	240000	1500	730	6000	400000	4000	40	80	2000	2500	45	530	3600	50	2000	7	Detected/Not Detected
Sample Reference	**Sample Depth**	**Sample Description**																				
BH101	0.1-0.2	Fill	LPQL	0.4	100	32	7	LPQL	78	46	0.2	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos dedected
BH101	0.5-0.95	Silty clay	11	0.5	24	19	17	LPQL	3	12	LPQL	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH102	0.05-0.15	Fill	LPQL	LPQL	80	46	4	LPQL	69	41	0.1	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos dedected
BH102	1.5-1.95	Silty clay	LPQL	LPQL	6	13	18	LPQL	1	7	LPQL	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH103	0.1-0.2	Fill	LPQL	0.4	68	55	7	LPQL	61	44	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos dedected
BH103	0.5-0.95	Silty clay	8	0.5	26	11	21	LPQL	5	14	LPQL	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH104	0.13-0.25	Fill	LPQL	0.4	73	41	4	LPQL	71	55	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos dedected
BH104	0.5-0.95	Silty clay	LPQL	LPQL	5	16	13	LPQL	2	12	LPQL	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Number of Samples			8	8	8	8	8	8	8	8	8	8	4	4	4	4	4	4	4	4	4	4
Maximum Value			11	0.5	100	55	21	LPQL	78	55	0.2	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NC

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Explanation:

1 - Site Assessment Criteria (SAC): NEPM 2013, HIL-D: 'Commercial/Industrial'

2 - The 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.

3 - B(a)P TEQ - Benzo(a)pyrene Toxicity Equivalence Quotient has been calculated based on 8 carcinogenic PAHs and their Toxic Equivalence Factors (TEFs) outlined in NEPM 2013

Concentration above the SAC **VALUE**

Abbreviations:

PAHs: Polycyclic Aromatic Hydrocarbons
B(a)P: Benzo(a)pyrene
PQL: Practical Quantitation Limit
LPQL: Less than PQL
OPP: Organophosphorus Pesticides
OCP: Organochlorine Pesticides
PCBs: Polychlorinated Biphenyls
UCL: Upper Level Confidence Limit on Mean Value
HILs: Health Investigation Levels
NA: Not Analysed
NC: Not Calculated
NSL: No Set Limit
SAC: Site Assessment Criteria
NEPM: National Environmental Protection Measure

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TABLE B
SOIL LABORATORY RESULTS COMPARED TO HSLs
All data in mg/kg unless stated otherwise

					C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	PID [2]
PQL - Envirolab Services					25	50	0.2	0.5	1	3	1	
HSL Land Use Category [1]					**COMMERCIAL/INDUSTRIAL**							
Sample Reference	**Sample Depth**	**Sample Description**	**Depth Category**	**Soil Category**								
BH101	0.1-0.2	Fill	0m to < 1m	Sand	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH101	0.5-0.95	Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH102	0.05-0.15	Fill	0m to < 1m	Sand	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH102	1.5-1.95	Silty clay	1m to <2m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH103	0.1-0.2	Fill	0m to < 1m	Sand	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH103	0.5-0.95	Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH104	0.13-0.25	Fill	0m to < 1m	Sand	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH104	0.5-0.95	Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
Total Number of Samples					8	8	8	8	8	8	8	8
Maximum Value					LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0

Explanation:
1 - Site Assessment Criteria (SAC): NEPM 2013
2 - Field PID values obtained during the investigation

Concentration above the SAC **VALUE**
The guideline corresponding to the elevated value is highlighted in grey in the Site Assessment Criteria Table below

Abbreviations:

UCL: Upper Level Confidence Limit on Mean Value	NC: Not Calculated	PQL: Practical Quantitation Limit	UCL: Upper Level Confidence Limit on Mean Value
HSLs: Health Screening Levels	NL: Not Limiting	LPQL: Less than PQL	HILs: Health Investigation Levels
NA: Not Analysed	na: Not Analysed	SAC: Site Assessment Criteria	NEPM: National Environmental Protection Measure

SITE ASSESSMENT CRITERIA

					C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene
PQL - Envirolab Services					25	50	0.2	0.5	1	3	1
HSL Land Use Category [1]					**COMMERCIAL/INDUSTRIAL**						
Sample Reference	**Sample Depth**	**Sample Description**	**Depth Category**	**Soil Category**							
BH101	0.1-0.2	Fill	0m to < 1m	Sand	260	NL	3	NL	NL	230	NL
BH101	0.5-0.95	Silty clay	0m to < 1m	Clay	310	NL	4	NL	NL	NL	NL
BH102	0.05-0.15	Fill	0m to < 1m	Sand	260	NL	3	NL	NL	230	NL
BH102	1.5-1.95	Silty clay	1m to <2m	Clay	480	NL	6	NL	NL	NL	NL
BH103	0.1-0.2	Fill	0m to < 1m	Sand	260	NL	3	NL	NL	230	NL
BH103	0.5-0.95	Silty clay	0m to < 1m	Clay	310	NL	4	NL	NL	NL	NL
BH104	0.13-0.25	Fill	0m to < 1m	Sand	260	NL	3	NL	NL	230	NL
BH104	0.5-0.95	Silty clay	0m to < 1m	Clay	310	NL	4	NL	NL	NL	NL

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TABLE C
SOIL LABORATORY RESULTS COMPARED TO WASTE CLASSIFICATION GUIDELINES (2014)
All data in mg/kg unless stated otherwise

			HEAVY METALS								PAHs		OC/OP PESTICIDES				Total PCBs	TRH					BTEX COMPOUNDS				ASBESTOS FIBRES
			Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Total PAHs	B(a)P	Total Endosulfans	Chloropyrifos	Total Moderately Harmful [2]	Total Scheduled [3]		C_6-C_9	C_{10}-C_{14}	C_{15}-C_{28}	C_{29}-C_{36}	Total C_{10}-C_{36}	Benzene	Toluene	Ethyl benzene	Total Xylenes	
PQL - Envirolab Services			4	0.4	1	1	1	0.1	1	1	-	0.05	0.1	0.1	0.1	0.1	0.1	25	50	100	100	250	0.2	0.5	1	3	100
General Solid Waste CT1 [1]			100	20	100	NSL	100	4	40	NSL	200	0.8	60	4	250	<50	<50	650		NSL		10,000	10	288	600	1,000	-
General Solid Waste SCC1 [1]			500	100	1900	NSL	1500	50	1050	NSL	200	10	108	7.5	250	<50	<50	650		NSL		10,000	18	518	1,080	1,800	-
Restricted Solid Waste CT2 [1]			400	80	400	NSL	400	16	160	NSL	800	3.2	240	16	1000	<50	<50	2600		NSL		40,000	40	1,152	2,400	4,000	-
Restricted Solid Waste SCC2 [1]			2000	400	7600	NSL	6000	200	4200	NSL	800	23	432	30	1000	<50	<50	2600		NSL		40,000	72	2,073	4,320	7,200	-
Sample Reference	**Sample Depth**	**Sample Description**																									
BH101	0.1-0.2	Fill	LPQL	0.4	100	32	7	LPQL	**78**	46	0.2	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos dedected
BH101	0.5-0.95	Silty clay	11	0.5	24	19	17	LPQL	3	12	LPQL	LPQL	NA	NA	NA	NA	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH102	0.05-0.15	Fill	LPQL	LPQL	80	46	4	LPQL	**69**	41	0.1	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	130	130	LPQL	LPQL	LPQL	LPQL	No asbestos dedected
BH102	1.5-1.95	Silty clay	LPQL	LPQL	6	13	18	LPQL	1	7	LPQL	LPQL	NA	NA	NA	NA	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH103	0.1-0.2	Fill	LPQL	0.4	68	55	7	LPQL	**61**	44	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos dedected
BH103	0.5-0.95	Silty clay	8	0.5	26	11	21	LPQL	5	14	LPQL	LPQL	NA	NA	NA	NA	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH104	0.13-0.25	Fill	LPQL	0.4	73	41	4	LPQL	**71**	55	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos dedected
BH104	0.5-0.95	Silty clay	LPQL	LPQL	5	16	13	LPQL	2	12	LPQL	LPQL	NA	NA	NA	NA	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
Total Number of samples			8	8	8	8	8	8	8	8	8	8	4	4	4	4	4	8	8	8	8	8	8	8	8	8	4
Maximum Value			11	0.5	100	55	21	LPQL	78	55	0.2	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	130	130	LPQL	LPQL	LPQL	LPQL	NC

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Explanation:
[1] - NSW EPA Waste Classification Guidelines (2014)
[2] - Assessment of Total Moderately Harmful pesticides includes: Dimethoate, Fenitrothion, Ethion
[3] - Assessment of Total Scheduled pesticides include: alpha-BHC, gamma-BHC, beta-BHC, Heptachlor, Aldrin, Heptachlor Epoxide, gamma-Chlordane, alpha-chlordane, pp-DDE, Dieldrin, Endrin, pp-DDD, pp-DDT, Endrin Aldehyde

Concentration above the CT1 — **VALUE**
Concentration above SCC1 — **VALUE**
Concentration above the SCC2 — **VALUE**

Abbreviations:

PAHs: Polycyclic Aromatic Hydrocarbons	UCL: Upper Level Confidence Limit on Mean Value	CT: Contaminant Threshold
B(a)P: Benzo(a)pyrene	NA: Not Analysed	SCC: Specific Contaminant Concentration
PQL: Practical Quantitation Limit	NC: Not Calculated	HILs: Health Investigation Levels
LPQL: Less than PQL	NSL: No Set Limit	NEPM: National Environmental Protection Measure
PID: Photoionisation Detector	SAC: Site Assessment Criteria	BTEX: Monocyclic Aromatic Hydrocarbons
PCBs: Polychlorinated Biphenyls	TRH: Total Recoverable Hydrocarbons	

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TABLE D

SOIL LABORATORY TCLP RESULTS

All data in mg/L unless stated otherwise

			Nickel
PQL - Envirolab Services			0.02
TCLP1 - General Solid Waste [1]			2
TCLP2 - Restricted Solid Waste [1]			8
TCLP3 - Hazardous Waste [1]			>8
Sample Reference	**Sample Depth**	**Sample Description**	
BH101	0.1-0.2	Fill	0.09
BH102	0.05-0.15	Fill	0.05
BH103	0.1-0.2	Fill	0.07
BH104	0.13-0.25	Fill	0.06
Total Number of samples			4
Maximum Value			0.09

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Explanation:

1 - NSW EPA Waste Classification Guidelines (2014)

General Solid Waste	**VALUE**
Restricted Solid Waste	**VALUE**
Hazardous Waste	**VALUE**

Abbreviations:

PQL: Practical Quantitation Limit

LPQL: Less than PQL

B(a)P: Benzo(a)pyrene

NC: Not Calculated

NA: Not Analysed

TCLP: Toxicity Characteristics Leaching Procedure

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

Land Use Category [1]				COMMERCIAL/INDUSTRIAL																
				pH	CEC ($cmol_c/kg$)	Clay Content (% clay)	AGED HEAVY METALS-EILs						EILs		ESLs						
							Arsenic	Chromium	Copper	Lead	Nickel	Zinc	Naphthalene	DDT	C_6-C_{10} (F1)	$>C_{10}$-C_{16} (F2)	$>C_{16}$-C_{34} (F3)	$>C_{34}$-C_{40} (F4)	Benzene	Toluene	Ethylbenzene	Total Xylenes	B(a)P
PQL - Envirolab Services				-	1	-	4	1	1	1	1	1	0.1	0.1	25	50	100	100	0.2	0.5	1	3	0.05
Ambient Background Concentration (ABC) [2]				-	-	-	NSL	8	18	NSL	5	77	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL
Sample Reference	**Sample Depth**	**Sample Description**	**Soil Texture**																				
BH101	0.1-0.2	Fill	Fine	NA	NA	NA	LPQL	100	32	7	78	46	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH101	0.5-0.95	Silty clay	Fine	NA	NA	NA	11	24	19	17	3	12	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH102	0.05-0.15	Fill	Fine	NA	NA	NA	LPQL	80	46	4	69	41	LPQL	LPQL	LPQL	LPQL	120	160	LPQL	LPQL	LPQL	LPQL	LPQL
BH102	1.5-1.95	Silty clay	Fine	NA	NA	NA	LPQL	6	13	18	1	7	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH103	0.1-0.2	Fill	Fine	NA	NA	NA	LPQL	68	55	7	61	44	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH103	0.5-0.95	Silty clay	Fine	NA	NA	NA	8	26	11	21	5	14	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH104	0.13-0.25	Fill	Fine	NA	NA	NA	LPQL	73	41	4	71	55	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH104	0.5-0.95	Silty clay	Fine	NA	NA	NA	LPQL	5	16	13	2	12	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
Total Number of Samples				0	0	0	8	8	8	8	8	8	8	4	8	8	8	8	8	8	8	8	8
Maximum Value				0	0	0	11	100	55	21	78	55	LPQL	LPQL	LPQL	LQPL	120	160	LPQL	LPQL	LPQL	LPQL	LPQL

Explanation:

1 - Site Assessment Criteria (SAC): NEPM 2013

2 - ABC Values for selected metals has 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 low traffic have been quoted)

Concentration above the SAC — VALUE

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

Abbreviations:

EILs: Ecological Investigation Levels
UCL: Upper Level Confidence Limit on Mean Value
LPQL: Less than PQL
NC: Not Calculated
B(a)P: Benzo(a)pyrene
ESLs: Ecological Screening Levels
SAC: Site Assessment Criteria
NSL: No Set Limit
PQL: Practical Quantitation Limit
NA: Not Analysed
NEPM: National Environmental Protection Measure
ABC: Ambient Background Concentration

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EIL AND ESL ASSESSMENT CRITERIA

Land Use Category [1]				COMMERCIAL/INDUSTRIAL																
				pH	CEC ($cmol_c/kg$)	Clay Content (% clay)	AGED HEAVY METALS-EILs						EILs		ESLs						
							Arsenic	Chromium	Copper	Lead	Nickel	Zinc	Naphthalene	DDT	C_6-C_{10} (F1)	$>C_{10}$-C_{16} (F2)	$>C_{16}$-C_{34} (F3)	$>C_{34}$-C_{40} (F4)	Benzene	Toluene	Ethylbenzene	Total Xylenes	B(a)P
PQL - Envirolab Services				-	1	-	4	1	1	1	1	1	0.1	0.1	25	50	100	100	0.2	0.5	1	3	0.05
Ambient Background Concentration (ABC) [2]				-	-	-	NSL	8	18	NSL	5	77	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL
Sample Reference	**Sample Depth**	**Sample Description**	**Soil Texture**																				
BH101	0.1-0.2	Fill	Fine	NA	NA	NA	160	318	103	1800	60	187	370	640	215	170	2500	6600	95	135	185	95	1.4
BH101	0.5-0.95	Silty clay	Fine	NA	NA	NA	160	318	103	1800	60	187	370	--	215	170	2500	6600	95	135	185	95	1.4
BH102	0.05-0.15	Fill	Fine	NA	NA	NA	160	318	103	1800	60	187	370	640	215	170	2500	6600	95	135	185	95	1.4
BH102	1.5-1.95	Silty clay	Fine	NA	NA	NA	160	318	103	1800	60	187	370	--	215	170	2500	6600	95	135	185	95	1.4
BH103	0.1-0.2	Fill	Fine	NA	NA	NA	160	318	103	1800	60	187	370	640	215	170	2500	6600	95	135	185	95	1.4
BH103	0.5-0.95	Silty clay	Fine	NA	NA	NA	160	318	103	1800	60	187	370	--	215	170	2500	6600	95	135	185	95	1.4
BH104	0.13-0.25	Fill	Fine	NA	NA	NA	160	318	103	1800	60	187	370	640	215	170	2500	6600	95	135	185	95	1.4
BH104	0.5-0.95	Silty clay	Fine	NA	NA	NA	160	318	103	1800	60	187	370	--	215	170	2500	6600	95	135	185	95	1.4

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TABLE F

SOIL INTRA-LABORATORY DUPLICATE RESULTS & RPD CALCULATIONS

All results in mg/kg unless stated otherwise

SAMPLE	ANALYSIS	Envirolab PQL	INITIAL	REPEAT	MEAN	RPD %
Sample Ref = BH102 (0.05-0.15m)	Arsenic	4	LPQL	LPQL	NC	NC
Dup Ref = DUPA	Cadmium	0.4	LPQL	LPQL	NC	NC
	Chromium	1	80	90	85.0	12
Envirolab Report: 124228	Copper	1	46	50	48.0	8
	Lead	1	4	4	4.0	0
	Mercury	0.1	LPQL	LPQL	NC	NC
	Nickel	1	69	70	69.5	1
	Zinc	1	41	43	42.0	5
	Naphthalene	0.1	LPQL	LPQL	NC	NC
	Acenaphthylene	0.1	LPQL	LPQL	NC	NC
	Acenaphthene	0.1	LPQL	LPQL	NC	NC
	Fluorene	0.1	LPQL	LPQL	NC	NC
	Phenanthrene	0.1	0.1	0.2	0.2	67
	Anthracene	0.1	LPQL	LPQL	NC	NC
	Fluoranthene	0.1	LPQL	LPQL	NC	NC
	Pyrene	0.1	LPQL	LPQL	NC	NC
	Benzo(a)anthracene	0.1	LPQL	LPQL	NC	NC
	Chrysene	0.1	LPQL	LPQL	NC	NC
	Benzo(b)&(k)fluorant	0.2	LPQL	LPQL	NC	NC
	Benzo(a)pyrene	0.05	LPQL	LPQL	NC	NC
	Indeno(123-cd)pyrene	0.1	LPQL	LPQL	NC	NC
	Dibenzo(ah)anthracene	0.1	LPQL	LPQL	NC	NC
	Benzo(ghi)perylene	0.1	LPQL	LPQL	NC	NC
	Benzo(a)pyrene TEQ	0.5	LPQL	LPQL	NC	NC
	Total PAHs	2.05	0.1	0.2	0.2	67
	Total OCPs	0.1	LPQL	LPQL	NC	NC
	Total OPPs	0.1	LPQL	LPQL	NC	NC
	Total PCBs	0.1	LPQL	LPQL	NC	NC
	C_6-C_{10} (F1)	25	LPQL	LPQL	NC	NC
	$>C_{10}$-C_{16} (F2)	50	LPQL	LPQL	NC	NC
	$>C_{16}$-C_{34} (F3)	100	120	130	125.0	8
	$>C_{34}$-C_{40} (F4)	100	160	180	170.0	12
	Benzene	0.5	LPQL	LPQL	NC	NC
	Toluene	0.5	LPQL	LPQL	NC	NC
	Ethylbenzene	1	LPQL	LPQL	NC	NC
	m+p-xylene	2	LPQL	LPQL	NC	NC
	o-xylene	1	LPQL	LPQL	NC	NC

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Explanation:

The RPD value is calculated as the absolute value of the difference between the initial and repeat results divided by the average value expressed as a percentage. The following acceptance criteria will be used to assess the RPD results:

Results > 10 times PQL = RPD value <= 50% are acceptable

Results between 5 & 10 times PQL = RPD value <= 75% are acceptable

Results < 5 times PQL = RPD value <= 100% are acceptable

If result is LPQL then 50% of the PQL is used for the calculation

RPD Results Above the Acceptance Criteria VALUE

Abbreviations:

PQL: Practical Quantitation Limit

LPQL: Less than PQL

NA: Not Analysed

NC: Not Calculated

OCP: Organochlorine Pesticides

OPP: Organophosphorus Pesticides

PCBs: Polychlorinated Biphenyls

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Appendix A: Borehole Logs

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. **101** 1/3

Client: ERILYAN PTY LTD

Project: PROPOSED STAGE 2 REHABILITATION CENTRE

Location: NORTHSIDE WEST CLINIC, 23 TO 27 LYTTON STREET, WENTWORTHVILLE, NSW

Job No. 27318SB1 **Method:** SPIRAL AUGER JK350 **R.L. Surface:** ≈ 21.8m

Date: 23-2-15 **Datum:** AHD

Logged/Checked by: M.W./D.B.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION OF AUGER-ING	■					0		-	ASPHALTIC CONCRETE: 30mm.t	D			
									FILL: Clayey sandy gravel, fine to coarse grained, igneous, fine to coarse grained sand.				
	■			■	N = 14 7,7,7			CH	SILTY CLAY: high plasticity, grey mottled red brown, trace of root fibres and coarse grained ironstone gravel.	MC<PL	H	>600 >600 >600	RESIDUAL
						1							
				■	N > 13 14,13/ 75mm REFUSAL			-	SHALE: light grey, with red brown iron indurated bands.	XW	EL	>600 >600	BANDED VERY LOW TO LOW 'TC' BIT RESISTANCE
						2							
ON 25/2/15 ▼				■									
						3							
ON 10/3/15 ▼													
				■					SHALE: dark grey, with L strength bands.	XW-DW	EL-VL		LOW RESISTANCE
						4			REFER TO CORED BOREHOLE LOG				
						5							
						6							
						7							

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CORED BOREHOLE LOG

Borehole No. **101** **2/3**

Client: ERILYAN PTY LTD

Project: PROPOSED STAGE 2 REHABILITATION CENTRE

Location: NORTHSIDE WEST CLINIC, 23 TO 27 LYTTON STREET, WENTWORTHVILLE, NSW

Job No. 27318SB1 **Core Size:** NMLC **R.L. Surface:** ≈ 21.8m

Date: 23-2-15 **Inclination:** VERTICAL **Datum:** AHD

Drill Type: JK350 **Bearing:** - **Logged/Checked by:** M.W./D.B.

Water Loss/Level	Barrel Lift	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, structure, minor components.	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_S(50)$ EL VL L M H VH EH	DEFECT SPACING (mm) 500 300 100 50 30 10	DEFECT DETAILS: DESCRIPTION Type, inclination, thickness, planarity, roughness, coating. Specific / General
		3							
		4		START CORING AT 4.05m					
				CORE LOSS 0.23m					
				SHALE: dark grey and red brown.	XW-DW	EL-VL			- FRAGMENTED ZONE, 0°, 60mm.t NUMEROUS CRUSHED SEAMS AND CLAY SEAMS 1mm TO 20mm.t AT APPROXIMATELY 20mm SPACING FROM 4.4m TO 5.1m
		5							- J, 15°, Un, R - Cr, 0°, 20mm.t
				SHALE: dark grey, with grey laminae.	DW	L-M			- Cr, 0°, 8mm.t CLAY INFILL - CS, 0°, 22mm.t - XWS, 0°, 70mm.t
		6			XW	EL			- J, 65°, Un, R, XW INFILL - FRAGMENTED ZONE, 130mm.t
					DW	M			- J, 60-90°, Un, R, CLAY INFILL
					SW				- Cr, 0°, 10mm.t
									- Cr, 0°, 10mm.t
		7			FR				- Cr, 0°, 30mm.t
95% RET-URN		8							
		9							
					SW				- J, 45°, Un, R - J, 80°, Un, R - VL-L STRENGTH BAND, 0°, 60mm.t

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CORED BOREHOLE LOG

Borehole No. **101** **3/3**

Client: ERILYAN PTY LTD

Project: PROPOSED STAGE 2 REHABILITATION CENTRE

Location: NORTHSIDE WEST CLINIC, 23 TO 27 LYTTON STREET, WENTWORTHVILLE, NSW

Job No. 27318SB1 **Core Size:** NMLC **R.L. Surface:** ≈ 21.8m

Date: 23-2-15 **Inclination:** VERTICAL **Datum:** AHD

Drill Type: JK350 **Bearing:** - **Logged/Checked by:** M.W./D.B.

Water Loss/Level	Barrel Lift	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain character-istics, colour, structure, minor components.	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_S(50)$ EL VL L M H VH EH	DEFECT SPACING (mm) 500 300 100 50 30 10	DEFECT DETAILS DESCRIPTION Type, inclination, thickness, planarity, roughness, coating. Specific / General
				SHALE: dark grey, with grey laminae.	SW	M			- L STRENGTH BAND, 20mm.t - L STRENGTH BAND, 25mm.t - L STRENGTH BAND, 18mm.t - XWS, 0°, 75mm.t - XWS, 0°, 70mm CLAY INFILL
		11		SHALE: dark grey and grey, with clay seams.	XW-DW	EL-VL			- J, 45°, P, R - J, 35°, P, R
				SHALE: dark grey.	SW	M			- XWS, 10°, 100mm.t - XWS, 0°, 10mm.t - XWS, 0°, 30mm.t
				END OF BOREHOLE AT 11.70m					50mm DIA. PVC STANDPIPE INSTALLED TO 11.70m DEPTH, SLOTTED FROM 11.7m TO 2.2m, 2mm SAND FILTER PACK FROM 11.7m TO 2.0m, BENTONITE SEAL FROM 2.2m TO SURFACE, COMPLETED WITH GATIC COVER
		12							
		13							
		14							
		15							
		16							

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BOREHOLE LOG

Borehole No. **102** 1/3

Client: ERILYAN PTY LTD

Project: PROPOSED STAGE 2 REHABILITATION CENTRE

Location: NORTHSIDE WEST CLINIC, 23 TO 27 LYTTON STREET, WENTWORTHVILLE, NSW

Job No. 27318SB1 **Method:** SPIRAL AUGER JK350 **R.L. Surface:** ≈ 22.2m

Date: 23-2-15 **Datum:** AHD

Logged/Checked by: M.W./D.B.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION OF AUGER-ING	■					0		-	ASPHALTIC CONCRETE: 30mm.t	D			
									FILL: Clayey sandy gravel, fine to coarse grained, igneous, fine to coarse grained sand.				APPEARS MODERATELY COMPACTED
				■	N = 22 9,13,9	1			FILL: Sand, fine to medium grained, light orange brown, with medium to coarse grained sub rounded to rounded sandstone gravel.				
	■			■	N = 32 7,12,20	2		CH	SILTY CLAY: high plasticity, light grey mottled red brown, trace of fine to medium grained ironstone gravel.	MC<PL	H	>600 >600 >600	RESIDUAL
						3		-	SHALE: grey.	XW-DW	EL-VL		BANDED VERY LOW 'TC' BIT RESISTANCE
									SHALE: dark grey, with L strength bands and clay bands.	DW	VL-L		BANDED LOW RESISTANCE
						4							
						5			SHALE: dark grey.	SW	M		MODERATE RESISTANCE
						6			REFER TO CORED BOREHOLE LOG				
						7							

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CORED BOREHOLE LOG

Borehole No. **102** **2/3**

Client: ERILYAN PTY LTD

Project: PROPOSED STAGE 2 REHABILITATION CENTRE

Location: NORTHSIDE WEST CLINIC, 23 TO 27 LYTTON STREET, WENTWORTHVILLE, NSW

Job No. 27318SB1 **Core Size:** NMLC **R.L. Surface:** ≈ 22.2m

Date: 23-2-15 **Inclination:** VERTICAL **Datum:** AHD

Drill Type: JK350 **Bearing:** - **Logged/Checked by:** M.W./D.B.

Water Loss/Level	Barrel Lift	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain character-istics, colour, structure, minor components.	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_S(50)$ EL VL L M H VH EH	DEFECT SPACING (mm) 500 300 100 50 30 10	DEFECT DETAILS: DESCRIPTION Type, inclination, thickness, planarity, roughness, coating. Specific / General
		5		START CORING AT 5.67m					
90% RET-URN		6		SHALE: dark grey, with grey laminae.	FR	M			- J, 70-90°, Un, R
		7							- J, 90°, P, S - XWS, 0°, 10mm.t - XWS, 0°, 10mm.t - Cr, 0°, 8mm.t - L STRENGTH BAND, 45mm.t
		8							- J, 70°, P, S - Cr, 0°, 12mm.t - Cr, 0°, 3mm.t
		9							- J, 50°, P, S - J, 40°, P, S - XWS, 0°, 10mm.t - Cr, 0°, 15mm.t - J, 20°, P, S
		10							- Cr, 0°, 1mm.t - Cr, 0°, 1mm.t - Cr, 0°, 1mm.t
		11		CORE LOSS 0.05m SHALE: dark grey, with grey laminae.	FR	M			- Cr, 0°, 15mm.t - J, 30°, P, S - J, 90°, P, R, Cr INFILL - XWS, 0°, 47mm.t

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CORED BOREHOLE LOG

Borehole No. **102** **3/3**

Client: ERILYAN PTY LTD

Project: PROPOSED STAGE 2 REHABILITATION CENTRE

Location: NORTHSIDE WEST CLINIC, 23 TO 27 LYTTON STREET, WENTWORTHVILLE, NSW

Job No. 27318SB1 **Core Size:** NMLC **R.L. Surface:** ≈ 22.2m

Date: 23-2-15 **Inclination:** VERTICAL **Datum:** AHD

Drill Type: JK350 **Bearing:** - **Logged/Checked by:** M.W./D.B.

Water Loss/Level	Barrel Lift	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain character-istics, colour, structure, minor components.	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_S(50)$ EL VL L M H VH EH	DEFECT DETAILS DEFECT SPACING (mm) 500 300 100 50 30 10	DESCRIPTION Type, inclination, thickness, planarity, roughness, coating. Specific / General
				SHALE: dark grey, with grey laminae.	FR	M	•		- XWS, 0°, 5mm.t - J, 90°, P, S
				END OF BOREHOLE AT 12.35m					
		13							
		14							
		15							
		16							
		17							
		18							

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BOREHOLE LOG

Borehole No. **103** 1/3

Client: ERILYAN PTY LTD

Project: PROPOSED STAGE 2 REHABILITATION CENTRE

Location: NORTHSIDE WEST CLINIC, 23 TO 27 LYTTON STREET, WENTWORTHVILLE, NSW

Job No. 27318SB1 **Method:** SPIRAL AUGER JK300 **R.L. Surface:** ≈ 21.3m

Date: 25-2-15 **Datum:** AHD

Logged/Checked by: M.W./D.B.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION OF AUGER-ING	■			■	N = 19 6,8,11	0		-	ASPHALTIC CONCRETE: 30mm.t	D			
								CH	FILL: Clayey sandy gravel, fine to medium grained, igneous, fine to coarse grained sand.	MC<PL	H		RESIDUAL
									SILTY CLAY: high plasticity, orange brown mottled red brown, trace of root fibres, ash and fine to medium grained ironstone gravel.			>600 >600 >600	
						1			SILTY CLAY: high plasticity, grey and light grey mottled red brown and orange brown, trace of root fibres.				
				■	N = 12 4,5,7							>600 480 >600	
						2		-	SHALE: light grey and grey, with L strength bands and iron indurated bands.	XW-DW	EL-VL		BANDED VERY LOW TO LOW 'TC' BIT RESISTANCE
AFTER 3 HRS ▼ ON 10/3/15						3			as above, but dark grey, with EL strength bands.	DW	VL-L		HYDROCARBON ODOUR IN GROUNDWATER ON 10/3/15
						4							
						5			SHALE: dark grey.	SW	M		MODERATE RESISTANCE WITH VERY LOW TO LOW BANDS
						6			REFER TO CORED BOREHOLE LOG				
						7							

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CORED BOREHOLE LOG

Borehole No. **103** **2/3**

Client: ERILYAN PTY LTD

Project: PROPOSED STAGE 2 REHABILITATION CENTRE

Location: NORTHSIDE WEST CLINIC, 23 TO 27 LYTTON STREET, WENTWORTHVILLE, NSW

Job No. 27318SB1 **Core Size:** NMLC **R.L. Surface:** ≈ 21.3m

Date: 25-2-15 **Inclination:** VERTICAL **Datum:** AHD

Drill Type: JK300 **Bearing:** - **Logged/Checked by:** M.W./D.B.

Water Loss/Level	Barrel Lift	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain character-istics, colour, structure, minor components.	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_S(50)$ EL VL L M H VH EH	DEFECT DETAILS: DEFECT SPACING (mm) 500 300 100 50 30 10	DESCRIPTION: Type, inclination, thickness, planarity, roughness, coating. Specific	General
		5		START CORING AT 5.85m						
FULL RET-URN		6		SHALE: dark grey, with grey laminae.	FR	M			- Cr, 0°, 15mm.t	
		7							- Cr, 0°, 2mm.t	
		8								
		9							- J, 50°, P, R	
		10								
		11							- J, 45-90°, Un, R, Cr INFILL	
									- J, 75°, P, S - J, 80°, P, S	
									- J, 30°, P, R, Cr, INFILL - Cr, 0°, 6mm.t - J, 90°, P, S	

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CORED BOREHOLE LOG

Borehole No. **103** **3/3**

Client: ERILYAN PTY LTD

Project: PROPOSED STAGE 2 REHABILITATION CENTRE

Location: NORTHSIDE WEST CLINIC, 23 TO 27 LYTTON STREET, WENTWORTHVILLE, NSW

Job No. 27318SB1 **Core Size:** NMLC **R.L. Surface:** ≈ 21.3m

Date: 25-2-15 **Inclination:** VERTICAL **Datum:** AHD

Drill Type: JK300 **Bearing:** - **Logged/Checked by:** M.W./D.B.

Water Loss/Level	Barrel Lift	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain character-istics, colour, structure, minor components.	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_S(50)$ EL VL L M H VH EH	DEFECT DETAILS DEFECT SPACING (mm) 500 300 100 50 30 10	DESCRIPTION Type, inclination, thickness, planarity, roughness, coating. Specific / General
FULL RET-URN				SHALE: dark grey.	FR	M	•		- J, 45°, Un, R - J, 40°, Un, R, Cr INFILL - J, 30°, P, S
				END OF BOREHOLE AT 12.45m					50mm DIA. PVC STANDPIPE INSTALLED TO 12m DEPTH, SLOTTED FROM 12m TO 3m, 2mm SAND FILTER PACK FROM 2.1m TO 2.4m, BENTONITE SEAL FROM 2.4m TO SURFACE, COMPLETED WITH GATIC COVER
		13							
		14							
		15							
		16							
		17							
		18							

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BOREHOLE LOG

Borehole No. **104** 1/1

Client: ERILYAN PTY LTD

Project: PROPOSED STAGE 2 REHABILITATION CENTRE

Location: NORTHSIDE WEST CLINIC, 23 TO 27 LYTTON STREET, WENTWORTHVILLE, NSW

Job No. 27318SB1 **Method:** SPIRAL AUGER JK300 **R.L. Surface:** ≈ 19.0m

Date: 25-2-15 **Datum:** AHD

Logged/Checked by: M.W./D.B.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION OF AUGER-ING	■			■	N = 20 6,9,11	0		-	CONCRETE: 130mm.t				5mm DIA. REINFORCEMENT, 90mm TOP COVER
								CL-CH	FILL: Clayey sandy gravel, fine to coarse grained, igneous, fine to coarse grained sand.	W MC<PL	H		WATER INTRODUCED DURING DIATUBING
	■			■					SILTY CLAY: medium to high plasticity, light grey mottled orange brown, trace of root fibres and fine to coarse grained ironstone gravel.			>600 >600 >600	
						1							
				■	N > 22 8,13, 9/75mm REFUSAL							>600 >600 >600	
						2		-	SHALE: dark grey and grey, with L strength bands and iron indurated bands.	XW-DW	EL-VL		BANDS OF VERY LOW TO LOW 'TC' BIT RESISTANCE
				■		3							
									SHALE: dark grey.	SW	M		MODERATE RESISTANCE
				■		4							
				■		5					M-H		MODERATE TO HIGH RESISTANCE 'TC' BIT REFUSAL
									END OF BOREHOLE AT 5.2m				
						6							
						7							

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EXPLANATORY NOTES – ENVIRONMENTAL LOGS

INTRODUCTION

These notes have been provided to supplement the environmental report with regards to drilling and field logging. 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 manmade processes and therefore exhibits a variety of characteristics and properties which vary from place to place and can change with time. Environmental studies involve gathering and assimilating limited facts about these characteristics and properties in order to understand the ground on a particular site under certain conditions. These conditions 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, the SAA Site Investigation Code. 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 geotechnical practice.

Soil types are described according to the predominating particle size and behaviour as set out in the attached Unified Soil Classification Table qualified by the grading of other particles present (e.g. sandy clay) as set out below (note that unless stated in the report, the soil classification is based on a qualitative field assessment, not laboratory testing):

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Soil Classification	Particle Size
Clay	less than 0.002mm
Silt	0.002 to 0.075mm
Sand	0.075 to 2mm
Gravel	2 to 60mm

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	less than 4
Loose	4 – 10
Medium dense	10 – 30
Dense	30 – 50
Very Dense	greater than 50

Cohesive soils are classified on the basis of strength (consistency) either by use of hand penetrometer, laboratory testing or engineering examination. The strength terms are defined as shown in the following table:

Classification	Unconfined Compressive Strength kPa
Very Soft	less than 25
Soft	25 – 50
Firm	50 – 100
Stiff	100 – 200
Very Stiff	200 – 400
Hard	Greater than 400
Friable	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 thinly bedded to laminated siltstone.

DRILLING OR EXCAVATION METHODS

The following is a brief summary of drilling and excavation methods currently adopted by the Company, and some comments on their use and application. All except test pits and hand auger drilling require the use of a mechanical drilling rig.

Test Pits: These are normally excavated with a backhoe or a tracked excavator, allowing close examination of the in-situ soils if it is safe to descend into the pit. The depth of penetration is limited to approximately 3m for a backhoe and up to 6m for an excavator. Limitations of test pits include problems associated with disturbance and difficulty of reinstatement; and the consequent effects on nearby structures. Care must be taken if construction is to be carried out near test pit locations to either properly re-compact 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.

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Hand Auger Drilling: A borehole of 50mm to 100mm diameter is advanced by manually operated equipment. Premature refusal of the hand augers can occur on a variety of materials such as fill, hard clay, gravel or ironstone, 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 in-situ 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 relatively lower 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 fragments. 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 determined 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 such as Revert or Biogel. The mud tends to mask the cuttings and reliable identification is only possible from intermittent intact sampling (e.g. 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, an NMLC triple tube core barrel, which gives a core of about 50mm diameter, 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 CORE LOSS. The locations of losses are determined on site by the supervising engineer; where the location is uncertain, the loss is placed at the top end 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, "Methods of Testing Soils for Engineering Purposes" – Test F3.1.

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 63kg 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.

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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. Occasionally, the drop hammer is used to drive 50mm diameter thin walled sample tubes (U50) in clays. In such circumstances, the test results are shown on the borehole logs in brackets.

A modification to the SPT test is where the same driving system is used with a solid 60 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 attached explanatory notes define the terms and symbols used in preparation of the logs.

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; and
- 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 water observations are to be made.

More reliable measurements can be made by installing standpipes which are read after stabilising 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 (e.g. bricks, concrete, plastic, slag/ash, 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 determine the extent of the fill.

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The presence of fill materials is usually regarded with caution as the possible variation in density, strength and material type is much greater than with natural soil deposits. If the volume and quality of fill is of importance to a project, then frequent test pit excavations are preferable to boreholes

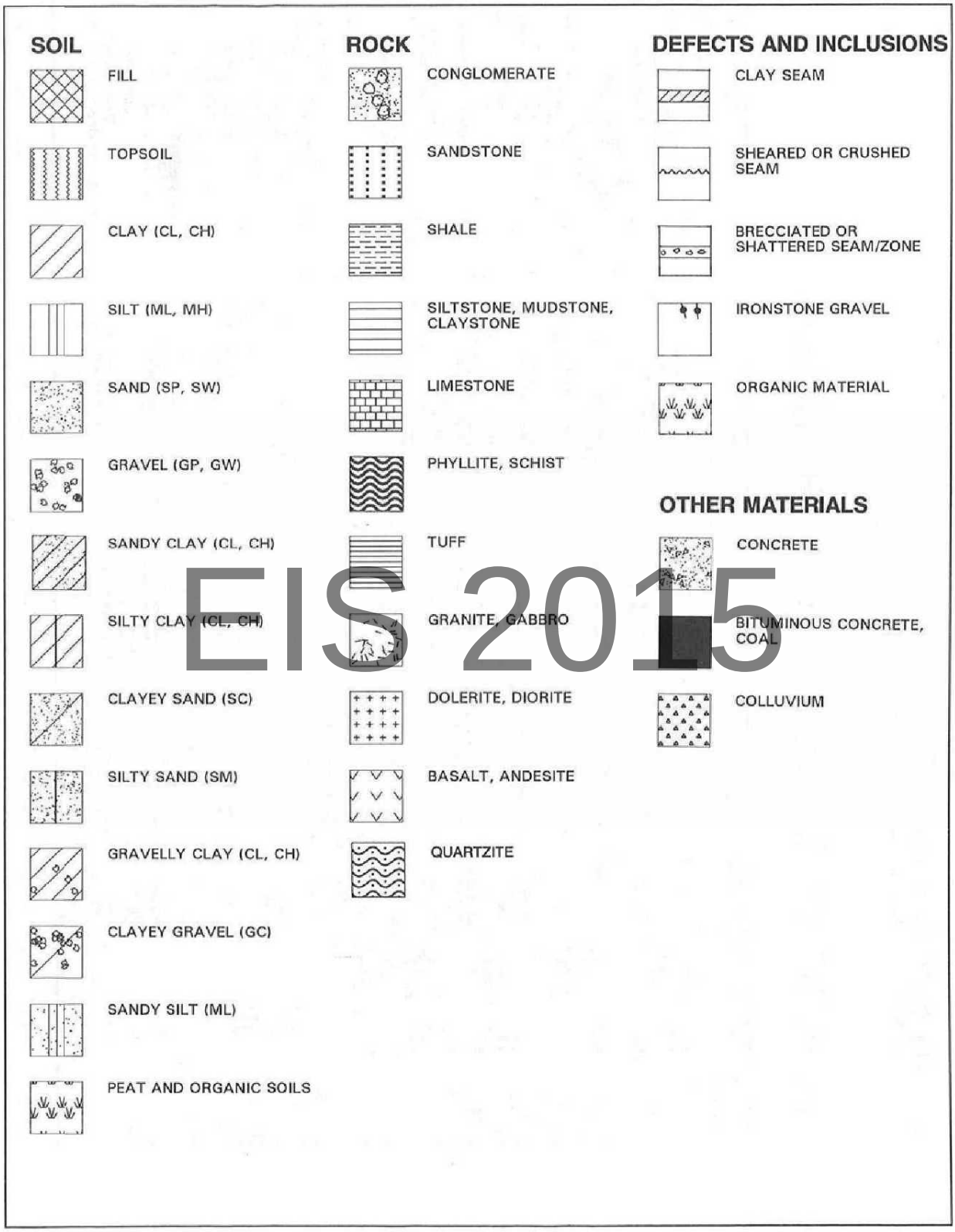
LABORATORY TESTING

Laboratory testing has not been undertaken to confirm the soil classifications and rocks strengths indicated on the environmental logs unless noted in the report.

SITE ANOMALIES

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, EIS should be notified immediately.

GRAPHIC LOG SYMBOLS FOR SOIL AND ROCKS



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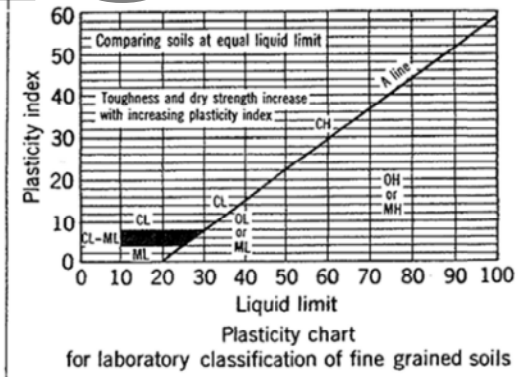
Field Identification Procedures (Excluding particles larger than 75 μm and basing fractions on estimated weights)				Group Symbols [a]	Typical Names	Information Required for Describing Soils	Laboratory Classification Criteria
Coarse-grained soils More than half of material is *larger* than 75 μm sieve size[b] (The 75 μm sieve size is about the smallest particle visible to naked eye)	Gravels More than half of coarse fraction is larger than 4 mm sieve size	Clean gravels (little or no fines)	Wide range in grain size and substantial amounts of all intermediate particle sizes	*GW*	Well graded gravels, gravel-sand mixtures, little or no fines	Give typical name; indicate approximate percentages of sand and gravel; maximum size; angularity, surface condition, and hardness of the coarse grains; local or geologic name and other pertinent descriptive information; and symbols in parentheses For undisturbed soils add information on stratification, degree of compactness, cementation, moisture conditions and drainage characteristics Example: *Silty sand*, gravelly; about 20% hard, angular gravel particles 12 mm maximum size; rounded and subangular sand grains coarse to fine, about 15% non-plastic fines with low dry strength; well compacted and moist in place; alluvial sand; (*SM*)	Use grain size curve in identifying the fractions as given under field identification Determine percentages of gravel and sand from grain size curve Depending on percentage of fines (fraction smaller than 75 μm sieve size) coarse grained soils are classified as follows: Less than 5% — *GW, GP, SW, SP* More than 12% — *GM, GC, SM, SC* 5% to 12% — *Borderline* cases requiring use of dual symbols $C_U = \frac{D_{60}}{D_{10}}$ Greater than 4 $C_C = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ Between 1 and 3 Not meeting all gradation requirements for *GW* Atterberg limits below "A" line, or *PI* less than 4 — Above "A" line with *PI* between 4 and 7 are *borderline* cases requiring use of dual symbols Atterberg limits above "A" line, with *PI* greater than 7 $C_U = \frac{D_{60}}{D_{10}}$ Greater than 6 $C_C = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ Between 1 and 3 Not meeting all gradation requirements for *SW* Atterberg limits below "A" line or *PI* less than 5 — Above "A" line with *PI* between 4 and 7 are *borderline* cases requiring use of dual symbols Atterberg limits below "A" line with *PI* greater than 7
		Gravels with fines (appreciable amount of fines)	Predominantly one size or a range of sizes with some intermediate sizes missing	*GP*	Poorly graded gravels, gravel-sand mixtures, little or no fines		
			Nonplastic fines (for identification procedures see *ML* below)	*GM*	Silty gravels, poorly graded gravel-sand-silt mixtures		
			Plastic fines (for identification procedures, see *CL* below)	*GC*	Clayey gravels, poorly graded gravel-sand-clay mixtures		
	Sands More than half of coarse fraction is smaller than 4 mm sieve size	Clean sands (little or no fines)	Wide range in grain sizes and substantial amounts of all intermediate particle sizes	*SW*	Well graded sands, gravelly sands, little or no fines		
			Predominantly one size or a range of sizes with some intermediate sizes missing	*SP*	Poorly graded sands, gravelly sands, little or no fines		
		Sands with fines (appreciable amount of fines)	Nonplastic fines (for identification procedures, see *ML* below)	*SM*	Silty sands, poorly graded sand-silt mixtures		
			Plastic fines (for identification procedures, see *CL* below)	*SC*	Clayey sands, poorly graded sand-clay mixtures		
Fine-grained soils More than half of material is *smaller* than 75 μm sieve size (The 75 μm sieve size is about the smallest particle visible to naked eye)	Identification Procedures on Fraction Smaller than 380 μm Sieve Size						
		Dry Strength (crushing characteristics)	Dilatancy (reaction to shaking)	Toughness (consistency near plastic limit)			
	Silts and clays liquid limit less than 50	None to slight	Quick to slow	None	*ML*	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands with slight plasticity	Give typical name; indicate degree and character of plasticity, amount and maximum size of coarse grains; colour in wet condition, odour if any, local or geologic name, and other pertinent descriptive information, and symbol in parentheses For undisturbed soils add information on structure, stratification, consistency in undisturbed and remoulded states, moisture and drainage conditions Example: *Clayey silt*, brown; slightly plastic; small percentage of fine sand; numerous vertical root holes; firm and dry in place; loess; (*ML*)
		Medium to high	None to very slow	Medium	*CL*	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	
		Slight to medium	Slow	Slight	*OL*	Organic silts and organic silt-clays of low plasticity	
	Silts and clays liquid limit greater than 50	Slight to medium	Slow to none	Slight to medium	*MH*	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	
		High to very high	None	High	*CH*	Inorganic clays of high plasticity, fat clays	
		Medium to high	None to very slow	Slight to medium	*OH*	Organic clays of medium to high plasticity	
Highly Organic Soils		Readily identified by colour, odour, spongy feel and frequently by fibrous texture			*Pt*	Peat and other highly organic soils	



Plasticity chart
for laboratory classification of fine grained soils

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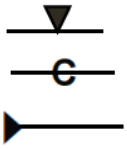
Note: 1 Soils possessing characteristics of two groups are designated by combinations of group symbols (eg. GW-GC, well graded gravel-sand mixture with clay fines).
2 Soils with liquid limits of the order of 35 to 50 may be visually classified as being of medium plasticity.

LOG SYMBOLS

LOG COLUMN	SYMBOL	DEFINITION
Groundwater Record		Standing water level. Time delay following completion of drilling may be shown. Extent of borehole collapse shortly after drilling. Groundwater seepage into borehole or excavation noted during drilling or excavation.
Samples	ES U50 DB DS ASB ASS SAL	Soil 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 screening. 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	Standard Penetration Test (SPT) performed between depths indicated by lines. Individual show blows per 150mm penetration. 'R' as noted below.
	N_c = 5 7 3 R	Solid Cone Penetration Test (SCPT) performed between depths indicated by lines. Individual figures show blows per 150mm penetration for 60 degree solid cone driven by SPT hammer. 'R' refers to apparent hammer refusal within the corresponding 150mm depth increment.
	VNS = 25 PID = 100	Vane shear reading in kPa of Undrained Shear Strength. Photoionisation detector reading in ppm (Soil sample heads pace test).
Moisture (Cohesive Soils) (Cohesionless)	MC > PL MC ≈ PL MC < PL D M W	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. DRY – Runs freely through fingers. MOIST – Does not run freely but no free water visible on soil surface. WET – Free water visible on soil surface.
Strength (Consistency) Cohesive Soils	VS S F St VSt H ( )	VERY SOFT – Unconfined compressive strength less than 25kPa SOFT – Unconfined compressive strength 25-5 0kPa FIRM – Unconfined compressive strength 50-1 00kPa STIFF – Unconfined compressive strength 100- 200kPa VERY STIFF – Unconfined compressive strength 200- 400kPa HARD – Unconfined compressive strength greater than 400kPa Bracketed symbol indicates estimated consistency based o n tactile examination or other tests.
Density Index/ Relative Density (Cohesionless Soils)		**Density Index (ID) Range (%) — SPT ' N' Value Range (Blows/300mm)** VL Very Loose <15 — 0-4 L Loose 15-35 — 4-10 MD Medium Dense 35-65 — 10-30 D Dense 65-85 — 30-50 VD Very Dense >85 — >50 ( ) Bracketed symbol indicates estimated density based on ease of drilling or other tests.
Hand Penetrometer Readings	300 250	Numbers indicate individual test results in kPa on representative undisturbed material unless noted otherwise
Remarks	'V' bit 'TC' bit T_{60}	Hardened steel 'V' shaped bit. Tungsten carbide wing bit. Penetration of auger string in mm under static load of rig applied by drill head hydraulics without rotation of augers.

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LOG SYMBOLS CONTINUED

ROCK STRENGTH

Rock strength is defined by the Point Load Strength Index (Is 50) and refers to the strength of the rock substance in the bedding. The test procedure is described by the International Journal of Rock Mechanics, Mining and Geomechanics Abstract Volume 22, No 2, 1985.

TERM	SYMBOL	Is (50) MPa	FIELD GUIDE
Extremely Low:	EL		Easily remoulded by hand to a material with soil properties.
		0.03	
Very Low:	VL		May be crumbled in the hand. Sandstone is "sugary" and friable.
		0.1	
Low:	L		A piece of core 150 mm long x 50mm dia. may be broken by hand and easily scored with a knife. Sharp edges of core may be friable and break during handling.
		0.3	
Medium Strength:	M		A piece of core 150 mm long x 50mm dia. can be broken by hand with difficulty. Readily scored with knife.
		1	
High:	H		A piece of core 150 mm long x 50mm dia. core cannot be broken by hand, can be slightly scratched or scored with knife; rock rings under hammer.
		3	
Very High:	VH		A piece of core 150 mm long x 50mm dia. may be broken with hand-held pick after more than one blow. Cannot be scratched with pen knife; rock rings under hammer.
		10	
Extremely High:	EH		A piece of core 150 mm long x 50mm dia. is very difficult to break with h and-held hammer . Rings when struck with a hammer.

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ROCK STRENGTH

ABBREVIATION	DESCRIPTION	NOTES
Be	Bedding Plane Parting	Defect orientations measured relative to the normal to (i.e. relative to horizontal for vertical holes)
CS	Clay Seam	
J	Joint	
P	Planar	
Un	Undulating	
S	Smooth	
R	Rough	
IS	Iron stained	
XWS	Extremely Weathered Seam	
Cr	Crushed Seam	
60t	Thickness of defect in millimetres	

Appendix B: Laboratory Report/s and COC Documents

EIS 2015

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

CERTIFICATE OF ANALYSIS 124228

Client:

Environmental Investigation Services
PO Box 976
North Ryde BC
NSW 1670

Attention: Mitch Delaney

Sample log in details:

Your Reference:	**E27318K, Wentworthville**
No. of samples:	10 Soils
Date samples received / completed instructions received	26/02/2015 / 26/02/2015

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.

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Report Details:

Date results requested by: / Issue Date:	5/03/15 / 5/03/15
Date of Preliminary Report:	Not Issued

NATA accreditation number 2901. This document shall not be reproduced except in full.
Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:

Jacinta Hurst
Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	124228-1	124228-2	124228-3	124228-5	124228-6
Your Reference	----------	BH101	BH101	BH102	BH102	BH103
Depth	----------	0.1-0.2	0.5-0.95	0.05-0.15	1.5-1.95	0.1-0.2
Date Sampled		23/02/2015	23/02/2015	23/02/2015	23/02/2015	25/02/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	27/02/2015	27/02/2015	27/02/2015	27/02/2015	27/02/2015
Date analysed	-	02/03/2015	02/03/2015	02/03/2015	02/03/2015	02/03/2015
TRHC6 - C9	mg/kg	<25	<25	<25	<25	<25
TRHC6 - C10	mg/kg	<25	<25	<25	<25	<25
vTPHC6 - C10 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
Surrogate aaa-Trifluorotoluene	%	87	86	102	88	85

vTRH(C6-C10)/BTEXN in Soil					
Our Reference:	UNITS	124228-7	124228-8	124228-9	124228-10
Your Reference	----------	BH103	BH104	BH104	DupA
Depth	----------	0.5-0.95	0.13-0.25	0.5-0.95	-
Date Sampled		25/02/2015	25/02/2015	25/02/2015	23/02/2015
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	27/02/2015	27/02/2015	27/02/2015	27/02/2015
Date analysed	-	02/03/2015	02/03/2015	02/03/2015	02/03/2015
TRHC6 - C9	mg/kg	<25	<25	<25	<25
TRHC6 - C10	mg/kg	<25	<25	<25	<25
vTPHC6 - C10 less BTEX (F1)	mg/kg	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	87	86	85	85

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svTRH (C10-C40) in Soil						
Our Reference:	UNITS	124228-1	124228-2	124228-3	124228-5	124228-6
Your Reference	----------	BH101	BH101	BH102	BH102	BH103
Depth	----------	0.1-0.2	0.5-0.95	0.05-0.15	1.5-1.95	0.1-0.2
Date Sampled		23/02/2015	23/02/2015	23/02/2015	23/02/2015	25/02/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	27/02/2015	27/02/2015	27/02/2015	27/02/2015	27/02/2015
Date analysed	-	28/02/2015	28/02/2015	28/02/2015	28/02/2015	28/02/2015
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	<100	130	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100	<100	120	<100	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	<100	160	<100	<100
Surrogate o-Terphenyl	%	82	77	78	77	76

svTRH (C10-C40) in Soil					
Our Reference:	UNITS	124228-7	124228-8	124228-9	124228-10
Your Reference	----------	BH103	BH104	BH104	DupA
Depth	----------	0.5-0.95	0.13-0.25	0.5-0.95	-
Date Sampled		25/02/2015	25/02/2015	25/02/2015	23/02/2015
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	27/02/2015	27/02/2015	27/02/2015	27/02/2015
Date analysed	-	28/02/2015	28/02/2015	28/02/2015	28/02/2015
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	<100	<100	150
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100	<100	<100	130
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	<100	<100	180
Surrogate o-Terphenyl	%	75	77	75	78

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PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	124228-1 BH101 0.1-0.2 23/02/2015 Soil	124228-2 BH101 0.5-0.95 23/02/2015 Soil	124228-3 BH102 0.05-0.15 23/02/2015 Soil	124228-5 BH102 1.5-1.95 23/02/2015 Soil	124228-6 BH103 0.1-0.2 25/02/2015 Soil
Date extracted	-	27/02/2015	27/02/2015	27/02/2015	27/02/2015	27/02/2015
Date analysed	-	28/02/2015	28/02/2015	28/02/2015	28/02/2015	28/02/2015
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	0.2	<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
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
Total Positive PAHs	mg/kg	0.16	NIL (+)VE	0.12	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	101	90	91	88	88

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PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	124228-7 BH103 0.5-0.95 25/02/2015 Soil	124228-8 BH104 0.13-0.25 25/02/2015 Soil	124228-9 BH104 0.5-0.95 25/02/2015 Soil	124228-10 DupA - 23/02/2015 Soil
Date extracted	-	27/02/2015	27/02/2015	27/02/2015	27/02/2015
Date analysed	-	28/02/2015	28/02/2015	28/02/2015	28/02/2015
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	0.2
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<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
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5
Total Positive PAHs	mg/kg	NIL (+)VE	NIL (+)VE	NIL (+)VE	0.16
Surrogate p-Terphenyl-d14	%	86	89	88	89

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Organochlorine Pesticides in soil					
Our Reference:	UNITS	124228-1	124228-3	124228-6	124228-8
Your Reference	----------	BH101	BH102	BH103	BH104
Depth	----------	0.1-0.2	0.05-0.15	0.1-0.2	0.13-0.25
Date Sampled		23/02/2015	23/02/2015	25/02/2015	25/02/2015
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	27/02/2015	27/02/2015	27/02/2015	27/02/2015
Date analysed	-	03/03/2015	03/03/2015	03/03/2015	03/03/2015
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	83	78	78	80

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Organophosphorus Pesticides					
Our Reference:	UNITS	124228-1	124228-3	124228-6	124228-8
Your Reference	----------	BH101	BH102	BH103	BH104
Depth	----------	0.1-0.2	0.05-0.15	0.1-0.2	0.13-0.25
Date Sampled		23/02/2015	23/02/2015	25/02/2015	25/02/2015
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	27/02/2015	27/02/2015	27/02/2015	27/02/2015
Date analysed	-	03/03/2015	03/03/2015	03/03/2015	03/03/2015
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	83	78	78	80

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PCBs in Soil					
Our Reference:	UNITS	124228-1	124228-3	124228-6	124228-8
Your Reference	----------	BH101	BH102	BH103	BH104
Depth	----------	0.1-0.2	0.05-0.15	0.1-0.2	0.13-0.25
Date Sampled		23/02/2015	23/02/2015	25/02/2015	25/02/2015
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	27/02/2015	27/02/2015	27/02/2015	27/02/2015
Date analysed	-	03/03/2015	03/03/2015	03/03/2015	03/03/2015
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	83	78	78	80

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Acid Extractable metals in soil						
Our Reference:	UNITS	124228-1	124228-2	124228-3	124228-5	124228-6
Your Reference	----------	BH101	BH101	BH102	BH102	BH103
Depth	----------	0.1-0.2	0.5-0.95	0.05-0.15	1.5-1.95	0.1-0.2
Date Sampled		23/02/2015	23/02/2015	23/02/2015	23/02/2015	25/02/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	27/02/2015	27/02/2015	27/02/2015	27/02/2015	27/02/2015
Date analysed	-	27/02/2015	27/02/2015	27/02/2015	27/02/2015	27/02/2015
Arsenic	mg/kg	<4	11	<4	<4	<4
Cadmium	mg/kg	0.4	0.5	<0.4	<0.4	0.4
Chromium	mg/kg	100	24	80	6	68
Copper	mg/kg	32	19	46	13	55
Lead	mg/kg	7	17	4	18	7
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	78	3	69	1	61
Zinc	mg/kg	46	12	41	7	44

Acid Extractable metals in soil					
Our Reference:	UNITS	124228-7	124228-8	124228-9	124228-10
Your Reference	----------	BH103	BH104	BH104	DupA
Depth	----------	0.5-0.95	0.13-0.25	0.5-0.95	-
Date Sampled		25/02/2015	25/02/2015	25/02/2015	23/02/2015
Type of sample		Soil	Soil	Soil	Soil
Date digested	-	27/02/2015	27/02/2015	27/02/2015	27/02/2015
Date analysed	-	27/02/2015	27/02/2015	27/02/2015	27/02/2015
Arsenic	mg/kg	8	<4	<4	<4
Cadmium	mg/kg	0.5	0.4	<0.4	<0.4
Chromium	mg/kg	26	73	5	90
Copper	mg/kg	11	41	16	50
Lead	mg/kg	21	4	13	4
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	5	71	2	70
Zinc	mg/kg	14	55	12	43

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Moisture						
Our Reference:	UNITS	124228-1	124228-2	124228-3	124228-5	124228-6
Your Reference	----------	BH101	BH101	BH102	BH102	BH103
Depth	----------	0.1-0.2	0.5-0.95	0.05-0.15	1.5-1.95	0.1-0.2
Date Sampled		23/02/2015	23/02/2015	23/02/2015	23/02/2015	25/02/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	27/02/2015	27/02/2015	27/02/2015	27/02/2015	27/02/2015
Date analysed	-	2/03/2015	2/03/2015	2/03/2015	2/03/2015	2/03/2015
Moisture	%	6.3	19	4.5	12	6.6

Moisture					
Our Reference:	UNITS	124228-7	124228-8	124228-9	124228-10
Your Reference	----------	BH103	BH104	BH104	DupA
Depth	----------	0.5-0.95	0.13-0.25	0.5-0.95	-
Date Sampled		25/02/2015	25/02/2015	25/02/2015	23/02/2015
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	27/02/2015	27/02/2015	27/02/2015	27/02/2015
Date analysed	-	2/03/2015	2/03/2015	2/03/2015	2/03/2015
Moisture	%	18	10	12	4.2

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Asbestos ID - soils					
Our Reference:	UNITS	124228-1	124228-3	124228-6	124228-8
Your Reference	----------	BH101	BH102	BH103	BH104
Depth	----------	0.1-0.2	0.05-0.15	0.1-0.2	0.13-0.25
Date Sampled		23/02/2015	23/02/2015	25/02/2015	25/02/2015
Type of sample		Soil	Soil	Soil	Soil
Date analysed	-	4/03/2015	4/03/2015	4/03/2015	4/03/2015
Sample mass tested	g	Approx. 40g	Approx. 40g	Approx. 35g	Approx. 55g
Sample Description	-	Brown, fine grain soil & rocks	Brown, fine grain soil & rocks	Brown, fine grain soil & rocks	Brown, fine grain soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

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Method ID	Methodology Summary
Org-016	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-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-003	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-012 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'TEQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'TEQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'TEQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. 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-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 12 hours.
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.

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QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			27/02/2015	124228-1	27/02/2015 || 27/02/2015	LCS-6	27/02/2015
Date analysed	-			02/03/2015	124228-1	02/03/2015 || 02/03/2015	LCS-6	02/03/2015
TRHC$_6$ - C$_9$	mg/kg	25	Org-016	<25	124228-1	<25 || <25	LCS-6	102%
TRHC$_6$ - C$_{10}$	mg/kg	25	Org-016	<25	124228-1	<25 || <25	LCS-6	102%
Benzene	mg/kg	0.2	Org-016	<0.2	124228-1	<0.2 || <0.2	LCS-6	94%
Toluene	mg/kg	0.5	Org-016	<0.5	124228-1	<0.5 || <0.5	LCS-6	98%
Ethylbenzene	mg/kg	1	Org-016	<1	124228-1	<1 || <1	LCS-6	103%
m+p-xylene	mg/kg	2	Org-016	<2	124228-1	<2 || <2	LCS-6	107%
o-Xylene	mg/kg	1	Org-016	<1	124228-1	<1 || <1	LCS-6	105%
naphthalene	mg/kg	1	Org-014	<1	124228-1	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	104	124228-1	87 || 86 || RPD: 1	LCS-6	101%
QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			27/02/2015	124228-1	27/02/2015 || 27/02/2015	LCS-6	27/02/2015
Date analysed	-			28/02/2015	124228-1	28/02/2015 || 28/02/2015	LCS-6	28/02/2015
TRHC$_{10}$ - C$_{14}$	mg/kg	50	Org-003	<50	124228-1	<50 || <50	LCS-6	96%
TRHC$_{15}$ - C$_{28}$	mg/kg	100	Org-003	<100	124228-1	<100 || <100	LCS-6	100%
TRHC$_{29}$ - C$_{36}$	mg/kg	100	Org-003	<100	124228-1	<100 || <100	LCS-6	70%
TRH>C$_{10}$-C$_{16}$	mg/kg	50	Org-003	<50	124228-1	<50 || <50	LCS-6	96%
TRH>C$_{16}$-C$_{34}$	mg/kg	100	Org-003	<100	124228-1	<100 || <100	LCS-6	100%
TRH>C$_{34}$-C$_{40}$	mg/kg	100	Org-003	<100	124228-1	<100 || <100	LCS-6	70%
Surrogate o-Terphenyl	%		Org-003	79	124228-1	82 || 74 || RPD: 10	LCS-6	90%
QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			27/02/2015	124228-1	27/02/2015 || 27/02/2015	LCS-6	27/02/2015
Date analysed	-			27/02/2015	124228-1	28/02/2015 || 28/02/2015	LCS-6	27/02/2015
Naphthalene	mg/kg	0.1	Org-012 subset	<0.1	124228-1	<0.1 || <0.1	LCS-6	100%
Acenaphthylene	mg/kg	0.1	Org-012 subset	<0.1	124228-1	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012 subset	<0.1	124228-1	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012 subset	<0.1	124228-1	<0.1 || <0.1	LCS-6	103%
Phenanthrene	mg/kg	0.1	Org-012 subset	<0.1	124228-1	0.2 || 0.1 || RPD: 67	LCS-6	96%
Anthracene	mg/kg	0.1	Org-012 subset	<0.1	124228-1	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012 subset	<0.1	124228-1	<0.1 || <0.1	LCS-6	95%

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QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Pyrene	mg/kg	0.1	Org-012 subset	<0.1	124228-1	<0.1 || <0.1	LCS-6	112%
Benzo(a)anthracene	mg/kg	0.1	Org-012 subset	<0.1	124228-1	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012 subset	<0.1	124228-1	<0.1 || <0.1	LCS-6	94%
Benzo(b,j+k) fluoranthene	mg/kg	0.2	Org-012 subset	<0.2	124228-1	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	Org-012 subset	<0.05	124228-1	<0.05 || <0.05	LCS-6	104%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012 subset	<0.1	124228-1	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012 subset	<0.1	124228-1	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012 subset	<0.1	124228-1	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	94	124228-1	101 || 86 || RPD: 16	LCS-6	90%
QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			27/02/2015	124228-1	27/02/2015 || 27/02/2015	LCS-6	27/02/2015
Date analysed	-			03/03/2015	124228-1	03/03/2015 || 03/03/2015	LCS-6	03/03/2015
HCB	mg/kg	0.1	Org-005	<0.1	124228-1	<0.1 || <0.1	[NR]	[NR]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	124228-1	<0.1 || <0.1	LCS-6	116%
gamma-BHC	mg/kg	0.1	Org-005	<0.1	124228-1	<0.1 || <0.1	[NR]	[NR]
beta-BHC	mg/kg	0.1	Org-005	<0.1	124228-1	<0.1 || <0.1	LCS-6	107%
Heptachlor	mg/kg	0.1	Org-005	<0.1	124228-1	<0.1 || <0.1	LCS-6	110%
delta-BHC	mg/kg	0.1	Org-005	<0.1	124228-1	<0.1 || <0.1	[NR]	[NR]
Aldrin	mg/kg	0.1	Org-005	<0.1	124228-1	<0.1 || <0.1	LCS-6	114%
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	124228-1	<0.1 || <0.1	LCS-6	114%
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	124228-1	<0.1 || <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	124228-1	<0.1 || <0.1	[NR]	[NR]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	124228-1	<0.1 || <0.1	[NR]	[NR]
pp-DDE	mg/kg	0.1	Org-005	<0.1	124228-1	<0.1 || <0.1	LCS-6	105%
Dieldrin	mg/kg	0.1	Org-005	<0.1	124228-1	<0.1 || <0.1	LCS-6	115%
Endrin	mg/kg	0.1	Org-005	<0.1	124228-1	<0.1 || <0.1	LCS-6	120%
pp-DDD	mg/kg	0.1	Org-005	<0.1	124228-1	<0.1 || <0.1	LCS-6	117%
Endosulfan II	mg/kg	0.1	Org-005	<0.1	124228-1	<0.1 || <0.1	[NR]	[NR]
pp-DDT	mg/kg	0.1	Org-005	<0.1	124228-1	<0.1 || <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	124228-1	<0.1 || <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	124228-1	<0.1 || <0.1	LCS-6	110%
Methoxychlor	mg/kg	0.1	Org-005	<0.1	124228-1	<0.1 || <0.1	[NR]	[NR]
Surrogate TCMX	%		Org-005	79	124228-1	83 || 72 || RPD: 14	LCS-6	79%

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QUALITY CONTROL Organophosphorus Pesticides	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			27/02/2015	124228-1	27/02/2015 || 27/02/2015	LCS-6	27/02/2015
Date analysed	-			03/03/2015	124228-1	03/03/2015 || 03/03/2015	LCS-6	03/03/2015
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	<0.1	124228-1	<0.1 || <0.1	LCS-6	76%
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	124228-1	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos	mg/kg	0.1	Org-008	<0.1	124228-1	<0.1 || <0.1	LCS-6	94%
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	<0.1	124228-1	<0.1 || <0.1	[NR]	[NR]
Diazinon	mg/kg	0.1	Org-008	<0.1	124228-1	<0.1 || <0.1	[NR]	[NR]
Dichlorvos	mg/kg	0.1	Org-008	<0.1	124228-1	<0.1 || <0.1	LCS-6	82%
Dimethoate	mg/kg	0.1	Org-008	<0.1	124228-1	<0.1 || <0.1	[NR]	[NR]
Ethion	mg/kg	0.1	Org-008	<0.1	124228-1	<0.1 || <0.1	LCS-6	103%
Fenitrothion	mg/kg	0.1	Org-008	<0.1	124228-1	<0.1 || <0.1	LCS-6	80%
Malathion	mg/kg	0.1	Org-008	<0.1	124228-1	<0.1 || <0.1	LCS-6	65%
Parathion	mg/kg	0.1	Org-008	<0.1	124228-1	<0.1 || <0.1	LCS-6	102%
Ronnel	mg/kg	0.1	Org-008	<0.1	124228-1	<0.1 || <0.1	[NR]	[NR]
Surrogate TCMX	%		Org-008	79	124228-1	83 || 72 || RPD: 14	LCS-6	76%

QUALITY CONTROL PCBs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			27/02/2015	124228-1	27/02/2015 || 27/02/2015	LCS-6	27/02/2015
Date analysed	-			03/03/2015	124228-1	03/03/2015 || 03/03/2015	LCS-6	03/03/2015
Arochlor 1016	mg/kg	0.1	Org-006	<0.1	124228-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1221	mg/kg	0.1	Org-006	<0.1	124228-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1232	mg/kg	0.1	Org-006	<0.1	124228-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1242	mg/kg	0.1	Org-006	<0.1	124228-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1248	mg/kg	0.1	Org-006	<0.1	124228-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1254	mg/kg	0.1	Org-006	<0.1	124228-1	<0.1 || <0.1	LCS-6	120%
Arochlor 1260	mg/kg	0.1	Org-006	<0.1	124228-1	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%		Org-006	79	124228-1	83 || 72 || RPD: 14	LCS-6	101%

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QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date digested	-			27/02/2015	124228-1	27/02/2015 || 27/02/2015	LCS-1	27/02/2015
Date analysed	-			27/02/2015	124228-1	27/02/2015 || 27/02/2015	LCS-1	27/02/2015
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	124228-1	<4 || <4	LCS-1	112%
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	124228-1	0.4 || 0.4 || RPD: 0	LCS-1	104%
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	124228-1	100 || 85 || RPD: 16	LCS-1	107%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	124228-1	32 || 31 || RPD: 3	LCS-1	110%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	124228-1	7 || 6 || RPD: 15	LCS-1	100%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	124228-1	<0.1 || <0.1	LCS-1	98%
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	124228-1	78 || 76 || RPD: 3	LCS-1	104%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	124228-1	46 || 43 || RPD: 7	LCS-1	103%

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	124228-3	27/02/2015
Date analysed	-	[NT]	[NT]	124228-3	02/03/2015
TRHC$_6$ - C$_9$	mg/kg	[NT]	[NT]	124228-3	113%
TRHC$_6$ - C$_{10}$	mg/kg	[NT]	[NT]	124228-3	113%
Benzene	mg/kg	[NT]	[NT]	124228-3	105%
Toluene	mg/kg	[NT]	[NT]	124228-3	107%
Ethylbenzene	mg/kg	[NT]	[NT]	124228-3	115%
m+p-xylene	mg/kg	[NT]	[NT]	124228-3	120%
o-Xylene	mg/kg	[NT]	[NT]	124228-3	120%
naphthalene	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%	[NT]	[NT]	124228-3	90%

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QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	124228-3	27/02/2015
Date analysed	-	[NT]	[NT]	124228-3	28/02/2015
TRHC$_{10}$ - C$_{14}$	mg/kg	[NT]	[NT]	124228-3	82%
TRHC$_{15}$ - C$_{28}$	mg/kg	[NT]	[NT]	124228-3	80%
TRHC$_{29}$ - C$_{36}$	mg/kg	[NT]	[NT]	124228-3	#
TRH>C$_{10}$-C$_{16}$	mg/kg	[NT]	[NT]	124228-3	82%
TRH>C$_{16}$-C$_{34}$	mg/kg	[NT]	[NT]	124228-3	80%
TRH>C$_{34}$-C$_{40}$	mg/kg	[NT]	[NT]	124228-3	#
Surrogate o-Terphenyl	%	[NT]	[NT]	124228-3	88%
QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	124228-3	27/02/2015
Date analysed	-	[NT]	[NT]	124228-3	28/02/2015
Naphthalene	mg/kg	[NT]	[NT]	124228-3	95%
Acenaphthylene	mg/kg	[NT]	[NT]	[NR]	[NR]
Acenaphthene	mg/kg	[NT]	[NT]	[NR]	[NR]
Fluorene	mg/kg	[NT]	[NT]	124228-3	96%
Phenanthrene	mg/kg	[NT]	[NT]	124228-3	91%
Anthracene	mg/kg	[NT]	[NT]	[NR]	[NR]
Fluoranthene	mg/kg	[NT]	[NT]	124228-3	90%
Pyrene	mg/kg	[NT]	[NT]	124228-3	106%
Benzo(a)anthracene	mg/kg	[NT]	[NT]	[NR]	[NR]
Chrysene	mg/kg	[NT]	[NT]	124228-3	88%
Benzo(b,j+k)fluoranthene	mg/kg	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	mg/kg	[NT]	[NT]	124228-3	92%
Indeno(1,2,3-c,d)pyrene	mg/kg	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	[NT]	[NT]	124228-3	88%

EIS 2015

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	124228-3	27/02/2015
Date analysed	-	[NT]	[NT]	124228-3	03/03/2015
HCB	mg/kg	[NT]	[NT]	[NR]	[NR]
alpha-BHC	mg/kg	[NT]	[NT]	124228-3	125%
gamma-BHC	mg/kg	[NT]	[NT]	[NR]	[NR]
beta-BHC	mg/kg	[NT]	[NT]	124228-3	115%
Heptachlor	mg/kg	[NT]	[NT]	124228-3	120%
delta-BHC	mg/kg	[NT]	[NT]	[NR]	[NR]
Aldrin	mg/kg	[NT]	[NT]	124228-3	123%
Heptachlor Epoxide	mg/kg	[NT]	[NT]	124228-3	123%
gamma-Chlordane	mg/kg	[NT]	[NT]	[NR]	[NR]
alpha-chlordane	mg/kg	[NT]	[NT]	[NR]	[NR]
Endosulfan I	mg/kg	[NT]	[NT]	[NR]	[NR]
pp-DDE	mg/kg	[NT]	[NT]	124228-3	113%
Dieldrin	mg/kg	[NT]	[NT]	124228-3	124%
Endrin	mg/kg	[NT]	[NT]	124228-3	131%
pp-DDD	mg/kg	[NT]	[NT]	124228-3	128%
Endosulfan II	mg/kg	[NT]	[NT]	[NR]	[NR]
pp-DDT	mg/kg	[NT]	[NT]	[NR]	[NR]
Endrin Aldehyde	mg/kg	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulphate	mg/kg	[NT]	[NT]	124228-3	118%
Methoxychlor	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate TCMX	%	[NT]	[NT]	124228-3	86%

EIS 2015

QUALITY CONTROL Organophosphorus Pesticides	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	124228-3	27/02/2015
Date analysed	-	[NT]	[NT]	124228-3	03/03/2015
Azinphos-methyl (Guthion)	mg/kg	[NT]	[NT]	124228-3	75%
Bromophos-ethyl	mg/kg	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos	mg/kg	[NT]	[NT]	124228-3	95%
Chlorpyriphos-methyl	mg/kg	[NT]	[NT]	[NR]	[NR]
Diazinon	mg/kg	[NT]	[NT]	[NR]	[NR]
Dichlorvos	mg/kg	[NT]	[NT]	124228-3	78%
Dimethoate	mg/kg	[NT]	[NT]	[NR]	[NR]
Ethion	mg/kg	[NT]	[NT]	124228-3	104%
Fenitrothion	mg/kg	[NT]	[NT]	124228-3	85%
Malathion	mg/kg	[NT]	[NT]	124228-3	76%
Parathion	mg/kg	[NT]	[NT]	124228-3	106%
Ronnel	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate TCMX	%	[NT]	[NT]	124228-3	77%
QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	124228-3	27/02/2015
Date analysed	-	[NT]	[NT]	124228-3	03/03/2015
Arochlor 1016	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1221	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1232	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1242	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1248	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1254	mg/kg	[NT]	[NT]	124228-3	119%
Arochlor 1260	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%	[NT]	[NT]	124228-3	102%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	[NT]	[NT]	124228-3	27/02/2015
Date analysed	-	[NT]	[NT]	124228-3	27/02/2015
Arsenic	mg/kg	[NT]	[NT]	124228-3	85%
Cadmium	mg/kg	[NT]	[NT]	124228-3	75%
Chromium	mg/kg	[NT]	[NT]	124228-3	90%
Copper	mg/kg	[NT]	[NT]	124228-3	113%
Lead	mg/kg	[NT]	[NT]	124228-3	72%
Mercury	mg/kg	[NT]	[NT]	124228-3	103%
Nickel	mg/kg	[NT]	[NT]	124228-3	81%
Zinc	mg/kg	[NT]	[NT]	124228-3	71%

EIS 2015

Report Comments:

Total Recoverable Hydrocarbons in soil: # Percent recovery is not possible to report due to interference from analytes (other than those being tested) in the sample/s.

Asbestos ID was analysed by Approved Identifier: Lulu Guo
Asbestos ID was authorised by Approved Signatory: Lulu Guo

INS: Insufficient sample for this test
NA: Test not required
<: Less than

PQL: Practical Quantitation Limit
RPD: Relative Percent Difference
>: Greater than

NT: Not tested
NA: Test not required
LCS: Laboratory Control Sample

EIS 2015

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike : A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample) : This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

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: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

EIS 2015

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.

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

SAMPLE RECEIPT ADVICE

Client:

Environmental Investigation Services
PO Box 976
North Ryde BC NSW 1670

ph: 02 9888 5000
Fax: 02 9888 5001

Attention: Mitch Delaney

Sample log in details:

Your reference:	**E27318K, Wentworthville**
Envirolab Reference:	**124228**
Date received:	26/02/2015
Date results expected to be reported:	**5/03/15**

Samples received in appropriate condition for analysis:	YES
No. of samples provided	10 Soils
Turnaround time requested:	Standard
Temperature on receipt (°C)	5.4
Cooling Method:	Ice Pack
Sampling Date Provided:	YES

EIS 2015

Comments:

If there is sufficient sample after testing, samples will be held for the following time frames from date of receipt of samples:
Water samples - 1 month
Soil and other solid samples - 2 months
Samples collected in canisters - 1 week. Canisters will then be cleaned.
All other samples are not retained after analysis
If you require samples to be retained for longer periods then retention fees will apply as per our pricelist.

Contact details:

Please direct any queries to Aileen Hie or Jacinta Hurst
ph: 02 9910 6200 fax: 02 9910 6201
email: ahie@envirolabservices.com.au or jhurst@envirolabservices.com.au

SAMPLE AND CHAIN OF CUSTODY FORM

TO:		FROM:
ENVIROLAB SERVICES PTY LTD	EIS Job Number: E27318K	ENVIRONMENTAL INVESTIGATION SERVICES
12 ASHLEY STREET		REAR OF 115 WICKS ROAD
CHATSWOOD NSW 2067	Date Results Required: STANDARD	MACQUARIE PARK, NSW 2113
P: (02) 99106200		P: 02-9888 5000 F: 02-9888 5001
F: (02) 99106201	Page: 1 of 1	Attention: Mitch Delaney
Attention: Aileen		

Location: Wentworthville

Sampler: MW

Sample Preserved in Esky on Ice

Tests Required

Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 3	Combo 3a/6a	Combo 6	Combo 6a	8 Metals	PAHs	TRH/BTEX	BTEX	Asbestos
23/2/15	1	BH101	0.1-0.2	G, A	0	Soil		X							
↑	2	BH101	0.5-0.95	"	0	↑	X								
	3	BH102	0.05-0.15	"	0			X							
	4	BH102	0.4-0.5	"	0										
↓	5	BH102	1.5-1.95	"	0		X								
25/2/15	6	BH103	0.1-0.2	"	0			X							
↑	7	BH103	0.5-0.95	"	0		X								
	8	BH104	0.15-0.25	"	0			X							
↓	9	BH104	0.5-0.95	"	0	↓	X								
23/2/15	10	DUPA	—	"	0		X								

EIS 2015

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 124228

Date Received: 26/2/15

Time Received: 19:45

Received by: PT

Temp: Cool/Ambient

Cooling: Ice/Icepack

Security: Intact/Broken/None

Remarks (comments/detection limits required): Thanks.

Sample Containers:
G - 250mg Glass Jar
A - Ziplock Asbestos Bag
P - Plastic Bag

Relinquished By:	Date:	Time:	Received By:	Date:
MD	26/2/15	am	PT	26/2/15

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

CERTIFICATE OF ANALYSIS 124228-A

Client:
Environmental Investigation Services
PO Box 976
North Ryde BC
NSW 1670

Attention: Mitch Delaney

Sample log in details:

Your Reference:	**E27318K, Wentworthville**
No. of samples:	Additional Testing on 4 Soils
Date samples received / completed instructions received	26/02/2015 / 06/03/15

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.

FIS 2015

Report Details:

Date results requested by: / Issue Date:	10/03/15 / 9/03/15
Date of Preliminary Report:	Not Issued

NATA accreditation number 2901. This document shall not be reproduced except in full.
Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:

Jacinta Hurst
Laboratory Manager

Metals in TCLP USEPA1311					
Our Reference:	UNITS	124228-A-1	124228-A-3	124228-A-6	124228-A-8
Your Reference	----------	BH101	BH102	BH103	BH104
Depth	----------	0.1-0.2	0.05-0.15	0.1-0.2	0.13-0.25
Date Sampled		23/02/2015	23/02/2015	25/02/2015	25/02/2015
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	09/03/2015	09/03/2015	09/03/2015	09/03/2015
Date analysed	-	09/03/2015	09/03/2015	09/03/2015	09/03/2015
pH of soil for fluid# determ.	pH units	9.2	10.0	9.8	9.5
pH of soil for fluid # determ. (acid)	pH units	1.4	1.4	1.4	1.3
Extraction fluid used	-	1	1	1	1
pH of final Leachate	pH units	5.3	5.7	5.3	5.2
Nickel in TCLP	mg/L	0.09	0.05	0.07	0.06

EIS 2015

Method ID	Methodology Summary
Inorg-004	Toxicity Characteristic Leaching Procedure (TCLP) using AS 4439 and USEPA 1311 and in house method INORG-004.
EXTRACT.7	Toxicity Characteristic Leaching Procedure (TCLP).
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.

EIS 2015

QUALITY CONTROL Metals in TCLP USEPA1311	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			09/03/2015	[NT]	[NT]	LCS-1	09/03/2015
Date analysed	-			09/03/2015	[NT]	[NT]	LCS-1	09/03/2015
Nickel in TCLP	mg/L	0.02	Metals-020 ICP-AES	<0.02	[NT]	[NT]	LCS-1	104%

EIS 2015

Report Comments:

Asbestos ID was analysed by Approved Identifier:	Not applicable for this job
Asbestos ID was authorised by Approved Signatory:	Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NA: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

EIS 2015

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EIS 2015

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Aileen Hie

From: Mitchell Delaney <MDelaney@jkgroup.net.au>
Sent: Friday, 6 March 2015 8:05 AM
To: Aileen Hie
Subject: Additional TCLP analysis request - Wentworthville - 124228

Importance: High

Hi Aileen,

Please schedule TCLP analysis on the following samples for **nickel on a 2 day TA**:

1 • BH101 0.1-0.2m;
3 • BH102 0.05-0.15m;
6 • BH103 0.1-0.2m; and
8 • BH104 0.13-0.25m.

Thanks you any issues please give me a call.

Envirolab Ref: 124228A
Due: 10/3/15
2 day T/A.

Regards,

Mitchell Delaney
Environmental Scientist

MDelaney@jkgroup.net.au
www.jkgroup.net.au

EIS 2015

Environmental Investigation Services
CONSULTING ENVIRONMENTAL ENGINEERS AND SCIENTISTS
PO Box 976, North Ryde BC NSW 1670
115 Wicks Rd, Macquarie Park NSW 2113
T: +612 9888 5000 F: +612 9888 5001

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Appendix K: Guidelines and Reference Documents

Acid Sulfate Soils Management Advisory Committee (ASSMAC), (1998). Acid Sulfate Soils Manual

Australian and New Zealand Environment Conservation Council (ANZECC), (2000). Australian and New Zealand Guidelines for Fresh and Marine Water Quality

Canadian Council of Ministers of the Environment, (1999). Canadian soil quality guidelines for the protection of environmental and human health: Benzo(a)Pyrene (1997)

CRC Care, (2011). Technical Report No. 10 – Health screening levels for hydrocarbons in soil and groundwater Part 1: Technical development document

Contaminated Land Management Act 1997 (NSW)

Department of Land and Water Conservation, (1997). 1:25,000 Acid Sulfate Soil Risk Map Series

Managing Land Contamination, Planning Guidelines SEPP55 – Remediation of Land (1998)

National Health and Medical Research Council (NHMRC), (2018). National Water Quality Management Strategy, Australian Drinking Water Guidelines 2011

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

NSW EPA, (1995). Contaminated Sites Sampling Design Guidelines

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

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

NSW EPA, (2017). Guidelines for the NSW Site Auditor Scheme, 3rd Edition

NSW EPA, (2020). Consultants Reporting on Contaminated Land, Contaminated Land Guidelines

National Environment Protection Council (NEPC), (2013). National Environmental Protection (Assessment of Site Contamination) Measure 1999 as amended (2013)

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

Protection of the Environment Operations Act 1997 (NSW)

State Environmental Planning Policy No.55 – Remediation of Land 1998 (NSW)

World Health Organisation (WHO), (2008). Petroleum Products in Drinking-water, Background document for the development of WHO Guidelines for Drinking Water Quality

Western Australia Department of Health, (2009). Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia