ENVIRONMENTAL INVESTIGATION SERVICES

REPORT

TO

JDH ARCHITECTS

ON

PRELIMINARY STAGE 1/STAGE 2 CONTAMINATION ASSESSMENT AND PRELIMINARY SALINITY ASSESSMENT

FOR

PROPOSED ALTERATIONS AND ADDITIONS

AT

LIDCOMBE PUBLIC SCHOOL, MILLS STREET, LIDCOMBE, NSW

13 JUNE 2017 **REF: E30429KPrpt**

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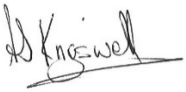

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EXECUTIVE SUMMARY

JDH Architects ('the client') commissioned Environmental Investigation Services (EIS)[1] to undertake a preliminary Stage 1/Stage 2 contamination assessment and preliminary salinity assessment for the proposed alterations and additions at Lidcombe Public School, Mills Street, Lidcombe. For the purpose of this report, the wider school property has been referred to as 'the site'. The site location is shown on Figure 1.

Soil sampling for the assessments was generally limited to the proposed new building footprints (although some sampling locations fell marginally outside these footprints due to access limitations). These areas are referred to as the 'investigation areas' within this report and are shown on Figure 2.

A geotechnical investigation was undertaken concurrently with the contamination/salinity assessment by JK Geotechnics[2]. The findings of the geotechnical investigation are to be reported under a separate cover (Ref: 30429Srpt).

The objectives, scope and findings of the salinity assessment are documented in the report attached in Appendix A.

The primary aims of the contamination assessment were to document historical land uses and assess the contamination conditions within the investigation area(s) in order to assess contamination-related risks. The assessment objectives were to:

- Provide an appraisal of the past site use(s) based on a review of historical records;
- Identify potential contamination sources/areas of environmental concern (AEC) and contaminants of potential concern (CoPC);
- Prepare a conceptual site model (CSM);
- Make a preliminary assessment of the soil contamination conditions and the potential for groundwater contamination within the investigation area(s);
- Assess the risks posed by the contaminants via a Tier 1 risk assessment; and
- Assess whether the investigation area(s) is/are suitable or can be made suitable for the proposed development (from a contamination viewpoint).

The contamination assessment included a desktop site history assessment and fill/soil sampling from a total of 16 boreholes. The historical assessment identified various potential sources of contamination/AEC, including fill, the historically designated asbestos zones, and hazardous building materials.

Based on the assessment findings, including the soil analysis results, remediation is required to address the potential human health risks associated with lead, polycyclic aromatic hydrocarbons (PAHs) and asbestos in fill.

The potential exists for asbestos containing material (ACM) to be present in other areas of the site, outside the development/investigation areas (as evidenced by the fragments of fibre cement collected in the north-eastern section of the site during the EIS site walkover). EIS recommend that a site clearance inspection be undertaken by a suitably qualified hygienist or asbestos assessor. If additional fragments are identified, this may warrant further consideration of potential remediation and/or management requirements in consultation with the Department of Education and other relevant stakeholders.

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[1] Environmental consulting division of Jeffery & Katauskas Pty Ltd (J&K)

[2] Geotechnical consulting division of J&K

Overall, EIS are of the opinion that the investigation area(s) can be made suitable for the proposed development (as outlined in Section 1.1 of this report) subject to appropriate consideration/implementation of the recommendations of this report.

EIS recommend that the Department of Education review the data within this report and assess their obligations under the NSW EPA Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997 (2015). EIS can provide further advice on this matter upon request.

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

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ABBREVIATIONS

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**
Asbestos Quantification Assessment	**AQA**
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**
Data Quality Indicator	**DQI**
Data Quality Objective	**DQO**
Detailed Site Investigation	**DSI**
Ecological Investigation Level	**EIL**
Environmental Investigation Service	**EIS**
Ecological Screening Level	**ESL**
Environmental Management Plan	**EMP**
Excavated Natural Material	**ENM**
Environmental Protection Authority	**EPA**
Environmental Site Assessment	**ESA**
Ecological Screening Level	**ESL**
Fibre Cement Fragments	**FCF**
Health Investigation Level	**HILs**
Health Screening Level	**HSLs**
International Organisation of Standardisation	**ISO**
Lab Control Spike	**LCS**
Local Government Authority	**LGA**
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**
Photo-ionisation Detector	**PID**
Protection of the Environment Operations	**POEO**
Practical Quantitation Limit	**PQL**
Quality Assurance	**QA**
Quality Control	**QC**
Remediation Action Plan	**RAP**

ABBREVIATIONS

Relative Percentage Difference	**RPD**
Site Assessment Criteria	**SAC**
Sampling, Analysis and Quality Plan	**SAQP**
Source, Pathway, Receptor	**SPR**
Standard Penetration Test	**SPT**
Standard Sampling Procedure	**SSP**
Standing Water Level	**SWL**
Standard Sampling Procedure	**SSP**
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**
Work Health and Safety	**WHS**

Units

Litres	**L**
Metres BGL	**mBGL**
Metres	**m**
Millivolts	**mV**
Millilitres	**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

JDH Architects ('the client') commissioned Environmental Investigation Services (EIS)[3] to undertake a preliminary Stage 1/Stage 2 contamination assessment and preliminary salinity assessment for the proposed alterations and additions at Lidcombe Public School, Mills Street, Lidcombe. For the purpose of this report, the wider school property has been referred to as 'the site'. The site location is shown on Figure 1.

Soil sampling for the assessments was generally limited to the proposed new building footprints. These areas are referred to as the 'investigation areas' within this report and are shown on Figure 2.

A geotechnical investigation was undertaken concurrently with the contamination/salinity assessment by JK Geotechnics[4]. The findings of the geotechnical investigation are to be reported under a separate cover (Ref: 30429Srpt).

The objectives, scope and findings of the salinity assessment are documented in the report attached in Appendix A.

1.1 Proposed Development Details

Based on the details provided, EIS understand that the proposed additions will include separate one and two storey buildings with timber decking and walkways. We have generally described these buildings as the 'southern' building and 'northern' building to differentiate between the two (southern and northern have also been used when referring to the associated investigation areas).

We have assumed that limited cut and fill earthworks may be required. The proposed ground floor of the southern building is at reduced level (RL) 20.0m and will require excavation up to 1.0m depth at the western end, with the ground floor above existing grade at the eastern side.

It is also assumed that minor landscaping works will also be required.

1.2 Aims and Objectives

The primary aims of the contamination assessment were to document historical land uses and assess the contamination conditions within the investigation area(s) in order to assess contamination-related risks. The assessment objectives were to:

- Provide an appraisal of the past site use(s) based on a review of historical records;
- Identify potential contamination sources/areas of environmental concern (AEC) and contaminants of potential concern (CoPC);
- Prepare a conceptual site model (CSM);

[3] Environmental consulting division of Jeffery & Katauskas Pty Ltd (J&K)

[4] Geotechnical consulting division of J&K

- Make a preliminary assessment of the soil contamination conditions and the potential for groundwater contamination within the investigation area(s);
- Assess the risks posed by the contaminants via a Tier 1 risk assessment; and
- Assess whether the investigation area(s) is/are suitable or can be made suitable for the proposed development (from a contamination viewpoint).

1.3 Scope of Work

The assessment was undertaken generally in accordance with an EIS proposal (Ref: EP44705KP) of 6 April 2017 and written acceptance from the client of 21 April 2017. The scope of work included the following:

- Review of site information, including background and site history information from a Lotsearch Pty Ltd *Environmental Risk and Planning Report* and other sources;
- A walkover site inspection;
- Design and implementation of a sampling, analysis and quality plan (SAQP), including soil sampling from eight locations;
- Interpretation of the analytical results against the adopted Site Assessment Criteria (SAC), including a Tier 1 risk assessment;
- Data Quality Assessment; and
- Preparation of a report.

The scope of work was undertaken with reference to the National Environmental Protection (Assessment of Site Contamination) Measure 1999 as amended (2013)[5], and other guidelines made under or with regards to the Contaminated Land Management Act (1997)[6] and State Environmental Planning Policy No.55 – Remediation of Land (1998)[7]. A list of reference documents/guidelines is included in the appendices.

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

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

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

2 SITE INFORMATION

2.1 Background

The client provided EIS with a copy of an existing, site-specific *Asbestos in Grounds, Asbestos Management Plan* (Parsons Brinkerhoff (PB), 2013)[8]. The AMP identified five "Asbestos Zones" (referred to as Area A to E inclusive as shown on Figure 3) where fibre cement fragments were reportedly identified in 2004.

The AMP refers to a separate report (dated 2004) that proposed various remediation measures for each of the asbestos zones. These broadly included removal of any fragments of suspected asbestos containing material (ACM) from the ground surface, followed by encapsulation of the potentially contaminated soil. Area D required removal of impacted soil, placement of a geofabric marker and re-instatement with clean soil.

The AMP did not confirm what remediation occurred (if any) in the asbestos zones, but noted that certain asbestos clean-up/removal works were "approved" in July 2006. These included bare areas in Area A, B, C and E to be encapsulated with turf and/or mulched garden beds. A paved pathway was also to be installed in a heavily trafficked part of Area A. Area D was to be monitored until capital works had been completed.

The AMP includes a number of provisions for subsurface works within the asbestos zones. These include (but are not limited to) the following:

- Work to be undertaken/supervised by a Class A licensed asbestos removalist; and
- Air fibre monitoring is required during the works.

A discussion of the above is included in Section 8.

2.2 Site Identification

Table 2-1: Site Identification

Site Address:	Lidcombe Public School, 1 Mills Street, Lidcombe, NSW
Site Owner:	Minister for Education and Training
Lot & Deposited Plan:	Lot 1 DP1095078
Current Land Use:	Primary School
Proposed Land Use:	Unchanged

[8] PB, (2013). *Asbestos in Grounds, Asbestos Management Plan, Lidcombe Public School, Lidcombe, NSW.* Dated March 2013 (referred to as the AMP)

Local Government Authority (LGA):	Cumberland Council (formerly Auburn City Council)
Current Zoning:	R2 – Low Density Residential and R3 – Medium Density Residential
Site Area (m^2 approx.):	24,400 (the southern building area is estimated to cover <2,000m2 and the northern building area is estimated to cover <800m2)
RL (AHD in m) (approx.):	19-21
Geographical Location (decimal degrees) (approx.):	Latitude: -33.860665° Longitude: 151.047412°

2.3 Site Location and Regional Setting

The site is located on the northern side of Dodson Avenue and to the south and east of Mills Street. The regional setting is generally characterised by low to medium density residential dwellings, however some commercial and light industrial land uses exist to the west of the site.

2.4 Topography

The site is located within a gently undulating regional topographic setting, towards the top of a low rising hill. The site in the vicinity of the investigation areas generally falls towards the east at slopes of 1-3°.

2.5 Site Inspection

A walkover inspection of the site was undertaken by EIS on 20 May 2017. The inspection was limited to accessible areas of the site and did not include an internal inspection of any buildings. The inspection focussed predominantly on the investigation areas, however a cursory walkover of the wider site was also undertaken for completeness.

At the time of the inspection the site was occupied by Lidcombe Primary School and comprised various buildings, grassed, paved, astro-turf and soft fall recreational areas. A summary of specific inspection findings are outlined in the following subsections (see also the attached Figure 2).

2.5.1 Buildings, Structures and Roads

The northern investigation area did not include any buildings or structures. Various demountable buildings were located in the southern area.

2.5.2 Visible or Olfactory Indicators of Contamination

Visible or olfactory indicators of contamination were not observed in the investigation areas. One fragment of millboard/plasterboard (identified as F1) was identified at the ground surface in the northern investigation area.

Numerous fragments of fibre cement (potential ACM) were identified in the north-eastern section of the site (generally within the northern section of Area C, as shown on Figure 3). The fragments were removed from the site by EIS, however these were not analysed as part of the contamination assessment as they were collected from outside the investigation area.

Exposed geofabric was observed in a garden bed in the northern investigation area and it was assumed this may be associated with the former remediation of the Area E asbestos zone (see Figure 3).

2.5.3 Presence of Drums/Chemicals, Waste and Fill Material

Exposed fill/imported soils and mulch were observed in the garden bed in the northern investigation area, and throughout the garden beds and pathways in the southern investigation area.

It is assumed that there is a maintenance shed/store within the site, although this was not observed during the inspection. Based on EIS' experience with other schools projects, this area would be unlikely to include the storage of significant quantities of dangerous goods such as paint, paint thinners and/or mower fuel.

2.5.4 Drainage and Services

Surface runoff from the site was expected to flow towards the east. Local stormwater drains were observed throughout the site and it was assumed that these discharged into the regional stormwater system.

2.5.5 Sensitive Environments

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

2.5.6 Landscaped Areas and Visible Signs of Plant Stress

Various trees and shrubs were located throughout the site and within the investigation areas. The vegetation appeared to be in reasonable condition based on a cursory inspection, with no obvious or extensive dieback observed. Mulch was evident at the surface in most garden beds.

2.6 Surrounding Land Use

The surrounding land use in the immediate vicinity of the investigation area was residential. There were no land uses in the surrounds that were considered to be obvious sources of contamination for the investigation areas.

2.7 Section 149 Planning Certificate

The s149 (2 and 5) planning certificates were reviewed for the assessment. Copies of the certificates are attached in the appendices. A summary of the relevant information is outlined below:

- The site does not comprise critical habitat under the Auburn Local Environmental Plan 2010;
- The land has been identified as containing an item of environmental heritage significance
- The site 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; and
- The site is not subject to a Site Audit Statement.

3 GEOLOGY AND HYDROGEOLOGY

3.1 Regional Geology

Regional geological information presented in the Lotsearch report (attached in the appendices) indicated that the site underlain by Ashfield Shale which typically consists of black to dark grey shale and laminate.

3.2 Acid Sulfate Soil Risk and Planning

A review of the acid sulfate soil (ASS) risk map prepared by Department of Land and Water Conservation (1997[9]) indicated that the site is located in an area mapped as having "no known occurrence" of ASS. There were no high or low probability risk areas in the immediate vicinity of the site, however there was an area of "disturbed terrain" approximately 440m north-west.

ASS information presented in the Lotsearch report (attached in the appendices) indicated that the site is located within a Class 5 area. Works in Class 5 areas that could pose an environmental risk in terms of ASS include works within 500m of adjacent Class 1,2,3,4 land which are likely to lower the water table below 1m AHD on the adjacent land. The proposed works will not lower the water table on adjacent land. On this basis, and considering the geology, ASS or potential ASS is unlikely to be present within the investigation area. An ASS management plan is therefore not required.

3.3 Hydrogeology

Hydrogeological information presented in the Lotsearch report (attached in the appendices) 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 were no registered groundwater users within 500m of the site. The nearest registered bore was located approximately 600m to the south-west of the site and was registered for monitoring purposes. All bores were registered for monitoring purposes.

The information reviewed for this assessment indicated that the subsurface conditions at the site are likely to consist of residual soils overlying relatively shallow shale bedrock. The potential for viable groundwater abstraction and use of groundwater under these conditions is considered to be low. Use of groundwater is not proposed as part of the development.

Considering the local topography and surrounding land features, EIS would generally expect groundwater to flow towards the east in the vicinity of the investigation areas.

[9] Department of Land and Water Conservation, (1997). *1:25,000 Acid Sulfate Soil Risk Map (Series 9130N3, Ed 2).*

3.4 Receiving Water Bodies

Surface water bodies were not identified at the site or in the immediate surrounds. The nearest surface water body appears to be Haslams Creek which is located approximately 500m to the west and 1km to the north of the site.

4 SITE HISTORY INFORMATION

4.1 Review of Historical Aerial Photographs

Historical aerial photographs were included in the Lotsearch report (attached in the appendices). EIS has reviewed the photographs and summarised relevant information in the following table:

Table 4-1: Summary of Historical Aerial Photographs

Year	Details
1943	The majority of the southern investigation area appeared vacant, possibly with disturbed/exposed ground at the surface. Some scattered trees were visible in this area and residential-type lots occupied the eastern end of this area. The northern investigation area was occupied by what appeared to be a residential-type building with associated smaller structures (possibly sheds and a garage). Mills Street intersected the site and extended to the east. Two relatively large buildings were evident on site, to the west and east/north of the investigation area. The size and shape of these buildings appeared consistent with two of the existing (2017) buildings within Lidcombe Public School. The remainder of the site was occupied by numerous individual housing lots with residential dwellings and associated sheds and garages. The on-site land uses appeared to be residential and possibly a school. The surrounding land use generally appeared to be residential, with the exception of the area adjoining the western boundaries. Larger building occupied these adjoining areas and the buildings and property layout appeared more consistent with a church or school, rather than an industrial facility.
1951	A small building was visible in the southern investigation area. The remainder of the site and the immediate surrounds generally appeared to be similar to the previous photograph.
1955	An additional building was visible in the southern investigation area. Additional buildings were also evident in the western site area and appeared to be associated with the school.
1961	The site and the immediate surrounds generally appeared to be similar to the previous photograph.
1965	The site and the immediate surrounds generally appeared to be similar to the previous photograph.
1970	The site and the immediate surrounds generally appeared to be similar to the previous photograph.
1982	The majority of the residential dwellings and associated residential buildings across the site had been demolished and the land appeared to have been consolidated. Only a few of the individual residential-type properties remained, including those within the footprint of the

Year	Details
	northern investigation area. The eastern section of the site was predominantly grassed open space. The surrounding land use still appeared to be predominantly residential.
1991	The buildings in the northern investigation area had been demolished and these areas appeared to be integrated into the adjoining property to the east. The immediate surrounds generally appeared to be similar to the previous photograph.
2003	Mills Street no longer intersected the site and the former road corridor had been integrated into the site area. Various additional buildings were visible across the site, including in the southern investigation area.
2009	Further alterations and additions were evident across the site, including new buildings, paths and pavements.
2014	Further alterations and additions were evident, although the site largely remained unchanged from the previous photograph.

4.2 Review of Historical Land Title Records

Historical land title records were reviewed for the assessment. The record search was undertaken by Advance Legal Searchers Pty Ltd. Copies of the title records are attached in the appendices. The title records search was limited (where possible) to the proposed investigation areas and indicate the following:

- A number of individuals were registered in the land titles as owners of former residential allotments. The owners professions are considered unlikely to be indicative of actual on-site land use activities;
- Land ownership for educational purposes dates back to as early as 1878. However, parcels of land were purchased and transferred to the Minister for Education (or a similar entity) progressively.

4.3 NSW EPA Records

The Lotsearch report (attached in the appendices) included information from the NSW EPA databases for the following:

- Records maintained in relation to contaminated land under Section 58 of the CLM Act 1997 (i.e. regulated sites);
- Records of notified sites under Section 60 of the CLM Act 1997 (i.e. Duty to Report Contamination); and

- Licensed activities under the Protection of the Environment Operations Act (1997)[10].

The search included the site area and surrounding areas in the report buffer of 1,000m. The search indicated the following:

- There were no records for the site or any properties in the report buffer under Section 58 of the CLM Act 1997;
- There were no records for the site or any properties in the report buffer under the Duty to Report Contamination under Section 60 of the CLM Act 1997; and
- There were no records for current or former licenced activities at the site under the POEO Act 1997. Current and former licenses were identified for "railway systems activities" associated with the railway corridor to the south and east of the site. Various records for delicensed activities still regulated by the EPA were also identified for other properties in the report buffer. These regulated activities are considered unlikely to pose a contamination risk to the site or the investigation areas.

4.4 Historical Business Directory and Additional Lotsearch Information

Historical business directory records for the site and surrounding areas in the report buffer were included in the Lotsearch report (attached in the appendices). There were a number of historical businesses dating back to the 1950s and 1970s that operated along John Street to the west of the site, and within specific premises elsewhere in the vicinity of the site. The businesses included mechanics/garages and dry cleaners. Considering the topography and the geology/hydrogeology, there is considered to be a low potential for these off-site activities to impact the investigation areas. On this basis, these historical activities and premises are not considered to be potential sources of contamination that warrant consideration in the context of the proposed development.

In addition to the above, EIS have reviewed additional information contained within the Lotsearch report and note that there were no significant ecological constraints at the site or in the immediate surrounds.

4.5 Summary of Site History Information

The historical information indicates that the site has been used for educational and residential purposes from the late 1800s to around the 1970s. The majority of the residential structures were demolished between 1970 and 1982 and it is likely that the majority of the site was utilised for educational purposes from this time. This information is based on a weight of evidence assessment of the site history documentation and observations made by EIS.

[10] NSW Government Legislation, (1997). *Protection of the Environment Operations Act 1997.* (referred to as POEO Act 1997)

4.6 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. EIS has relied upon the Lotsearch report and has 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. A review of the CSM in relation to source, pathway and receptor (SPR) linkages has been undertaken as part of the Tier 1 risk assessment process, as outlined in Section 9.1.

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 may have been filled using material from off-site areas which could be contaminated. Material from on-site may have also been used as fill, and this material has the potential to be impacted by construction and demolition waste.	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.
Asbestos zones – the AMP identifies five asbestos zones where asbestos was historically identified. The approximate extent of these zones is shown on Figure 3.	Asbestos
Hazardous Building Material – Hazardous building materials may be present as a result of former building and demolition activities. Extensive demolition of former residential structures across the majority of the site occurred between 1970 and 1982	Asbestos and lead

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 primary mechanisms for contamination for all sources/AEC predominantly include 'top-down' impacts (e.g. leaching from surficial material), spills or sub-surface release (e.g. impacts from buried material).

Affected media	Soil/soil vapour have been identified as potentially affected media. Based on the geology and the historic and surrounding land uses, groundwater within the investigation area is unlikely to be affected by contamination. However, potential risks to groundwater should be considered further in the event that significant contamination is identified in soil.
Receptor identification	Human receptors include site users (teachers, support staff, maintenance staff and primary school children), construction workers and intrusive maintenance workers. Off-site human receptors include adjacent residential land users. Ecological receptors include terrestrial organisms and plants within unpaved areas (including proposed landscaped areas).
Potential Exposure pathways	Potential exposure pathways relevant to the human receptors include ingestion, dermal absorption and inhalation of dust (all contaminants), vapours (volatile TRH, naphthalene, BTEX) and asbestos fibres. The potential for exposure would typically be associated with the construction works, and future use of unpaved areas (i.e. the gardens) and the buildings (i.e. vapour inhalation). Potential exposure pathways for ecological receptors include primary contact and ingestion.
Presence of preferential pathways for contaminant movement	The stormwater infrastructure may act as preferential pathways for contaminant migration. This would be dependent on the contaminant type and transport mechanisms.

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 process outlined in Schedule B2 of NEPM (2013) and the Guidelines for the NSW Site Auditor Scheme, 2nd Edition (2006)[11]. 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. Data is required to identify the potential for site contamination, assess the risks to the receptors, assess the need for further investigation or remediation, and make an assessment of the suitability of the site for the proposed land use.

6.1.2 Step 2 - Identify the Decisions of the Study

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

- Did the inspection, or does the historical information identify potential contamination sources/AEC?
- Are any results above the SAC?
- Do potential risks associated with contamination exist, and if so, what are they?
- Is there a requirement for further investigation and/or remediation?
- Is the investigation area(s) suitable for the proposed development, or can the investigation area(s) 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:

- Information from the AMP;
- Site information, including site observations and site history documentation;
- Soil sampling from 16 boreholes;
- Observations of sub-surface variables such as soil type, presence of manmade waste, photo-ionisation detector (PID) concentrations, odours and staining;

[11] NSW DEC, (2006). *Guidelines for the NSW Site Auditor Scheme, 2nd ed.* (referred to as Site Auditor Guidelines 2006)

- Laboratory analysis of soils for the CoPC identified in the CSM; and
- Field and laboratory QA/QC data.

6.1.4 Step 4 - Define the Study Boundary

The sampling will aim to target the investigation areas which are defined by the proposed development footprints (spatial boundary). However, it is acknowledged that samples will be positioned in accessible areas which may fall marginally outside the investigation area.

The sampling was completed on 20 May 2017 (temporal boundary).

The assessment of potential risk to adjacent land users has been made based on data collected within the site.

6.1.5 Step 5 - Develop and 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 assessment, 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 will be undertaken where appropriate and in accordance with the guidelines.

6.1.5.2 Field and Laboratory QA/QC

Field QA/QC included analysis of one intra-laboratory duplicate. 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, EIS 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 qualitative assessment of the potential for false positives and false negatives in the analytical results is undertaken 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 assessment, the null hypothesis 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 assessment.

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 assessment objectives. 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 assessment is outlined in the following table:

Table 6-1: Soil Sampling Plan and Methodology

Aspect	Input
Sampling Density	Samples were obtained from a total of 16 locations for the assessment (BH1 to BH16 inclusive, as shown on Figure 3). This included seven locations in the northern investigation area and nine locations in the southern investigation area (see Figure 2). The number of sample locations for each investigation area meet the minimum sampling density for hotspot identification to a 95% confidence level, as outlined in the NSW EPA Sampling Design Guidelines (1995). However, the samples were not spaced appropriately (and some fell outside the proposed development footprint) due to access limitations. On this basis, the sampling plan did not strictly meet the requirements for hotspot identification.

Aspect	Input
	The sampling density was not adequate for asbestos quantification in accordance with the NEPM (2013) and associated guidelines.
Sampling Plan	The sampling locations were placed on a judgemental plan, generally positioned for coverage across the investigation areas. Areas of soft fall were excluded. The sampling plan was considered to be appropriate to identify significant broad scale/widespread contamination impacts, however it is acknowledged that some of the locations were marginally outside the proposed development footprint. Samples of suspected ACM were collected from the north-eastern section of the site during the site inspection. These samples were not analysed for the assessment. On sample of plasterboard (F1) was also collected from the ground surface within the northern investigation area. This was considered unlikely to contain asbestos and was not analysed.
Set-out and Sampling Equipment	Sampling locations were set out using a tape measure off the existing site features by JK Geotechnics personnel. The sampling locations were cleared for underground services by an external contractor prior to sampling as outlined in the sampling procedure (SSP) attached in the appendices. Samples were collected using a drill rig equipped with spiral flight augers, or using a hand auger (as shown on the attached borehole logs). 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. The surface reduced levels (RLs) shown on the borehole logs were estimated by interpolation between spot heights shown on the provided survey plan (Ref 15937, sheets 1 to 7, dated 25/01/17) prepared by C.M.S Surveyors Pty Limited. The survey plan forms the basis of Figure 2 and the survey datum is AHD.
Sample Collection and Field QA/QC	Soil samples were obtained on 20 May 2017 in accordance with the SSP. Soil samples were collected from the fill and natural profiles based on field observations. The sampling 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.
Field PID Screening for VOCs	A portable Photoionisation Detector (PID) 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

Aspect	Input
	zip-lock plastic bags following equilibration of the headspace gases. PID calibration records are maintained on file by EIS.
Decontamination and Sample Preservation	Sampling personnel used disposable nitrile gloves during sampling activities. The SPT splits and hand auger were decontaminated between samples as outlined in the SSP. Soil samples were preserved by immediate storage in an insulated sample container with ice in accordance with the SSP. On completion of the fieldwork, the samples were returned to the EIS office in Macquarie Park and refrigerated before being delivered in an insulated sample container to a NATA registered laboratory for analysis under standard chain of custody (COC) procedures.

6.3 Analytical Schedule

The analytical schedule is outlined in the following table:

Table 6-2: Analytical Schedule

Analyte/CoPC	Fill Samples	Natural Soil Samples
Heavy Metals	16	0
TRH/BTEX	16	0
PAHs	16	0
OCPs/OPPs	8	0
PCBs	8	0
Asbestos	16	0

The selection of fill samples was based around potential contamination indicators such as elevated PIDs or inclusions such as ash, slag or other manmade waste.

A selection of samples were also analysed for pH and cation exchange capacity (CEC) for the salinity assessment (see Appendix A). This data has been utilised in the derivation of the ecological SAC as discussed in Section 7.

Samples were analysed by an appropriate, NATA Accredited laboratory (Envirolab Services Pty Ltd NSW, NATA Accreditation Number 2901) using the analytical methods detailed in Schedule B(3) of NEPM 2013. Reference should be made to the laboratory report (167600) attached in the appendices for further details.

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.

Soil data were compared to relevant Tier 1 screening criteria in accordance with NEPM (2013) as follows:

7.1 Human Health

- Health Investigation Levels (HILs) for a 'residential with accessible soils' exposure scenario (HIL-A). These is the most sensitive land use criteria and are applicable for primary schools;
- Health Screening Levels (HSLs) for a 'low-high density residential' exposure scenario (HSL-A) were adopted, with the exception of the HSLs for asbestos. HSLs were calculated based on the soil type and the most conservative depth interval of 0m to 1m;
- Asbestos was considered as present/absent. Asbestos HSLs were not adopted as asbestos quantification was not undertaken; and
- Where/if exceedances of the HSLs were reported for hydrocarbons (TRH/BTEX and naphthalene), the soil health screening levels 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)[12] were considered.

7.2 Environment (Ecological – terrestrial ecosystems)

- Ecological Investigation Levels (EILs) and Ecological Screening Levels (ESLs) for an 'urban residential and public open space' (URPOS) exposure scenario. The criteria for benzo(a)pyrene has been increased from the value outlined in NEPM (2013) based on the information presented in the CRC Care Technical Report No. 39 – Risk-based management and guidance for benzo(a)pyrene (2017)[13]; and
- ESLs were calculated based on the soil type and were derived via summing the added contaminant limit (ACL) values presented in Schedule B(1) of NEPM (2013) with the published ambient background concentration (ABC) values presented in the document titled Trace Element Concentrations in Soils from Rural and Urban Areas of Australia (1995)[14]. A pH of 7.3 and CEC of either 8meq/100g (sandy soil) or 14meq/100g (clayey soil) were adopted for the selection of the ACLs. This method is considered to be adequate for the Tier 1 screening.

[12] 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*

[13] CRC Care, (2011). *Technical Report No. 39 - Risk-based management and guidance for benzo(a)pyrene*

[14] 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.

8 RESULTS

8.1 Summary of Data (QA/QC) Evaluation

The data evaluation is presented in the appendices. In summary, EIS 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 table below. Reference should be made to the borehole logs attached in the appendices and to the JK Geotechnics report for further details.

Table 8-1: Summary of Subsurface Conditions

Profile	Description
Pavement	Asphalt pavement was encountered at the surface in BH4.
Fill	Fill was encountered beneath the asphalt in BH4 and at the surface in the remaining boreholes. The fill typically comprised silty sand or silty clay soil and extended to a maximum depth of approximately 0.8m (however it is noted that a number of the hand augered boreholes were terminated due to refusal in fill). Various inclusions of ash, igneous gravel, sandstone gravel and cobbles, concrete fragments, brick fragments and glass fragments were encountered in the fill. Metallurgic furnace slag was also identified in fill in BH13. BH12 encountered a geofabric and geogrid marker layer at a depth of approximately 0.2m. Fibre cement / suspected ACM fragments were not observed during sampling.
Natural Soil	Natural silty clay soil (residual) was encountered beneath the fill in all boreholes that were not terminated in fill, and typically extended to depths ranging from 1.2m to 2.3m. Several boreholes were terminated in the natural soil at shallower depths.
Bedrock	Shale bedrock was identified beneath the natural silty clay. The bedrock extended to the termination depth of the boreholes (maximum depth of 6m).
Groundwater	Groundwater was not encountered in the boreholes during augering, to a maximum depth of 6m.

BH13 and BH15 were positioned at the edge of (but still within) an existing garden bed. The garden bed appeared to be covered by a geofabric marker and a thin layer of soil (the geofabric was exposed in parts of the garden bed). However, the marker layer had pulled away slightly from the edge of the

garden bed. BH13 and BH15 were positioned in the small gap at the edge of the garden bed where the geofabric was not present at the surface.

8.3 Field Screening

PID soil sample headspace readings are presented in attached report tables and the COC documents attached in the appendices. All results were <2ppm equivalent isobutylene which indicates a lack of PID detectable VOCs. The highest result of 1.8ppm was recorded for sample BH4 (0.1-0.3m). This sample was analysed for TRH/BTEX and naphthalene. Significant concentrations of these contaminants were note detected in the sample, as discussed in the following section.

Obvious staining, odours or suspected ACM fragment were not noted in the boreholes. However, it is acknowledged that small diameter boreholes such as those drilled for this investigation are not ideal for identifying ACM as only a small volume of soil is disturbed by the augering process.

8.4 Soil Laboratory Results

The soil laboratory results are compared to the relevant SAC in the attached report tables. Contamination data are also shown on Figure 4. A summary of the results assessed against the SAC is presented below.

Table 8-2: Summary of Soil Laboratory Results

Analyte	Results Compared to SAC
Heavy Metals	**Human Health:** Lead concentrations in three samples (BH13 0-0.3m, BH15 0-0.2m and BH16 0.1-0.3m) exceeded the HIL-A criterion of 300mg/kg. The exceedances ranged from 380mg/kg to 920mg/kg. All remaining heavy metal results were below the HIL-A criteria. **Environment:** All heavy metal results were below the EIL-URPOS criteria.
TRH	**Human Health:** All TRH results were below the HSL-A criteria. **Environment:** The TRH (>C_{16}-C_{34}) (F3) concentration of 1,100mg/kg in BH3 (0.1-0.3m) exceeded the EIL of 300mg/kg. The remaining TRH results were below the ESL-URPOS criteria.
BTEX	**Human Health:** All BTEX results were below the laboratory PQLs and were less than the HSL-A criteria. **Environment:** All BTEX results were below the ESL-URPOS criteria.

Analyte	Results Compared to SAC
PAHs	**Human Health:** All total PAH results were below the HIL-A criterion. Carcinogenic PAHs (reported as Benzo(a)pyrene TEQ) in five samples (BH3 0.1-0.3m, BH8 0-0.2m, BH11 0-0.3m, BH12 0.2-0.4m, BH13 0-0.3m) exceeded the HIL-A criterion of 3mg/kg. The exceedances ranged from 3.3mg/kg to 30mg/kg. All naphthalene results were below the HSL-A criteria. **Environment:** All benzo(a)pyrene results were below the ESL-URPOS criterion and all naphthalene results were below the EIL-URPOS criterion.
OCPs & OPPs	**Human Health:** All OCP and OPP results were below the laboratory PQLs and were less than the HIL-A criteria. **Environment:** All DDT results were below the EIL-URPOS criterion.
PCBs	**Human Health:** All PCB results were below the laboratory PQLs and were less than the HIL-A criterion.
Asbestos	**Human Health:** Asbestos was detected in fill in samples BH9 (0-0.3m) and BH15 (0-0.2m). The asbestos detected in the BH15 sample was documented by the laboratory as matted material and was present at a concentration below the NATA reporting limit.

8.5 Statistical Analysis

Statistical analysis of the lead and carcinogenic PAHs datasets was undertaken despite several of the results being greater than 250% of the SAC. The lead and carcinogenic PAH UCLs were 454mg/kg and 23.8mg/kg respectively, both of which exceeded the SAC. The standard deviation of both datasets also exceeded 50% of the SAC. A copy of the statistical analysis output is attached in the appendices and the results are also summarised in the attached Table A.

8.6 Summary of Compliance with AMP

EIS engaged a Class A licensed, asbestos removalist supervisor to be present during the works. Air fibre monitoring was also undertaken. A copy of the air monitoring certificate and contractor Class A license is attached in the appendices.

In summary, all air monitors reported concentrations of <0.01 fibres/mL of air which indicates that risks associated with the generation of asbestos fibres during the works were negligible.

9 DISCUSSION AND CONTAMINATION ASSESSMENT CONCLUSIONS

9.1 Tier 1 Risk Assessment and Evaluation of SPR Linkages

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.

In summary, the ESA identified a number of potential sources of contamination/AEC including fill, the historically designated asbestos zones, and hazardous building materials. Risks associated with the assessment findings are discussed in the following sub-sections:

9.1.1 Soil

Lead above the HIL-A SAC was identified in fill in the northern investigation area. The exact source of the lead is unknown, however it may be associated with metallurgic furnace slag inclusions within the fill, or potentially with lead paint associated with the demolition of former structures. Slag was recorded in BH13, however trace inclusions of slag may have been present but not observed in the other boreholes in this area. Metallurgic furnace slag is common in fill throughout Sydney.

The lead exceedances at two locations (BH13 and BH15) were identified in soils at the ground surface. However, it is noted that these boreholes were positioned in an area of the garden bed where an existing geofabric marker layer (i.e. a capping system) had pulled away from the edge of the garden bed. Although the impacted soils were collected at the surface, the majority of this area was covered with geofabric which provided a cap over the majority of the sub-soil in this area. EIS consider that there is potentially a complete SPR linkage for lead in the garden bed area due to the poor integrity of the capping system, however the existing capping system is likely to be mitigating the risks to some extent.

The lead in BH16 was identified in the 0.1-0.3m sample. There is potentially a complete SPR linkage for lead in the vicinity of BH16 which includes a grassed area underlain by fill.

Carcinogenic PAHs were relatively widespread in fill across the site. The PAHs are most likely associated with ash and slag in fill. Exceedances were identified at the surface and in the sub-surface. On this basis, EIS consider that there is potentially a complete SPR linkage for PAHs.

Asbestos was identified in fill in BH15 and BH9. Suspected ACM was also identified in the north-eastern section of the site. EIS are of the opinion that the asbestos impacts are most likely associated with the demolition of the former residential structures during the expansion of the school.

The asbestos in BH15 is associated with the fill in the asbestos zone. As the asbestos was identified in matted material in fill at this location, the asbestos in the BH15 sample is considered to be friable. Friable asbestos poses a comparatively higher risk than bonded asbestos. As discussed previously, an attempt was made (presumably by the Department of Education) to encapsulate this material. EIS consider that there is potentially a complete SPR linkage for asbestos contamination in the garden bed area due to the poor integrity of the capping system, however the existing capping system is likely to be mitigating the risks to some extent.

There is considered to be a complete SPR linkage for asbestos at BH9. ACM or visible indicators of asbestos were not reported during sampling in BH9, and it is also noted that BH9 is not within one of the asbestos zones.

TRH (F3) above the ESL-URPOS SAC was identified in BH3 (0.1-0.3m). EIS are of the opinion that the TRHs in this sample are most likely associated with the elevated PAHs, rather than a petroleum source (the analytical method for TRH analysis includes a non-specific screen for recoverable hydrocarbons and does not differentiate between PAHs and mid to long-chain petroleum hydrocarbon compounds). For the ecological screening, PAHs are assessed via naphthalene and benzo(a)pyrene. The naphthalene and benzo(a)pyrene concentrations in the BH3 sample were below the respective ecological SAC, therefore EIS are of the opinion that there is no significant source of contamination at this location, and no complete SPR linkage.

9.1.2 Groundwater

The primary contaminants encountered in fill include lead, PAHs and asbestos. Asbestos does not pose a risk to groundwater. PAHs associated with ash and slag do not leach readily and are unlikely to pose a risk to groundwater. The potential for the lead to leach will require further consideration in the event that contaminated material is retained on-site.

Considering the presence of clay soils and relatively deep groundwater (i.e. >6m deep), the risk posed by lead and PAHs to groundwater is considered to be very low. The presence of lead and/or PAHs in groundwater would not pose a risk to site users under the proposed development scenario where there is no contact with groundwater and no proposed use of groundwater.

9.2 Extent of Contamination

The extent of contamination appears to be relatively widespread in fill. As indicated by those boreholes that fall marginally outside the proposed building footprints, the contamination is not limited to the proposed development areas.

Lead contamination appears to be limited to the northern investigation area. This may be attributed to the filling history or the presence of historical buildings in the northern investigation area.

9.3 Decision Statements

The decision statements are considered below:

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

Yes. Various potential sources of contamination/AEC were identified.

Are any results above the SAC?

Lead, carcinogenic PAHs and asbestos were identified in fill above the human health-based SAC. TRH was also identified above the environmental/ecological SAC.

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

Ecological/environmental risks associated with the TRHs are considered to be low as outlined in Section 9.1. Potential risks associated with lead, carcinogenic PAHs and asbestos are considered to exist due to the potentially complete SPR linkages discussed previously.

Where the investigation areas are covered with soft fall / astro turf, pavement, buildings or other hard surfaces, the risks associated with the contaminants are likely to be relatively low. A comparatively higher risks currently exists where contaminants were identified at the ground surface.

Is there a requirement for remediation or further investigation?

Yes, remediation will be required. EIS recommend that a remediation action plan (RAP) be prepared to address the contamination risks.

Quantification of asbestos could be undertaken in accordance with the NEPM (2013). This would assist to further characterise the risks posed by asbestos, however it would be unlikely to alter the requirements for remediation.

EIS recommend that interim remediation/management works be implemented as a matter of priority to address risks posed by contamination at the ground surface. Potential interim measures should be discussed in consultation with the Department of Education. These measures could include: repairing the geofabric and providing suitable clean soil or mulch cover in the garden beds; providing clean mulch or other suitable surface covering at the locations where contamination was encountered at the surface; and undertaking a surface pick and clearance of suspected ACM across the wider site area.

Is the investigation area(s) suitable for the proposed development, or can the investigation area(s) be made suitable subject to further characterisation and/or remediation?

EIS are of the opinion that the investigation area(s) can be made suitable for the proposed development outlined in Section 1.1, subject to appropriate consideration of the conclusions and recommendations of this report.

9.4 Conclusions and Recommendations

The contamination assessment included a desktop site history assessment and fill/soil sampling from a total of 16 boreholes. The historical assessment identified various potential sources of contamination/AEC, including fill, the historically designated asbestos zones, and hazardous building materials.

Based on the assessment findings, including the soil analysis results, remediation is required to address the potential human health risks associated with lead, PAHs and asbestos in fill.

The potential exists for ACM to be present in other areas of the site, outside the development/investigation areas (as evidenced by the fragments of fibre cement collected in the north-eastern section of the site during the EIS site walkover). EIS recommend that a site clearance inspection be undertaken by a suitably qualified hygienist or asbestos assessor. If additional fragments are identified, this may warrant further consideration of potential remediation and/or management requirements in consultation with the Department of Education and other relevant stakeholders.

Overall, EIS are of the opinion that the investigation area(s) can be made suitable for the proposed development (as outlined in Section 1.1 of this report) subject to appropriate consideration/implementation of the above recommendations.

EIS recommend that the Department of Education review the data within this report and assess their obligations under the NSW EPA Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997 (2015). EIS can provide further advice on this matter upon request.

10 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;
- 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 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; 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.

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IMPORTANT INFORMATION ABOUT THIS REPORT

These notes have been prepared by EIS 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 EIS 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.

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

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

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

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

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

Misinterpretation of Site Assessments by Design Professionals

Costly problems can occur when other design professionals develop plans based on misinterpretation of an assessment 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 Assessment Report

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

To reduce the likelihood of borehole and test pit log misinterpretation, the complete assessment 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 assessment 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 assessment, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to any questions.

REPORT FIGURES

AERIAL IMAGE SOURCE: GOOGLE EARTH PRO 7.1.5.1557
AERIAL IMAGE ©: 2015 GOOGLE INC.

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

Title: **SITE LOCATION PLAN**

Location: LIDCOMBE PUBLIC SCHOOL
MILLS STREET, LIDCOMBE, NSW

Report No: E30429KP

Figure No: 1

ENVIRONMENTAL INVESTIGATION SERVICES

EIS

PLOT DATE: 6/06/2017 2:11:39 PM DWG FILE: S:\S EIS\SC EIS JOBS\30000'S\E30429KP LIDCOMBE\CADE30429KP.DWG

LEGEND

APPROXIMATE SITE BOUNDARY

BH BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL (m)

0 10 20 30 40 50

SCALE 1:1000 @A3 METRES

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

Title: **SAMPLE LOCATION PLAN**

Location: LIDCOMBE PUBLIC SCHOOL
MILLS STREET, LIDCOMBE, NSW

Report No: E30429KP

Figure No: 2

ENVIRONMENTAL INVESTIGATION SERVICES

EIS

PLOT DATE: 6/06/2017 2:10:54 PM DWG FILE: S:\S EIS\SC EIS JOBS\30000'S\E30429KP LIDCOMBE\CAD\E30429KP.DWG

LEGEND

APPROXIMATE SITE BOUNDARY

APPROXIMATE ASBESTOS ZONE

0 10 20 30 40 50

SCALE 1:1000 @A3 METRES

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

Title: **SITE FEATURES PLAN**

Location: LIDCOMBE PUBLIC SCHOOL
MILLS STREET, LIDCOMBE, NSW

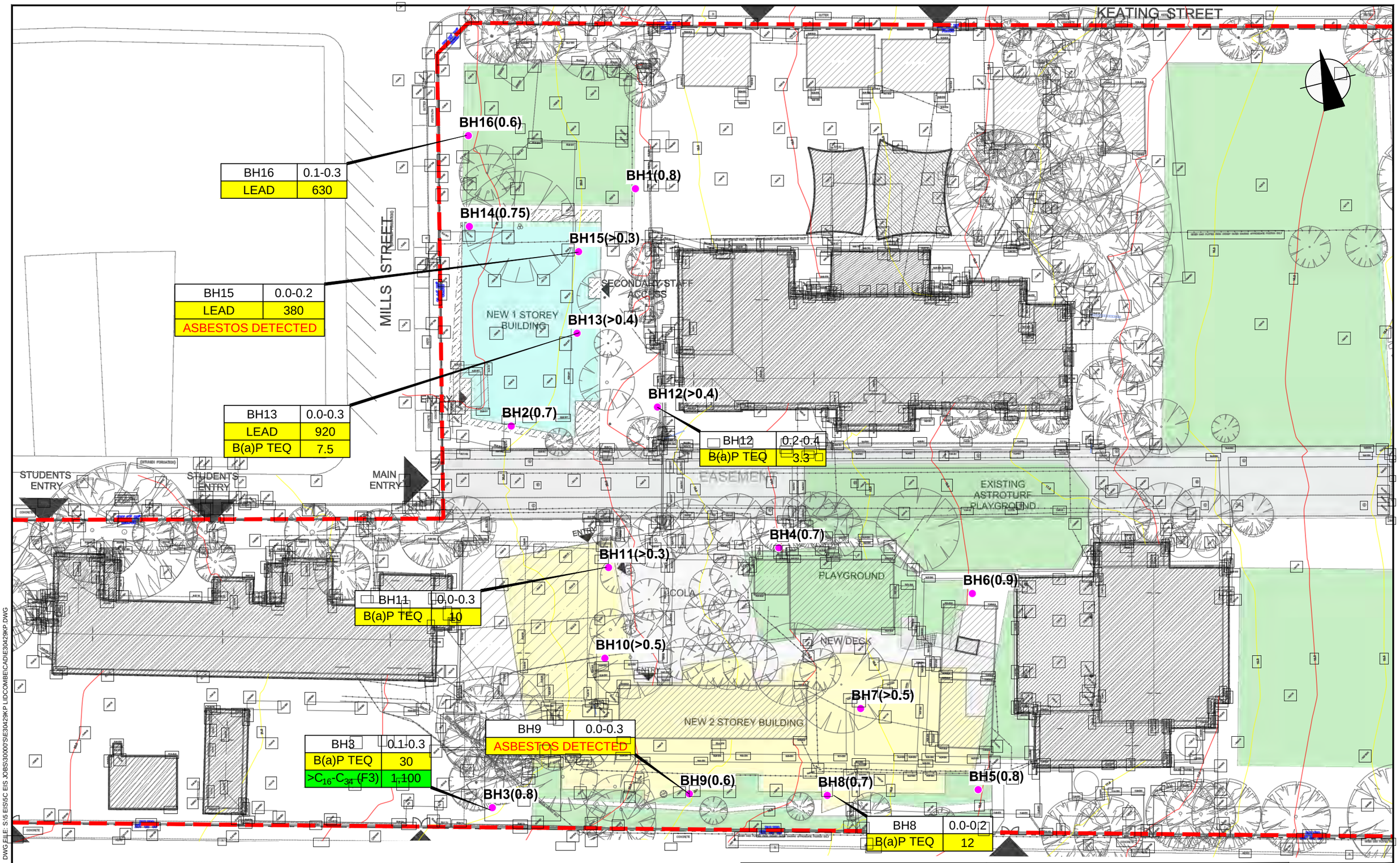
Report No: E30429KP

Figure No: 3

ENVIRONMENTAL INVESTIGATION SERVICES

EIS

PLOT DATE: 7/06/2017 5:01:08 PM DWG FILE: S:\5 EIS\5C EIS JOBS\30000'S\E30429KP LIDCOMBE\CAD\E30429KP.DWG



LEGEND

- APPROXIMATE SITE BOUNDARY
- BH — BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL (m)

SAMPLE ID	DEPTH (metres)
CHEMICAL	CONCENTRATION (mg/kg)

- SOIL CONTAMINATION ABOVE SAC FOR HUMAN HEALTH RISK
- SOIL CONTAMINATION ABOVE SAC FOR ECOLOGICAL RISK

0 5 10 15 20 25
SCALE 1:500 @A3 METRES

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

Title: **CONTAMINATION DATA PLAN**

Location: LIDCOMBE PUBLIC SCHOOL
MILLS STREET, LIDCOMBE, NSW

Report No: E30429KP

Figure No: 4

ENVIRONMENTAL INVESTIGATION SERVICES

PLOT DATE: 8/06/2017 3:23:06 PM DWG FILE: S:\EIS\5C EIS JOBS\30000'S\E30429KP LIDCOMBE\CAD\E30429KP.DWG

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]			100	20	100	6000	300	40	400	7400	300	3	10	270	300	6	50	240	6	160	1	Detected/Not Detected
Sample Reference	**Sample Depth**	**Sample Description**																				
BH1	0.2-0.3	Fill: silty clay	13	LPQL	17	20	66	0.2	6	48	6.23	1	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	Not Detected
BH2	0.1-0.2	Fill: silty sand	8	LPQL	13	21	87	LPQL	9	95	2.2	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	Not Detected
BH3	0.1-0.3	Fill: silty sand	6	LPQL	15	17	54	LPQL	6	72	279.6	**30**	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	Not Detected
BH4	0.1-0.3	Fill: gravelly clay	8	LPQL	13	27	33	LPQL	6	95	1.4	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	Not Detected
BH5	0-0.2	Fill: silty sand	LPQL	LPQL	13	19	26	LPQL	40	49	0	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	Not Detected
BH6	0-0.2	Fill: silty clay	6	LPQL	14	23	110	LPQL	10	170	8.08	1.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	Not Detected
BH7	0-0.3	Fill: silty clay	11	LPQL	13	16	62	LPQL	6	110	7.02	1.1	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	Not Detected
BH8	0-0.2	Fill: silty clay	17	LPQL	17	27	72	LPQL	8	120	76	**12**	NA	NA	NA	NA	NA	NA	NA	NA	NA	Not Detected
BH9	0-0.3	Fill: silty clay	15	LPQL	14	13	47	LPQL	5	54	2	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	Asbestos Detected
BH10	0-0.3	Fill: silty clay	8	LPQL	19	26	77	LPQL	14	140	4.6	0.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	Not Detected
BH11	0-0.3	Fill: silty clay	9	LPQL	17	16	54	0.2	7	69	84.8	**10**	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	Not Detected
BH12	0.2-0.4	Fill: silty clay	23	LPQL	16	31	63	LPQL	8	67	17.8	**3.3**	NA	NA	NA	NA	NA	NA	NA	NA	NA	Not Detected
BH13	0-0.3	Fill: silty clay	72	0.7	24	93	**920**	0.3	12	480	70.3	**7.5**	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	Not Detected
BH14	0.1-0.2	Fill: silty clay	13	LPQL	22	43	170	0.1	8	180	2.9	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	Not Detected
BH15	0-0.2	Fill: silty clayey sand	23	0.5	17	31	**380**	LPQL	9	290	16.5	1.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	Asbestos Detected^
BH16	0.1-0.3	Fill: sandy clay	14	0.9	24	87	**630**	0.2	17	530	5.1	0.7	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	Not Detected
Total Number of Samples			16	16	16	16	16	16	16	16	16	16	8	8	8	8	8	8	8	8	8	16
Maximum Value			72	0.9	24	93	920	0.3	40	530	279.6	30	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NC
Statistical Analysis on Fill Samples																						
Number of Fill Samples [4]			NC	NC	NC	NC	16	NC	NC	NC	NC	16	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Mean Value [4]			NC	NC	NC	NC	178	NC	NC	NC	NC	4.4	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Standard Deviation [4]			NC	NC	NC	NC	253	NC	NC	NC	NC	7.8	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
% UCL [4]			NC	NC	NC	NC	95	NC	NC	NC	NC	99	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
UCL Value [4]			NC	NC	NC	NC	454	NC	NC	NC	NC	23.8	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC

Explanation:

1 - Site Assessment Criteria (SAC): NEPM 2013, HIL-A: 'Residential with garden/accessible soils; children's day care centers; preschools; and primary schools'

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

4 - Statistical calculation undertaken using ProUCL version 5.0 (USEPA). Statistical calculation has only been undertaken using data from fill samples

^ - Asbestos detected below the limit of reporting. Refer to page 33 of the Envirolab report

Concentration above the SAC **VALUE**

Standard deviation exceeds data assessment criteria 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

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]					**RESIDENTIAL WITH ACCESSIBLE SOIL**							
Sample Reference	**Sample Depth**	**Sample Description**	**Depth Category**	**Soil Category**								
BH1	0.2-0.3	Fill: silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH2	0.1-0.2	Fill: silty sand	0m to < 1m	Sand	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH3	0.1-0.3	Fill: silty sand	0m to < 1m	Sand	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0.6	0
BH4	0.1-0.3	Fill: gravelly clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	1.8
BH5	0-0.2	Fill: silty sand	0m to < 1m	Sand	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH6	0-0.2	Fill: silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH7	0-0.3	Fill: silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH8	0-0.2	Fill: silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH9	0-0.3	Fill: silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH10	0-0.3	Fill: silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH11	0-0.3	Fill: silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH12	0.2-0.4	Fill: silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH13	0-0.3	Fill: silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0.4	0
BH14	0.1-0.2	Fill: silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH15	0-0.2	Fill: silty clayey sand	0m to < 1m	Sand	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH16	0.1-0.3	Fill: sandy clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
Total Number of Samples					16	16	16	16	16	16	16	16
Maximum Value					LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0.6	1.8

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
NC: Not Calculated
NL: Not Limiting
SAC: Site Assessment Criteria
PQL: Practical Quantitation Limit
LPQL: Less than PQL
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]					**RESIDENTIAL WITH ACCESSIBLE SOIL**						
Sample Reference	**Sample Depth**	**Sample Description**	**Depth Category**	**Soil Category**							
BH1	0.2-0.3	Fill: silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH2	0.1-0.2	Fill: silty sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
BH3	0.1-0.3	Fill: silty sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
BH4	0.1-0.3	Fill: gravelly clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH5	0-0.2	Fill: silty sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
BH6	0-0.2	Fill: silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH7	0-0.3	Fill: silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH8	0-0.2	Fill: silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH9	0-0.3	Fill: silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH10	0-0.3	Fill: silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH11	0-0.3	Fill: silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH12	0.2-0.4	Fill: silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH13	0-0.3	Fill: silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH14	0.1-0.2	Fill: silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH15	0-0.2	Fill: silty clayey sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
BH16	0.1-0.3	Fill: sandy clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5

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

Land Use Category [1]				URBAN RESIDENTIAL AND PUBLIC OPEN SPACE																		
							AGED HEAVY METALS-EILs						EILs		ESLs							
				pH^	CEC^ (meq/100g)	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	163	5	122	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL
Sample Reference	**Sample Depth**	**Sample Description**	**Soil Texture**																			
BH1	0.2-0.3	Fill: silty clay	Fine	7.3	14	NA	13	17	20	66	6	48	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0.73
BH2	0.1-0.2	Fill: silty sand	Coarse	7.3	8	NA	8	13	21	87	9	95	LPQL	NA	LPQL	LPQL	260	120	LPQL	LPQL	LPQL	LPQL	0.3
BH3	0.1-0.3	Fill: silty sand	Coarse	7.3	8	NA	6	15	17	54	6	72	0.6	LPQL	LPQL	LPQL	1100	290	LPQL	LPQL	LPQL	LPQL	21
BH4	0.1-0.3	Fill: gravelly clay	Fine	7.3	14	NA	8	13	27	33	6	95	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0.1
BH5	0-0.2	Fill: silty sand	Coarse	7.3	8	NA	LPQL	13	19	26	40	49	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH6	0-0.2	Fill: silty clay	Fine	7.3	14	NA	6	14	23	110	10	170	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0.78
BH7	0-0.3	Fill: silty clay	Fine	7.3	14	NA	11	13	16	62	6	110	LPQL	LPQL	LPQL	LPQL	140	LPQL	LPQL	LPQL	LPQL	LPQL	0.82
BH8	0-0.2	Fill: silty clay	Fine	7.3	14	NA	17	17	27	72	8	120	LPQL	NA	LPQL	LPQL	780	230	LPQL	LPQL	LPQL	LPQL	8.7
BH9	0-0.3	Fill: silty clay	Fine	7.3	14	NA	15	14	13	47	5	54	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0.2
BH10	0-0.3	Fill: silty clay	Fine	7.3	14	NA	8	19	26	77	14	140	LPQL	NA	LPQL	LPQL	300	130	LPQL	LPQL	LPQL	LPQL	0.4
BH11	0-0.3	Fill: silty clay	Fine	7.3	14	NA	9	17	16	54	7	69	LPQL	LPQL	LPQL	LPQL	580	150	LPQL	LPQL	LPQL	LPQL	6.9
BH12	0.2-0.4	Fill: silty clay	Fine	7.3	14	NA	23	16	31	63	8	67	LPQL	NA	LPQL	LPQL	240	130	LPQL	LPQL	LPQL	LPQL	2.3
BH13	0-0.3	Fill: silty clay	Fine	7.3	14	NA	72	24	93	920	12	480	0.4	LPQL	LPQL	LPQL	140	LPQL	LPQL	LPQL	LPQL	LPQL	5
BH14	0.1-0.2	Fill: silty clay	Fine	7.3	14	NA	13	22	43	170	8	180	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0.2
BH15	0-0.2	Fill: silty clayey sand	Coarse	7.3	8	NA	23	17	31	380	9	290	LPQL	NA	LPQL	LPQL	110	LPQL	LPQL	LPQL	LPQL	LPQL	1.4
BH16	0.1-0.3	Fill: sandy clay	Fine	7.3	14	NA	14	24	87	630	17	530	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0.5
Total Number of Samples				16	16	0	16	16	16	16	16	16	16	8	16	16	16	16	16	16	16	16	16
Maximum Value				7.3	14	LPQL	72	24	93	920	40	530	0.6	LPQL	LPQL	LPQL	1100	290	LPQL	LPQL	LPQL	LPQL	21

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)

^ - Refer to report text for rationale associated with pH and CEC values adopted

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

EIL AND ESL ASSESSMENT CRITERIA

Land Use Category [1]				URBAN RESIDENTIAL AND PUBLIC OPEN SPACE																		
							AGED HEAVY METALS-EILs						EILs		ESLs							
				pH^	CEC^ (meq/100g)	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	163	5	122	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL
Sample Reference	**Sample Depth**	**Sample Description**	**Soil Texture**																			
BH1	0.2-0.3	Fill: silty clay	Fine	7.3	14	NA	100	203	238	1263	275	822	170	180	180	120	1300	5600	60	105	125	45	33
BH2	0.1-0.2	Fill: silty sand	Coarse	7.3	8	NA	100	203	218	1263	175	522	170	--	180	120	300	2800	50	85	70	105	33
BH3	0.1-0.3	Fill: silty sand	Coarse	7.3	8	NA	100	203	218	1263	175	522	170	180	180	120	300	2800	50	85	70	105	33
BH4	0.1-0.3	Fill: gravelly clay	Fine	7.3	14	NA	100	203	238	1263	275	822	170	--	180	120	1300	5600	60	105	125	45	33
BH5	0-0.2	Fill: silty sand	Coarse	7.3	8	NA	100	203	218	1263	175	522	170	180	180	120	300	2800	50	85	70	105	33
BH6	0-0.2	Fill: silty clay	Fine	7.3	14	NA	100	203	238	1263	275	822	170	--	180	120	1300	5600	60	105	125	45	33
BH7	0-0.3	Fill: silty clay	Fine	7.3	14	NA	100	203	238	1263	275	822	170	180	180	120	1300	5600	60	105	125	45	33
BH8	0-0.2	Fill: silty clay	Fine	7.3	14	NA	100	203	238	1263	275	822	170	--	180	120	1300	5600	60	105	125	45	33
BH9	0-0.3	Fill: silty clay	Fine	7.3	14	NA	100	203	238	1263	275	822	170	180	180	120	1300	5600	60	105	125	45	33
BH10	0-0.3	Fill: silty clay	Fine	7.3	14	NA	100	203	238	1263	275	822	170	--	180	120	1300	5600	60	105	125	45	33
BH11	0-0.3	Fill: silty clay	Fine	7.3	14	NA	100	203	238	1263	275	822	170	180	180	120	1300	5600	60	105	125	45	33
BH12	0.2-0.4	Fill: silty clay	Fine	7.3	14	NA	100	203	238	1263	275	822	170	--	180	120	1300	5600	60	105	125	45	33
BH13	0-0.3	Fill: silty clay	Fine	7.3	14	NA	100	203	238	1263	275	822	170	180	180	120	1300	5600	60	105	125	45	33
BH14	0.1-0.2	Fill: silty clay	Fine	7.3	14	NA	100	203	238	1263	275	822	170	--	180	120	1300	5600	60	105	125	45	33
BH15	0-0.2	Fill: silty clayey sand	Coarse	7.3	8	NA	100	203	218	1263	175	522	170	--	180	120	300	2800	50	85	70	105	33
BH16	0.1-0.3	Fill: sandy clay	Fine	7.3	14	NA	100	203	238	1263	275	822	170	180	180	120	1300	5600	60	105	125	45	33

TABLE D

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 = BH15 (0-0.2)	Arsenic	4	23	24	23.5	4
Dup Ref = DUPJDC1	Cadmium	0.4	0.5	0.5	0.5	0
	Chromium	1	17	20	18.5	16
	Copper	1	31	33	32.0	6
	Lead	1	380	410	395.0	8
	Mercury	0.1	LPQL	LPQL	NC	NC
	Nickel	1	9	12	10.5	29
	Zinc	1	290	330	310.0	13

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

Appendix A: EIS Preliminary Salinity Assessment Report

ENVIRONMENTAL INVESTIGATION SERVICES

REPORT

TO

JDH ARCHITECTS

ON

PRELIMINARY SALINITY ASSESSMENT

FOR

PROPOSED ALTERATIONS AND ADDITIONS

AT

LIDCOMBE PUBLIC SCHOOL, MILLS STREET, LIDCOMBE, NSW

13 JUNE 2017 **REF: E30429KPrpt-SAL**

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APPENDICES:

Appendix A1: Background on Salinity

ABBREVIATIONS

Australian Height Datum	**AHD**
Acid Sulfate Soil	**ASS**
Below Ground Level	**BGL**
Borehole	**BH**
Cation Exchange Capacity	**CEC**
Calcium	**Ca**
Cement, Concrete and Aggregates Australia	**CCAA**
Chain of Custody	**COC**
Damp Proof Course	**DPC**
Department of Land and Water Conservation	**DLWC**
Dissolved Oxygen	**DO**
Environmental Investigation Services	**EIS**
International Organisation of Standardisation	**ISO**
Local Government Authority	**LGA**
Map Grid of Australia	**MGA**
Magnesium	**Mg**
National Association of Testing Authorities	**NATA**
Potassium	**K**
Polyvinyl Chloride	**PVC**
Practical Quantitation Limit	**PQL**
Redox Potential	**Eh**
Site Assessment Criteria	**SAC**
Standard Penetration Test	**SPT**
Standard Sampling Procedure	**SSP**
Standing Water Level	**SWL**
Standard Sampling Procedure	**SSP**
Sodium	**Na**
Virgin Excavated Natural Material	**VENM**
Western Sydney Regional Organisation of Councils	**WSROC**

Units

deci Siemens per Metre	**dS/m**
Electrical Conductivity	**EC**
Exchangeable Sodium Percentage (Sodicity)	**ESP%**
Litres	**L**
Metres	**m**
Metres Below Ground Level	**mBGL**
Millivolts	**mV**
Millilitres	**ml**
Milliequivalents	**meq**
Milligrams per Litre	**mg/L**
Milligrams per Kilogram	**mg/kg**
ohm Centimetres	**ohm.cm**
Parts Per Million	**ppm**
micro Siemens per Centimetre	**µS/cm**

1 INTRODUCTION

JDH Architects ('the client') commissioned Environmental Investigation Services (EIS)[1] to undertake a preliminary salinity assessment for the proposed alterations and additions at Lidcombe Public School, Mills Street, Lidcombe. This report forms Appendix A of the EIS report E30429KPrpt (dated 13 June 2017, and referred to herein as 'the main report') and should be read in conjunction with the main report.

For the purpose of this report, the wider school property has been referred to as 'the site'. Soil sampling for the assessment was generally limited to the proposed new building footprints, referred to as the 'investigation areas'. Reference should be made to Figure 1 and Figure 2 attached to the main report for further details of these areas.

Background information on salinity is included in the appendices.

1.1 Proposed Development Details

Based on the details provided, EIS understand that the proposed additions will include separate one and two storey buildings with timber decking and walkways. We have generally described these buildings as the 'southern' building and 'northern' building to differentiate between the two (southern and northern have also been used when referring to the associated investigation areas).

We have assumed that limited cut and fill earthworks may be required. The proposed ground floor of the southern building is at reduced level (RL) 20.0m and will require excavation up to 1.0m depth at the western end, with the ground floor above existing grade at the eastern side.

It is also assumed that minor landscaping works will also be required.

1.2 Aim and Objectives

The primary aim of the assessment was to characterise the broad scale salinity conditions at the site in the context of the proposed development works. The assessment objectives were to:

- Assess the current site conditions via a site walkover inspection; and
- Assess the soil salinity conditions via implementation of a preliminary sampling and analysis program.

1.3 Scope of Work

The scope of work included the following:

- Review site information including topography, soils maps, regional geology and hydro-geology in the vicinity of the site;

[1] Environmental consulting division of Jeffery & Katauskas Pty Ltd (J&K)

- A walkover site inspection to identify obvious visual indicators of salinity or potential problem areas;
- Design and implementation of a field sampling and laboratory analysis program concurrently with the contamination assessment outlined in the main report;
- Interpretation of the analytical results based on established assessment criteria; and
- Preparation of a report presenting the results of the assessment.

The assessment was designed and the report was prepared with reference to regulations/guidelines outlined in the table below. Individual guidelines/documents are also referenced within the text of the report.

Table 1-1: Guidelines

Guidelines/Regulations/Documents
Site Investigations for Urban Salinity (2002)[2]
Salinity Code of Practice (2004)[3]
Managing Urban Stormwater – Soil and Construction (4th ed.) (2004)[4]
Salinity Potential in Western Sydney Map (2002)[5]
Piling – Design and Installation AS2159-2009 (2009)[6]
T56: Guide to Residential Slabs and Footings in Saline Environments (2005)[7]

[2] Department of Land and Water Conservation (DLWC), (2002). *Site Investigations for Urban Salinity,* (referred to as DLWC 2002)

[3] Western Sydney Regional Organisation of Councils (WSROC) and Department of Infrastructure, Planning and Natural Resources (DIPNR), (2003 amended 2004). *Western Sydney Salinity Code of Practice* (referred to as Salinity Code of Practice)

[4] NSW Government/Landcom, (2004). *Managing Urban Stormwater – Soil and Construction*, (4th ed.) (referred to as Blue Book)

[5] DIPNR, (2002). *1:100,000 Map – Salinity Potential in Western Sydney*, (referred to as Salinity Potential Map)

[6] Standards Australia, (2009). *Piling – Design and Installation, AS2159-2009* (referred to as AS2159-2009)

[7] Cement, Concrete and Aggregates Australia (CCAA), (2005). *T56: Guide to Residential Slabs and Footings in Saline Environments* (referred to as CCAA 2005)

2 SITE DESCRIPTION

The site is located on the northern side of Dodson Avenue and to the south and east of Mills Street. The site is located within a gently undulating regional topographic setting, towards the top of a low rising hill. In the vicinity of the investigation areas the site generally falls towards the east at slopes of 1-3°.

A walkover inspection of the site was undertaken by EIS on 20 May 2017. The inspection was limited to accessible areas of the site and did not include an internal inspection of any buildings. The inspection focussed predominantly on the investigation areas, however a cursory walkover of the wider site was also undertaken for completeness.

At the time of the inspection the site was occupied by Lidcombe Primary School and comprised various buildings, grassed, paved, astro-turf and soft fall recreational areas. There were no obvious salinity impacts observed within the investigation areas or the immediate surrounds. There were no salt scalds at the surface or on pavements, and all vegetation appeared to be in a reasonable condition.

3 GEOLOGY AND HYDROGEOLOGY

3.1 Regional Geology and Soils

Regional geological information presented in the Lotsearch report (attached in the appendices to the main report) indicated that the site is predominantly underlain by Ashfield Shale which typically consists of black to dark grey shale and laminate. Soil landscape mapping indicates that the site is located within the Blacktown soil landscape. Blacktown soils are characterised by moderate erodibility with some higher local occurrences, low dispersivity and localised areas of moderate salinity.

3.2 Salinity Hazard Map

The site is located within the area of Western Sydney included in the Salinity Potential Map. Based upon interpretation from the geological formations and soil groups presented on the map, the site is located in a region of moderate salinity potential. The moderate classification is attributed to scattered areas of scalding and indicator vegetation, in areas where concentrations have not been mapped. Saline areas may occur in this zone, which have not been identified or may occur if risk factors change adversely.

3.3 Hydrogeology

Hydrogeological information presented in the Lotsearch report (attached in the appendices to the main 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 were no registered groundwater users within 500m of the site. The nearest registered bore was located approximately 600m to the south-west of the site and was registered for monitoring purposes. All bores were registered for monitoring purposes.

The information reviewed for this assessment, and the findings of the contamination assessment as documented in the main report, indicated that the subsurface conditions at the site are likely to consist of residual soils overlying relatively shallow shale bedrock. Groundwater is unlikely to be encountered during shallow excavation works for the proposed development.

4 SAMPLING AND ANALYSIS PLAN

4.1 Soil Sampling Rationale

The investigation included soil sampling from two locations (BH2 and BH5) - one per proposed building area. When considering the extent of the development footprint, this density meets the requirements for an 'initial site investigation' recommended in the DLWC 2002 document for 'moderately intensive construction'. The density was considered adequate to identify large areas of salinity impacted soils within each of the proposed development areas.

Soil sampling for this assessment was confined to the depth of approximately 2m below existing ground level. This was considered adequate as the proposed development includes only minimal excavations.

4.2 Soil Sampling Methods

The soil sampling methods are outlined in the main report.

4.3 Laboratory Analysis

Samples were analysed by Envirolab Services Pty Ltd (NATA accreditation number 2901). Reference should be made to the laboratory report (Ref: 167600) attached in the appendices of the main report for further details of the analytical methods.

4.4 Analytical Schedule

The analytical schedule is outlined in the following table:

Table 4-1: Analytical Schedule

Analyte	Fill Samples	Natural Soil Samples
pH	2	4
Electrical Conductivity (EC)	2	4
Resistivity	2	4
Texture (used to determine EC extract – ECe)	2	4
Cation Exchange Capacity (CEC)	1	1
Sulphate	2	4
Chloride	2	4

5 SITE ASSESSMENT CRITERIA (SAC)

5.1 Soil Salinity and Plant Growth

The EC of a 1:5 soil:water extract is commonly used as an indicator of soil salinity conditions as the reading is directly related to the electrolyte (salt) concentration of the extract. In order to compare the laboratory data with published salinity classes, the results are converted to equivalent saturated paste (ECe) using texture adjustment values presented in DLWC 2002.

The following table provides a summary of plant response with reference to salinity:

Table 5-1: Plant Response to Soil Salinity

ECe (dS/m)	Salinity Class	Plant Response[1]
<2	Non-saline	Salinity effects mostly negligible
2-4	Slightly saline	Yields of very sensitive crops may be affected
4-8	Moderately saline	Yield of many crops affected
8-16	Very saline	Only tolerant crops yield satisfactorily
>16	Highly saline	Only a few very tolerant crops yield satisfactorily

Note:
1 - Plant Response to Salinity Class has been adopted from DLWC 2002

5.2 Soil pH and Plant Growth

Soil pH is a measure of the acidity or alkalinity of the soils and values have been assessed as an indicator of soil fertility with respect to plant growth. The optimal pH for plant growth is between 5.5 and 7. Beyond this range, effective revegetation of exposed soil following disturbance is increasingly difficult and the potential for erosion is considered to increase.

Highly alkaline soils are commonly associated with saline and sodic soil conditions and can limit the ability of plants to take up water and nutrients. Highly acidic soils exhibit aluminium toxicity toward plants and can limit the ability of plants to take up other essential nutrients including molybdenum.

Interpretation of soil pH with respect to plant growth is undertaken using the ratings published in Bruce and Rayment (1982[8]) presented below:

[8] Bruce, R.C. and Rayment, G.E., (1982). *Analytical Methods and Interpretations used by the Agricultural Chemistry Branch for Soil and Land Use Surveys,* (referred to as Bruce and Rayment 1982)

Table 5-2: Plant Response to Soil pH

pH	Rating
<4.5	Extremely acidic
4.5-5.0	Very strongly acidic
5.1-5.5	Strongly acidic
5.6 – 7.3	Optimal plant growth
7.4-7.8	Mildly alkaline
7.9-8.4	Moderately alkaline
8.5-9.0	Strongly alkaline
>9.1	Very strongly alkaline

5.3 Cation Exchange Capacity (CEC) in Soil

The ability of soils to attract, retain and exchange cations (positively charged ions) is estimated by the calculated CEC value. CEC represents the major controlling factor in stability of clay soil structure, nutrient availability for plant growth, soil pH and the reaction of the soil to chemical applications (fertilisers, conditioners etc.).

High CEC soils have a greater capacity to retain nutrients, however, deficient soils require greater applications of nutrients to correct imbalances. Low CEC soils have a reduced capacity to retain nutrients and may result in leaching of nutrients from the soil in the event of excess nutrient applications.

Metson (1961[9]) developed a set of ratings for effective CEC and the most abundant cations. These are summarised in the following table (values are in meq/100g):

[9] Metson, A.J, (1961). *Methods of Chemical Analysis for Soil Survey Samples* (referred to as Metson 1961)

Table 5-3: CEC Rating

Rating	eCEC	Exch Na	Exch K	Exch Ca	Exch Mg
Very low	<6	0-0.1	0-0.2	0-2	0-0.3
Low	6-12	0.1-0.3	0.2-0.3	2-5	0.3-1
Moderate	12-25	0.3-0.7	0.3-0.7	5-10	1-3
High	25-40	0.7-2	0.7-2	10-20	3-8
Very high	>40	>2	>2	>20	>8

Note:
CEC – Cation Exchange Capacity, Na – Sodium, K – Potassium, Ca – Calcium, Mg – Magnesium

5.3.1 Ratio of Exchangeable Calcium to Magnesium

To maintain soil structure there should be a ratio of around 4:1 to 6:1 calcium to magnesium for a balanced soil (Eckert 1987[10]). At ratios of less than 4:1 calcium is considered to be deficient, whilst at ratios of greater than 6:1 are considered to be magnesium deficient.

5.4 Exchangeable Sodium Percentage or Sodicity (ESP%)

Exchangeable sodium is an important soil stability and salinity parameter. Excessive exchangeable sodium leads to unstable soils, increased runoff, potential salinity, dispersivity and water logging problems.

Normally the sodium content is expressed as a percentage of the CEC as other cations counteract the negative effects of sodium (known as ESP% and termed sodicity). The effect of the exchangeable sodium (exchangeable sodium percentage, ESP) varies with other soil factors such as the type of clay, the relative quantity of magnesium and the quantity of organic matter. However, Charman & Murphy (2000[11]) indicate that a soil is generally considered sodic if the ESP exceeds 6% and extremely sodic if the ESP exceeds 15%.

5.5 Recommendations for Concrete Slabs and Footings in Saline Soils

In the absence of endorsed recommendations for buildings in saline environments, reference is made to the CCAA 2005. The guide provides recommendations on the minimum concrete grade/strength required for slabs and footings in saline soils. Reference should be made to the CCAA 2005 publication for future information:

[10] Eckert, D.J, (1987) .*Soil Test Interpretation: Basic Cation Saturation Ratios and Sufficiency Levels* (referred to as Eckert 1987)
[11] Charman, P.E.V and Murphy, B.W (eds), (2000).*Soils: Their Management and Properties,* (referred to as Charman and Murphy 2000)

Table 5-4: Minimum Concrete Grade for Slabs and Footings in Saline Soils

ECe (dS/m)	Salinity Class	Concrete Grade[1]
<2	Non-saline	N20
2-4	Slightly saline	N20
4-8	Moderately saline	N25
8-16	Very saline	N32
>16	Highly saline	≥N40

Note:

1 - Concrete Grade for Salinity Class has been adopted from CCAA 2005

5.6 Recommendations for Durability with Reference to AS2159-2009

In designing for durability, reference should be made to the requirements listed in the AS2159-2009. The exposure classification for concrete and steel piles and foundations is outlined in the following tables.

Table 5-5: Exposure Classification for Concrete Piles

Exposure Conditions				Exposure Classification	
Sulphate (expressed as SO_4)		pH	Chlorides in Groundwater (ppm)	Soil Conditions A[1]	Soil Conditions B[2]
In Soil (ppm)	In Groundwater (ppm)				
<5,000	<1,000	>5.5	<6,000	Mild	Non-aggressive
5,000-10,000	1,000-3,000	4.5-5.5	6,000-12,000	Moderate	Mild
10,000-20,000	3,000-10,000	4-4.5	12,000-30,000	Severe	Moderate
>20,000	>10,000	<4	>30,000	Very severe	Severe

Notes:

1 - High permeability soils (eg sands and gravels) which are in groundwater

2 – Low permeability soils (eg silts and clays) or all soils above groundwater

Table 5-6: Exposure Classification for Steel Piles

Exposure Conditions				Exposure Classifications	
pH	Chlorides		Resistivity (ohm.cm)	Soil Conditions A[1]	Soil Conditions B[2]
	In Soil (ppm)	In Groundwater (ppm)			
>5	<5,000	<1,000	>5,000	Non-aggressive	Non-aggressive
4-5	5,000-20,000	1,000-10,000	2,000-5,000	Mild	Non-aggressive

3-4	20,000-50,000	10,000-20,000	1,000-2,000	Moderate	Mild
<3	>50,000	>20,000	<1,000	Severe	Moderate

Notes:

1 - High permeability soils (eg sands and gravels) which are in groundwater

2 – Low permeability soils (eg silts and clays) or all soils above groundwater

6 INVESTIGATION RESULTS

6.1 Subsurface Conditions

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

Table 6-1: Summary of Subsurface Conditions

Profile	Description
Pavement	Asphalt pavement was encountered at the surface in BH4.
Fill	Fill was encountered beneath the asphalt in BH4 and at the surface in the remaining boreholes. The fill typically comprised silty sand or silty clay soil and extended to a maximum depth of approximately 0.8m (however it is noted that a number of the hand augered boreholes were terminated due to refusal in fill). Various inclusions of ash, igneous gravel, sandstone gravel and cobbles, concrete fragments, brick fragments and glass fragments were encountered in the fill. Metallurgic furnace slag was also identified in fill in BH13. BH12 encountered a geofabric and geogrid marker layer at a depth of approximately 0.2m. Fibre cement / suspected ACM fragments were not observed during sampling.
Natural Soil	Natural silty clay soil (residual) was encountered beneath the fill in all boreholes that were not terminated in fill, and typically extended to depths ranging from 1.2m to 2.3m. Several boreholes were terminated in the natural soil at shallower depths.
Bedrock	Shale bedrock was identified beneath the natural silty clay (except for at one location where sandstone was encountered). The bedrock extended to the termination depth of the boreholes (maximum depth of 6m).
Groundwater	Groundwater was not encountered in the boreholes during augering, to a maximum depth of 6m.

6.2 Laboratory Results

A summary of the results is presented below.

Table 6-2: Summary of Laboratory Results

Analyte	Results
EC & ECe	The EC results ranged from 74µS/cm to 180µS/cm. The ECe results ranged from less than the laboratory practical quantitation limit (PQL) (i.e. <2 dS/m) to 2dS/m.
Resistivity	The resistivity values for the soil samples ranged from 7,400ohm.cm to 18,000ohm.cm.
pH	The results of the analysis ranged from 5.5 to 7.4.
CEC	The results of the analysis ranged from: • CEC – 10meq/100g to 17meq/100g; • Exchangeable Na – 0.17meq/100g to 0.3meq/100g; • Exchangeable K – 0.2meq/100g to 0.3meq/100g; • Exchangeable Ca – 8meq/100g to 14meq/100g; and • Exchangeable Mg – 1.5meq/100g to 2.4meq/100g.
Sulphate	The sulphate results ranged from less than the PQL to 160mg/kg.
Chloride	The chloride results ranged from less than the PQL to 38mg/kg.

Note:
Na – Sodium, K – Potassium, Ca – Calcium, Mg – Magnesium

7 RESULTS INTERPRETATION

The soil laboratory results are compared to the relevant SAC in the attached report tables. Interpretation of the results against the SAC is provided in the following table.

Table 7-1: Interpretation of Laboratory Results

Parameter	Notes
Soil Salinity and Plant Growth	The ECe results generally ranged from less than the PQL (i.e. <2) to 2. The majority of the samples were classed as non-saline (it is noted that the laboratory also reported the results as non-saline when the ECe was equal to 2).
Soil pH and Plant Growth	The soil pH results ranged from 5.5 to 7.4 and are classed as strongly acidic to mildly alkaline. The acidic conditions generally increased with depth. Any proposed excavations will likely expose acidic soils and may require treatment with lime or gypsum in order to make the soils suitable for plant growth.
CEC in Soil	The CEC values ranged from 10meq/100g to 17meq/100g and were in the low to moderate range.
Ratio of Calcium to Magnesium	The results indicate that the soils have more calcium than magnesium. The CEC of the soil is generally low to moderate. Lime and gypsum can be used to stabilise the soil which will improve soil structure for both engineering and fertility purposes.
ESP%	The ESP% values of both the samples was <5%. This is below the 5% threshold therefore the soils were classed as non-sodic.
Concrete Slabs and Footings in Saline Soils (CCAA 2005)	The proposed earthworks are anticipated to expose soils generally classed as non-saline to slightly saline. The CCAA 2005 recommended concrete grade for slabs and footings in slightly saline soils is N20. Reference should also be made to AS2159-2009 for minimum concrete strengths and reinforcement cover for concrete piles/foundations.
Soil Conditions for Exposure Classification (AS2159-2009)	The boreholes drilled for the investigation have indicated that the subsurface conditions at the site generally comprise of low permeability soils (i.e. silts and clays). Based on this, the exposure classification outlined under 'Soil Conditions B' has been adopted for the assessment.
Exposure Classification for Concrete Piles/Foundations (AS2159-2009)	The soil pH and sulphate results indicate that the sub-surface soils are non-aggressive to mildly aggressive towards buried concrete.

Parameter	Notes
Exposure Classification for Steel Piles/Foundations (AS2159-2009)	The soil resistivity, pH and chloride results indicate that the soils are non-aggressive towards buried steel.

8 DISCUSSION AND RECOMMENDATIONS

Based on the findings of the preliminary assessment, significantly saline and/or aggressive soil conditions are not expected to be encountered during the development works (as described in Section 1.1) where significant excavations beyond a depth of approximately 1-2m are not proposed. EIS recommend that the structural engineer review the exposure classification and salinity results within this report and factor these into the design accordingly.

9 LIMITATIONS

Salinity is a natural phenomenon and can change over time based on site conditions and climatic variations. Changes to existing drainage patters can also impact the salinity at the site. The results outlined in this report are a snap shot of conditions present at the time of the investigation and is bound to change over time.

EIS accepts no responsibility for any unidentified salinity 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.

Reference should also be made to the limitations presented in the main report which also apply to this preliminary salinity assessment report.

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IMPORTANT INFORMATION ABOUT THIS REPORT

These notes have been prepared by EIS 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 EIS 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.

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

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

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

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

Assessment Limitations
The assessment is designed to identify major salinity risks at the site. Implementing the management recommends can minimise the risks. No assessment can identify all risks as salinity is a natural phenomenon which can change over time. Even a rigorous professional assessment may not detect all potential salinity impacts on a site. Salinity may be present in areas that were not surveyed or sampled, or may accumulate in areas which showed no signs of salinity when sampled.

Misinterpretation of Site Assessments by Design Professionals
Costly problems can occur when other design professionals develop plans based on misinterpretation of an assessment 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 Assessment 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 management or other design drawings, as subtle but significant drafting errors or omissions may occur in the transfer process. Photographic reproduction can eliminate this problem, however contractors can still misinterpret the logs during bid preparation if separated from the text of the assessment. If this occurs, delays, disputes and unanticipated costs may result. In all cases it is necessary to refer to the rest of the report to obtain a proper understanding of the assessment. Please note that logs with the 'Environmental Log' header are not suitable for geotechnical purposes as they have not been peer reviewed by a Senior Geotechnical Engineer.

To reduce the likelihood of borehole and test pit log misinterpretation, the complete assessment 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 assessment 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 assessment, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to any questions.

LABORATORY SUMMARY TABLES

TABLE A (Appendix A)
SUMMARY OF SOIL LABORATORY RESULTS - EC and ECe

Borehole Number	Sample Depth (m)	Sample Description	EC (µS/cm)	ECe (dS/m)	Salinity Class[1]
Sample Depth Range - 0.1m to 2.0m					
BH2	0.1-0.2	Fill: silty sand	180	2	**Slightly Saline**
BH2	0.7-1	Silty clay	98	<2	**Non-Saline**
BH2	1.5-1.95	Silty clay	93	<2	**Non-Saline**
BH5	0-0.2	Fill: silty sand	110	<2	**Non-Saline**
BH5	0.8-0.95	Silty clay	120	<2	**Non-Saline**
BH5	1.8-2.0	Sandstone	74	<2	**Non-Saline**
Total Number of Samples			6	1	-
Minimum Value			74	2	-
Maximum Value			180	2	-

Explanation

1 - Salinity Class has been adopted from '*Site Investigations for Urban Salinity*' DLWC 2002.

ECe Values (dS/m)	Salinity Class
<2	**Non-Saline**
2 to 4	**Slightly Saline**
4 to 8	**Moderately Saline**
8 to 16	**Very Saline**
>16	**Highly Saline**

Abbreviations

EC - Electrical Conductivity
ECe - Extract Electrical Conductivity

E30429KP

TABLE B (Appendix A)
SUMMARY OF RESISTIVITY CALCULATION ON SOIL EC RESULTS

Borehole Number	Sample Depth (m)	Sample Description	EC (µS/cm)	Resistivity[1] (ohm.m)	Classification[2] Condition B
Sample Depth Range - 0.1m to2.0m					
BH2	0.1-0.2	Fill: silty sand	180	18,000	**Non-Aggressive**
BH2	0.7-1	Silty clay	98	9,800	**Non-Aggressive**
BH2	1.5-1.95	Silty clay	93	9,300	**Non-Aggressive**
BH5	0-0.2	Fill: silty sand	110	11,000	**Non-Aggressive**
BH5	0.8-0.95	Silty clay	120	12,000	**Non-Aggressive**
BH5	1.8-2.0	Sandstone	74	7,400	**Non-Aggressive**
Total Number of Samples			6	6	-
Minimum Value			74	7,400	-
Maximum Value			180	18,000	-

Explanation

1 - Resistivity values have been calculated by the laboratory as ohm.m. EIS have multiplied this results by 100 to convert the reslt to ohm.cm.

2 - Classification derived from the Australian Standard 2159-2009 Piling Design and Installation (Table 6.5.2 [A] & [C])
Classification is based on Soil condition 'B' - low permeability soils (e.g. silts & clays) or all soils above groundwater.

Resistivity Values (ohm.m)	Classification for Steel Piles
>5,000	**Non-Aggressive**
2,000 - 5,000	**Non-Aggressive**
1,000 - 2,000	**Mildly Aggressive**
<1,000	**Moderately Aggressive**

Abbreviations

EC - Electrical Conductivity

TABLE C (Appendix A)
SUMMARY OF SOIL LABORATORY RESULTS - pH

Borehole Number	Sample Depth (m)	Sample Description	pH	Classification for Concrete Piles[1] Soil Condition B[2]	Classification for Steel Piles[1] Soil Condition B[2]
Sample Depth Range - 0.1m to 2.0m					
BH2	0.1-0.2	Fill: silty sand	7.3	**Non-Aggressive**	**Non-Aggressive**
BH2	0.7-1	Silty clay	5.7	**Non-Aggressive**	**Non-Aggressive**
BH2	1.5-1.95	Silty clay	5.8	**Non-Aggressive**	**Non-Aggressive**
BH5	0-0.2	Fill: silty sand	7.4	**Non-Aggressive**	**Non-Aggressive**
BH5	0.8-0.95	Silty clay	5.5	**Mildly Aggressive**	**Non-Aggressive**
BH5	1.8-2.0	Sandstone	6.5	**Non-Aggressive**	**Non-Aggressive**
Total Number of Samples			6	-	-
Minimum Value			5.5	-	-
Maximum Value			7.4	-	-

Explanation

1 - pH Classification derived from the Australian Standard 2159-2009 Piling Design and Installation (Tables 6.4.2 [C] & 6.5.2 [C])

2 - Classification is based on Soil condition 'B' - low permeability soils (e.g. silts & clays) or all soils above groundwater.

pH Value	Classification for Concrete Piles
>5.5	**Non-Aggressive**
4.5 - 5.5	**Mildly Aggressive**
4 - 4.5	**Moderately Aggressive**
<4	**Severely Aggressive**

pH Value	Classification for Steel Piles
>5	**Non-Aggressive**
4.0 - 5.0	**Non-Aggressive**
3.0 - 4.0	**Mildly Aggressive**
<3	**Moderately Aggressive**

TABLE D (Appendix A)
SUMMARY OF SOIL LABORATORY RESULTS - SULPHATE & CHLORIDE

Borehole Number	Sample Depth (m)	Sample Description	Sulphate (mg/kg)	Chloride (mg/kg)	Classification for Concrete Piles[1] SO4 - Soil Condition B[2]	Classification for Steel Piles[1] Cl - Soil Condition B[2]
Sample Depth Range - 0.1m to 2.0m						
BH2	0.1-0.2	Fill: silty sand	38	10	Non-Aggressive	Non-Aggressive
BH2	0.7-1	Silty clay	<10	<10	Non-Aggressive	Non-Aggressive
BH2	1.5-1.95	Silty clay	160	20	Non-Aggressive	Non-Aggressive
BH5	0-0.2	Fill: silty sand	130	20	Non-Aggressive	Non-Aggressive
BH5	0.8-0.95	Silty clay	68	38	Non-Aggressive	Non-Aggressive
BH5	1.8-2.0	Sandstone	59	10	Non-Aggressive	Non-Aggressive
Total Number of Samples			5	5	-	-
Minimum Value			38	10	-	-
Maximum Value			160	38	-	-

Explanation

1 - Classification derived from the Australian Standard 2159-2009 Piling Design and Installation (Tables 6.4.2 [C] & 6.5.2 [C])

2 - Classification is based on Soil condition 'B' - low permeability soils (e.g. silts & clays) or all soils above groundwater.

Sulphate (SO4) Values	Classification for Concrete Piles
<5,000	Non-Aggressive
5,000 - 10,000	Mildly Aggressive
10,000 - 20,000	Moderately Aggressive
>20,000	Severely Aggressive

Chloride (Cl) Values	Classification for Steel Piles
<5,000	Non-Aggressive
5,000 - 20,000	Non-Aggressive
20,000 - 50,000	Mildly Aggressive
>50,000	Moderately Aggressive

TABLE E (Appendix A)
SUMMARY OF SOIL LABORATORY RESULTS - CEC & ESP

Borehole Number	Sample Depth (m)	Sample Description	Total CEC	Ca	K	Mg	Na	ESP[1]
			(meq/100g)					%
BH2	0.1-0.2	Fill: silty sand	10	8	0.3	1.5	0.3	0.8
BH5	0.8-0.95	Silty clay	17	14	0.2	2.4	0.17	1.0
Total Number of Samples			2	2	2	2	2	2
Minimum Value			10.0	8.0	0.2	1.5	0.1	0.83
Maximum Value			17.0	14.0	0.3	2.4	0.3	1.00

Explanation

1 - Sodicity rating has been adopted from the publication *'Site Investigations for Urban Salinity' DLWC* 2002.

ESP Value	Sodicity Rating
< 5%	Non-Sodic
5% to 15%	Sodic
> 15%	Highly Sodic

Abbreviation

CEC: Cation Exchange Capacity
ESP: Exchangeable Sodium Percentage (Each Na/CEC)
Mg: Exchangeable Magnesium
Na: Exchangeable Sodium
K: Exchangeable Potassium
Ca: Exchangeable Calcium

Appendix A1: Background on Salinity

BACKGROUND ON SALINITY

General Information on Salinity

Salinity is the accumulation and concentration of salt at or near the ground surface or within surface water bodies. Salt is naturally present in the landscape through deposition of salt from the ocean in coastal areas and through weathering of bedrock that contains salt, accumulated during deposition of original sediments in a prehistoric marine environment. The salts are commonly soluble chlorides, sulphates or carbonates of sodium and magnesium.

In Sydney, salinity issues are typically associated with the Wianamatta Group shales and their derived soil landscapes. The natural vegetation of western Sydney is dominated by large isolated trees with deep root systems that remove subsurface moisture. Slow rates of percolation through the relatively impermeable clay soil and uptake of a large proportion of rainfall by the trees results in limited recharge of the groundwater system by rainfall. The depth to groundwater has developed a natural equilibrium and there is little tendency for salt contained in the groundwater or subsoils to rise to the surface.

Salinity and Urban Development

Salinity becomes a problem in urban areas when changes in the land use result in changes to the way water moves through the environment. This can result in vegetation die-back, decrease in water quality and damage to urban infrastructure.

Removal of deep rooted tree species during development and replacement with urban infrastructure, houses and industrial developments reduces the mechanism for the removal of subsurface moisture.

The development of urban salinity is commonly associated with changes in the hydrological cycle through the environment (rainfall, surface run-off, water infiltration and groundwater system). An increase in the quantity of water reaching the groundwater table as a result of vegetation clearance, irrigation of parklands, leaking water infrastructure and changes in drainage patterns, can cause a relatively rapid rise in the groundwater table. Earthworks that include excavation of natural soil profiles and exposure of more saline subsurface soils or shale bedrock may also result in an increase in salt concentrations at the ground surface.

Construction of roads, pipelines and buildings commonly results in removal of topsoil leading to exposure of the subsoils and interception of surficial and shallow subsurface drainage. In addition, over-irrigation of urban gardens, leaking water infrastructure and concentrated drainage patterns can result in increased water movement through the subsoil to the groundwater system leading to a relatively rapid rise in the groundwater table.

A rise in groundwater levels and impediments to subsurface drainage patterns can transport salt formerly stored in the bedrock to the surficial soil profile. This may result in salt encrustation of exposed soils, building foundations, roads, drainage infrastructure and corrosion of metal, concrete and other building materials. Increasing salt concentrations in surficial soils (and consequently in

surface waters) may also result in die-off of the existing vegetation, further reducing the hydrological load on the groundwater system and resulting in further groundwater table rises.

Potential Salinity Impacts on Urban Development

Some of the adverse impacts that can arise from saline conditions include:

- Salt scalds caused by a rise in the subsoil moisture content that mobilises salt to the ground surface;
- Salt scalds caused by modification of former drainage patterns which leads to the day lighting of subsurface seepage (either perched water or groundwater) in areas lower in the catchment, either at breaks in the slope or within drainage lines;
- A rise in groundwater table or accumulation of salt rich seepage leading to corrosion of subsurface facilities including concrete structures, metal pipework, cables, foundations, underground services, etc;
- Rising damp, where salt rich moisture is drawn into building and pavement materials by capillary action leading to deterioration of brick, mortar and concrete;
- Structural cracking, damage or building collapse which may occur as a result of shifting and or sinking foundations;
- Plant die-back associated with a rise in groundwater table level that mobilises excess salt to the plant root zone; and
- Subsurface water discharge and subsequent pollution of streams and drainage channels.

Soils and Groundwater Planning Strategy in Western Sydney

The aim of the DLWC 2002 document is to provide a framework for the sustainable development and management of new developments in the western region of Sydney. In relation to salinity management, the development should be designed and constructed such that there is no significant increase in the water table level and no adverse salinity impacts.

The proposed development controls that relate to soils and groundwater issues are summarised below:

1. A water management strategy should be prepared to address the following:
    - Reduction of potable water usage onsite;
    - Development of best practice measures for stormwater reuse for open space irrigation;
    - Reduction of potable water demand;
    - Reduction of adverse impacts on local groundwater regimes;
    - Reduction of change in local flow regimes; and
    - Preparation of water maintenance and a monitoring management system.
2. A salinity management plan should be prepared that includes a groundwater management strategy related to:
    - Adoption of small landscaped areas to reduce irrigation requirements;
    - Use of native and other low water requirement plants;
    - Use of mulch cover (not in drainage lines);
    - Use of low flow watering facilities for landscaped areas;

- Implementation of a tree planting program, especially in high recharge areas, of native, deep rooted, large growing species to assist retention of the groundwater at existing levels;
- Retention of existing native tree cover where possible; and
- Not permitting infiltration pits or tanks to disperse surface water.

3. An assessment of soil and rock conditions at the site, including erosion, expansive and dispersive soil conditions, and plant growth potential should be undertaken.
4. Use of the Blue Book (2004) as a guide to prepare soil and water management plans. The approved plan and subsequent works are to be supervised by appropriately qualified experienced personnel.

Appendix B: Site and Site History Information

Lotsearch Report

Lotsearch

Environmental Risk and Planning Report

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141

Report Buffer: 1000m

Report Date: 04 May 2017 13:22:15

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Location Confidences

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

LC Code	Location Confidence
1	Georeferenced to the site location / premise or part of site
2	Georeferenced with the confidence of the general/approximate area
3	Georeferenced to the road or rail
4	Georeferenced to the road intersection
5	Feature is a buffered point
6	Land adjacent to Georeferenced Site
7	Georeferenced to a network of features

Dataset Listing

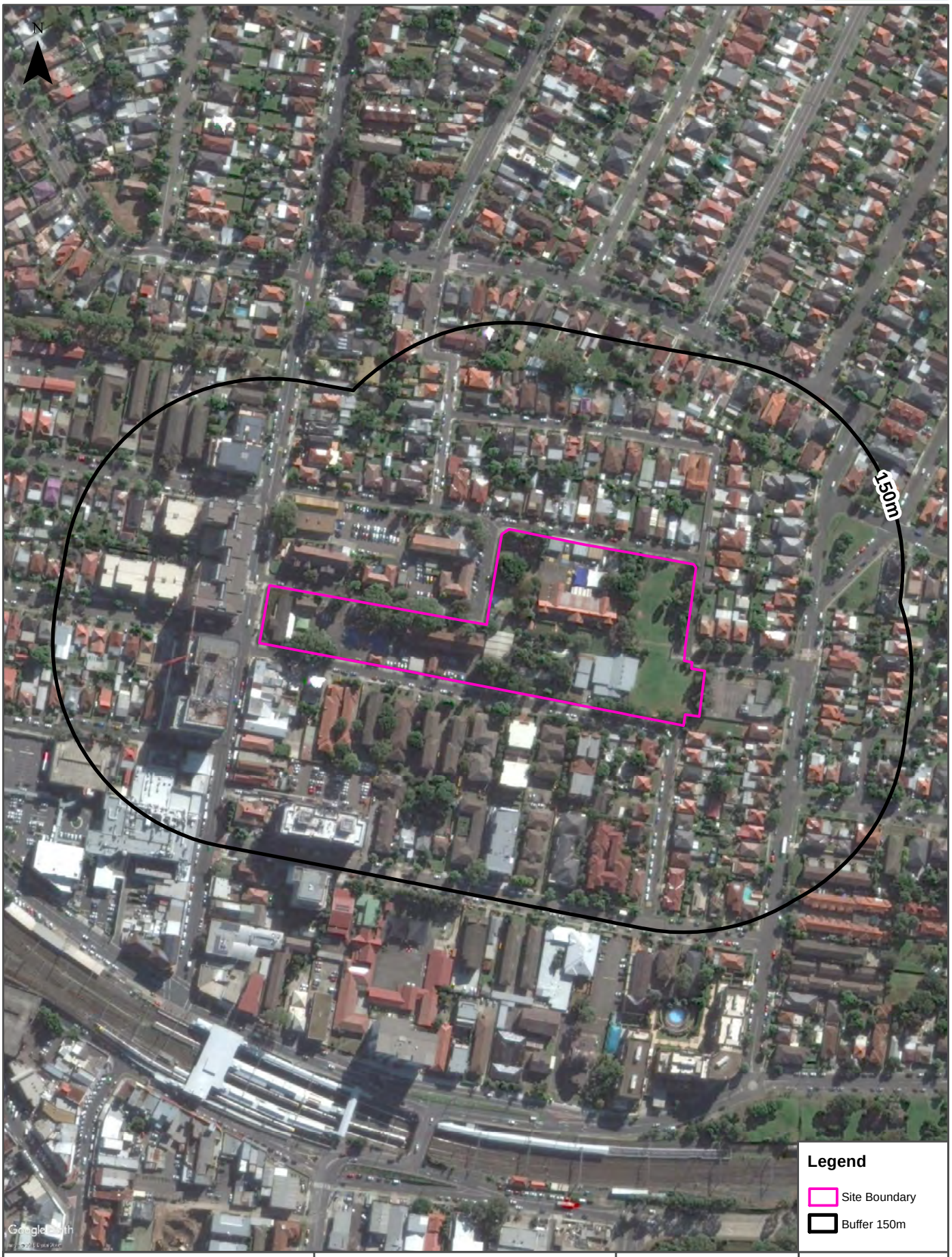
Datasets contained within this report, detailing their source and data currency:

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	No. Features Onsite	No. Features within 100m	No. Features within Buffer
Cadastre Boundaries	Land and Property Information	04/05/2017	04/05/2017	Daily	-	-	-
Topographic Data	Land and Property Information	10/04/2015	01/04/2015	As required	-	-	-
List of NSW contaminated sites notified to EPA	Environment Protection Authority	20/04/2017	05/04/2017	Monthly	0	0	0
Contaminated Land: Records of Notice	Environment Protection Authority	08/04/2017	08/04/2017	Monthly	0	0	0
Former Gasworks	Environment Protection Authority	08/04/2017	16/01/2017	Monthly	0	0	0
National Waste Management Site Database	Geoscience Australia	07/03/2017	15/11/2012	Quarterly	0	0	0
EPA PFAS Investigation Program	Environment Protection Authority	19/04/2017	19/04/2017	Monthly	0	0	0
Licensed Activities under the POEO Act 1997	Environment Protection Authority	07/04/2017	07/04/2017	Monthly	0	0	4
Delicensed POEO Activities still Regulated by the EPA	Environment Protection Authority	07/04/2017	07/04/2017	Monthly	0	0	5
Former POEO Licensed Activities now revoked or surrendered	Environment Protection Authority	07/04/2017	07/04/2017	Monthly	0	0	5
UPSS Environmentally Sensitive Zones	Department of Environment, Climate Change and Water (NSW)	14/04/2015	12/01/2010	As required	0	0	1
UBD Business to Business Directory 1991	Hardie Grant			Not required	0	2	2
UBD Business Directory 1991 Motor Garages/Service Stations	Hardie Grant			Not required	0	0	1
UBD Business Directory 1970	Hardie Grant			Not required	0	66	69
UBD Business Directory 1970 Drycleaners & Motor Garages/Service Stations	Hardie Grant			Not required	0	0	10
UBD Business Directory 1950	Hardie Grant			Not required	0	27	31
UBD Business Directory 1950 Drycleaners & Motor Garages/Service Stations	Hardie Grant			Not required	0	0	17
Points of Interest	Land and Property Information	01/02/2017	01/02/2017	Annually	1	3	65
Tanks (Areas)	Land and Property Information	01/02/2017	01/02/2017	Annually	0	0	0
Tanks (Points)	Land and Property Information	01/02/2017	01/02/2017	Annually	0	0	0
Major Easements	Land and Property Information	01/02/2017	01/02/2017	As required	0	0	1
State Forest	Land and Property Information	01/02/2017	29/06/2016	As required	0	0	0
NSW National Parks and Wildlife Service Reserves	NSW Office of Environment and Heritage	01/02/2017	31/12/2016	Annually	0	0	0
Hydrogeology Map of Australia	Commonwealth of Australia (Geoscience Australia)	08/10/2014	17/03/2000	As required	1	1	1
Groundwater Boreholes	NSW Department of Primary Industries - Office of Water / Water Administration Ministerial Corporation; Commonwealth of Australia (Bureau of Meteorology) 2015	21/03/2016	01/12/2015	Annually	0	0	16
Geological Units 1:100,000	NSW Department of Industry, Resources & Energy	20/08/2014		None planned	1	-	3
Geological Structures 1:100,000	NSW Department of Industry, Resources & Energy	20/08/2014		None planned	0	-	0
Naturally Occurring Asbestos Potential	NSW Department of Industry, Resources & Energy	04/12/2015	24/09/2015	Unknown	0	0	0
Soil Landscapes	NSW Office of Environment and Heritage	12/08/2014		None planned	1	-	3
Standard Local Environmental Plan Acid Sulfate Soils	NSW Planning and Environment	07/10/2016	07/10/2016	As required	1	-	-
Dryland Salinity Assessment	National Land and Water Resources Audit	18/07/2014	12/05/2013	None planned	0	0	0
Mining Subsidence Districts	Land and Property Information	31/08/2016	31/08/2016	As required	0	0	0

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	No. Features Onsite	No. Features within 100m	No. Features within Buffer
SEPP 14 - Coastal Wetlands	NSW Planning and Environment	17/12/2015	24/10/2008	Annually	0	0	0
SEPP 26 - Littoral Rainforest	NSW Planning and Environment	17/12/2015	05/02/1988	Annually	0	0	0
SEPP 71 - Coastal Protection	NSW Planning and Environment	17/12/2015	01/08/2003	Annually	0	0	0
SEPP Major Developments 2005	NSW Planning and Environment	09/03/2013	25/05/2005	Under Review	0	0	0
SEPP Strategic Land Use Areas	NSW Planning and Environment	06/07/2016	28/01/2014	Annually	0	0	0
Local Environmental Plan - Land Zoning	NSW Planning and Environment	21/04/2017	13/04/2017	Quarterly	2	6	57
Local Environmental Plan - Minimum Subdivision Lot Size	NSW Planning and Environment	21/04/2017	13/04/2017	Quarterly	1	-	-
Local Environmental Plan - Height of Building	NSW Planning and Environment	20/04/2017	13/04/2017	Quarterly	1	-	-
Local Environmental Plan - Floor Space Ratio	NSW Planning and Environment	20/04/2017	07/04/2017	Quarterly	3	-	-
Local Environmental Plan - Land Application	NSW Planning and Environment	20/04/2017	03/03/2017	Quarterly	1	-	-
Local Environmental Plan - Land Reservation Acquisition	NSW Planning and Environment	20/04/2017	13/04/2017	Quarterly	0	-	-
State Heritage Items	NSW Office of Environment and Heritage	20/04/2017	30/09/2016	Quarterly	0	0	1
Local Heritage Items	NSW Planning and Environment	20/04/2017	13/04/2017	Monthly	1	2	19
Bush Fire Prone Land	NSW Rural Fire Service	28/03/2017	17/02/2017	Quarterly	0	0	0
Native Vegetation of the Sydney Metropolitan Area	NSW Office of Environment and Heritage	01/03/2017	16/12/2016	As required	1	1	4
RAMSAR Wetlands	Commonwealth of Australia Department of the Environment	08/10/2014	24/06/2011	As required	0	0	0
ATLAS of NSW Wildlife	NSW Office of Environment and Heritage	04/05/2017	04/05/2017	Daily	-	-	-

Aerial Imagery 2016

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141



Contaminated Land & Waste Management Facilities

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141

List of NSW contaminated sites notified to EPA

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

Map Id	Site	Address	Suburb	Activity	EPA site management class	Status	Dist	Direction	LC
N/A	No records in buffer								

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

Contaminated Land & Waste Management Facilities

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141

Contaminated Land: Records of Notice

Record of Notices within the report buffer:

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

Contaminated Land Records of Notice Data Source: 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 report buffer:

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

Former Gasworks Data Source: Environment Protection Authority

National Waste Management Site Database

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

Site Id	Owner	Name	Address	Suburb	Postcode	Landfill	Reprocess	Transfer	Distance	Direction	LC
N/A	No records in buffer										

Wate Management Facilities Data Source: Australian Governement Geoscience Australia

EPA PFAS Investigation Program

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141

EPA PFAS Investigation Program

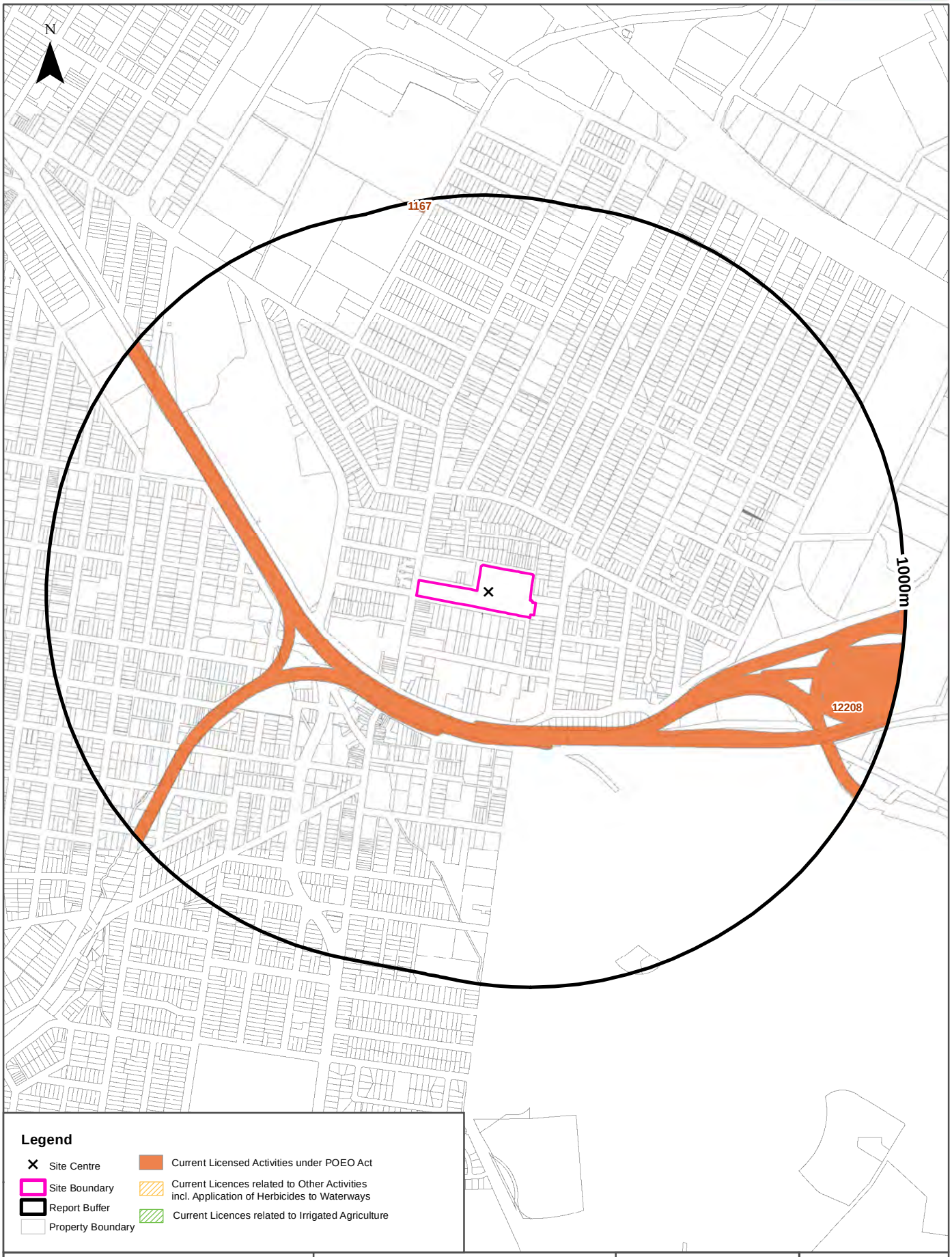
Sites that are part of the EPA PFAS investigation program, within 2km:

Id	Site	Address	Loc Conf	Distance	Direction
N/A	No records in buffer				

EPA PFAS Investigation Program: Environment Protection Authority

Current EPA Licensed Activities

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141



EPA Activities

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141

Licensed Activities under the POEO Act 1997

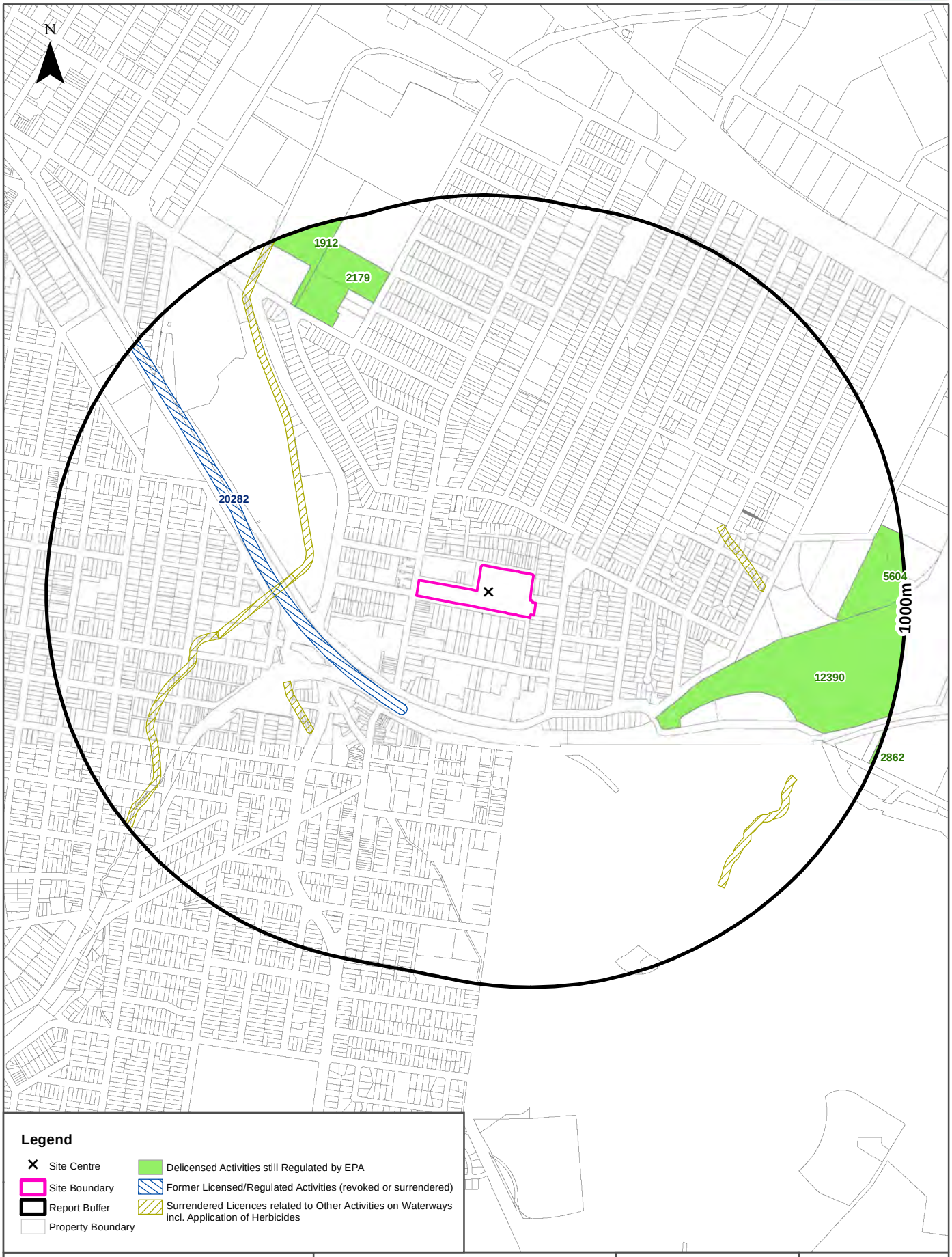
Licensed activities under the Protection of the Environment Operations Act 1997, within the report buffer:

EPL	Organisation	Name	Address	Suburb	Activity	Loc Conf	Distance	Direction
12208	SYDNEY TRAINS		PO BOX K349, HAYMARKET, NSW 1238		Railway systems activities	3	253m	South West
1167	TOOHEYS PTY LIMITED	TOOHEYS PTY LTD	29 NYRANG STREET	LIDCOMBE	Brewing and distilling	1	966m	North
1167	TOOHEYS PTY LIMITED	TOOHEYS PTY LTD	29 NYRANG STREET	LIDCOMBE	Generation of electrical power from gas	1	966m	North
1167	TOOHEYS PTY LIMITED	TOOHEYS PTY LTD	29 NYRANG STREET	LIDCOMBE	Waste storage - hazardous, restricted solid, liquid, clinical and related waste and asbestos waste	1	966m	North

POEO Licence Data Source: Environment Protection Authority

Delicensed & Former Licensed EPA Activities

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141



Data Sources: Property Boundaries & Topographic Data: © Land and Property Information (a division of the Department of Finance and Services) 2017

Coordinate System: GDA 1994 MGA Zone 56

Date: 04May 2017

EPA Activities

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141

Delicensed Activities still regulated by the EPA

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

Licence No	Organisation	Name	Address	Suburb	Activity	Loc Conf	Distance	Direction
12390	RAIL CORPORATION NEW SOUTH WALES	Flemington Passenger Fleet Maintenance Centre	Bachell Avenue	LIDCOMBE	Hazardous, Industrial or Group A Waste Generation or Storage	1	428m	East
2179	SAINT-GOBAIN ABRASIVES PTY LTD	SAINT-GOBAIN ABRASIVES PTY LTD	25 NYRANG STREET	LIDCOMBE	Hazardous, Industrial or Group A Waste Generation or Storage	1	724m	North West
5604	HOLCIM (AUSTRALIA) PTY LTD	LIDCOMBE CONCRETE	LOT 2 BIRNIE AVENUE	LIDCOMBE	Concrete works	1	810m	East
1912	OFFSET ALPINE PRINTING PTY LIMITED	OFFSET ALPINE PRINTING	42 BOOREA STREET	LIDCOMBE	Hazardous, Industrial or Group A Waste Generation or Storage	1	813m	North West
2862	FLETCHER INSULATION (VIC) PTY LTD	INSULATION SOLUTIONS	161 ARTHUR STREET	HOMEBUSH	Hazardous, Industrial or Group A Waste Generation or Storage	1	988m	East

Delicensed Activities Data Source: 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 report buffer:

Licence No	Organisation	Location	Status	Issued Date	Activity	Loc Conf	Distance	Direction
20282	Laing O'Rourke Australia Construction Pty Ltd	Auburn Junction Rail Infrastructure Works, East of Lidcombe Station to west of Granville Station, AUBURN	Surrendered	26/06/2013	Railway systems activities	3	257m	North West
4653	LUHRMANN ENVIRONMENT MANAGEMENT PTY LTD	WATERWAYS THROUGHOUT NSW	Surrendered		Other Activities / Non Scheduled Activity - Application of Herbicides	7	292m	-
4838	Robert Orchard	Various Waterways throughout New South Wales - SYDNEY NSW 2000	Surrendered		Other Activities / Non Scheduled Activity - Application of Herbicides	7	292m	-
6630	SYDNEY WEED & PEST MANAGEMENT PTY LTD	WATERWAYS THROUGHOUT NSW - PROSPECT, NSW, 2148	Surrendered		Other Activities / Non Scheduled Activity - Application of Herbicides	7	292m	-
7414	AUBURN COUNCIL	AUBURN MUNICIPAL COUNCIL, AUBURN, NSW 2144	Surrendered	06/09/2000	Other Activities - Application of Herbicide(s)	7	292m	-

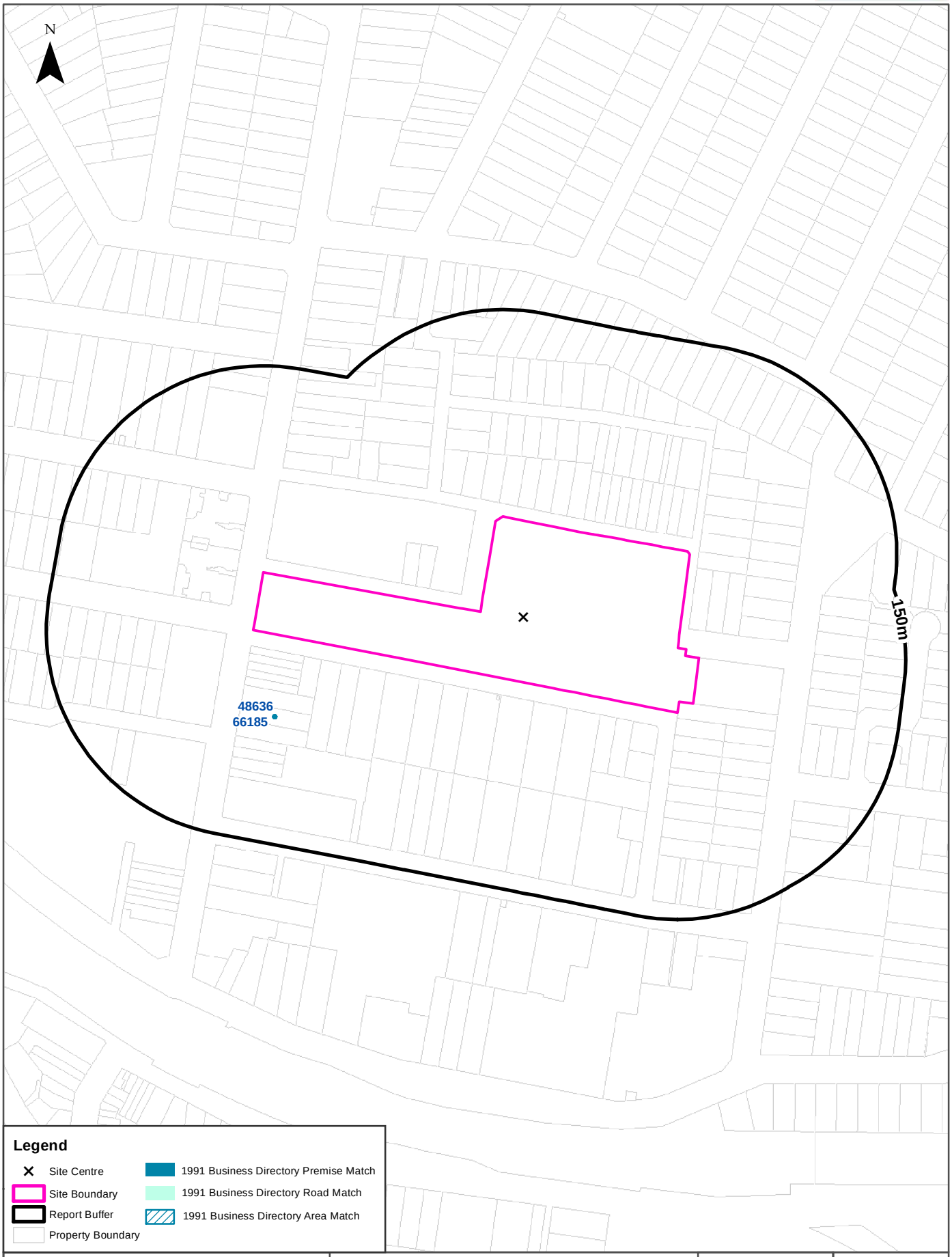
Former Licensed Activities Data Source: Environment Protection Authority

UPSS Sensitive Zones

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141

1991 Historical Business Directory Records

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141



Historical Business Directories

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141

1991 Business to Business Directory Records

Records from the 1991 UBD Business to Business Directory within 150m of the site:

Business Activity	Organisation	Address	Ref No.	Location Confidence	Distance	Direction
Wheel Chair Mfrs &/or Retailers &/or Hirers	Reis Orthopaedic Services Pty Ltd	25 John St Lidcombe 2141	66185	Premise Match	57m	West
Hospital Equipment &/or Supplies Mfrs &/or Imps &/or Dists	Reis Orthopaedic Services Pty Ltd	25 John St Lidcomber 2141	48636	Premise Match	57m	West

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

1991 Business Directory Motor Garages & Service Stations

Motor Garages & Service Stations from the 1991 UBD Business Directory within 1km of the site:

Business Activity	Organisation	Address	Ref No.	Location Confidence	Distance	Direction
Motor Garages & Service Stations	Shore Petroleum Station	24 Railway St., Lidcombe	53888	Premise Match	398m	South

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

1970 Historical Business Directory Records

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141

Historical Business Directories

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141

1970 Business Directory Records

Records from the 1970 UBD Business Directory within 150m of the site:

Business Activity	Organisation & Premise	Ref No.	Location Confidence	Distance	Direction
MOTOR CAR/TRUCK DEALERS-NEW/USED (M520)	A.E.C. (N.S.W.) Pty. Ltd.,John St,Lidcombe	335790	Road Match	0m	North
MOTOR CAR/TRUCK IMPORTERS/DISTRIBUTORS (M524)	A.E.C. (N.S.W.) Pty. Ltd.,John St.,Lidcombe	336360	Road Match	0m	North
MARINE ENGINES-IMPORTERS,D1STS. &/OR MFRS. (M132)	A.E.C. (N.S.W.) Pty. Ltd.,John St.,Lidcombe	325493	Road Match	0m	North
MOTOR SPARE PARTS MFRS. &/OR WHOLESALERS (M732)	A.E.C. (N.S.W.) Pty. Ltd.,John St.,Lidcombe	342079	Road Match	0m	North
ENGINEERS-MARINE (E675)	A.E.C.(N.S.W.) Pty.Ltd.,John St.,Lidcombe	300136	Road Match	0m	North
ELECTRIC LIGHTING PLANT MFRS.&/OR DISTS.(E175)	A.E.C.(NSW) Pty.Ltd.,John St.,Lidcombe	293928	Road Match	0m	North
DIESEL ENGINE DISTRIBUTORS (D290)	A.E.C.(NSW) Pty.Ltd.,John St.,Lidcombe	289569	Road Match	0m	North
MOTOR SPARE PARTS MFRS. &/OR WHOLESALERS (M732)	Leyland Albion (N.S.W.) Pty. Ltd.,John St.,Lidcombe	342174	Road Match	0m	North
MOTOR BUS SERVICES (M516)	Leyland Albion (N.S.W.) Pty. Ltd.,John St.,Lidcombe	335617	Road Match	0m	North
MOTOR SPARE PARTS DEALERS-RETAIL (M728)	Leyland Albion (N.S.W.) Pty. Ltd.,John St.,Lidcombe	341911	Road Match	0m	North
MOTOR CAR/TRUCK DEALERS-NEW/USED (M520)	Leyland Albion (N.S.W.) Pty. Ltd.,John St.,Lidcombe	336084	Road Match	0m	North
MOTOR SPARE PARTS DEALERS-RETAIL (M728)	Scammelf Lorries Ltd.,John St.,Lidcombe	342009	Road Match	0m	North
MOTOR SPARE PARTS MFRS. &/OR WHOLESALERS (M732)	Scammeli Lorries Ltd.,John St.,Lidcombe	342208	Road Match	0m	North
MOTOR CAR/TRUCK IMPORTERS/DISTRIBUTORS (M524)	Scammell Lorries Ltd.,John St.,Lidcombe	336396	Road Match	0m	North
TAILORS-MANUFACTURING (T020)	Winton,E.,John St.,Lidcombe	366986	Road Match	0m	North
MIXED BUSINESSES (M408)	Lidcombe Corner Store,31b John St.,Lidcombe	333113	Premise Match	13m	West
FRUITERERS/GREENGROCERS (F640)	Newman,W.H.,31a John St.,Lidcombe	307622	Premise Match	18m	West
FRUITERERS/GREENGROCERS (F640)	See Sun & Co.,31a John St.,Lidcombe	307913	Premise Match	18m	West
CONFECTIONERS-RETAIL (C620)	Elley, M., 6 Mill St., Lidcombe	285366	Premise Match	23m	North West
BOOT & SHOE REPAIRERS (B580)	Rodi, P., 31 John St., Lidcombe	269139	Premise Match	24m	West
MIXED BUSINESSES (M408)	Archibald's,29a John St.,Lidcombe	332012	Premise Match	29m	West
FISH MERCHANTS-RETAIL (F245)	Leung's Fish Shop,29 John St.,Lidcombe	303551	Premise Match	35m	West
MILK,FRUIT JUICE BARS/CONFECTIONERS (M336)	Vince's Milk Bar,48 John St.,Lidcombe	331348	Premise Match	36m	West
BEAUTY SALONS &/OR LADIES' HAIRDRESSERS (B260)	Beauty Salon (The)., 50 John St., Lidcombe	265573	Premise Match	37m	West
BEAUTY SALONS &/OR LADIES' HAIRDRESSERS (B260)	BeautySalon (The), 50 John St., Lidcombe	265581	Premise Match	37m	West
FRUITERERS/GREENGROCERS (F640)	Munro,E.W.,46 John St.,Lidcombe	307591	Premise Match	37m	West
PLUMBERS,GASFITTERS/DRAINLAYERS(P608)	Brown,M. L.,17 Doodson Ave.LIDCOMBE	350455	Premise Match	41m	South West
GROCERS-RETAIL (G655)	Brown,H.,52 John St.,Lidcombe	312236	Premise Match	42m	West
CHEMISTS-PHARMACEUTICAL (C286)	Glrdler, BC., 52a John St., Lidcombe	280435	Premise Match	42m	West
ANIMAL & BIRD DEALERS (A370)	B& MSupplies Pty. Ltd., 27 John St., Lidcombe	261411	Premise Match	44m	West
BUILDERS' SUPPLIERS (B814)	B& MSupplies Pty. Ltd., 27 John St., Lidcombe	271215	Premise Match	44m	West

Business Activity	Organisation & Premise	Ref No.	Location Confidence	Distance	Direction
POULTRY DEALERS-RETAIL (P692)	B. & M. Supplies Pty. Ltd.,27 John St.,Lidcombe	351202	Premise Match	44m	West
PAINT,VARNISH,OILS/COLOUR MERCHANTS (P074)	B. & M. Supplies Pty. Ltd.,27 John St.,Lidcombe	346092	Premise Match	44m	West
LIME/CEMENT MERCHANTS (L490)	B. & M. Supplies Pty. Ltd.,27 John St.,LIdcombe	323357	Premise Match	44m	West
HARDWARE DEALERS/IRONMONGERS (H230)	B. & M. Supplies Pty. Ltd.,27 John St.Lidcombe	314890	Premise Match	44m	West
PRODUCE MERCHANTS-GRAIN & SEED-RETAIL (P854)	B. & M. Supplies Pty. Ltd.,27 JohnStLidcombe	352944	Premise Match	44m	West
GRAVEL, SAND/SOIL SUPPLIES (G570)	B.& M.Supplies Pty.Ltd.,27 John St.,Lidcombe	311882	Premise Match	44m	West
ELECTRICAL SUPPLIES/ APPLIANCES RETAILERS (E325)	B.& M.Supplies Pty.Ltd.,27 John St.,Lidcombe	295529	Premise Match	44m	West
HARDWARE DEALERS/IRONMONGERS (H230)	Lidcombe Hardware,27 John St.Lidcombe	315162	Premise Match	44m	West
CLOTHING MFRS. &/OR W'SALERS-LADIES' COATS & COSTUMES(C447)	Wlnton, EPty. Ltd., 25 John St., Lidcombe	282835	Premise Match	57m	West
HAIRDRESSERS (GENT.'S) (H070)	Haines,S. A,38 John St.,Lidcombe	313953	Premise Match	63m	West
BEAUTY SALONS &/OR LADIES' HAIRDRESSERS (B260)	Wanda Inn Salon, 38a John St., Lidcombe	266784	Premise Match	63m	West
BUILDERS & CONTRACTORS-(M.M.B.A.) (B796)	Andrews, DF& FWPty. Ltd., 23 John St. Lidcombe NSW	270472	Premise Match	69m	South West
ANIMAL & BIRD FOOD SUPPLIES (A375)	Lidcombe Pet Foods, 23 John St, Lidcombe	261549	Premise Match	69m	South West
TAILORS-LADIES'/GENT'S (T015)	Eedy,Nell,36a John St,Lidcombe	366688	Premise Match	75m	West
MERCERS-MEN'S & BOYS' OUTFITTERS(M232)	Eedy,Nell,36a John St.,LIdcombe	328845	Premise Match	75m	West
DRESS FABRIC RETAILERS (D590)	Hebb & Thompson,36 John St.,Lidcombe	290886	Premise Match	75m	West
DENTISTS (D140)	McGloin,J.B.,36 John St.,Lidcombe	288823	Premise Match	75m	West
ACCOUNTANTS & AUDITORS (A040)	McKay, GLSt Co., 36 John St., Lidcombe	259068	Premise Match	75m	West
TAXATION CONSULTANTS/SPECIALISTS (T090)	McKay,G.L.& Co.,36 John St.,Lidcombe	367306	Premise Match	75m	West
DRAPERS-RETAIL (D540)	Micky's,36c John St.,Lidcombe	290519	Premise Match	75m	West
BUSINESS AGENTS &/OR BROKERS (B852)	Osmond, L J., 36 John St., Lidcombe	272848	Premise Match	75m	West
STOCK/STATION AGENTS (S754)	Osmond,L.J.,36 John St.,Lidcombe	366094	Premise Match	75m	West
PHYSIOTHERAPISTS (P312)	Panton,Alan E.,36 John St,Lidcombe	348619	Premise Match	75m	West
ELECTRICAL CONTRACTORS-LICENSED (E300)	Muldoon,R.S.,35 John St.LIDCOMBE	295352	Premise Match	82m	North West
ELECTRICAL CONTRACTORS-LICENSED (E300)	Muldoon,R.S.,35 John St.LIDCOMBE	294849	Premise Match	82m	North West
HAIRDRESSERS (GENT.'S) (H070)	Black & White Hairdresser,17-19 John St.,Lidcombe	313637	Premise Match	87m	South West
HAIRDRESSERS (GENT.'S) (H070)	Black & White Hairdresser,17-19 John St.,Lidcombe	313638	Premise Match	87m	South West
MEDICAL PRACTITIONERS (M216)	Keogh,H. J.,58 John St.,Lidcombe	327322	Premise Match	88m	North West
MEDICAL PRACTITIONERS (M216)	Miller,Helen,58 John St.,LIdcombe	327705	Premise Match	88m	North West
MEDICAL PRACTITIONERS (M216)	Springhalt,R. W.,58 John St.,Lidcombe	328296	Premise Match	88m	North West
MEDICAL PRACTITIONERS (M216)	Thomas,B. A.,58 John St.,Lidcombe	328397	Premise Match	88m	North West
FLORISTS-RETAIL (F335)	Camellia Florist,34a John St.LIDCOMBE	304275	Premise Match	97m	West
ELECTRICAL SUPPLIES/ APPLIANCES RETAILERS (E325)	Gaylles Furniture,34 John St.,Lidcombe	295676	Premise Match	97m	West
FRUITERERS/GREENGROCERS (F640)	Rodi Fruit & Milk Bar,34c John St.,Lidcombe	307835	Premise Match	97m	West
FURNITURE-HOUSEHOLD-RETAILERS RETAILERS (F740)	St.James Furniture & Electrical Distributors Pty.Ltd.,34 John St.,Lidcombe	309589	Premise Match	97m	West
BUTCHERS-RETAIL (B860)	Hal's Meat Service, 32a John St., Lidcombe	273739	Premise Match	110m	South West
TILERS (ROOF) /SLATERS (T370)	Martin,C.H.,51 Maud St. Lidcombe NSW	368771	Premise Match	134m	North East

Business Activity	Organisation & Premise	Ref No.	Location Confidence	Distance	Direction
TAILORS-REPAIR (T025)	Collins,C.M.& 0.J.,28b John St.,Lidcombe	366992	Premise Match	140m	South West

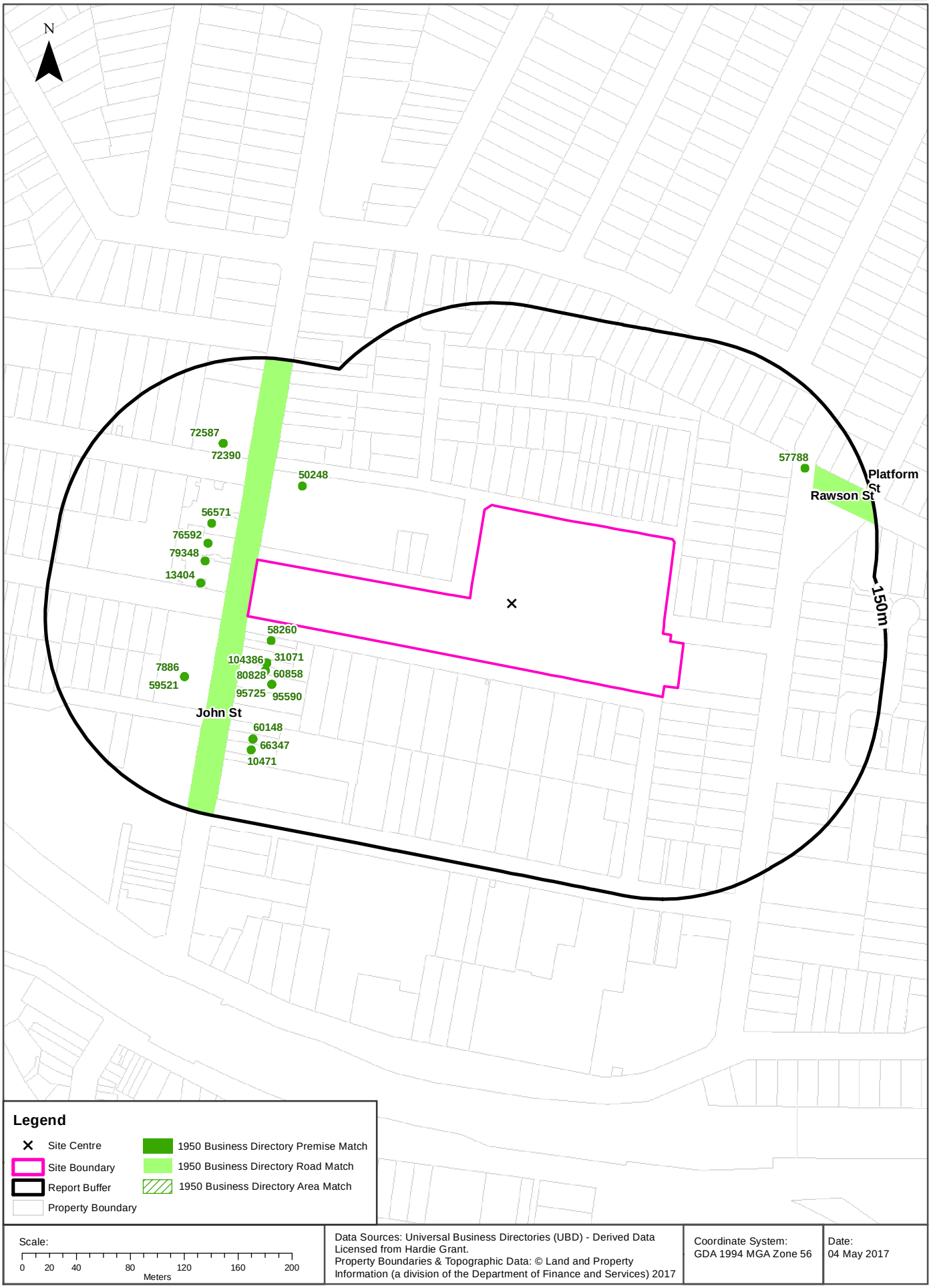
1970 Business Directory Drycleaners & Service Stations

Drycleaners, Motor Garages & Service Stations from the 1970 UBD Business Directory within 1km of the site:

Business Activity	Organisation & Premise	Ref No.	Location Confidence	Distance	Direction
DRY CLEANERS,PRESSERS/DYERS (D710)	Reliable Dry Cleaners,2 John St.,Lidcombe	292471	Building Match	232m	South West
DRY CLEANERS,PRESSERS/DYERS (D710)	Roosevelt Dry Cleaners & Dyers Pty.Ltd.,12 Joseph St.,Lidcombe	292481	Building Match	360m	South West
MOTOR GARAGES & ENGINEERS (M6S6)	Calnan,Don Auto Repairs,6 Railway St.,Lidcombe,2141	337496	Building Match	392m	South
MOTOR GARAGES & ENGINEERS (M6S6)	Littlejohn Garage Pty. Ltd.,24 Bridge St.Lidcombe	338162	Building Match	392m	South West
DRY CLEANERS,PRESSERS/DYERS (D710)	Town & Country Dry Clean,4 Vaughan St.,Lidcombe	292551	Building Match	529m	South West
MOTOR SERVICE STATIONS-PETROL,OIL,Etc. (M716)	Coleman's Garage,134 John St.LIDCOMBE	340971	Building Match	595m	North
MOTOR GARAGES & ENGINEERS (M6S6)	Kerr's Road Motors Pty. Ltd.,8 Kerr's Rd.Lidcombe	338096	Building Match	608m	South West
MOTOR GARAGES & ENGINEERS (M6S6)	BP Service Station,31 Railway Pde.,Lidcombe	337402	Building Match	787m	West
MOTOR GARAGES & ENGINEERS (M6S6)	Automotive Maintenance Service,109 Bombay St.LIDCOMBE	337226	Building Match	939m	North East
MOTOR GARAGES & ENGINEERS (M6S6)	Car Repairs Pty. Ltd.,Birnle Ave.LIDCOMBE	337526	Road Match	981m	East

1950 Historical Business Directory Records

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141



Historical Business Directories

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141

1950 Business Directory Records

Records from the 1950 UBD Business Directory within 150m of the site:

Business Activity	Organisation & Premise	Ref No.	Location Confidence	Distance	Direction
TIMBER MERCHANTS	*Lidcombe Timber Co., John St., Lidcombe	78053	Road Match	0m	North
BABY & CHILDREN'S WEAR-RETAIL	"Bunette" (The), Hotel Bldg., John St., Lidcombe	4328	Road Match	0m	North
GROCERS-RETAIL	Curr, A. J., John St., Lidcombe	56986	Road Match	0m	North
HAIRDRESSERS (GENT.'S) &/OR TOBACCONISTS	Hanhan, H, R., Hotel Bldg., John St., Lidcombe	59531	Road Match	0m	North
DELICATESSENS & SMALLGOODS DEALERS	Hardaker, L. H., Hotel Bldg., John St., Lidcombe	30591	Road Match	0m	North
HOTELS-LICENSED	Hotel Lidcombe, John St., Lidcombe	63150	Road Match	0m	North
BAKERS-BREAD	Towles Bakery, John St., Lidcombe	5511	Road Match	0m	North
GROCERS-RETAIL	McDonald, L., 31b John St., Lidcombe	58260	Premise Match	13m	West
DELICATESSENS & SMALLGOODS DEALERS	Queen, W. R. and J. N., 29a John St., Lidcombe	31071	Premise Match	29m	West
MIXED BUSINESSES & GENERAL STORES	Queen, W. R. and J. N., 29a John St., Lidcombe	80828	Premise Match	29m	West
HARDWARE DEALERS &/OR IRONMONGERS	Beazley, A. E., 29 John St., Lidcombe	60858	Premise Match	35m	West
SPORTS GOODS RETAILERS	Beazley, A. E., 29 John St., Lidcombe	104386	Premise Match	35m	West
MIXED BUSINESSES & GENERAL STORES	Bell, H. R., 48 John St., Lidcmobe	79348	Premise Match	36m	West
MILK BARS & CONFECTIONERS	Daniels, N., 50a John St., Lidcombe	76592	Premise Match	37m	West
BUTCHERS-RETAIL	Dunn's Butchery, 46 John St., Lidcombe	13404	Premise Match	37m	West
GROCERS-RETAIL	Brown, H., 52 John St., Lidcombe	56571	Premise Match	42m	West
PRODUCE MERCHANTS-GRAIN & SEED-RETAIL	McDonald, J., 27 John St., Lidcombe	95590	Premise Match	44m	West
REFRIGERATOR SALES &/OR SERVICE	Tanners Produce Pty. Ltd. 27 John St., Lidcombe	99383	Premise Match	44m	West
PRODUCE MERCHANTS-GRAIN & SEED-RETAIL	Tanners Produce Pty. Ltd., 27 John St., Lidcombe	95725	Premise Match	44m	West
FRUITERERS & GREENGROCERS	Hagan, J. and A., 33 John St., Lidcombe	50248	Premise Match	58m	North West
HAIRDRESSERS (GENT.'S) &/OR TOBACCONISTS	Haines, S, A, 38 John St., Lidcombe	59521	Premise Match	63m	West
BEAUTY SALONS &/OR LADIES' HAIRDRESSERS	Tucker, Frances, 38a John St., Lidcombe	7886	Premise Match	63m	West
JEWELLERS-RETAIL &/OR WATCHMAKERS	Rogers,' T. E., 19 John St., Lidcombe	66347	Premise Match	87m	South West
HAIRDRESSERS (GENT.'S) &/OR TOBACCONISTS	Wheeler, J., 19 John St., Lidcombe	60148	Premise Match	87m	South West
MEDICAL PRACTITIONERS	Barnett, K., 58 John St., Lidcombe	72390	Premise Match	88m	North West
MEDICAL PRACTITIONERS	Cameron, J., 58 John St., Lidcombe	72587	Premise Match	88m	North West
BOOT & SHOE REPAIRERS	Morgan, T. A., 15 John St., Lidcombe	10471	Premise Match	95m	South West
BUTCHERS-RETAIL	Lamb, T., Rawson St., Lidcombe	13831	Road Match	108m	East
MIXED BUSINESSES & GENERAL STORES	Weston, W. H., Rawson St., Lidcombe	81244	Road Match	108m	East
GROCERS-RETAIL	Hookey, P., Cnr. Maud and Rawson Sts., Lidcombe	57788	Road Intersection	109m	North East
GROCERS-RETAIL	Holland, F. H., Platform St., Lidcombe	57772	Road Match	146m	North East

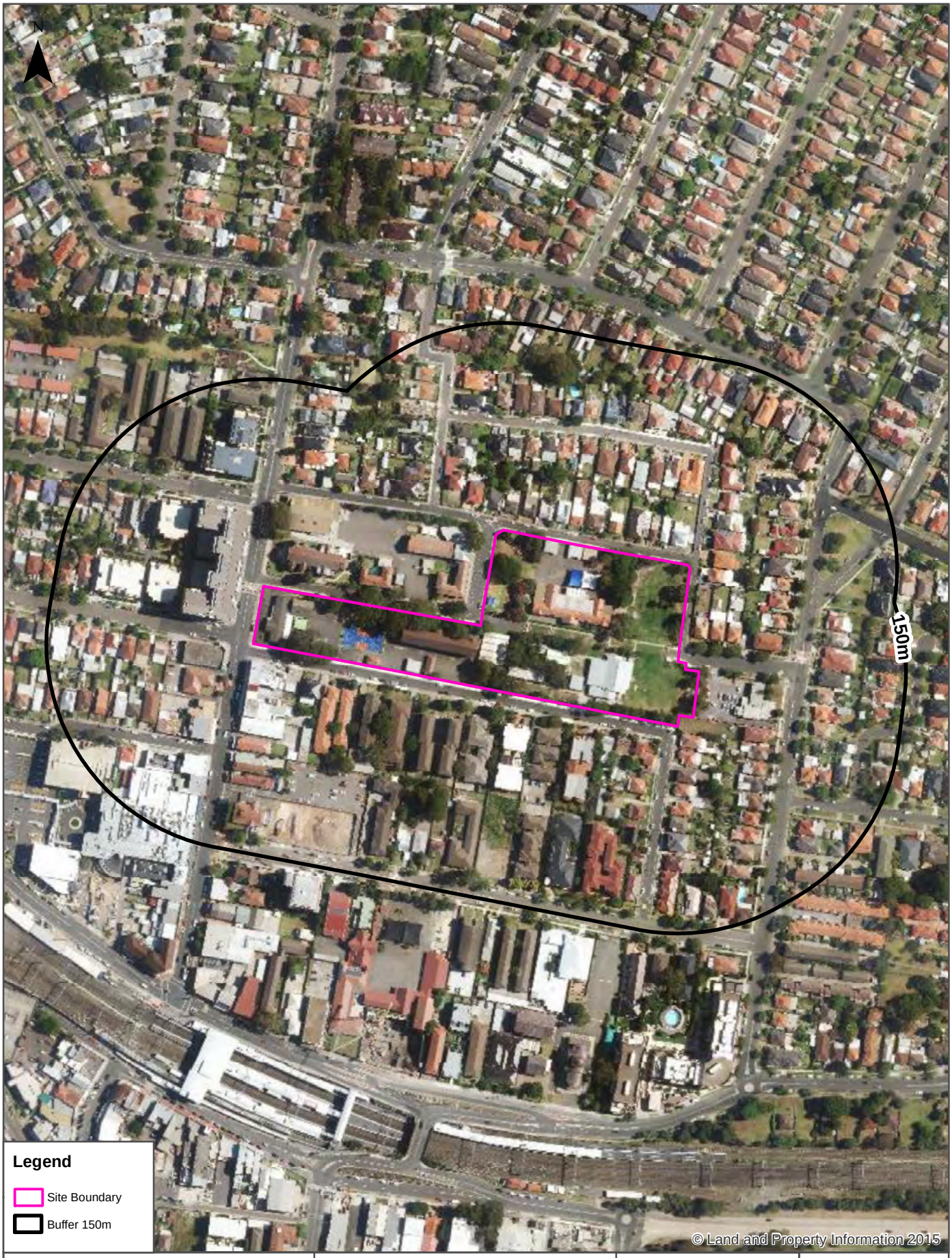
1950 Business Directory Drycleaners & Service Stations

Drycleaners, Motor Garages & Service Stations from the 1950 UBD Business Directory within 1km of the site:

Activity	Organisation & Premise	Ref No.	Location Confidence	Distance	Direction
DRY CLEANERS, PRESSERS & DYERS	Reliable Dry Cleaners, 2 John St., Lidcombe	35639	Premise Match	226m	South West
MOTOR GARAGES &/OR ENGINEERS	Lidcombe Auto and Engineering Works, 39 Church St., Lidcombe	84002	Premise Match	246m	South West
MOTOR SERVICE STATIONS-PETROL, Etc.	Lidcombe Auto and Engineering Works, 39 Church St., Lidcombe	86138	Premise Match	246m	South West
MOTOR GARAGES &/OR ENGINEERS	Clancy's Garage, 5a Church St., Lidcombe	83590	Road Match	274m	South West
DRY CLEANERS, PRESSERS & DYERS	Roosevelt Dry Cleaner and Dyers Pty. Ltd., 28 Bridge St., Lidcombe	35669	Premise Match	362m	South West
DRY CLEANERS, PRESSERS & DYERS	Comber, T., 11 Joseph St., Lidcombe	35161	Premise Match	373m	South West
MOTOR GARAGES &/OR ENGINEERS	Littlejohn, J. E., 24 Bridge St., Lidcombe	84012	Premise Match	386m	South West
MOTOR SERVICE STATIONS-PETROL, Etc.	Littlejohn, J. E., 24-26 Bridge St., Lidcombe	86151	Premise Match	386m	South West
DRY CLEANERS, PRESSERS & DYERS	Boomerang Library (Mrs. M. Swanston), 1 Vaughan St., Lidcombe	35135	Premise Match	491m	South West
MOTOR SERVICE STATIONS-PETROL, Etc.	Coleman, J. R., 134 John St., Lidcombe	85880	Premise Match	595m	North
MOTOR GARAGES &/OR ENGINEERS	Colemans Garage, 134 Johns St., Lidcombe	83603	Premise Match	595m	North
MOTOR GARAGES &/OR ENGINEERS	Stewart, A. C., 123 John St., Lidcombe	84430	Premise Match	600m	North
MOTOR GARAGES &/OR ENGINEERS	Kerr's Road Motors (Rose and Faux), 8 Kerrs Rd., Lidcombe	83950	Premise Match	608m	South West
MOTOR GARAGES &/OR ENGINEERS	McVlcar, A. R., 35 Joseph St., Lidcombe	84077	Premise Match	618m	South West
DRY CLEANERS, PRESSERS & DYERS	Heaths Men's Wear (H. D. Keighley) (Agent), 52b Joseph St., Lidcombe	35282	Premise Match	624m	South West
MOTOR SERVICE STATIONS-PETROL, Etc.	Cranfield Bros., Cnr. Railway Pde. and Cockthorpe Ave., Auburn	85900	Road Intersection	811m	West
MOTOR GARAGES &/OR ENGINEERS	Cranfield Bros., Cnr. Railway Pde. and Cockthorpe Rd., Auburn	83640	Road Intersection	811m	West

Aerial Imagery 2014

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141

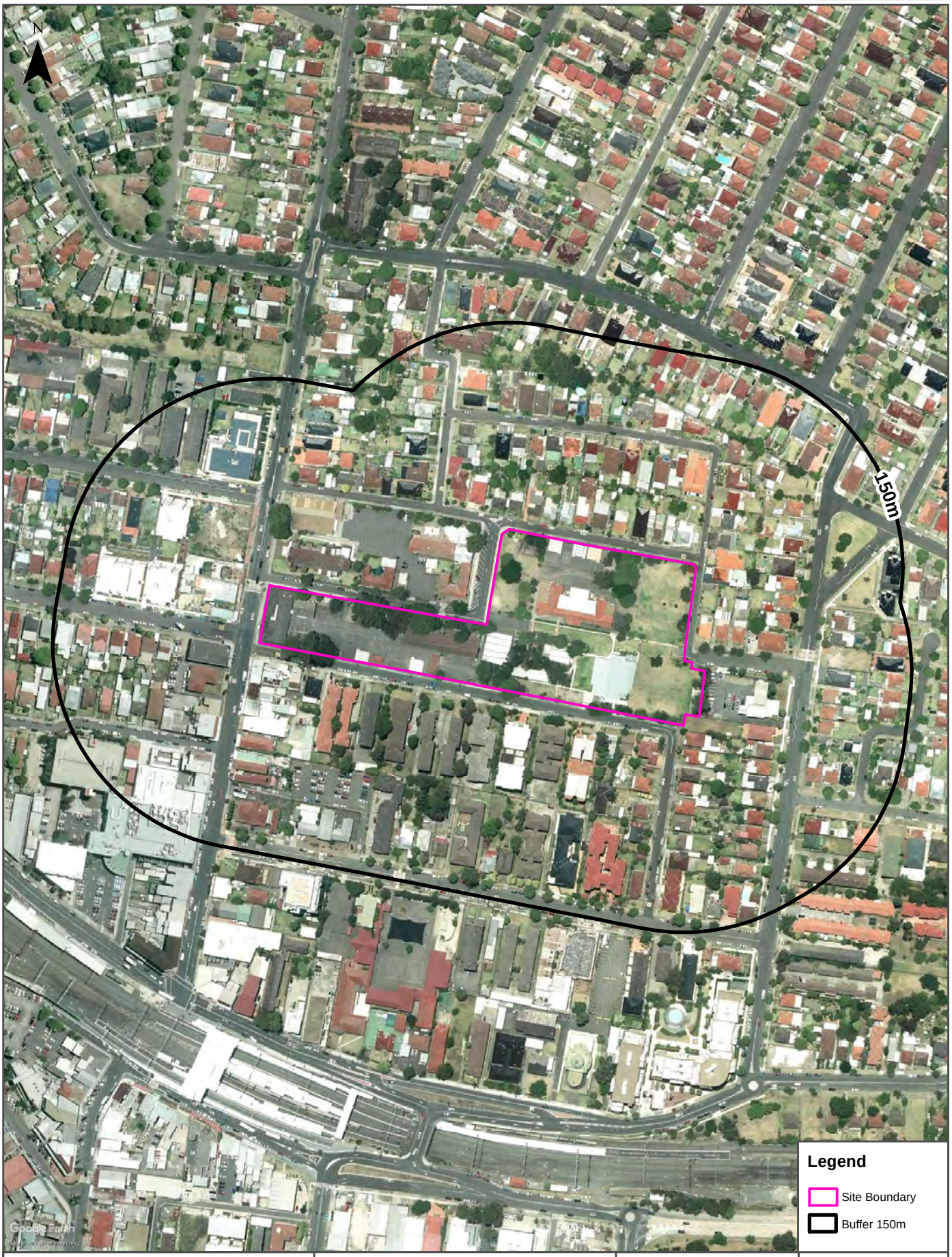


Scale:	Data Sources: Historical Aerials: © Land and Property Information (a division of the Department of Finance and Services)	Coordinate System: GDA 1994 MGA Zone 56	Date: 03 May 2017

0 50 100 200
Meters

Aerial Imagery 2009

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141



Scale:
0 50 100 200
Meters

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Coordinate System:
GDA 1994 MGA Zone 56

Date: 02 May, 2017

Aerial Imagery 2003

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141

Scale:
0 50 100 200
Meters

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Coordinate System:
GDA 1994 MGA Zone 56

Date: 02 May, 2017

Aerial Imagery 1991

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141

Aerial Imagery 1982

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141

Scale:	Data Sources: Historical Aerials: © Land and Property Information (a division of the Department of Finance and Services)	Coordinate System: GDA 1994 MGA Zone 56	Date: 02 May, 2017

0 50 100 200
Meters

Aerial Imagery 1970

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141

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Coordinate System: GDA 1994 MGA Zone 56

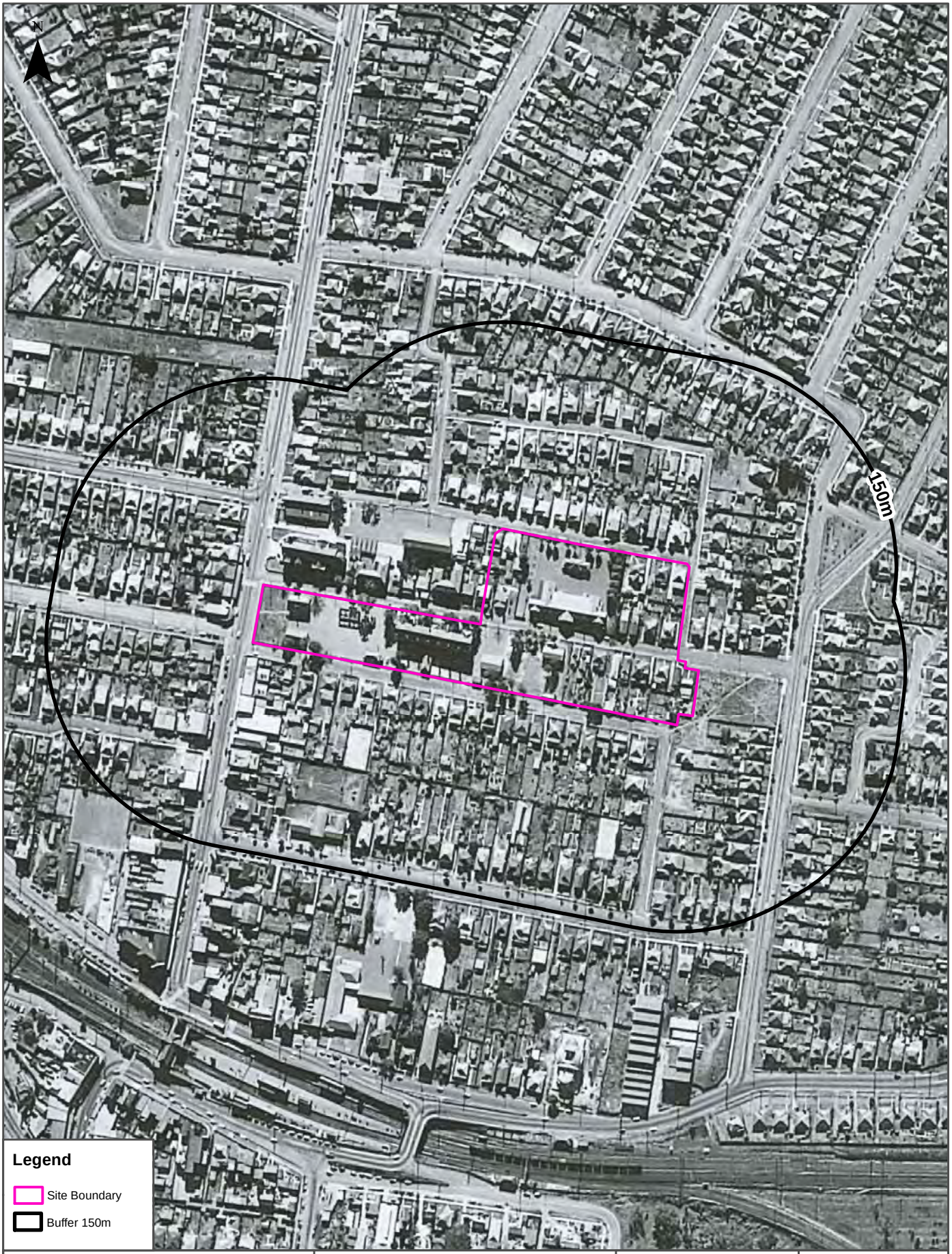
Date: 02 May, 2017

Aerial Imagery 1965

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141

Aerial Imagery 1961

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141



Data Sources: Historical Aerials: © Land and Property Information (a division of the Department of Finance and Services)

Coordinate System: GDA 1994 MGA Zone 56

Date: 02 May, 2017

Aerial Imagery 1955

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141

Aerial Imagery 1951

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141

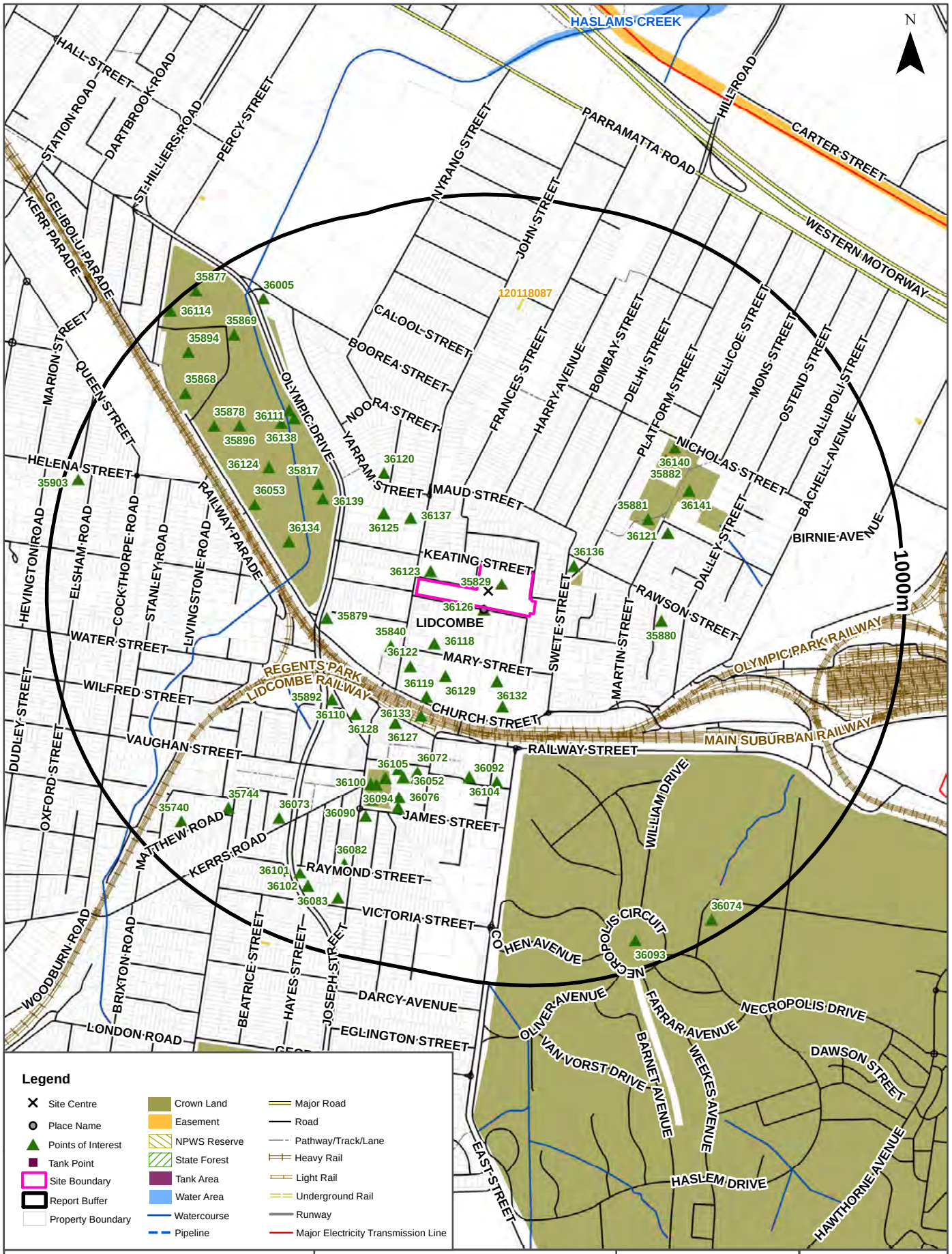
Aerial Imagery 1943

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141

Scale: 0 25 50 100 Meters	Data Sources:Aerial Imagery © Land and Property Information (a division of the Department of Finance and Services)	Coordinate System: GDA 1994 MGA Zone 56	Date: 04May 2017

Topographic Features

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141



Topographic Features

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141

Points of Interest

What Points of Interest exist within the report buffer?

Map Id	Feature Type	Label	Distance	Direction
35829	Primary School	LIDCOMBE PUBLIC SCHOOL	0m	Onsite
36126	Suburb	LIDCOMBE	7m	South
36123	Place Of Worship	CATHOLIC CHURCH	26m	West
36136	Park	SWETE ST RESERVE	113m	East
36118	Court House	LIDCOMBE CHILDRENS COURT	122m	South West
35840	Club	DOOLEYS LIDCOMBE CATHOLIC CLUB	156m	South West
36137	Park	PLAYGROUND	166m	North West
36132	Community Home	CANBERRA NURSING HOME	189m	South
36122	Place Of Worship	CATHOLIC CHURCH	194m	South West
36125	Park	CHADWICK RESERVE	201m	North West
36129	Primary School	ST JOACHIM'S CATHOLIC PRIMARY SCHOOL	202m	South West
35879	Park	APEX RESERVE	250m	West
36135	Place Of Worship	UKRAINIAN CATHOLIC CHURCH	254m	South
36119	Fire Station	LIDCOMBE FIRE STATION	269m	South West
36120	Place Of Worship	PRESBYTERIAN CHURCH	301m	North West
36133	Railway Station	LIDCOMBE RAILWAY STATION	321m	South West
36139	Sports Court	TENNIS COURTS	339m	North West
35880	Park	ERIC CRESCENT RESERVE	345m	East
35881	Park	PLAYGROUND	345m	North East
36127	Post Office	LIDCOMBE POST OFFICE	353m	South West
36128	Library	LIDCOMBE LIBRARY	364m	South West
36110	Community Facility	LIDCOMBE COMMUNITY CENTRE	364m	South West
36134	Swimming Pool	RUTH EVERUSS AQUATIC CENTRE	365m	West
35892	Park	BRIDGE STREET GARDENS	365m	South West
35817	Sports Court	TENNIS COURTS	373m	North West
36121	Place Of Worship	UNITING CHURCH	381m	East
36092	Park	JEWISH RESERVE	458m	South
36104	Park	FRIENDS PARK	459m	South
36072	Place Of Worship	ANGLICAN CHURCH	473m	South
35882	Sports Court	CRICKET NETS	474m	North East
36109	Community Facility	AUBURN CENTRE FOR COMMUNITY	476m	South West
36141	Sports Field	PHILLIPS PARK	479m	North East
36053	Community Facility	YOUTH CENTRE	487m	West

Map Id	Feature Type	Label	Distance	Direction
36055	Community Facility	ST STEPHENS CHURCH HALL	488m	South
36052	Community Facility	LIDCOMBE RSL COMMUNITY CLUB	494m	South West
36105	Park	PLAYGROUND	505m	South West
36124	Park	WYATT PARK	506m	North West
36140	Park	PLAYGROUND	514m	North East
36100	Park	LIDCOMBE REMEMBRANCE PARK	527m	South West
36094	Monument	LIDCOMBE REMEMBRANCE PARK	528m	South West
36111	Community Facility	AUBURN DISTRICT GIRL GUIDES	549m	North West
36076	Sports Field	BOWLING GREENS	549m	South West
36138	Park	WYATT PARK OFF LEASH DOG AREA	562m	North West
36091	Monument	LIDCOMBE WAR MEMORIAL	569m	South West
36112	Community Facility	LIDCOMBE SCOUT HALL	575m	North West
36071	Club	LIDCOMBE BOWLING CLUB	576m	South West
36090	Historic Site	FENTON HOUSE	616m	South West
35896	Sports Field	LIDCOMBE OVAL	637m	North West
35878	Cycling Track	LIDCOMBE AUBURN CYCLE CLUB	691m	North West
36073	Place Of Worship	BAPTIST CHURCH	710m	South West
36082	Place Of Worship	SYDNEY GRACE CHURCH	755m	South West
35744	Park	CARROLL STREET RESERVE	770m	South West
35868	Sports Centre	PARRAMATTA AUBURN NETBALL ASSOCIATION	808m	North West
36101	Park	OLYMPIC DRIVE RESERVE	818m	South West
35869	Sports Centre	AUBURN BASKETBALL CENTRE	829m	North West
36102	Park	OLYMPIC DRIVE RESERVE	842m	South West
36083	Place Of Worship	SAINT EPHRAIM SYRIAN ORTHODOX CHURCH	849m	South West
36005	Park	BOOREA STREET RESERVE	867m	North West
35894	Sports Court	MARIE DUNN NETBALL COURTS	874m	North West
35740	Place Of Worship	FULL GOSPEL LIFE CHURCH	884m	South West
36093	Historic Site	ROOKWOOD CEMETERY AND NECROPOLIS	923m	South East
36074	Cemetery	ROOKWOOD CEMETERY	957m	South East
35903	Park	CORONATION PARK	960m	West
35877	Athletics Track	AUBURN ATHLETICS TRACK	986m	North West
36114	Community Facility	ASICS WESTS ATHLETICS CLUB	988m	North West

Topographic Features

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141

Tanks (Areas)

What are the Tank Areas located within the report buffer?
Note. The large majority of tank features provided by LPI are derived from aerial imagery & are therefore primarily above ground tanks.

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

Tanks (Points)

What are the Tank Points located within the report buffer?
Note. The large majority of tank features provided by LPI are derived from aerial imagery & are therefore primarily above ground tanks.

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

Major Easements

What Major Easements exist within the report 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
120118087	Primary	Undefined		695m	North

Topographic Features

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141

State Forest

What State Forest exist within the report buffer?

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

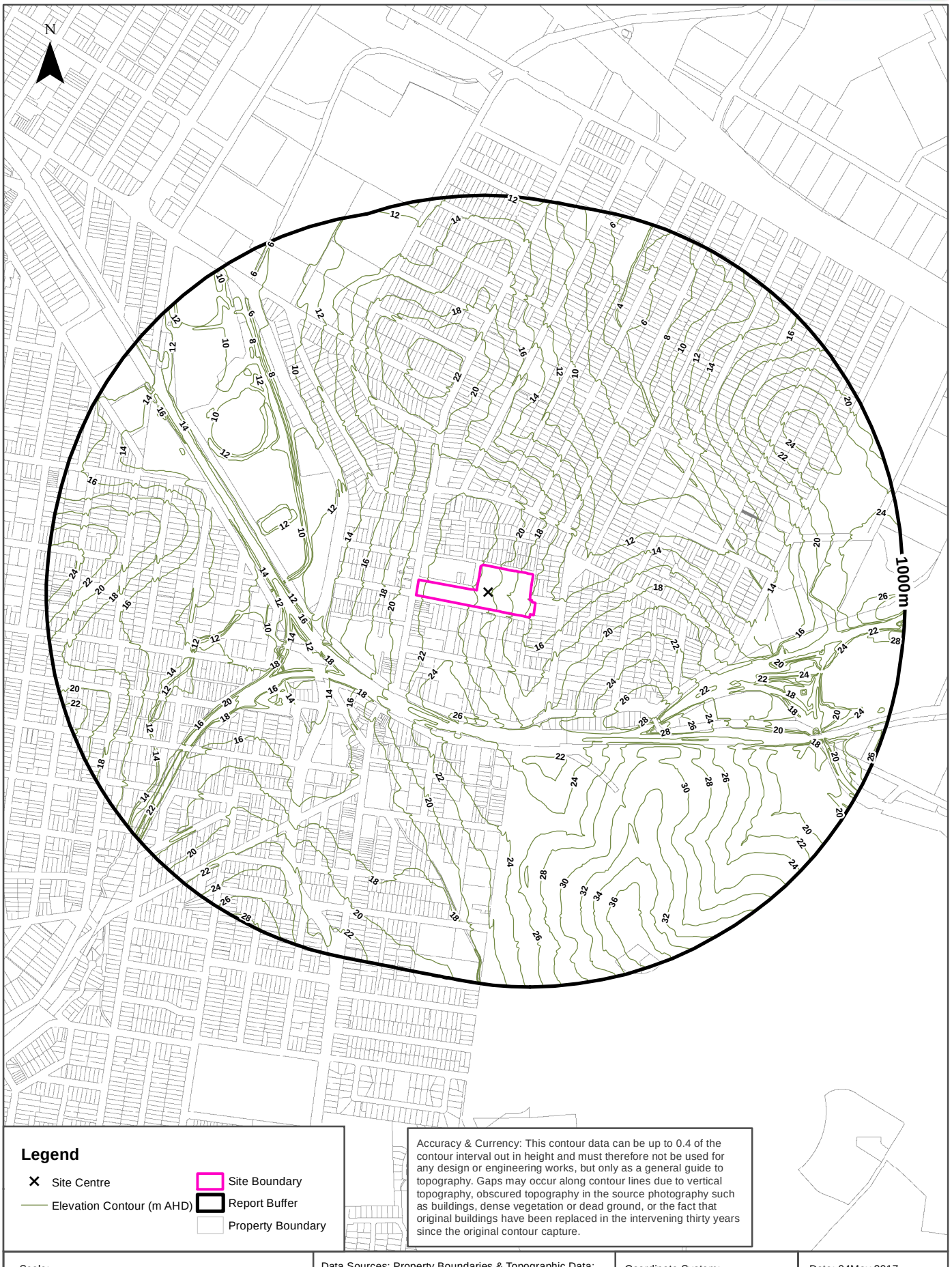
National Parks and Wildlife Service Reserves

What NPWS Reserves exist within the report buffer?

Reserve Number	Reserve Type	Reserve Name	Gazetted Date	Distance	Direction
N/A	No records in buffer				

Elevation Contours (m AHD)

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141



Legend

- Site Centre
- Elevation Contour (m AHD)
- Site Boundary
- Report Buffer
- Property Boundary

Accuracy & Currency: This contour data can be up to 0.4 of the contour interval out in height and must therefore not be used for any design or engineering works, but only as a general guide to topography. Gaps may occur along contour lines due to vertical topography, obscured topography in the source photography such as buildings, dense vegetation or dead ground, or the fact that original buildings have been replaced in the intervening thirty years since the original contour capture.

Scale: 0 100 200 400 Meters

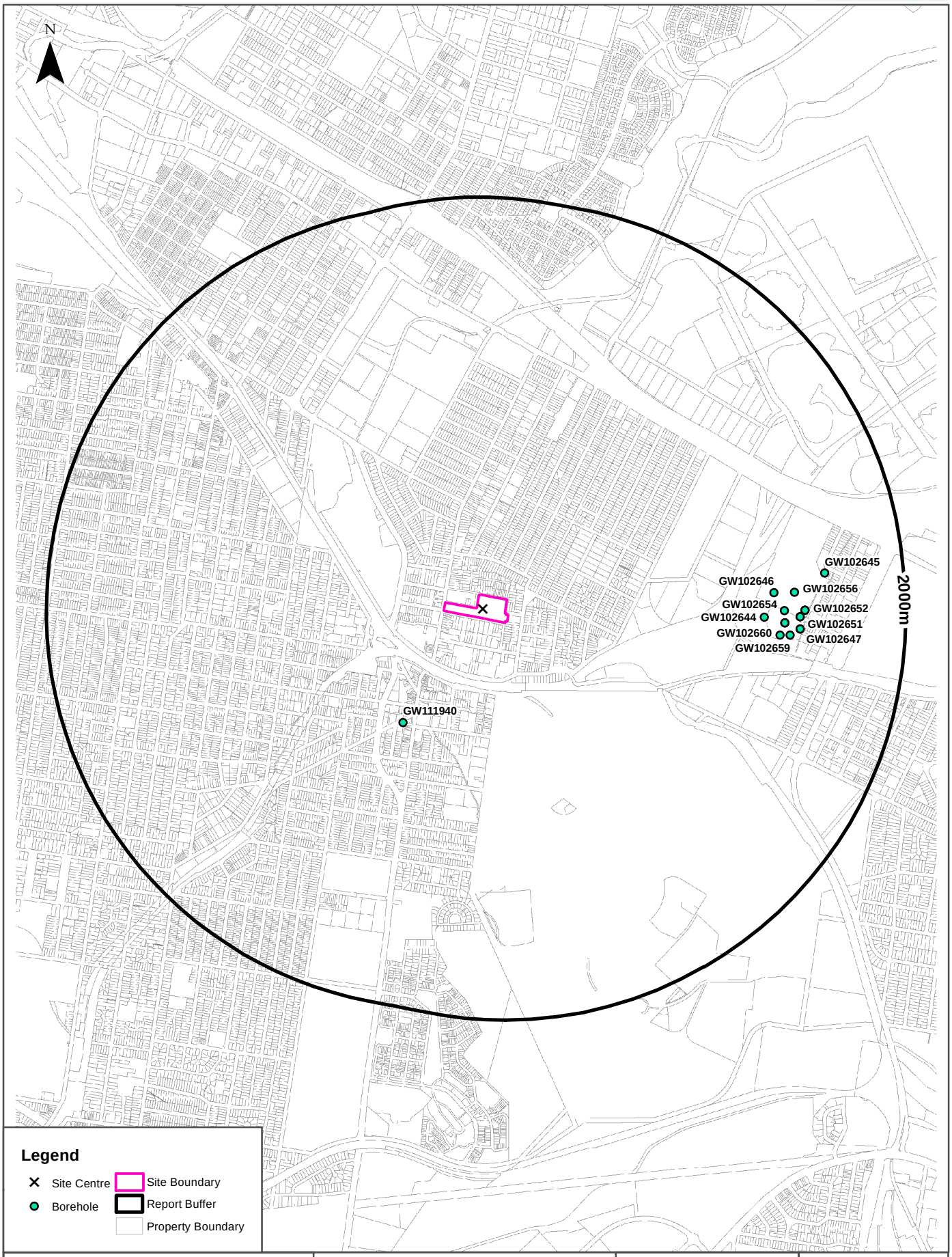
Data Sources: Property Boundaries & Topographic Data: © Land and Property Information (a division of the Department of Finance and Services) 2017

Coordinate System: GDA 1994 MGA Zone 56

Date: 04May 2017

Groundwater Boreholes

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141



Hydrogeology & Groundwater

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141

Hydrogeology

Description of aquifers on-site:

Description
Porous, extensive aquifers of low to moderate productivity

Description of aquifers within the report buffer:

Description
Porous, extensive aquifers of low to moderate productivity

Groundwater Boreholes

Boreholes within 2km of the site:

GW No.	Licence No	Work Type	Owner Type	Purpose	Contractor	Complete Date	Final Depth	Drilled Depth	Salinity	SWL	Yield	Elev	Dist	Dir
GW111940	10BL605200	Bore	Private	Monitoring		28/06/2012	6.10	6.10		2.71			599m	South West
GW102644	10BL150044	Bore		Monitoring	DJ Douglas	15/05/1992	25.00	25.00	1360				1290m	East
GW102646	10BL150044	Bore		Monitoring	DJ Douglas	20/05/1992	25.00	25.00					1343m	East
GW102660	10BL150044	Bore		Monitoring	DJ Douglas	29/05/1992	8.00	8.00	1460				1372m	East
GW102654	10BL150044	Bore		Monitoring	DJ Douglas	15/05/1992	10.00	10.00	6430				1392m	East
GW102657	10BL150044	Bore	Private	Monitoring	DJ Douglas	21/05/1992	8.00	8.00	10900	1.00			1394m	East
GW102658	10BL150044	Bore	Private	Monitoring	DJ Douglas	25/05/1992	12.00	12.00	19300	1.00			1394m	East
GW102659	10BL150044	Bore		Monitoring	DJ Douglas	29/05/1992	10.00	10.00	2620				1424m	East
GW102656	10BL150044	Bore		Monitoring	DJ Douglas	19/05/1992	25.00	25.00	1640				1446m	East
GW102650	10BL150044	Bore		Monitoring	DJ Douglas	08/05/1992	10.00	10.00	4570				1470m	East
GW102651	10BL150044	Bore		Monitoring	DJ Douglas	08/05/1992	25.00	25.00	24700				1470m	East
GW102647	10BL150044	Bore		Monitoring	DJ Douglas	20/05/1992	10.00	10.00	2000				1472m	East
GW102649	10BL150044	Bore		Monitoring	DJ Douglas	13/05/1992	25.00	25.00					1472m	East
GW102653	10BL150044	Bore		Monitoring	DJ Douglas	18/05/1992	25.00	25.00					1495m	East
GW102652	10BL150044	Bore		Monitoring	DJ Douglas	18/05/1992	10.00	10.00	14600				1495m	East
GW102645	10BL150044	Bore		Monitoring	DJ Douglas	21/05/1992	10.00	10.00	13300				1606m	East

Hydrogeology & Groundwater

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141

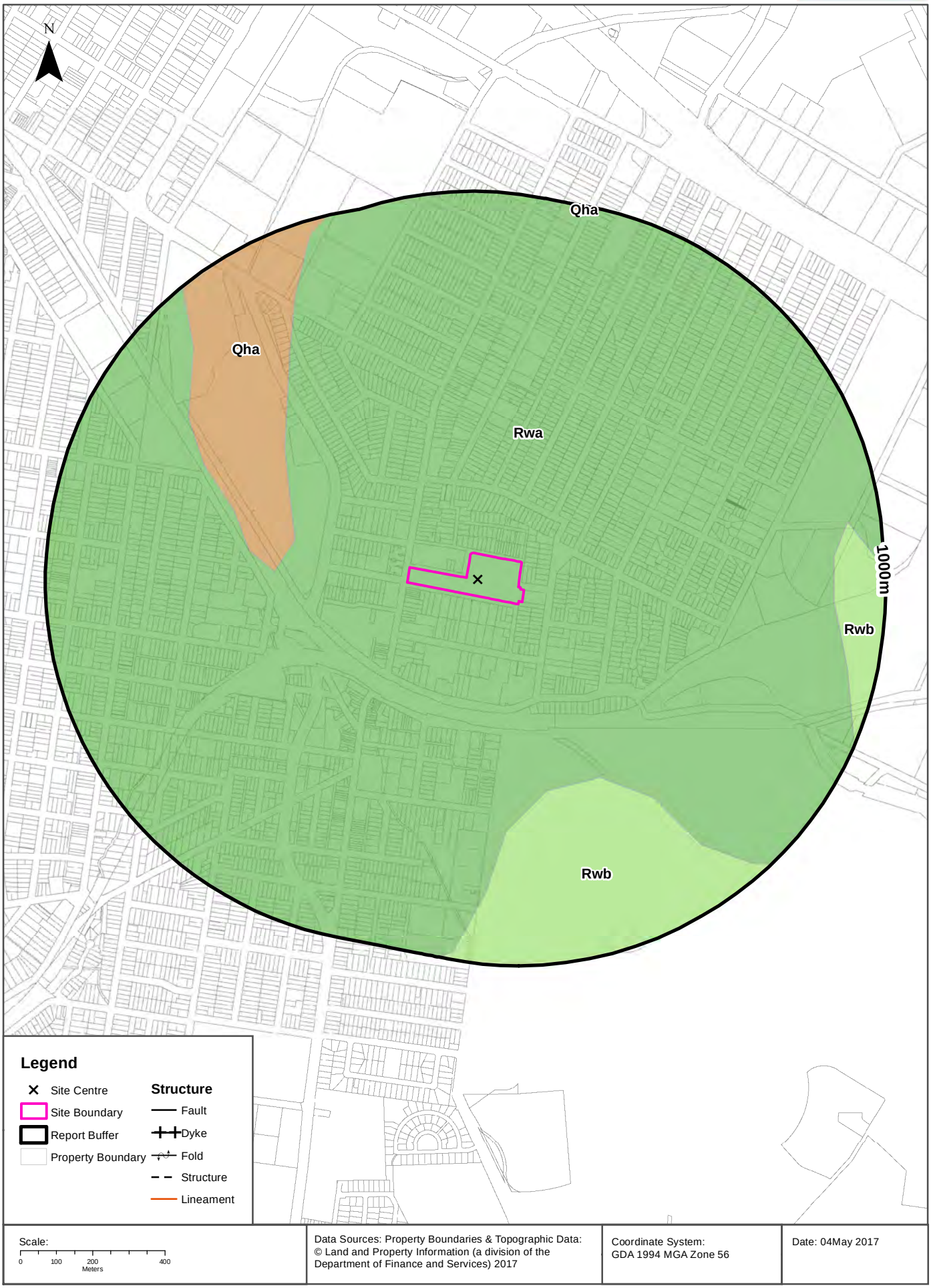
Driller's Logs

Drill log data relevant to the boreholes within 2km of the site:

Groundwater No	Drillers Log	Distance	Direction
GW111940	0.00m-0.15m CONCRETE 0.15m-0.20m SAND BROWN, FILLING 0.20m-0.50m SILTY CLAY GREY SOFT 0.50m-1.30m CLAY STIFF,MOTTLED RED AND GREY 1.30m-5.50m CLAY SOFT TO FIRM,MOTTLED 5.50m-6.10m SHALE, LOW STRENGTH ,GREY,SHALE	599m	South West
GW102644	0.00m-5.00m SILTSTONE WEATHERED 5.00m-25.00m SILTSTONE	1290m	East
GW102646	0.00m-5.00m CLAY 5.00m-7.00m SILTSTONE WEATHERED 7.00m-25.00m SILTSTONE	1343m	East
GW102660	0.00m-7.00m CLAY 7.00m-8.00m SHALE	1372m	East
GW102654	0.00m-7.00m CLAY 7.00m-10.00m SILTSTONE	1392m	East
GW102657	0.00m-1.00m CLAY 1.00m-8.00m WASTE	1394m	East
GW102658	0.00m-1.00m CLAY 1.00m-12.00m WASTE	1394m	East
GW102659	0.00m-7.00m CLAY 7.00m-10.00m SHALE	1424m	East
GW102656	0.00m-6.00m CLAY 6.00m-25.00m SILTSTONE	1446m	East
GW102650	0.00m-4.00m CLAY 4.00m-5.00m SHALE WEATHERED 5.00m-7.00m CLAY 7.00m-10.00m SHALE	1470m	East
GW102651	0.00m-5.00m CLAY 5.00m-25.00m SHALE	1470m	East
GW102647	0.00m-7.00m CLAY 7.00m-10.00m SILTSTONE	1472m	East
GW102649	0.00m-7.00m CLAY 7.00m-25.00m SILTSTONE	1472m	East
GW102652	0.00m-9.00m CLAY 9.00m-10.00m SILTSTONE	1495m	East
GW102653	0.00m-9.00m CLAY 9.00m-25.00m SILTSTONE	1495m	East
GW102645	0.00m-5.00m SHALE WEATHERED 5.00m-10.00m SHALE	1606m	East

Geology 1:100,000

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141



Geology

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141

Geological Units

What are the Geological Units onsite?

Symbol	Description	Unit Name	Group	Sub Group	Age	Dom Lith	Map Sheet	Dataset
Rwa	Black to dark grey shale and laminate	Ashfield Shale	Wianamatta Group		Triassic		Sydney	1:100,000

What are the Geological Units within the report buffer?

Symbol	Description	Unit Name	Group	Sub Group	Age	Dom Lith	Map Sheet	Dataset
Qha	Silty to peaty quartz sand, silt, and clay. Ferruginous and humic cementation in places. Common shell layers				Quaternary		Sydney	1:100,000
Rwa	Black to dark grey shale and laminate	Ashfield Shale	Wianamatta Group		Triassic		Sydney	1:100,000
Rwb	Shale, carbonaceous claystone, laminate, fine to medium-grained lithic sandstone, rare coal	Bringelly Shale	Wianamatta Group		Triassic		Sydney	1:100,000

Geological Structures

What are the Geological Structures onsite?

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

What are the Geological Structures within the report buffer?

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

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

Naturally Occurring Asbestos Potential

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141

Naturally Occurring Asbestos Potential

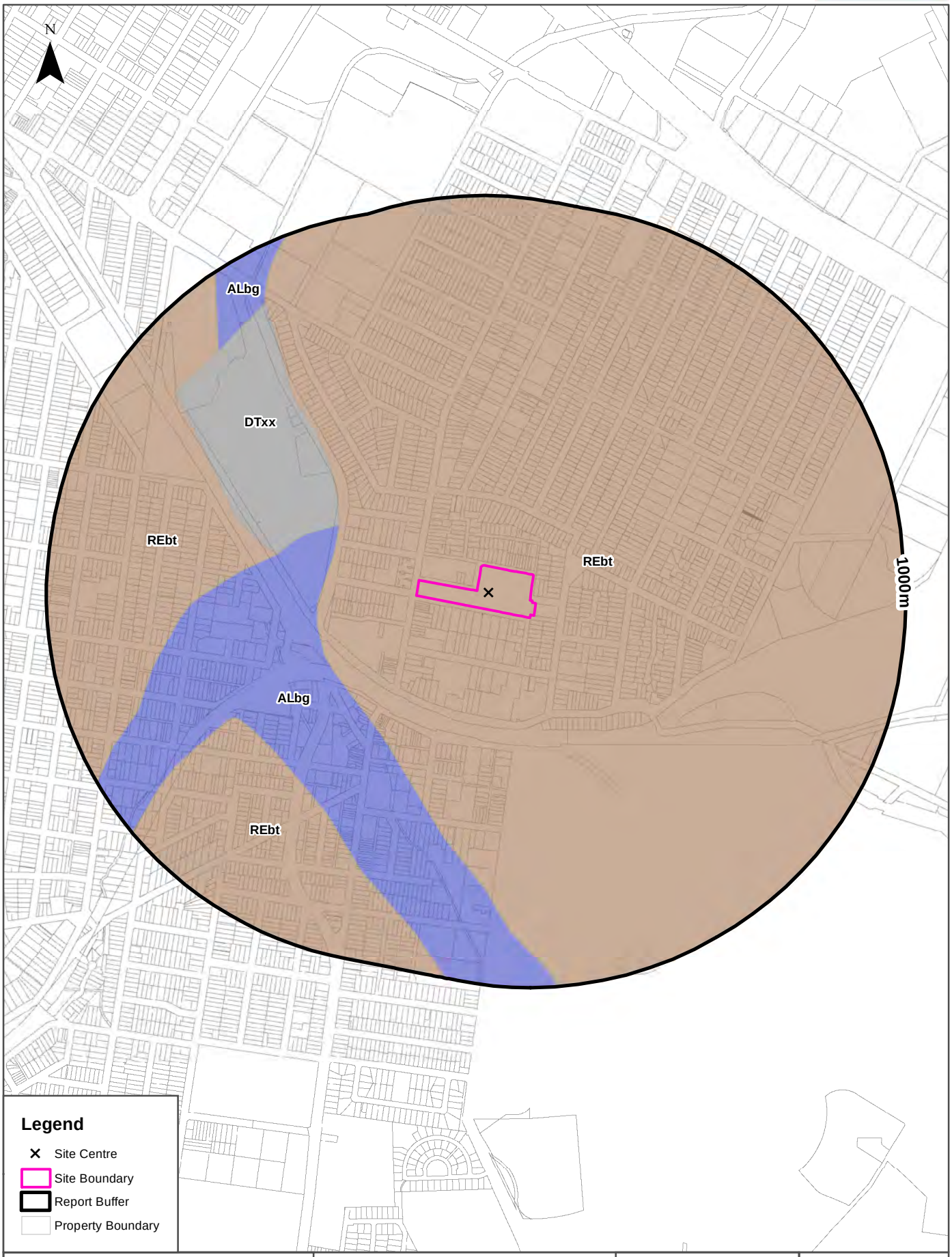
Naturally Occurring Asbestos Potential within the report buffer?

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

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

Soil Landscapes

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141



Soils

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141

Soil Landscapes

What are the onsite Soil Landscapes?

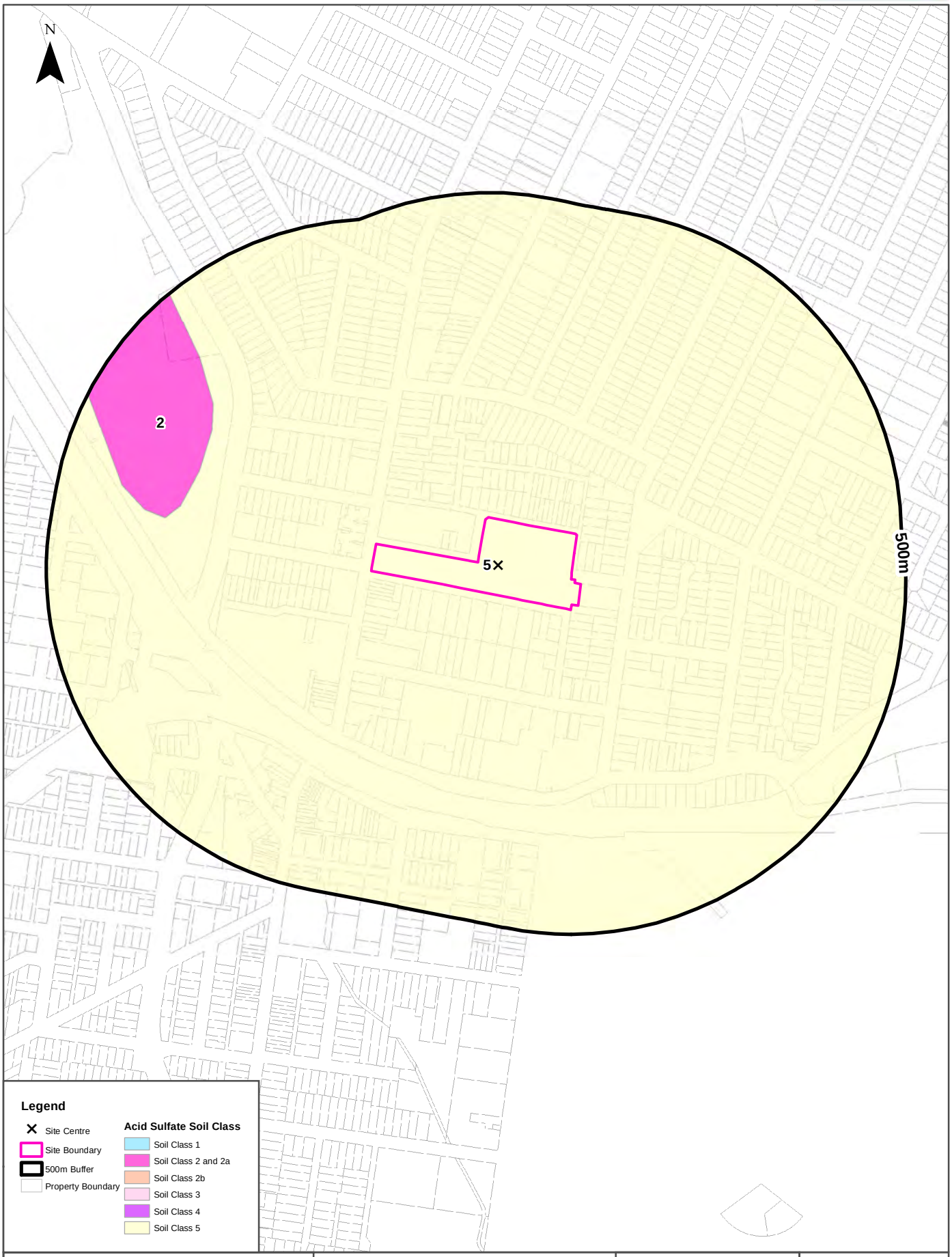
Soil Code	Name	Group	Process	Map Sheet	Scale
REbt	BLACKTOWN		RESIDUAL	Sydney	1:100,000

What are the Soil Landscapes within the report buffer?

Soil Code	Name	Group	Process	Map Sheet	Scale
ALbg	BIRRONG		ALLUVIAL	Sydney	1:100,000
DTxx	DISTURBED TERRAIN		DISTURBED TERRAIN	Sydney	1:100,000
REbt	BLACKTOWN		RESIDUAL	Sydney	1:100,000

Acid Sulfate Soils

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141



Data Sources: Property Boundaries & Topographic Data: © Land and Property Information (a division of the Department of Finance and Services) 2017

Coordinate System: GDA 1994 MGA Zone 56

Date: 04May 2017

Standard Local Environmental Plan Acid Sulfate Soils

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141

Standard Local Environmental Plan Acid Sulfate Soils

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

Soil Class	Description	LEP
5	Works within 500 metres of adjacent Class 1, 2, 3, or 4 land that is below 5 metres AHD and by which the watertable is likely to be lowered below 1 metre AHD on adjacent Class 1, 2, 3 or 4 land, present an environmental risk	Auburn Local Environmental Plan 2010

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

Soil Class	Description	LEP	Distance	Direction
2	Works below natural ground surface present an environmental risk; Works by which the watertable is likely to be lowered present an environmental risk	Auburn Local Environmental Plan 2010	294m	North West

Dryland Salinity

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141

Dryland Salinity

Is there Dryland Salinity data onsite?

No

Is there Dryland Salinity data within the report buffer?

No

What Dryland Salinity assessments are given?

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

Dryland Salinity Data Source : National Land and Water Resources Audit
The Commonwealth and all suppliers of source data used to derive the maps of "Australia, Forecast Areas Containing Land of High Hazard or Risk of Dryland Salinity from 2000 to 2050" do not warrant the accuracy or completeness of information in this product. Any person using or relying upon such information does so on the basis that the Commonwealth and data suppliers shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information. Any persons using this information do so at their own risk.
In many cases where a high risk is indicated, less than 100% of the area will have a high hazard or risk.

Mining Subsidence Districts

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141

Mining Subsidence Districts

Mining Subsidence Districts within the report buffer?

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

Environmental Zoning

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141

State Environmental Planning Policy Protected Areas

Are there any State Environmental Planning Policy Protected Areas onsite or within the report buffer?

Dataset	Onsite	Within Site Buffer	Distance
SEPP14 - Coastal Wetlands	No	No	N/A
SEPP26 - Littoral Rainforests	No	No	N/A
SEPP71 - Coastal Protection Zone	No	No	N/A

SEPP Protected Areas Data Source: NSW Department of Planning & Environment

State Environmental Planning Policy Major Developments (2005)

State Environmental Planning Policy Major Developments within the report buffer?

Map Id	Feature	Effective Date	Distance	Direction
N/A	No records within buffer			

SEPP Major Development Data Source: NSW Department of Planning & Environment

State Environmental Planning Policy Strategic Land Use Areas

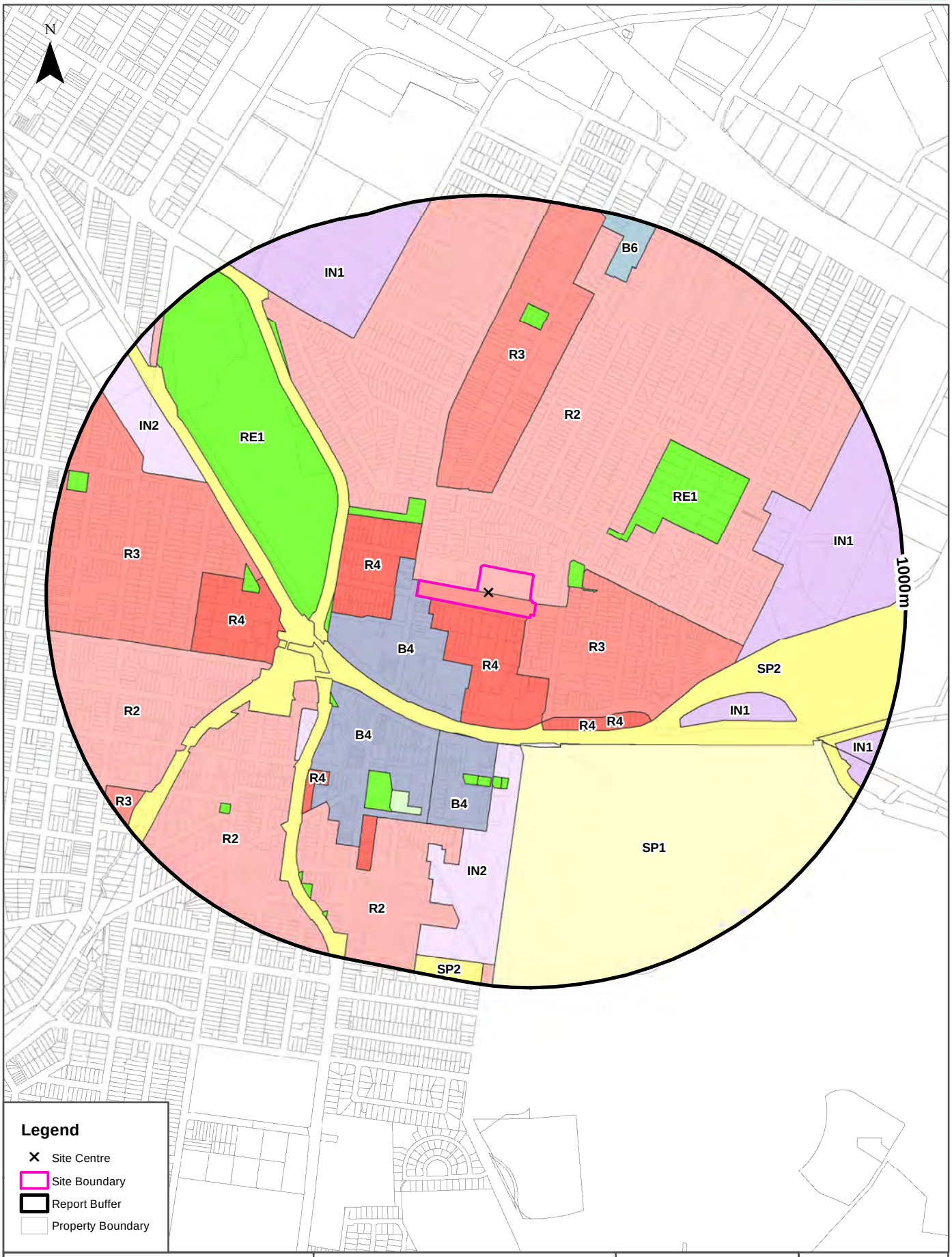
State Environmental Planning Policy Strategic Land Use Areas onsite or within the report buffer?

Strategic Land Use	SEPPNo	Effective Date	Amendment	Amendment Year	Distance	Direction
No records within buffer						

SEPP Strategic Land Use Data Source: NSW Department of Planning & Environment

LEP Planning Zones

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141



Data Sources: Property Boundaries & Topographic Data: © Land and Property Information (a division of the Department of Finance and Services) 2017
Planning: NSW Crown Copyright - Planning & Environment

Coordinate System: GDA 1994 MGA Zone 56

Date: 04May 2017

Local Environmental Plan

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141

Land Zoning

What Local Environmental Plan Land Zones exist within the report buffer?

Zone	Description	Purpose	LEP or SEPP	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
R3	Medium Density Residential		Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		0m	Onsite
R2	Low Density Residential		Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		0m	Onsite
R4	High Density Residential		Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		0m	South
B4	Mixed Use		Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		0m	South West
R4	High Density Residential		Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		56m	West
RE1	Public Recreation		Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		93m	East
RE1	Public Recreation		Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		154m	North West
R3	Medium Density Residential		Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		198m	North
SP2	Infrastructure	Road	Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		220m	North West
RE1	Public Recreation		Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		221m	West
RE1	Public Recreation		Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		228m	North East
RE1	Public Recreation		Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		251m	North West
SP2	Infrastructure	Railway	Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		256m	North West
R4	High Density Residential		Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		276m	South East
SP2	Infrastructure	Road	Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		297m	West
B4	Mixed Use		Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		300m	South West
SP2	Infrastructure	Road	Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		321m	South
SP1	Special Activities	Cemetery	Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		345m	South East
B4	Mixed Use		Auburn Local Environmental Plan 2010	18/09/2015	18/09/2015	27/11/2015	Amendment No 14	346m	South
IN2	Light Industrial		Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		348m	South
RE1	Public Recreation		Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		350m	South West
R2	Low Density Residential		Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		357m	South West
R4	High Density Residential		Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		367m	West
SP2	Infrastructure	Road	Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		372m	West
IN2	Light Industrial		Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		410m	South West
R3	Medium Density Residential		Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		419m	West
RE1	Public Recreation		Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		425m	West
R2	Low Density Residential		Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		432m	West
RE1	Public Recreation		Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		439m	South
RE1	Public Recreation		Auburn Local Environmental Plan 2010	18/09/2015	18/09/2015	27/11/2015	Amendment No 14	439m	South

Zone	Description	Purpose	LEP or SEPP	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
RE1	Public Recreation		Auburn Local Environmental Plan 2010	18/09/2015	18/09/2015	27/11/2015	Amendment No 14	445m	South
RE1	Public Recreation		Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		447m	South
IN1	General Industrial		Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		482m	South East
RE1	Public Recreation		Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		485m	South West
RE2	Private Recreation		Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		526m	South
R4	High Density Residential		Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		532m	South West
IN1	General Industrial		Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		556m	East
R2	Low Density Residential		Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		593m	South
R4	High Density Residential		Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		607m	South West
IN2	Light Industrial		Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		633m	North West
RE1	Public Recreation		Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		647m	North West
RE1	Public Recreation		Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		652m	North
IN1	General Industrial		Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		678m	North
RE1	Public Recreation		Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		755m	South West
RE1	Public Recreation		Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		807m	South West
B6	Enterprise Corridor		Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		830m	North
RE1	Public Recreation		Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		830m	South West
SP2	Infrastructure	Rail Infrastructure	Strathfield Local Environmental Plan 2012	15/03/2013	29/03/2013	17/02/2017		831m	East
SP2	Infrastructure	Railway	Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		848m	South East
IN1	General Industrial		Strathfield Local Environmental Plan 2012	15/03/2013	29/03/2013	17/02/2017		883m	East
RE1	Public Recreation		Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		885m	South West
IN1	General Industrial		Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		892m	South East
R3	Medium Density Residential		Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		903m	South West
R2	Low Density Residential		Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		916m	North West
IN2	Light Industrial		Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		928m	North West
RE1	Public Recreation		Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		932m	West
SP2	Infrastructure	Defence Land	Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		943m	South

Local Environmental Plan

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141

Minimum Subdivision Lot Size

What are the onsite Local Environmental Plan Minimum Subdivision Lot Sizes?

Symbol	Minimum Lot Size	LEP or SEPP	Published Date	Commenced Date	Currency Date	Amendment	Percentage of Site Area
G	450 m²	Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	28/10/2016		41.66

Maximum Height of Building

What are the onsite Local Environmental Plan Maximum Height of Buildings?

Symbol	Maximum Height of Building	LEP or SEPP	Published Date	Commenced Date	Currency Date	Amendment	Percentage of Site Area
10	9.00 m	Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	27/11/2015		99.8

Floor Space Ratio

What are the onsite Local Environmental Plan Floor Space Ratios?

Symbol	Floor Space Ratio	LEP or SEPP	Published Date	Commenced Date	Currency Date	Amendment	Percentage of Site Area
9	0.75	LEP	29/10/2010	29/10/2010	27/11/2015		58.1
26	5.00	LEP	11/04/2014	11/04/2014	27/11/2015	Amendment No 8	0.1
68	1.70	LEP	11/04/2014	11/04/2014	27/11/2015	Amendment No 8	0.1

Land Application

What are the onsite Local Environmental Plan Land Applications?

Application Type	LEP or SEPP	Published Date	Commenced Date	Currency Date	Amendment	Percentage of Site Area
Included	Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	04/07/2014		100

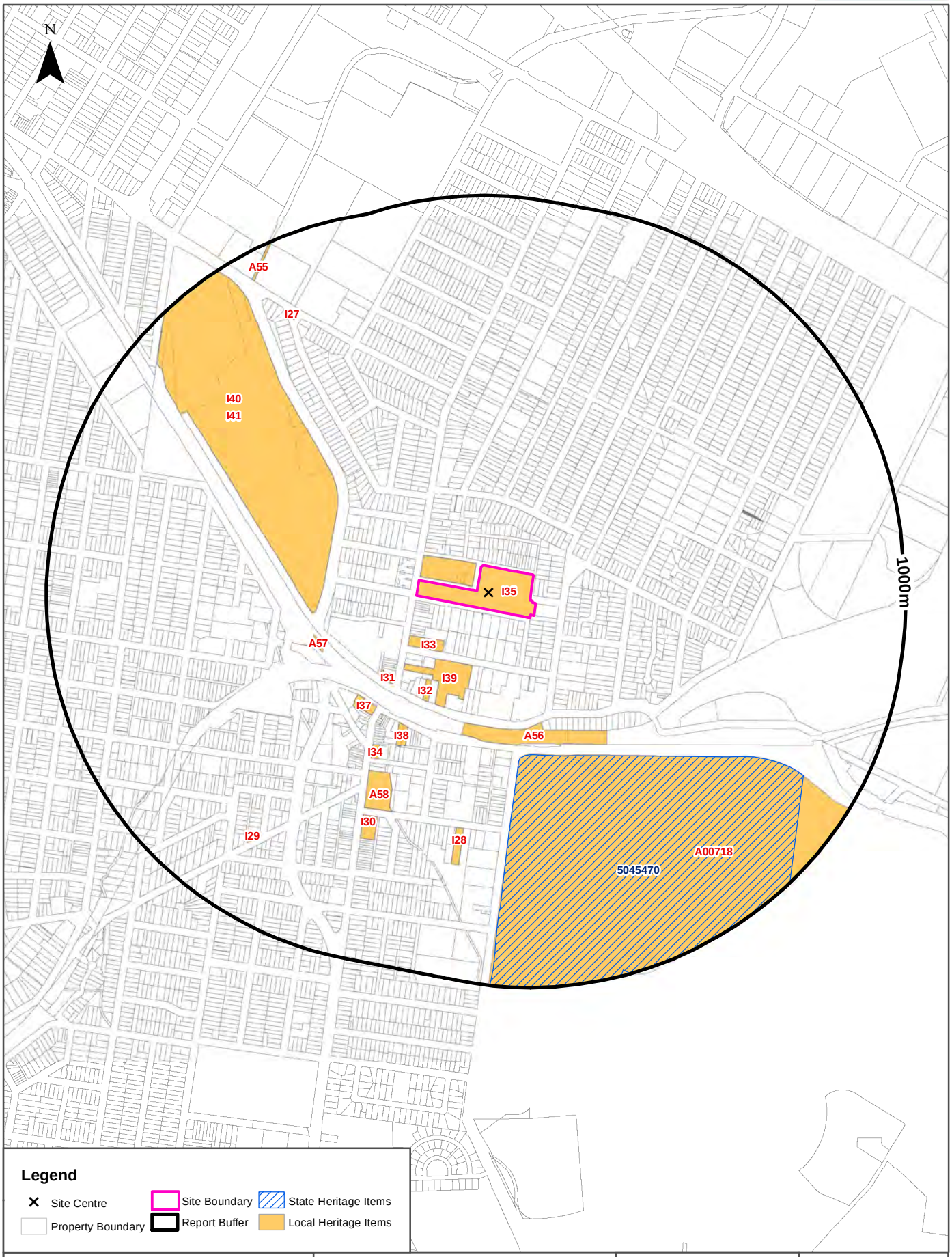
Land Reservation Acquisition

What are the onsite Local Environmental Plan Land Reservation Acquisitions?

Reservation	LEP	Published Date	Commenced Date	Currency Date	Amendment	Comments	Percentage of Site Area
No Data							

Heritage Items

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141



Heritage

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141

State Heritage Items

What are the State Heritage Items located within the report buffer?

Map Id	Name	Address	LGA	Listing Date	Listing No	Plan No	Distance	Direction
5045470	Rookwood Cemetery and Necropolis	East Street, Lidcombe	Auburn	02/04/1999	718	1770	370m	South East

Local Heritage Items

What are the Local Heritage Items located within the report buffer?

Map Id	Name	Classification	Significance	LEP or Act	Published Date	Commenced Date	Currency Date	Distance	Direction
I35	Lidcombe Public School and Infants Department	Item - General	Local	Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	29/10/2010	0m	Onsite
I39	St Joachims Catholic Church, Parish Hall and School	Item - General	Local	Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	29/10/2010	10m	South West
I33	Lidcombe Police Station	Item - General	Local	Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	29/10/2010	107m	South West
I32	Lidcombe Fire Station	Item - General	Local	Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	29/10/2010	218m	South West
I31	Hotel Lidcombe	Item - General	Local	Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	29/10/2010	221m	South West
I40	Wyatt Park, Haslams Creek, Lidcombe Pool, Lidcombe Oval, Stormwater Drain	Item - General	Local	Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	29/10/2010	251m	North West
I41	Stand of' Eucalyptus microcorys	Item - General	Local	Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	29/10/2010	251m	North West
A56	Lidcombe Signal Box	Item - Archaeological	Local	Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	29/10/2010	284m	South
A57	Railway overpass over Olympic Drive	Item - Archaeological	Local	Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	29/10/2010	284m	West
I37	Railway Hotel	Item - General	Local	Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	29/10/2010	310m	South West
I38	Royal Oak Hotel	Item - General	Local	Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	29/10/2010	346m	South West
A00718	Rookwood Cemetery or Necropolis	Item - Archaeological	State	Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	29/10/2010	368m	South East
I34	Lidcombe Post Office	Item - General	Local	Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	29/10/2010	416m	South West
A58	Lidcombe War Memorial Statue	Item - Archaeological	Local	Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	29/10/2010	485m	South West
I28	Dwelling	Item - General	Local	Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	29/10/2010	593m	South

Map Id	Name	Classification	Significance	LEP or Act	Published Date	Commenced Date	Currency Date	Distance	Direction
I30	Fenton House	Item - General	Local	Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	29/10/2010	607m	South West
I29	Dwelling	Item - General	Local	Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	29/10/2010	767m	South West
I27	Clive E Evatt Commemorative Plaque	Item - General	Local	Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	29/10/2010	782m	North West
A55	Canalisation of Haslams Creek south of Parramatta Road	Item - Archaeological	Local	Auburn Local Environmental Plan 2010	29/10/2010	29/10/2010	29/10/2010	923m	North

Natural Hazards

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141

Bush Fire Prone Land

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

Bush Fire Prone Land Category	Distance	Direction
No records within buffer		

Ecological Constraints - Native Vegetation & RAMSAR Wetlands

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141

Legend

- Site Centre
- Site Boundary
- Report Buffer
- Property Boundary
- Rainforest
- Wet Sclerophyll Forests
- Dry Sclerophyll Forests
- Forested Wetlands
- Grassy Woodlands
- Heathlands
- Grasslands
- Freshwater Wetlands
- Saline Wetlands
- Artificial Wetlands
- Water
- Other
- RAMSAR Wetlands

Scale: 0 100 200 400 Meters

Data Sources: Property Boundaries & Topographic Data: © Land and Property Information (a division of the Department of Finance and Services) 2017

Coordinate System: GDA 1994 MGA Zone 56

Date: 04May 2017

Ecological Constraints

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141

Native Vegetation

What native vegetation exists within the report buffer?

Map ID	Map Unit Name	Threatened Ecological Community NSW	Threatened Ecological Community EPBC Act	Understorey	Disturbance	Disturbance Index	Dominant Species	Dist	Direction
Urban_E/N	Urban_E/N: Urban Exotic/Native			00: Not assessed	00: Not assessed	0: Not assessed	Urban Exotic/Native	0m	Onsite
S_DSF01	S_DSF01: Castlereagh Ironbark Forest	Castlereagh/ Cooks River Ironbark Forest		13: Dry shrubs and grasses	31: Parkland open understorey	4: Very high	E.fibrosa/E.moluccanna/M.decora/E.longifolia	668m	South East
Plant_n	Plant_n: Plantation (native and/or exotic)			00: Not assessed	00: Not assessed	0: Not assessed	Native or Exotic Plantations	707m	South East
Weed_Ex	Weed_Ex: Weeds and Exotics			00: Not assessed	00: Not assessed	0: Not assessed	Exotic Species >90%cover	977m	South

RAMSAR Wetlands

What RAMSAR Wetland areas exist within the report buffer?

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

Ecological Constraints

Lidcombe Public School, Mills Street, Lidcombe, NSW 2141

ATLAS of NSW Wildlife

Endangered &Vulnerable Species on the ATLAS of NSW Wildlife database, within 10km of the site?

Class	Family	Scientific	Common	Exotic	NSW Status	Commonwealth Status
Amphibia	Hylidae	Litoria aurea	Green and Golden Bell Frog	No	Endangered, Protected	Vulnerable
Amphibia	Myobatrachidae	Pseudophryne australis	Red-crowned Toadlet	No	Vulnerable, Protected	
Aves	Accipitridae	Circus assimilis	Spotted Harrier	No	Vulnerable, Protected	
Aves	Accipitridae	Haliaeetus leucogaster	White-bellied Sea-Eagle	No	Vulnerable, Protected	CAMBA
Aves	Accipitridae	Hieraaetus morphnoides	Little Eagle	No	Vulnerable, Protected	
Aves	Accipitridae	Pandion cristatus	Eastern Osprey	No	Vulnerable, Protected, Category 3 Sensitive Species	
Aves	Anatidae	Stictonetta naevosa	Freckled Duck	No	Vulnerable, Protected	
Aves	Ardeidae	Botaurus poiciloptilus	Australasian Bittern	No	Endangered, Protected	Endangered
Aves	Ardeidae	Ixobrychus flavicollis	Black Bittern	No	Vulnerable, Protected	
Aves	Artamidae	Artamus cyanopterus cyanopterus	Dusky Woodswallow	No	Vulnerable, Protected	
Aves	Burhinidae	Burhinus grallarius	Bush Stone-curlew	No	Endangered, Protected	
Aves	Charadriidae	Charadrius leschenaultii	Greater Sand-plover	No	Vulnerable, Protected	V,C,J,K
Aves	Columbidae	Ptilinopus superbus	Superb Fruit-Dove	No	Vulnerable, Protected	
Aves	Falconidae	Falco subniger	Black Falcon	No	Vulnerable, Protected	
Aves	Laridae	Sternula albifrons	Little Tern	No	Endangered, Protected	CAMBA, JAMBA, ROKAMBA
Aves	Meliphagidae	Anthochaera phrygia	Regent Honeyeater	No	Critically Endangered Species, Protected	Critically Endangered
Aves	Meliphagidae	Epthianura albifrons	White-fronted Chat	No	Vulnerable, Protected	
Aves	Meliphagidae	Epthianura albifrons	White-fronted Chat population in the Sydney Metropolitan Catchment Management Area	No	Endangered Population, Vulnerable, Protected	
Aves	Meliphagidae	Melithreptus gularis gularis	Black-chinned Honeyeater (eastern subspecies)	No	Vulnerable, Protected	
Aves	Neosittidae	Daphoenositta chrysoptera	Varied Sittella	No	Vulnerable, Protected	
Aves	Petroicidae	Petroica boodang	Scarlet Robin	No	Vulnerable, Protected	
Aves	Petroicidae	Petroica phoenicea	Flame Robin	No	Vulnerable, Protected	
Aves	Psittacidae	Glossopsitta pusilla	Little Lorikeet	No	Vulnerable, Protected	
Aves	Psittacidae	Lathamus discolor	Swift Parrot	No	Endangered, Protected, Category 3 Sensitive Species	Critically Endangered
Aves	Psittacidae	Neophema pulchella	Turquoise Parrot	No	Vulnerable, Protected, Category 3 Sensitive Species	
Aves	Rostratulidae	Rostratula australis	Australian Painted Snipe	No	Endangered, Protected	Endangered
Aves	Scolopacidae	Calidris ferruginea	Curlew Sandpiper	No	Endangered, Protected	CE,C,J,K
Aves	Scolopacidae	Calidris tenuirostris	Great Knot	No	Vulnerable, Protected	CE,C,J,K
Aves	Scolopacidae	Limicola falcinellus	Broad-billed Sandpiper	No	Vulnerable, Protected	CAMBA, JAMBA, ROKAMBA
Aves	Scolopacidae	Limosa limosa	Black-tailed Godwit	No	Vulnerable, Protected	CAMBA, JAMBA, ROKAMBA

Class	Family	Scientific	Common	Exotic	NSW Status	Commonwealth Status
Aves	Scolopacidae	Xenus cinereus	Terek Sandpiper	No	Vulnerable, Protected	CAMBA, JAMBA, ROKAMBA
Aves	Strigidae	Ninox connivens	Barking Owl	No	Vulnerable, Protected, Category 3 Sensitive Species	
Aves	Strigidae	Ninox strenua	Powerful Owl	No	Vulnerable, Protected, Category 3 Sensitive Species	
Aves	Tytonidae	Tyto longimembris	Eastern Grass Owl	No	Vulnerable, Protected, Category 3 Sensitive Species	
Aves	Tytonidae	Tyto novaehollandiae	Masked Owl	No	Vulnerable, Protected, Category 3 Sensitive Species	
Gastropoda	Camaenidae	Meridolum corneovirens	Cumberland Plain Land Snail	No	Endangered	
Mammalia	Burramyidae	Cercartetus nanus	Eastern Pygmy-possum	No	Vulnerable, Protected	
Mammalia	Dasyuridae	Dasyurus maculatus	Spotted-tailed Quoll	No	Vulnerable, Protected	Endangered
Mammalia	Dasyuridae	Dasyurus viverrinus	Eastern Quoll	No	Endangered, Protected	Critically Endangered
Mammalia	Emballonuridae	Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	No	Vulnerable, Protected	
Mammalia	Molossidae	Mormopterus norfolkensis	Eastern Freetail-bat	No	Vulnerable, Protected	
Mammalia	Peramelidae	Perameles nasuta	Long-nosed Bandicoot population in inner western Sydney	No	Endangered Population, Protected	
Mammalia	Pteropodidae	Pteropus poliocephalus	Grey-headed Flying-fox	No	Vulnerable, Protected	Vulnerable
Mammalia	Vespertilionidae	Falsistrellus tasmaniensis	Eastern False Pipistrelle	No	Vulnerable, Protected	
Mammalia	Vespertilionidae	Miniopterus schreibersii oceanensis	Eastern Bentwing-bat	No	Vulnerable, Protected	
Mammalia	Vespertilionidae	Myotis macropus	Southern Myotis	No	Vulnerable, Protected	
Mammalia	Vespertilionidae	Scoteanax rueppellii	Greater Broad-nosed Bat	No	Vulnerable, Protected	
Flora	Apocynaceae	Marsdenia viridiflora subsp. viridiflora	Marsdenia viridiflora R. Br. subsp. viridiflora population in the Bankstown, Blacktown, Camden, Campbelltown, Fairfield, Holroyd, Liverpool and Penrith local government areas	No	Endangered Population	
Flora	Campanulaceae	Wahlenbergia multicaulis	Tadgell's Bluebell in the local government areas of Auburn, Bankstown, Baulkham Hills, Canterbury, Hornsby, Parramatta and Strathfield	No	Endangered Population	
Flora	Convolvulaceae	Wilsonia backhousei	Narrow-leafed Wilsonia	No	Vulnerable, Protected	
Flora	Dilleniaceae	Hibbertia sp. Bankstown		No	Critically Endangered Species, Protected	Critically Endangered
Flora	Elaeocarpaceae	Tetratheca glandulosa		No	Vulnerable, Protected	
Flora	Elaeocarpaceae	Tetratheca juncea	Black-eyed Susan	No	Vulnerable, Protected	Vulnerable
Flora	Ericaceae	Epacris purpurascens var. purpurascens		No	Vulnerable, Protected	
Flora	Fabaceae (Faboideae)	Dillwynia tenuifolia		No	Vulnerable, Protected	
Flora	Fabaceae (Faboideae)	Pultenaea parviflora		No	Endangered, Protected	Vulnerable
Flora	Fabaceae (Faboideae)	Pultenaea pedunculata	Matted Bush-pea	No	Endangered, Protected	
Flora	Fabaceae (Mimosoideae)	Acacia bynoeana	Bynoe's Wattle	No	Endangered, Protected	Vulnerable
Flora	Fabaceae (Mimosoideae)	Acacia clunies-rossiae	Kanangra Wattle	No	Vulnerable, Protected	
Flora	Fabaceae (Mimosoideae)	Acacia pubescens	Downy Wattle	No	Vulnerable, Protected	Vulnerable
Flora	Grammitidaceae	Grammitis stenophylla	Narrow-leaf Finger Fern	No	Endangered, Protected, Category 3 Sensitive Species	
Flora	Myrtaceae	Callistemon linearifolius	Netted Bottle Brush	No	Vulnerable, Protected, Category 3 Sensitive Species	

Class	Family	Scientific	Common	Exotic	NSW Status	Commonwealth Status
Flora	Myrtaceae	Darwinia biflora		No	Vulnerable, Protected	Vulnerable
Flora	Myrtaceae	Eucalyptus camfieldii	Camfield's Stringybark	No	Vulnerable, Protected	Vulnerable
Flora	Myrtaceae	Eucalyptus nicholii	Narrow-leaved Black Peppermint	No	Vulnerable, Protected	Vulnerable
Flora	Myrtaceae	Eucalyptus scoparia	Wallangarra White Gum	No	Endangered, Protected	Vulnerable
Flora	Myrtaceae	Leptospermum deanei		No	Vulnerable, Protected	Vulnerable
Flora	Myrtaceae	Melaleuca deanei	Deane's Paperbark	No	Vulnerable, Protected	Vulnerable
Flora	Myrtaceae	Syzygium paniculatum	Magenta Lilly Pilly	No	Endangered, Protected	Vulnerable
Flora	Myrtaceae	Triplarina imbricata	Creek Triplarina	No	Endangered, Protected	Endangered
Flora	Orchidaceae	Caladenia tessellata	Thick Lip Spider Orchid	No	Endangered, Protected, Category 2 Sensitive Species	Vulnerable
Flora	Orchidaceae	Genoplesium baueri	Bauer's Midge Orchid	No	Endangered, Protected, Category 2 Sensitive Species	Endangered
Flora	Orchidaceae	Pterostylis saxicola	Sydney Plains Greenhood	No	Endangered, Protected, Category 2 Sensitive Species	Endangered
Flora	Proteaceae	Grevillea beadleana	Beadle's Grevillea	No	Endangered, Protected, Category 3 Sensitive Species	Endangered
Flora	Proteaceae	Persoonia hirsuta	Hairy Geebung	No	Endangered, Protected, Category 3 Sensitive Species	Endangered
Flora	Proteaceae	Persoonia nutans	Nodding Geebung	No	Endangered, Protected	Endangered
Flora	Rhamnaceae	Pomaderris prunifolia	P. prunifolia in the Parramatta, Auburn, Strathfield and Bankstown Local Government Areas	No	Endangered Population	
Flora	Thymelaeaceae	Pimelea curviflora var. curviflora		No	Vulnerable, Protected	Vulnerable
Flora	Thymelaeaceae	Pimelea spicata	Spiked Rice-flower	No	Endangered, Protected	Endangered
Flora	Zannichelliaceae	Zannichellia palustris		No	Endangered, Protected	

Data does not include records not defined as either endangered or vulnerable, and category 1 sensitive species are also excluded. NSW Office of Environment and Heritage's Atlas of NSW Wildlife, which holds data from a number of custodians. Data obtained 04/05/2017

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s149 Certificate

OUR REFERENCE C/10-06/12
CONTACT DEVELOPMENT ASSESSMENT
TELEPHONE 02 9735 1222

CUMBERLAND COUNCIL

Ms M Eis
PO Box 976
NORTH RYDE BC NSW 1670

Certificate No: 28678
Receipt No: 1181774
Date: 18 May 2017
Your Reference: E30429K
LIDCOMBE:24882

PLANNING CERTIFICATE

Issued under Section 149(2) (5) of the
Environmental Planning and Assessment Act, 1979

Property Details

Address: 1 Mills Street, LIDCOMBE NSW 2141

Legal Description: Lot 1 DP 1095078

Owner(s) Name (as recorded by Council):

Department of Education & Training
GPO Box 33
SYDNEY NSW 2001

In accordance with the requirements of Section 149(2) of the *Environmental Planning and Assessment Act, 1979* (as amended), the following prescribed matters relate to the land at the date of this certificate.

Note: The information contained in Planning Certificates issued for a lot within Strata-Titled development relates to the land the development is situated on.

1. Names of Relevant Planning Instruments and DCPs

The name of:

(a) each environmental planning instrument that applies to the carrying out of development on the land.
(b) each proposed environmental planning instrument that will apply to the carrying out of development on the land and that is or has been the subject of community consultation or on public exhibition under the Act (unless the Secretary has notified the council that the making of the proposed instrument has been deferred indefinitely or has not been approved).
(c) each development control plan that applies to the carrying out of development on the land.

In this clause, proposed environmental planning instrument includes a planning proposal for a LEP or a draft environmental planning instrument.

1(a)	State Environmental Planning Policy	(Affordable Rental Housing) 2009
	State Environmental Planning Policy No. 62	Sustainable Aquaculture.
	State Environmental Planning Policy	(Housing for Seniors or People with a Disability) 2004
	State Environmental Planning Policy	(State and Regional Development) 2011

State Environmental Planning Policy (Miscellaneous Consent Provisions) 2007.
Auburn Local Environmental Plan 2010 as amended.

Sydney Regional Environmental Plan	(Sydney Harbour Catchment) 2005.
State Environmental Planning Policy No. 19	Bushland in Urban Areas.
State Environmental Planning Policy No. 21	Caravan Parks.
State Environmental Planning Policy No. 30	Intensive Agriculture.
State Environmental Planning Policy No. 32	Urban Consolidation (Redevelopment of Urban Land).
State Environmental Planning Policy No. 33	Hazardous and Offensive Development.
State Environmental Planning Policy No. 50	Canal Estate Development.
State Environmental Planning Policy No. 55	Remediation of Land.
State Environmental Planning Policy No. 64	Advertising and Signage.
State Environmental Planning Policy No. 65	Design Quality of Residential Flat Development (Amendment 3).
State Environmental Planning Policy No. 70	Affordable Housing (Revised Schemes).
State Environmental Planning Policy	Building Sustainability Index: BASIX 2004
State Environmental Planning Policy	(Exempt and Complying Development Codes) 2008
State Environmental Planning Policy	(Infrastructure) 2007
State Environmental Planning Policy	(State Significant Precincts) 2005
State Environmental Planning Policy	(Mining, Petroleum Production and Extractive Industries) 2007

1(b) Draft State Environmental Planning Policy (Competition) 2010

1(c) Auburn Development Control Plan 2010.

2. Zoning and Land Use under relevant LEPs

For each environmental planning instrument or proposed instrument referred to in clause 1 (other than a SEPP or proposed SEPP) that includes the land in any zone (however described):

(a) the identity of the zone, whether by reference to a name (such as "Residential Zone" or "Heritage Area") or by reference to a number (such as "Zone No. 2(a)"),
(b) the purpose for which the plan or instrument provides that development may be carried out within the zone without the need for development consent,
(c) the purposes for which the plan or instrument provides that development may not be carried out within the zone except with development consent,
(d) the purposes for which the plan or instrument provides that development is prohibited within the zone,
(e) whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed,
(f) whether the land includes or comprises critical habitat,
(g) whether the land is in a conservation area (however described),
(h) whether an item of environmental heritage (however described) is situated on the land.

(a) Zone R3 - Medium Density Residential (Auburn Local Environmental Plan 2010)
Zone R2 - Low Density Residential (Auburn Local Environmental Plan 2010)

(b) Under the provisions of the Auburn Local Environmental Plan 2010, development for the purpose of the following may be carried out within the zone WITHOUT DEVELOPMENT CONSENT:

- the provisions specified under Part 2 Permitted or Prohibited Development of the Auburn Local Environmental Plan 2010, there may be certain provisions carried out without development consent.

- the provisions specified under uses permitted without consent under the Land Use Table - Zone R3 Medium Density Residential of the Auburn Local Environmental Plan 2010.

- the provisions listed under exempt development which satisfies the criteria for exempt development relevant to the applicable zone under Part 3 Exempt and Complying Development of the Auburn Local Environmental Plan 2010.

- the provisions specified under Part 5 Miscellaneous Provisions of the Auburn Local Environmental Plan 2010, there may be certain provisions carried out without development consent.

- the provisions specified under Part 6 Additional Local Provisions of the Auburn Local Environmental Plan 2010, there may be certain provisions carried out without development consent.

NOTE: The certificate provides zoning information for the land that is the subject of this certificate only. The applicant must refer to the Auburn Local Environmental Plan 2010 and associated maps in order to determine detailed provisions for above when carrying out development without consent under the applicable zone. The Auburn Local Environmental Plan 2010 written instrument and maps are available on the New South Wales legislation website at www.legislation.nsw.gov.au.

Under the provisions of the Auburn Local Environmental Plan 2010, development for the purpose of the following may be carried out within the zone WITHOUT DEVELOPMENT CONSENT:

- the provisions specified under Part 2 Permitted or Prohibited Development of the Auburn Local Environmental Plan 2010, there may be certain provisions carried out without development consent.

- the provisions specified under uses permitted without consent under the Land Use Table - Zone R2 Low Residential of the Auburn Local Environmental Plan 2010.

- the provisions listed under exempt development which satisfies the criteria for exempt development relevant to the applicable zone under Part 3 Exempt and Complying Development of the Auburn Local Environmental Plan 2010.

- the provisions specified under Part 5 Miscellaneous Provisions of the Auburn Local Environmental Plan 2010, there may be certain provisions carried out without development consent.

- the provisions specified under Part 6 Additional Local Provisions of the Auburn Local Environmental Plan 2010, there may be certain provisions carried out without development consent.

NOTE: The certificate provides zoning information for the land that is the subject of this certificate only. The applicant must refer to the Auburn Local Environmental Plan 2010 and associated maps in order to determine detailed provisions for above when carrying out development without consent under the applicable zone. The Auburn Local Environmental Plan 2010 written instrument and maps are available on the New South Wales legislation website at www.legislation.nsw.gov.au.

(c) Under the provisions of the Auburn Local Environmental Plan 2010, development for the purpose of the following may be carried out within the zone WITH DEVELOPMENT CONSENT:

- the provisions specified under Part 2 Permitted or Prohibited Development of the Auburn Local Environmental Plan 2010, there may be certain provisions which may be carried out with development consent.

- the provisions specified under objectives of the zone of the Land Use Table - Zone R2 Low Density Residential of the Auburn Local Environmental Plan 2010, the consent authority may not grant development consent to the carrying out of development within the applicable zone unless the consent authority is of the opinion that the carrying out of the development is consistent with the objectives of the zone.

- the provisions listed under uses permitted with consent in the Land Use Table - Zone R2 Low Density Residential of the Auburn Local Environmental Plan 2010.

- the provisions listed under complying development which satisfies the criteria for complying development relevant to the applicable zone under Part 3 Exempt and Complying Development of the Auburn Local Environmental Plan 2010.

- the provisions specified under Part 5 Miscellaneous Provisions of the Auburn Local Environmental Plan 2010, there may be certain provisions carried out with development consent.

- the provisions specified under Part 6 Additional Local Provisions of the Auburn Local Environmental Plan 2010, there may be certain provisions carried out with development consent.

NOTE: The certificate provides zoning information for the land that is the subject of this certificate only. The applicant must refer to the Auburn Local Environmental Plan 2010 and associated maps in order to determine detailed provisions for above when carrying out development with consent under the applicable zone. The Auburn Local Environmental Plan 2010 written instrument and maps are available on the New South Wales legislation website at www.legislation.nsw.gov.au.

Under the provisions of the Auburn Local Environmental Plan 2010, development for the purpose of the following may be carried out within the zone WITH DEVELOPMENT CONSENT:

- the provisions specified under Part 2 Permitted or Prohibited Development of the Auburn Local Environmental Plan 2010, there may be certain provisions which may be carried out with development consent.

- the provisions specified under objectives of the zone of the Land Use Table - Zone R3 Medium Density Residential of the Auburn Local Environmental Plan 2010, the consent authority may not grant development consent to the carrying out of development within the applicable zone unless the consent authority is of the opinion that the carrying out of the development is consistent with the objectives of the zone.

- the provisions listed under uses permitted with consent in the Land Use Table - Zone R3 Medium Density Residential of the Auburn Local Environmental Plan 2010.

- the provisions listed under complying development which satisfies the criteria for complying development relevant to the applicable zone under Part 3 Exempt and Complying Development of the Auburn Local Environmental Plan 2010.

- the provisions specified under Part 5 Miscellaneous Provisions of the Auburn Local Environmental Plan 2010, there may be certain provisions carried out with development consent.

- the provisions specified under Part 6 Additional Local Provisions of the Auburn Local Environmental Plan 2010, there may be certain provisions carried out with development consent.

NOTE: The certificate provides zoning information for the land that is the subject of this certificate only. The applicant must refer to the Auburn Local Environmental Plan 2010 and associated maps in order to determine detailed provisions for above when carrying out development with consent under the applicable zone. The Auburn Local Environmental Plan 2010 written instrument and maps are available on the New South Wales legislation website at www.legislation.nsw.gov.au.

(d) Development for a purpose that is listed as being 'Prohibited' for the applicable zone is currently included under Part 2 Permitted or Prohibited Development and the Land Use Table of the Auburn Local Environmental Plan 2010.

NOTE: The certificate provides zoning information for the land that is the subject of this certificate only. The applicant must refer to the Auburn Local Environmental Plan 2010 and associated maps in order to determine detailed provisions for prohibited development under the applicable zone. The Auburn Local Environmental Plan 2010 written instrument and maps are available on the New South Wales legislation website at www.legislation.nsw.gov.au.

(e) There are no development standards applying to this land that fix a minimum land dimension for the erection of a dwelling-house.

(f) The land does not include or comprise critical habitat.

(g) The land is not located within a heritage conservation area under the provisions of Auburn Local Environmental Plan 2010.

(h) The land has been identified as containing an item of environmental heritage significance under the Auburn Local Environmental Plan 2010.

3. Complying Development

(1) The extent to which the land is land on which complying development may be carried out under each of the codes for complying development because of the provisions of 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.

(2) The extent to which complying development may not be carried out on that land because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of that Policy and the reasons why it may not be carried out under those clauses.

General Housing Code

(1) or (2) No complying development may be carried out on the land under State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 as the land is, or there is on the land, a heritage item.

Rural Housing Code

(1) or (2) The land is not affected by the Rural Housing code.

Housing Alterations Code and Industrial Alterations Code

(1) or (2) No complying development may be carried out on the land under State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 as the land is, or there is on the land, a heritage item.

General Development Code

(1) or (2) No complying development may be carried out on the land under State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 as the land is, or there is on the land, a heritage item.

Commercial and Industrial (New Buildings and Additions) Code

(1) or (2) No complying development may be carried out on the land under State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 as the land is, or there is on the land, a heritage item.

Subdivisions Code

(1) or (2) No complying development may be carried out on the land under State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 as the land is, or there is on the land, a heritage item.

Demolition Code

(1) or (2) No complying development may be carried out on the land under State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 as the land is, or there is on the land, a heritage item.

Fire Services Code

(1) or (2) No complying development may be carried out on the land under State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 as the land is, or there is on the land, a heritage item.

(3) If the council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land, a statement that a restriction applies to the land, but it may not apply to all of the land, and that council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land.

(3) Council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land when a land based restriction applies to the land, but it may not apply to all of the land.

4. Coastal Protection

Whether or not the land is affected by the operation of section 38 or 39 of the Coastal Protection Act 1979, but only to the extent that the council has been so notified by the Department of Finance, Services and Innovation.

Council has not been notified by the Department of Public Works that the land is affected by the operation of Section 38 or 39 of the Coastal Protection Act, 1979.

4a Certain information relating to beaches and coasts

(1) In relation to a coastal council—whether an order has been made under Part 4D of the Coastal Protection Act 1979 in relation to temporary coastal protection works (within the meaning of that Act) on the land (or on public land adjacent to that land), except where the council is satisfied that such an order has been fully complied with.

(2) In relation to a Coastal Council:

(a) whether the council has been notified under section 55X of the Coastal Protection Act 1979 that temporary coastal protection works (within the meaning of that Act) have been placed on the land (or on public land adjacent to that land), and

(b) if works have been so placed—whether the council is satisfied that the works have been removed and the land restored in accordance with that Act.

(3) (Repealed)

4a The land is currently not affected by provisions included under this part.

4b Annual charges under *Local Government Act 1993* for coastal protection services that relate to existing coastal protection works

In relation to a coastal council—whether the owner (or any previous owner) of the land has 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).

Note. *"Existing coastal protection works" are works to reduce the impact of coastal hazards on land (such as sea walls, revetments, groynes and beach nourishment) that existed before the commencement of section 553B of the Local Government Act 1993.*

4b The land is currently not affected by provisions included under this part.

5. Mine Subsidence

Whether or not the land is proclaimed to be a mine subsidence district within the meaning of Section 15 of the Mine Subsidence Compensation Act, 1961.

The land is not located in an area proclaimed to be a mine subsidence district within the meaning of Section 15 of the Mine Subsidence Compensation Act, 1961.

6. Road Widening and Road Realignment

Whether or not the land is 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.

(a) The land is not affected by any road widening or road realignment under Division 2 of Part 3 of the Roads Act 1993.

(b) The land is not affected by any road widening or road realignment under any Environmental Planning Instrument.

(c) The land is not affected by any road widening or road realignment under a Council resolution.

7. Council and other public authority policies on Hazard Risk Restriction

Whether or not the land is affected by a policy:

(a) adopted by the Council, or
(b) 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 land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

(a) Land is affected by relevant acid sulphate soil classes 1 to 5 (high to low probability of acid sulphate soils being present) under Auburn Local Environmental Plan 2010. To determine the relevant acid sulphate soils class for the land, the applicant should refer to Council's Acid Sulphate Soils Map - Auburn Local Environmental Plan 2010 which is available on the New South Wales legislation website at www.legislation.nsw.gov.au.

The land is not affected by a flood control lot under the Auburn Local Environmental Plan 2010.

(b) 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.

Council has been notified by Parramatta City Council that the following Flood Management Studies have been carried out and adopted. They are:-

1. Duck River Flood Study Parramatta City Council – Final Flood Study Report (September 2006).
2. Lower Parramatta River Flood Plain Risk Management Study – Draft February 2003.

For more detailed information and enquiries regarding the above flood studies and affected areas please contact Council's Works and Services Department, Engineering Division.

7a Flood related Development Controls Information

(1) Whether or not the development on that land or part of the land for the purposes of dwellings, 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.

If development on the land or part of the land for above purposes is affected by a flood control lot under Auburn Local Environmental Plan 2010, the applicant should refer to Council's Stormwater Drainage Part - Auburn Development Control Plan 2010 on the New South Wales legislation website at www.legislation.nsw.gov.au.

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

If development on the land or part of the land under Auburn Local Environmental Plan 2010 for any other purposes is subject to flood related development controls, the applicant should refer to Council's Stormwater Drainage Part of the Auburn Development Control Plan 2010 available on the New South Wales legislation website at www.legislation.nsw.gov.au.

(3) Words and expressions in this clause have the same meanings as in the standard instrument set out in the Standard Instrument (Local Environmental Plans) Order 2006.

Words and expressions in this clause have the same meanings as in the instrument set out in the Schedule to the Standard Instrument (Local Environmental Plans) Order 2006.

8. Land Reserved for Acquisition

Whether or not any environmental planning instrument or proposed environmental planning instrument referred to in clause 1 makes provision in relation to the acquisition of the land by a public authority, as referred to in section 27 of the Act.

The land is not affected by the Auburn Local Environmental Plan 2010 - Land Reservation Acquisition Map for the purposes of acquisition under the Act.

9. Contributions Plans

The name of each Contributions Plan applying to the land:

Auburn Development Contributions Plan 2007.

9A Biodiversity Certified Land

If the land is biodiversity certified land (within the meaning of Part 7A A of the Threatened Species Conservation Act 1995), a statement to that effect.

The land is not biodiversity certified land within the meaning of the above Act.

10. Biobanking Agreements

If the land is land to which a biobanking agreement under Part 7A of the Threatened Species Conservation Act 1995 relates, a statement to that effect (but only if the council has been notified of the existence of the agreement by the Chief Executive of the Office of Environment and Heritage).

The land is not affected by a Bio-banking agreement under the Act.

11. Bush Fire Prone Land

If any of the land is bush fire prone land (as defined in the Act), a statement that all or, as the case may be, some of the land is bush fire prone land. If none of the land is bush fire prone land, a statement to that effect.

The land is not located within an area that is bush fire prone as defined by the Environmental Planning and Assessment Act, 1979.

12. Property Vegetation Plans

If the land is land to which a Property Vegetation Plan under the Native Vegetation Act, 2003 applies, a statement to that effect (but only if the council has been notified of the existence of the plan by the person or body that approved the plan under that Act).

The land is not affected by a Property Vegetation Plan under the *Native Vegetation Act, 2003.*

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

Whether 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 (but only if the Council has been notified of the order).

The land is not affected by an order issued under the Trees (Disputes between Neighbours) Act 2006.

14. Directions under Part 3A (Environmental Planning and Assessment Act 1979)

If there is a direction by the Minister in force under section 75P (2) (c1) of the Act 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, a statement to that effect identifying the provision that does not have effect.

There are no ministerial directions in force under section 75P (2) (c1) of the Environmental Planning and Assessment Act 1979.

15. Site compatibility certificates and conditions for seniors housing

If the land is land to which State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 applies:

(a) a statement of whether there is a current site compatibility certificate (seniors housing), of which the Council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:

(i) the period for which the certificate is current, and
(ii) that a copy may be obtained from the head office of the Department, and

(b) a statement setting out any terms of a kind referred to in clause 18 (2) of that Policy that have been imposed as a condition of consent to a development application granted after 11 October 2007 in respect of the land.

(a) & (b) The land is not subject to a site compatibility certificate.

16. Site Compatibility Certificates for Infrastructure

A statement of whether there is a valid site compatibility certificate (infrastructure), of which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:

(a) the period for which the certificate is valid, and
(b) that a copy may be obtained from the head office of the Department.

(a) & (b) There is no site compatibility certificate issued under the State Environmental Planning Policy (Infrastructure 2007) in respect of the land.

17. Site Compatibility Certificates and Conditions for Affordable Rental Housing

(1) A statement of whether there is a current site compatibility certificate (affordable rental housing), of which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:

(a) the period of which the certificate is current, and
(b) that a copy may be obtained from the head office of the Department.

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

(1) & (2) There is no current site compatibility certificate (affordable rental housing) of which council is aware or a statement setting out any terms of a kind referred to in clause 17(1) or 38(1) of State Environmental Planning Policy (Affordable Rental Housing) 2009 that has been imposed as a condition of consent to a development application for the land.

18. Paper Subdivision Information

(1) The name of any development plan adopted by a relevant authority that applies to the land or that is proposed to be subject to a consent ballot.
(2) The date of any subdivision order that applies to the land.
(3) Words and expressions used in this clause have the same meaning as they have in Part 16C of this Regulation.

(1), (2) & (3) The land is not affected by a proposed or adopted development plan by Council or a subdivision order.

19. Site Verification Certificates

A statement of whether there is a current site verification certificate, of which the council is aware, in respect of the land and, if there is a certificate, the statement is to include:

(a) the matter certified by the certificate, and
***Note.** A site verification certificate sets out the Director-General's opinion as to whether the land concerned is or is not biophysical strategic agricultural land or critical industry cluster land—see Division 3 of Part 4AA of State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007.*

(b) the date on which the certificate ceases to be current (if any), and

(c) that a copy may be obtained from the head office of the Department.

(a), (b) & (c) There is no site verification certificate on the land.

20. Loose-fill Asbestos Insulation

If 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, a statement to that effect.

The land is not included or affected within the meaning of the given act.

Note:

Section 59(2) of the Contaminated Lands Management Act 1997 prescribes the following matters that are to be specified in a Planning Certificate:

a) That the land to which the certificate relates is significantly contaminated land within the meaning of that Act – if the land (or part of the land) is significantly contaminated land at the date when the certificate is issued,
b) That the land to which the certificate relates is subject to a management order within the meaning of that Act – if it is subject to such an order at the date when the certificate is issued,
c) That the land to which the certificate relates is the subject of an approved voluntary management proposal within the meaning of that Act - if it is the subject of such an approved proposal at the date when the certificate is issued,
d) That the land to which the certificate relates is subject to an ongoing maintenance order within the meaning of that Act – if it is subject to such an order at the date when the certificate is issued,
e) That the land to which the certificate relates is the subject of a site audit statement within the meaning of that Act – if a copy of such a statement has been provided any time to the local authority issuing the certificate.

(a) The land is not significantly contaminated land (or part of the land) within the meaning of the *Contaminated Lands Management Act 1997* at the date when the certificate is issued.

(b) The land is not subject to a management order within the meaning of the *Contaminated Lands Management Act 1997* at the date when the certificate is issued.

(c) The land is not the subject of an approved voluntary management proposal within the meaning of the *Contaminated Lands Management Act 1997* at the date when the certificate is issued.

(d) The land is not subject to an ongoing maintenance order within the meaning of the *Contaminated Lands Management Act 1997* at the date when the certificate is issued.

(e) The land is not subject to a site audit statement within the meaning of the *Contaminated Lands Management Act 1997.*

Section 149(5) Information

In accordance with the requirements of Section 149(5) of the *Environmental Planning and Assessment Act, 1979* (as amended), the following additional information is provided about the land to which this certificate applies.

Note: In accordance with Section 149(6) of the *Environmental Planning and Assessment Act, 1979* (as amended), Council will not incur any liability for the following additional information, which is provided in good faith. The absence of any matter affecting the land does not imply that the land is not affected by any matter not referred to in this Certificate.

The NSW Scientific Committee, established by the Threatened Species Conservation Act, 1995 has made a Preliminary Determination to support a proposal to list the Cumberland Plain Woodland in the Sydney Basin Bioregion as a Critically Endangered Ecological Community on Part 2 of Schedule 1A of the Act and to omit reference to Cumberland Plain Woodland from Part 3 of Schedule 1 (Endangered Ecological Communities) of the Act.

MALCOLM RYAN
INTERIM GENERAL MANAGER

Per: Karl OKorn
Manager, Development Assessment

Historical Land Titles

ADVANCE LEGAL SEARCHERS PTY LIMITED

(ACN 147 943 842)
ABN 82 147 943 842

18/36 Osborne Road,
Manly NSW 2095

Telephone: +612 9977 6713
Mobile: 0412 169 809
Email: search@alsearchers.com.au

05th May 2017

ENVIRONMENTAL INVESTIGATION SERVICES
PO Box 976,
NORTH RYDE BC NSW 1670

Attention: Brendan Page

RE: **Lidcombe Public School**
Mills Street,
Lidcombe
JOB NO. E30429KP

Note: **Search is of the footprint of subject site within Lot 1 DP 1095078**

Current Search

Folio Identifier 1/1095078 (title attached)
DP 1095078 (plan attached)
Dated 03rd May 2017
Registered Proprietor:
MINISTER FOR EDUCATION AND TRAINING

Title Tree
Lot 1 DP 1095078

Folio Identifier 1/1095078

See Notes (a), (b), (c), (d), (e) & (f)

(a)	**(b)**	**(c)**
Folio Identifier 1/74453	Folio Identifier 6/194777	Folio Identifier 5/194777
CTVol 3910 Folio 169	CA 48131	CA 48131
	Conv Book 3200 No.785	Conv Book 1286 No. 495
****	Conv Book 3164 No.875	Conv Book 912 No 443
	Conv Book 2655 No.111	****
	Conv Book 2624 No.512	
	Conv Book 2401 No.50	
	Ackn Book 2133 No.407	
	Conv Book 1876 No.902	
	Conv Book 1210 No.107	

****

(d)	**(e)**	**(f)**
Folio Identifier 1/87800	Folio Identifier 2/194777	Folio Identifier 1/194776
CTVol 6580 Folio 205	CA 48131	CA 48130
PA37800	Conv Book 3475 No. 240	Conv Book 177 No. 941
Conv Book 2177 No. 445	Conv Book 2916 No. 69	****
Ackn Book 2066 No. 70	Conv Book 2344 No. 542	
Conv Book 1777 No. 206	Ackn Book 1099 No. 975	
Conv Book 857 No. 235		
****	****	

Summary of proprietor(s)
Lot 1 DP 1095078

Year	Proprietor(s)
	(Lot 1 DP 1095078)
2006 – todate	Minister for Education and Training

See Notes (a), (b), (c), (d), (e) & (f)

Note (a)

	(Lot 1 DP 74453)
1990 – 2006	Minister for Education and Youth Affairs
1989 – 1990	Michael Hanna
	(Lot 1 DP 74453 – Area 14 ½ Perches – CTVol 3910 Fol 169)
1989 – 1989	Michael Hanna
1966 – 1989	Sadie Hanna, married woman
1959 – 1966	Willi Praetzel, hairdresser Lucia Praetzel, his wife
1958 – 1959	Gladys Alice Martha Collinge, married woman
1956 – 1958	Harold Clive Ellison, line inspector
1956 – 1956	Public Trustee
1926 – 1956	Gladys Evelyn Ellison, wife of Harold Clive Ellison, linesman

****

Note (b)

	(Lot 6 DP 194777)
1991 – 2006	Minister for Education and Training
	(Part Portion 32 Parish Liberty Plains – Area 13 ¼ Perches – Conv Bk 3200 No. 785)
1975 – 1991	Her Majesty Queen Elizabeth II *(on behalf of Minister for Education)*
	(Part Portion 32 Parish Liberty Plains – Area 13 ¼ Perches – Conv Bk 3164 No. 875)
1974 – 1975	Ethel Maude Andrews, femme sole
	(Part Portion 32 Parish Liberty Plains – Area 13 ¼ Perches – Conv Bk 2655 No. 111)
1963 – 1974	Able Leonard Dearnley, storeman Mary Elethea Dearnley, his wife
	(Part Portion 32 Parish Liberty Plains – Area 13 ¼ Perches – Conv Bk 2624 No. 512)
1962 – 1963	Fylymon Baraniak, storeman
	(Part Portion 32 Parish Liberty Plains – Area 13 ¼ Perches – Conv Bk 2401 No. 50)
1956 – 1962	Fylymon Baraniak, labourer Margaret Brigid Baraniak, his wife
	(Part Portion 32 Parish Liberty Plains – Area 13 ¼ Perches – Acknowledgment Bk 2133 No. 407)
1950 – 1956	William Patrick O'Dwyer, labourer
1950 – 1956	William Patrick O'Dwyer, labourer /executor / devisee Bridget Ellen O'Dwyer, estate
	(Part Portion 32 Parish Liberty Plains – Area 13 ¼ Perches – Conv Bk 1876 No. 902)
1940 – 1950	Bridget Ellen O'Dwyer, widow
1939 – 1940	Public Trustee Patrick James O'Dwyer, estate
	(Part Portion 32 Parish Liberty Plains – Area 13 ¼ Perches – Conv Bk 1210 No. 107)
1920 – 1940	Patrick James O'Dwyer, labourer
1911 – 1920	Ebenezer Benjamin Lucas, bricklayer / executor Benjamin Lucas, estate

****

Note (c)

	(Lot 5 DP 194777)
1991 – 2006	Minister for Education and Training
	(Part Portion 32 Parish Liberty Plains – Area 1 Rood 5 Perches – Conv Bk 1286 No. 495)
1922 – 1991	His Most Gracious Majesty King George V *(on behalf of Minister for Education)*
	(Part Portion 32 Parish Liberty Plains – Area 1 Rood 5 Perches – Conv Bk 912 No. 443)
1910 – 1922	Alfred Wilkinson, railway employee

****

Note (d)

	(Lot 1 DP 87800)
1990 – 2006	Minister for School Education and Youth Affairs
1989 – 1990	Aubrey John Clark, assembler
	(Lot 1 DP 87800 – Area 20 ¾ Perches – CTVol 6580 Fol 205)
1952 – 1989	Aubrey John Clark, assembler
	(Part Portion 32 Parish Liberty Plains – Area 20 ¾ Perches – Conv Bk 2177 No. 445)
1951 – 1952	Aubrey John Clark, assembler
	(Part Portion 32 Parish Liberty Plains – Area 20 ¾ Perches – Acknowlegment Bk 2066 No. 70)
1948 – 1951	Frederick Alfred Clark, painter / devisee
1948 – 1948	Public Trustee Fairy Edna Comfort Clark, estate
	(Part Portion 32 Parish Liberty Plains – Area 20 ¾ Perches – Conv Bk 1777 No. 206)
1937 – 1948	Fairy Edna Comfort Clark, wife of Frank Alfred Clark, painter
1936 – 1937	William John Maunder, investment inspector and valuator / executor Elizabeth Rose Brown, estate
1933 – 1936	Elizabeth Rose Brown, widow / executrix Henry Brown / estate
	(Part Portion 32 Parish Liberty Plains – Area 20 ¾ Perches – Conv Bk 857 No. 235)
1908 – 1933	Henry Brown, esquirer

****

Note (e)

	(Lot 2 DP 194777)
1991 – 2006	Minister for Education and Training
	(Part Portion 32 Parish Liberty Plains – Conv Bk 3475 No. 240)
1981 – 1991	Her Majesty Queen Elizabeth II *(on behalf of Minister for Education)*
	(Part Portion 32 Parish Liberty Plains – Conv Bk 2916 No. 69)
1968 – 1981	Delcie May Elliott, widow
	(Part Portion 32 Parish Liberty Plains – Acknowledgment Bk 2344 No. 542)
1955 – 1968	Alfred Robert Elliott, labourer
1955 – 1955	Public Trustee Alice Elliott, estate
	(Part Portion 32 Parish Liberty Plains – Acknowledgment Bk 1099 No. 975)
1917 – 1955	Alice Elliott, widow
1917 – 1917	Public Trustee Ernest William Elliott, estate

****

Note (f)

	(Lot 1 DP 194776)
1991 – 2006	Minister for Education and Training
	(Part Portion 32 Parish Liberty Plains – Area 2 Acres 1 Rood 23 Perches – Conv Bk 177 No. 941)
1878 – 1991	His Most Gracious Queen Victoria *(for the purpose of public education instructions)*

****

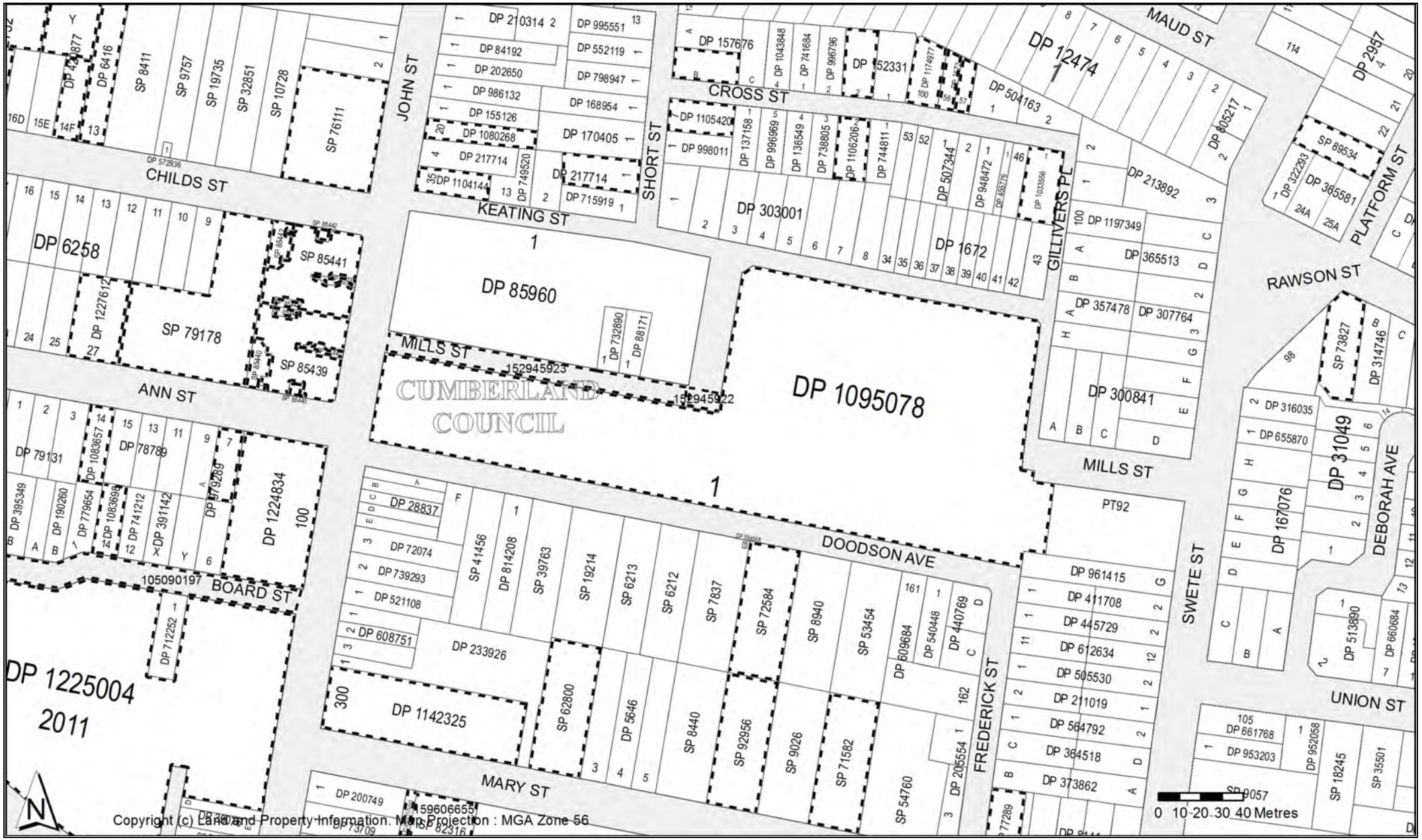
Land & Property Information

Cadastral Records Enquiry Report

Ref : eis - lidcombe

Requested Parcel : Lot 1 DP 1095078 **Identified Parcel :** Lot 1 DP 1095078

Locality : LIDCOMBE **LGA :** CUMBERLAND **Parish :** LIBERTY PLAINS **County :** CUMBERLAND



	Status	Surv/Comp	Purpose
DP1672			
Lot(s): 56, 57			
DP266408	REGISTERED	SURVEY	EASEMENT
DP6416			
Lot(s): 13			
DP1218460	PRE-ALLOCATED	UNAVAILABLE	CONSOLIDATION
DP152331			
Lot(s): 2			
CA93315 - LOT 2 DP152331			
DP157676			
Lot(s): B			
CA118905 - LOT B DP157676			
DP217714			
Lot(s): 1			
CA93767 - LOT 1 DP217714			
DP412752			
Lot(s): 17C, X			
DP1218460	PRE-ALLOCATED	UNAVAILABLE	CONSOLIDATION
DP420877			
Lot(s): 14F, Y			
DP1218460	PRE-ALLOCATED	UNAVAILABLE	CONSOLIDATION
DP979289			
Lot(s): 7 Section : A			
CA87703 - LOT 7 SECTION A DP979289			
DP1033556			
Lot(s): 1			
DP1672	HISTORICAL	SURVEY	UNRESEARCHED
DP1080268			
Lot(s): 20			
DP155126	HISTORICAL	COMPILATION	UNRESEARCHED
DP1083657			
Lot(s): 14			
CA93548 - LOT 14 DP1083657			
DP1083698			
Lot(s): 14			
CA93570 - LOT 14 DP1083698			
DP1095078			
Lot(s): 1			
DP1672	HISTORICAL	SURVEY	UNRESEARCHED
DP74453	HISTORICAL	SURVEY	UNRESEARCHED
DP86314	HISTORICAL	SURVEY	UNRESEARCHED
DP87800	HISTORICAL	SURVEY	UNRESEARCHED
DP100548	HISTORICAL	COMPILATION	UNRESEARCHED
DP123396	HISTORICAL	COMPILATION	DEPARTMENTAL
DP194776	HISTORICAL	COMPILATION	DEPARTMENTAL
DP194777	HISTORICAL	COMPILATION	DEPARTMENTAL
DP308365	HISTORICAL	SURVEY	UNRESEARCHED
DP663188	HISTORICAL	COMPILATION	DEPARTMENTAL
DP1069801	HISTORICAL	COMPILATION	ROADS ACT, 1993
NSW GAZ. CLOSED ROAD LOT 1 DP1069801	15-10-2004		Folio : 7998
CA90648 - LOT 1 DP1069801			
DP1104144			
Lot(s): 35			
CA101967 - LOT 35 DP1104144			
DP1105420			
Lot(s): 7			
CA102435 - LOT 7 DP1105420			
DP1106206			
Lot(s): 2			
DP1122930	WITHDRAWN	SURVEY	DELIMITATION

	Status	Surv/Comp	Purpose
DP1142325			
Lot(s): 300			
DP804303	HISTORICAL	COMPILATION	RESUMPTION OR ACQUISITION
DP1157634			
Lot(s): 100			
DP432009	REGISTERED	COMPILATION	RESUMPTION OR ACQUISITION
CA93270 - LOT 2 DP224629			
CA125016 - LOT 41 DP1121629			
NSW GAZ. 30-01-2009 Folio : 524 ACQUIRED FOR THE PURPOSES OF THE TRANSPORT INFRASTRUCTURE DEVELOPMENT CORPORATION LOTS 100-101 DP1129268			
PA82654 - LOT 100 DP1129268			
PA82653 - LOT 101 DP1129268			
CA150618 - NPW			
CA157570 - LOT 100 DP1157634			
DP1174977			
Lot(s): 100			
DP1672	HISTORICAL	SURVEY	UNRESEARCHED
DP1214562			
Lot(s): 3339			
CA150618 - NPW			
CA175560 - LOT 3339 DP1214562			
DP1224834			
Lot(s): 100			
DP235940	HISTORICAL	SURVEY	OLD SYSTEM CONVERSION
DP511612	HISTORICAL	SURVEY	OLD SYSTEM CONVERSION
DP979289	HISTORICAL	COMPILATION	UNRESEARCHED
DP1002517	REGISTERED	SURVEY	DELIMITATION
DP1193845	WITHDRAWN	UNAVAILABLE	CONSOLIDATION
DP1193846	WITHDRAWN	UNAVAILABLE	CONSOLIDATION
DP1228989	PRE-ALLOCATED	UNAVAILABLE	SUBDIVISION
SP89464	WITHDRAWN	UNAVAILABLE	STRATA PLAN
SP89465	WITHDRAWN	UNAVAILABLE	STRATA PLAN
SP95076	PRE-ALLOCATED	UNAVAILABLE	STRATA PLAN
SP95077	PRE-ALLOCATED	UNAVAILABLE	STRATA PLAN
DP1225004			
Lot(s): 2011			
DP15910	HISTORICAL	SURVEY	UNRESEARCHED
DP39076	HISTORICAL	SURVEY	UNRESEARCHED
DP153676	HISTORICAL	SURVEY	UNRESEARCHED
DP229616	HISTORICAL	SURVEY	SUBDIVISION
DP371026	HISTORICAL	SURVEY	UNRESEARCHED
DP526370	HISTORICAL	COMPILATION	SUBDIVISION
DP526665	HISTORICAL	SURVEY	SUBDIVISION
DP565484	HISTORICAL	COMPILATION	SUBDIVISION
DP737977	HISTORICAL	COMPILATION	DEPARTMENTAL
DP746264	HISTORICAL	SURVEY	CONSOLIDATION
DP779199	HISTORICAL	COMPILATION	DEPARTMENTAL
DP782099	HISTORICAL	COMPILATION	DEPARTMENTAL
DP829270	HISTORICAL	SURVEY	CONSOLIDATION
DP976322	HISTORICAL	COMPILATION	UNRESEARCHED
DP1033063	REGISTERED	SURVEY	EASEMENT
DP1101991	REGISTERED	SURVEY	CONSOLIDATION
DP1127875	REGISTERED	SURVEY	CONSOLIDATION
DP1225332			
Lot(s): 1			
DP6258	HISTORICAL	SURVEY	UNRESEARCHED
DP1227612			
Lot(s): 27			
DP6258	HISTORICAL	SURVEY	UNRESEARCHED

Caution: For all **ACTIVITY PRIOR to SEPT 2002** you must refer to the RGs Charting and Reference Maps.

	Status	Surv/Comp	Purpose
SP62800			
DP880533	HISTORICAL	SURVEY	CONSOLIDATION
SP71582			
DP5960	HISTORICAL	SURVEY	UNRESEARCHED
DP1061581	REGISTERED	SURVEY	CONSOLIDATION
SP72584			
DP5960	HISTORICAL	SURVEY	UNRESEARCHED
DP1034067	REGISTERED	SURVEY	CONSOLIDATION
SP73827			
DP414680	HISTORICAL	COMPILATION	UNRESEARCHED
DP1075420	REGISTERED	SURVEY	REDEFINITION
SP76111			
DP6416	HISTORICAL	SURVEY	UNRESEARCHED
DP1063040	REGISTERED	SURVEY	CONSOLIDATION
SP77289			
DP8141	HISTORICAL	SURVEY	UNRESEARCHED
DP1099242	REGISTERED	SURVEY	REDEFINITION
SP79178			
DP6258	HISTORICAL	SURVEY	UNRESEARCHED
DP1108652	REGISTERED	SURVEY	CONSOLIDATION
SP82316			
DP120421	HISTORICAL	COMPILATION	DEPARTMENTAL
DP199042	HISTORICAL	COMPILATION	DEPARTMENTAL
DP1128875	REGISTERED	SURVEY	CONSOLIDATION
SP85439			
DP6258	HISTORICAL	SURVEY	UNRESEARCHED
DP1165403	REGISTERED	SURVEY	SUBDIVISION
SP85440	REGISTERED	COMPILATION	PART STRATA
SP85440			
DP6258	HISTORICAL	SURVEY	UNRESEARCHED
DP1165403	REGISTERED	SURVEY	SUBDIVISION
SP85441			
DP520693	HISTORICAL	COMPILATION	SUBDIVISION
DP1165405	REGISTERED	SURVEY	SUBDIVISION
SP85442	REGISTERED	COMPILATION	PART STRATA
SP85442			
DP520693	HISTORICAL	COMPILATION	SUBDIVISION
DP1165405	REGISTERED	SURVEY	SUBDIVISION
SP89534			
DP2957	HISTORICAL	SURVEY	UNRESEARCHED
DP1194373	REGISTERED	SURVEY	REDEFINITION
SP92956			
DP5960	HISTORICAL	SURVEY	UNRESEARCHED
DP1212630	REGISTERED	SURVEY	CONSOLIDATION

Intersection
Polygon Id(s): 152945922

NSW GAZ. 15-10-2004 Folio : 7998
CLOSED ROAD
LOT 1 DP1069801

Road
Polygon Id(s): 105090197

NSW GAZ. 12-02-2016 Folio : 191
DEDICATED PUBLIC ROAD
AFFECTING BORAD STREET LIDCOMBE AS PROVIDED FOR IN DP976927, DP976322 AND DP979289

Polygon Id(s): 152945923

NSW GAZ. 15-10-2004 Folio : 7998
CLOSED ROAD
LOT 1 DP1069801

Unidentified
Polygon Id(s): 159606655

UNCONVERTIBLE OLD SYSTEM RESIDUE. FEE IS COMPRISED WITHIN A CONVEYANCE PRIOR TO BK 2389 NO 493. TITLE CREATION WILL REQUIRE A DEPOSITED PLAN OF SURVEY AND A PRIMARY APPLICATION BASED UPON ADVERSE POSSESSION

Caution: For all **ACTIVITY PRIOR to SEPT 2002** you must refer to the RGs Charting and Reference Maps.

Plan	Surv/Comp	Purpose
DP831	COMPILATION	UNRESEARCHED
DP1672	SURVEY	UNRESEARCHED
DP2957	SURVEY	UNRESEARCHED
DP5646	SURVEY	UNRESEARCHED
DP6258	SURVEY	UNRESEARCHED
DP6416	SURVEY	UNRESEARCHED
DP8141	SURVEY	UNRESEARCHED
DP12474	SURVEY	UNRESEARCHED
DP16665	SURVEY	UNRESEARCHED
DP28837	SURVEY	UNRESEARCHED
DP31049	SURVEY	UNRESEARCHED
DP39076	SURVEY	UNRESEARCHED
DP72074	SURVEY	UNRESEARCHED
DP73709	SURVEY	UNRESEARCHED
DP78789	SURVEY	UNRESEARCHED
DP79131	COMPILATION	UNRESEARCHED
DP84192	SURVEY	UNRESEARCHED
DP85960	SURVEY	UNRESEARCHED
DP88171	SURVEY	UNRESEARCHED
DP136549	COMPILATION	DEPARTMENTAL
DP137158	COMPILATION	DEPARTMENTAL
DP152331	COMPILATION	UNRESEARCHED
DP155126	COMPILATION	UNRESEARCHED
DP157676	SURVEY	UNRESEARCHED
DP167076	COMPILATION	UNRESEARCHED
DP168954	SURVEY	UNRESEARCHED
DP170405	COMPILATION	UNRESEARCHED
DP190260	COMPILATION	UNRESEARCHED
DP196024	COMPILATION	DEPARTMENTAL
DP200749	SURVEY	OLD SYSTEM CONVERSION
DP202650	SURVEY	OLD SYSTEM CONVERSION
DP205554	COMPILATION	SUBDIVISION
DP210314	SURVEY	SUBDIVISION
DP211019	COMPILATION	SUBDIVISION
DP213892	COMPILATION	SUBDIVISION
DP217714	SURVEY	SUBDIVISION
DP233926	SURVEY	OLD SYSTEM CONVERSION
DP300841	COMPILATION	UNRESEARCHED
DP303001	COMPILATION	UNRESEARCHED
DP306635	COMPILATION	UNRESEARCHED
DP307764	COMPILATION	UNRESEARCHED
DP314746	COMPILATION	UNRESEARCHED
DP316035	COMPILATION	UNRESEARCHED
DP322293	COMPILATION	UNRESEARCHED
DP357478	COMPILATION	UNRESEARCHED
DP364518	COMPILATION	UNRESEARCHED
DP365513	COMPILATION	UNRESEARCHED
DP365581	COMPILATION	UNRESEARCHED
DP373862	COMPILATION	UNRESEARCHED
DP391142	SURVEY	UNRESEARCHED
DP395349	SURVEY	UNRESEARCHED
DP411708	SURVEY	UNRESEARCHED
DP412752	SURVEY	UNRESEARCHED
DP420877	SURVEY	UNRESEARCHED
DP440769	COMPILATION	UNRESEARCHED
DP445729	COMPILATION	UNRESEARCHED
DP455779	COMPILATION	DEPARTMENTAL
DP504163	COMPILATION	SUBDIVISION
DP505530	COMPILATION	SUBDIVISION
DP507344	SURVEY	SUBDIVISION
DP511063	COMPILATION	SUBDIVISION
DP513890	COMPILATION	SUBDIVISION
DP521108	SURVEY	OLD SYSTEM CONVERSION
DP540448	SURVEY	SUBDIVISION
DP552119	SURVEY	OLD SYSTEM CONVERSION
DP564568	SURVEY	SUBDIVISION
DP564792	SURVEY	SUBDIVISION
DP572936	COMPILATION	SUBDIVISION
DP608751	SURVEY	SUBDIVISION

Requested Parcel : Lot 1 DP 1095078 **Identified Parcel :** Lot 1 DP 1095078

Locality : LIDCOMBE **LGA :** CUMBERLAND **Parish :** LIBERTY PLAINS **County :** CUMBERLAND

Plan	Surv/Comp	Purpose
DP609684	COMPILATION	SUBDIVISION
DP612634	SURVEY	SUBDIVISION
DP655870	COMPILATION	DEPARTMENTAL
DP660684	COMPILATION	DEPARTMENTAL
DP660686	COMPILATION	DEPARTMENTAL
DP660691	COMPILATION	DEPARTMENTAL
DP661768	COMPILATION	DEPARTMENTAL
DP662134	COMPILATION	DEPARTMENTAL
DP712252	COMPILATION	DEPARTMENTAL
DP715919	COMPILATION	DEPARTMENTAL
DP732890	COMPILATION	DEPARTMENTAL
DP738805	COMPILATION	DEPARTMENTAL
DP739293	SURVEY	OLD SYSTEM CONVERSION
DP741212	COMPILATION	DEPARTMENTAL
DP741584	COMPILATION	DEPARTMENTAL
DP741684	COMPILATION	DEPARTMENTAL
DP741766	COMPILATION	DEPARTMENTAL
DP744811	COMPILATION	DEPARTMENTAL
DP749520	SURVEY	OLD SYSTEM CONVERSION
DP752036	COMPILATION	CROWN ADMIN NO.
DP779654	COMPILATION	DEPARTMENTAL
DP798947	COMPILATION	DEPARTMENTAL
DP805217	SURVEY	SUBDIVISION
DP814208	SURVEY	DELIMITATION
DP853968	SURVEY	SUBDIVISION
DP858148	SURVEY	SUBDIVISION
DP904525	COMPILATION	UNRESEARCHED
DP948472	COMPILATION	UNRESEARCHED
DP952058	COMPILATION	UNRESEARCHED
DP953203	COMPILATION	UNRESEARCHED
DP956237	COMPILATION	UNRESEARCHED
DP961415	COMPILATION	UNRESEARCHED
DP979289	COMPILATION	UNRESEARCHED
DP986132	COMPILATION	DEPARTMENTAL
DP995551	COMPILATION	DEPARTMENTAL
DP996796	COMPILATION	DEPARTMENTAL
DP996969	COMPILATION	DEPARTMENTAL
DP998011	COMPILATION	DEPARTMENTAL
DP1033556	SURVEY	CONSOLIDATION
DP1043848	COMPILATION	LIMITED FOLIO CREATION
DP1048965	COMPILATION	DEPARTMENTAL
DP1080268	SURVEY	REDEFINITION
DP1083657	COMPILATION	LIMITED FOLIO CREATION
DP1083698	COMPILATION	LIMITED FOLIO CREATION
DP1095078	SURVEY	SUBDIVISION
DP1104144	COMPILATION	LIMITED FOLIO CREATION
DP1105420	COMPILATION	LIMITED FOLIO CREATION
DP1106206	COMPILATION	LIMITED FOLIO CREATION
DP1142325	SURVEY	CONSOLIDATION
DP1174977	SURVEY	CONSOLIDATION
DP1197349	COMPILATION	CONSOLIDATION
DP1224834	SURVEY	CONSOLIDATION
DP1225004	SURVEY	CONSOLIDATION
DP1225332	SURVEY	CONSOLIDATION
DP1227612	SURVEY	CONSOLIDATION
SP6212	COMPILATION	STRATA PLAN
SP6213	COMPILATION	STRATA PLAN
SP7837	COMPILATION	STRATA PLAN
SP8411	COMPILATION	STRATA PLAN
SP8440	COMPILATION	STRATA PLAN
SP8940	COMPILATION	STRATA PLAN
SP9026	COMPILATION	STRATA PLAN
SP9057	COMPILATION	STRATA PLAN
SP9757	COMPILATION	STRATA PLAN
SP10728	COMPILATION	STRATA PLAN
SP18245	COMPILATION	STRATA PLAN
SP19214	COMPILATION	STRATA PLAN
SP19735	COMPILATION	STRATA PLAN
SP32851	COMPILATION	STRATA PLAN

Requested Parcel : Lot 1 DP 1095078 **Identified Parcel :** Lot 1 DP 1095078

Locality : LIDCOMBE **LGA :** CUMBERLAND **Parish :** LIBERTY PLAINS **County :** CUMBERLAND

Plan	Surv/Comp	Purpose
SP35501	COMPILATION	STRATA PLAN
SP39763	COMPILATION	STRATA PLAN
SP41456	COMPILATION	STRATA PLAN
SP52252	COMPILATION	STRATA PLAN
SP53454	COMPILATION	STRATA PLAN
SP54760	COMPILATION	STRATA PLAN
SP62800	COMPILATION	STRATA PLAN
SP71582	COMPILATION	STRATA PLAN
SP72584	COMPILATION	STRATA PLAN
SP73827	COMPILATION	STRATA PLAN
SP76111	COMPILATION	STRATA PLAN
SP77289	COMPILATION	STRATA PLAN
SP79178	COMPILATION	STRATA PLAN
SP82316	COMPILATION	STRATA PLAN
SP85439	UNRESEARCHED	STRATA PLAN
SP85439	COMPILATION	PART STRATA
SP85440	UNRESEARCHED	STRATA PLAN
SP85440	COMPILATION	PART STRATA
SP85441	UNRESEARCHED	STRATA PLAN
SP85441	COMPILATION	PART STRATA
SP85442	UNRESEARCHED	STRATA PLAN
SP85442	COMPILATION	PART STRATA
SP89534	COMPILATION	STRATA PLAN
SP92956	COMPILATION	STRATA PLAN
SP92956	UNRESEARCHED	STRATA PLAN

Lidcombe

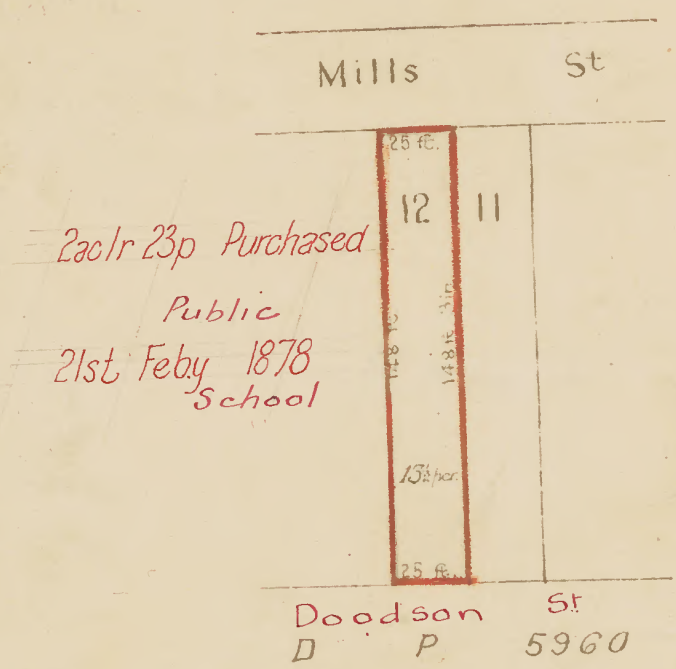
Plan of Public School Site at Lidcombe

Parish ~~County~~ of Liberty Plains County ~~Parish~~ of Cumberland

Scale 60 ~~chains~~ ft to an inch.

78 On Ph Map.

Purchased and Vested in Department of Education 26th August 1922.



5732.3000

Ms 5732 Sy

RP 13
1985

STAMP DUTY

Z
201963

B

REGISTERED Crown Instrument not liable to Stamp Duty
-5SEP 1990 K. ROBERTS
11.15 Crown Solicitor
DBR

TRANSFER

REAL PROPERTY ACT, 1900

T

CB 1 of 1 X
$ 47

R'11

Torrens Title Reference	If Part Only, Delete Whole and Give Details	Location
Folio Identifier 1/74453	WHOLE	Lidcombe

DESCRIPTION OF LAND
Note (a)

TRANSFEROR
Note (b)

MICHAEL HANNA

ESTATE
Note (c)

(the abovenamed TRANSFEROR) hereby acknowledges receipt of the consideration of $ 138,000.00
and transfers an estate in fee simple
in the land above described to the TRANSFEREE

TRANSFEREE
Note (d)

MINISTER FOR EDUCATION AND YOUTH AFFAIRS
~~(Department of School Education)~~

OFFICE USE ONLY
S

TENANCY
Note (e)

~~as joint tenants/tenants in common~~

PRIOR ENCUMBRANCES
Note (f)

subject to the following PRIOR ENCUMBRANCES 1. NIL
2. ..... 3. .....

DATE 21 AUGUST, 1990

We hereby certify this dealing to be correct for the purposes of the Real Property Act, 1900.

D

EXECUTION
Note (g)

Signed in my presence by the transferor who is personally known to me

Peter Hanna
Signature of Witness

PETER HANNA
Name of Witness (BLOCK LETTERS)

51 PATERSON ST BYRON BAY
Address and occupation of Witness

ACCOUNTANT TRANSFEREE
Signed in my presence by the transferee who is personally known to me

Michael Hanna
Signature of Transferor

Note (g) 0289

Signed in my presence for the ~~transferee who is personally known to me~~ by HUGH KING ROBERTS State Crown Solicitor by CHARLES [illegible] DIAMOND State Crown Solicitor [illegible] personally known to me.

H. K. ROBERTS
State Crown Solicitor
DBR

E. DELEON
Signature of Witness

State Crown Solicitor's Office (BLOCK LETTERS)
Goodsell Building
8-12 Chifley Square
Sydney
230 0655
CLERK
Address and occupation of Witness

Signature of Transferee

90/938 C6:PAZ

TO BE COMPLETED BY LODGING PARTY
Notes (h) and (i)

LODGED BY
STATE CROWN SOLICITORS OFFICE
GOODSELL BUILDING
8-12 CHIFLEY SQUARE, SYDNEY. 2000
DX 19

Delivery Box Number 813E

LOCATION OF DOCUMENTS

CT	OTHER	
		Herewith.
		In L.T.O. with
		Produced by

OFFICE USE ONLY

Checked	Passed	REGISTERED - -19	Secondary Directions	SET OG(Y)
Signed	Extra Fee	12 SEP 1990	Delivery Directions	CT 813E

RP 13 *STAMP DUTY [redacted]

OFFICE USE ONLY

Z 212496

Crown Instrument not liable to Stamp Duty

H. K. ROBERTS
Crown Solicitor
per

TRANSFER

REAL PROPERTY ACT, 1900

T CB 1 of 1X $ 47 R 1/1

Torrens Title Reference	If Part Only, Delete Whole and Give Details	Location
Identifier 1/87800	WHOLE	At Lidcombe

DESCRIPTION OF LAND Note (a)

TRANSFEROR Note (b)

AUBREY JOHN CLARK

ESTATE Note (c)

(the abovenamed TRANSFEROR) hereby acknowledges receipt of the consideration of $ 130,000.00
and transfers an estate in fee simple
in the land above described to the TRANSFEREE

TRANSFEREE Note (d)

MINISTER FOR SCHOOL EDUCATION AND YOUTH AFFAIRS

OFFICE USE ONLY S

TENANCY Note (e)

~~as joint tenants/tenants in common~~

PRIOR ENCUMBRANCES Note (f)

subject to the following PRIOR ENCUMBRANCES 1. Nil
2. ..... 3. .....

DATE 24 AUGUST 1990.

We hereby certify this dealing to be correct for the purposes of the Real Property Act, 1900.

EXECUTION Note (g)

Signed in my presence by the transferor who is personally known to me

.....
Signature of Witness

ROBYN SOLLOM
Name of Witness (BLOCK LETTERS)

40 JOHN STREET
Address and occupation of Witness

LIDCOMBE CLERK.

A. Clark
Signature of Transferor

Note (g)

Signed in my presence for the by HUGH KING ROBERTS State Crown Solicitor by CHARLES MURRAY DIMOND State Crown Solicitor's Office who is personally known to me

E. DE LEON
Name of Witness (BLOCK LETTERS)

State Crown Solicitor's Office
Goodsell Building
8-12 Chifley Square
Sydney

H. K. ROBERTS
State Crown Solicitor
per

Signature of Transferee

90/1358 C3/EGM

TO BE COMPLETED BY LODGING PARTY Notes (h) and (i)

LODGED BY
STATE CROWN SOLICITORS OFFICE
GOODSELL BUILDING
8-12 CHIFLEY SQUARE, SYDNEY. 2000
DX 19

Ref: 913E
Delivery Box Number

LOCATION OF DOCUMENTS	CT	OTHER
Herewith.		
In L.T.O. with		
Produced by		

OFFICE USE ONLY

Checked	Passed	REGISTERED - -19	Secondary Directions		
ECB		12 SEP 1990			
Signed	Extra Fee		Delivery Directions	CT	913E

PLAN FORM 2 (APPROVED FORM 3)

Plan Drawing only to appear in this space

SIGNATURES, AND SEALS ONLY

SIGNED BY ME N. Masterton.

AS DELEGATE OF THE MINISTER FOR EDUCATION AND TRAINING PURSUANT TO SECTION 125 OF THE EDUCATION ACT 1990 AND I HEREBY CERTIFY THAT I HAVE NO NOTICE OF THE REVOCATION OF SUCH DELEGATION

Department of Lands Approval

I ..... in approving this plan certify
(Authorised Officer)
that all necessary approvals in regard to the allocation of the land shown hereon have been given.

Signature .....
Date: .....
File Number .....
Office .....

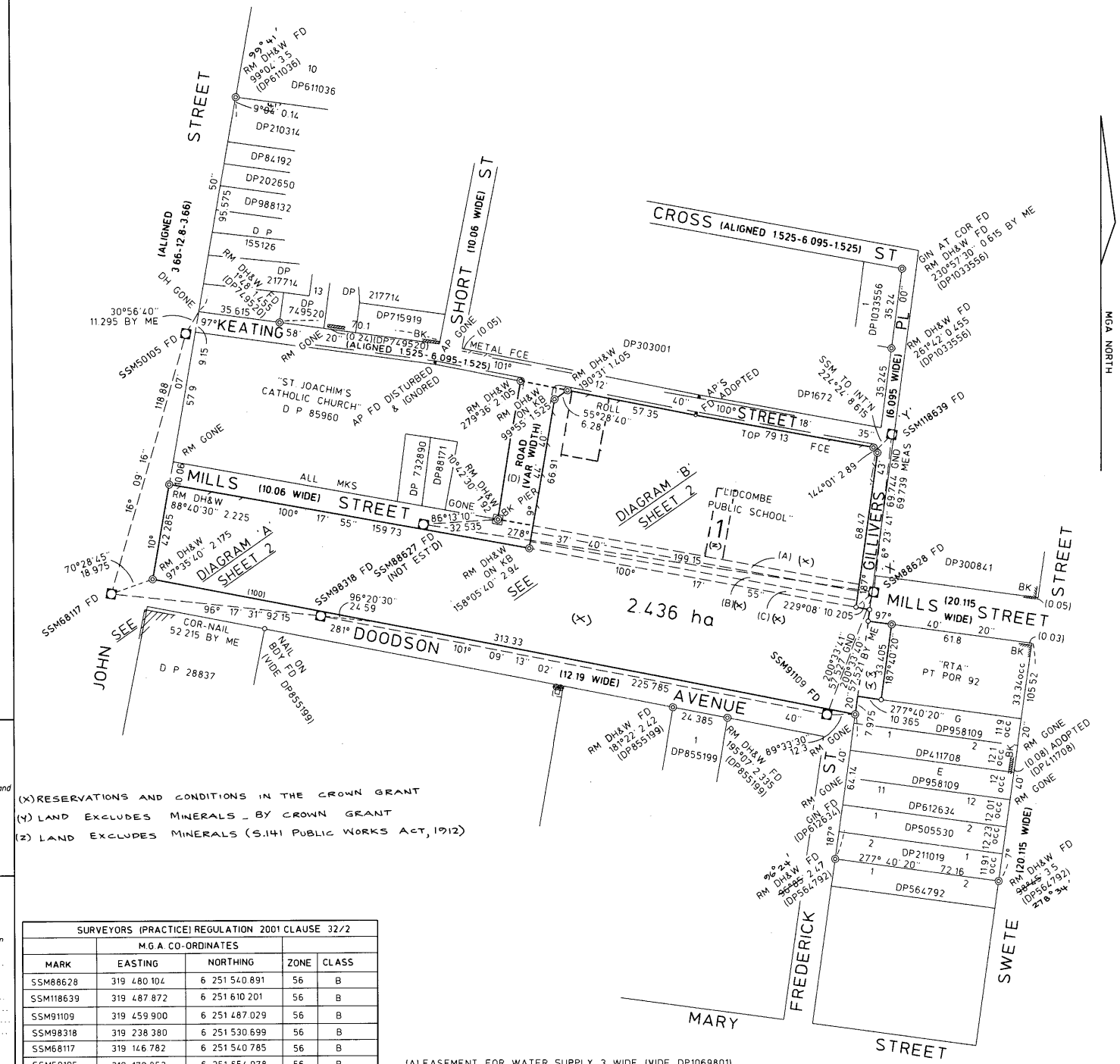
Subdivision Certificate

I certify that the provisions of s.109J of the Environmental Planning and Assessment Act 1979 have been satisfied in relation to the proposed subdivision and new road set out herein
*(insert 'subdivision' or 'new road')

* Authorised Person/~~General Manager~~/~~Accredited Certifier~~
G. FRANCIS

Consent Authority AUBURN COUNCIL
Date of Endorsement 20 FEBRUARY 2006
Accreditation no .....
Subdivision Certificate no SC 8/2006
File no SC 8/2006

* Delete whichever is inapplicable.



(X) RESERVATIONS AND CONDITIONS IN THE CROWN GRANT
(Y) LAND EXCLUDES MINERALS _ BY CROWN GRANT
(Z) LAND EXCLUDES MINERALS (S.141 PUBLIC WORKS ACT, 1912)

(A) EASEMENT FOR WATER SUPPLY 3 WIDE (VIDE DP1069801)
(B) EASEMENT TO DRAIN WATER 4.06 WIDE (VIDE DP1069801)
(C) EASEMENT FOR GAS MAIN 3 WIDE (VIDE DP1069801)
(D) ROAD TO BE DEDICATED TO THE PUBLIC (986m²)

SURVEYORS (PRACTICE) REGULATION 2001 CLAUSE 32/2

	M.G.A. CO-ORDINATES			
MARK	EASTING	NORTHING	ZONE	CLASS
SSM88628	319 480.104	6 251 540.891	56	B
SSM118639	319 487.872	6 251 610.201	56	B
SSM91109	319 459.900	6 251 487.029	56	B
SSM98318	319 238.380	6 251 530.699	56	B
SSM68117	319 146.782	6 251 540.785	56	B
SSM50105	319 179.853	6 251 654.978	56	B

SOURCE MGA CO-ORDINATES ADOPTED FROM SCIMS ON 25-01-2005
COMBINED SCALE FACTOR k=0.999999

DP1095078

Registered SB 5.4.2006

Title System: TORRENS

Purpose: SUBDIVISION

Ref Map: U0045-21

Last Plans: DP 1672, DP 744453, DP 863141, DP 87800, DP 100548, DP 123396, DP 194776, DP 194777, DP 663188

PLAN OF SUBDIVISION OF LOTS 1, 4-28, 30-33 DP1672, LOT 92 DP663188, LOT 1 DP194776, LOTS 1-6 DP194777, LOT1 DP86314, LOT 1 DP87800, LOT1 DP74453, LOT 1 DP308365, LOTS A & B DP100548, LOT 1 DP123396 AND LOT 1 DP1069801

Lengths are in metres. Reduction Ratio 1: 1250

LGA: AUBURN

Locality: LIDCOMBE

Parish: LIBERTY PLAINS

County: CUMBERLAND

This is sheet 1 of my plan in 2 sheets
(Delete if inapplicable)

Surveying Regulation, 2001

I, LIANG HEE CHIA
of NSW DEPARTMENT OF COMMERCE
a surveyor registered under the Surveying Act, 2002, hereby certify that the survey represented in this plan is accurate, has been made in accordance with the Surveying Regulation, 2001 and was completed on 13/03/2002
The survey relates to LOT 1, ROAD & ROAD WIDENING ONLY
(here specify the land actually surveyed or specify any land shown in the plan that is not the subject of the survey)

(Signature) Dated 26.01.2005
Surveyor registered under the Surveying Act, 2002
Datum Line 'X' - 'Y'
Type: Urban/~~Rural~~

Plans used in preparation of Survey/Compilation
DP958109 DP611036 DP1672 DP564568
DP300841 DP564792 DP303001 DP28837
DP663188 DP749520 DP217714 DP1069801
DP411708 DP855199 DP211019
DP612634 DP194776 DP505530
DP1033556 DP85960 DP194777

PANEL FOR USE ONLY for statements of intention to dedicate public roads, to create public reserves, drainage reserves, easements, restrictions on the use of land or positive covenants

IT IS INTENDED TO DEDICATE THE ROAD AND ROAD WIDENING TO THE PUBLIC AS ROAD

SURVEYOR'S REFERENCE S.B.55263

WARNING CREASING OR FOLDING WILL LEAD TO REJECTION

• OFFICE USE ONLY

S.B.55263

SR55263

Req:R608400 /Doc:DP 1095078 P /Rev:06-Apr-2006 /Sts:SC.OK /Pgs:ALL /Prt:03-May-2017 08:42 /Seq:1 of 2
Ref:als /Src:T

PLAN FORM 3 (APPROVED FORM 5) To be used in conjunction with Plan Form 2 WARNING CREASING OR FOLDING WILL LEAD TO REJECTION

DP1095078

Registered SB 5.4.2006

This is sheet 2 of my plan in 2 sheets dated 26.01.2005

Surveyor registered under Surveying Act, 2002

This is sheet 2 of my plan of 2 sheets covered by subdivision certificate No SC 8/2006 of

Authorised Person/~~General Manager~~/~~Accredited Certifier~~

For use where space is insufficient in any panel on Plan Form 2

Reduction Ratio 1: NOT TO SCALE

OFFICE USE ONLY

S.B 55263

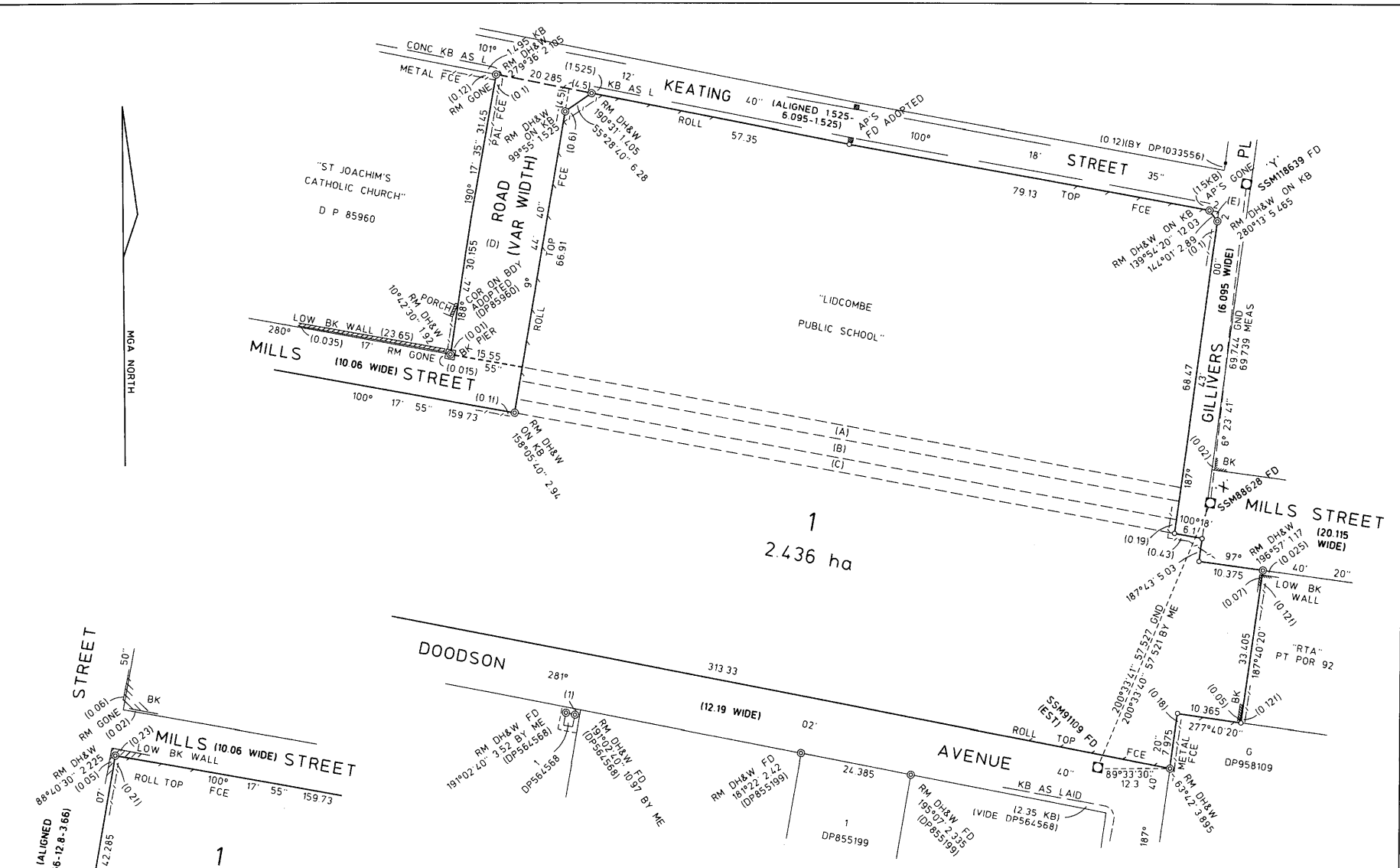


DIAGRAM 'B'

(NOT TO SCALE)

(A) EASEMENT FOR WATER SUPPLY 3 WIDE (VIDE DP1069801)
(B) EASEMENT TO DRAIN WATER 4.06 WIDE (VIDE DP1069801)
(C) EASEMENT FOR GAS MAIN 3 WIDE (VIDE DP1069801)
(D) ROAD TO BE DEDICATED TO THE PUBLIC (986m²)
(E) ROAD WIDENING (2m²)

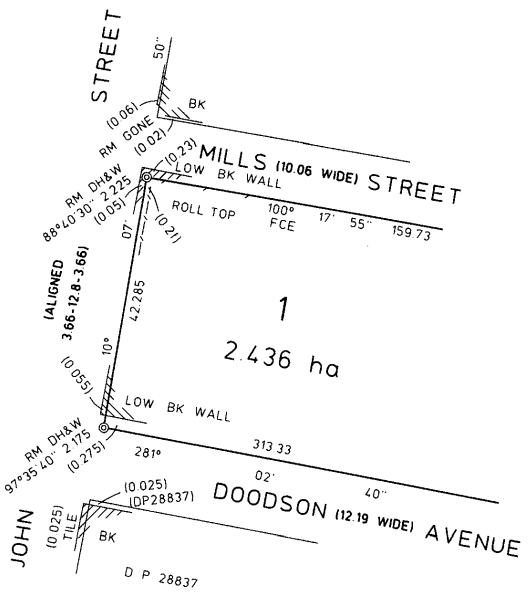


DIAGRAM 'A'

(NOT TO SCALE)

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

3/5/2017 12:10PM

FOLIO: 1/74453

First Title(s): OLD SYSTEM
Prior Title(s): VOL 3910 FOL 169

Recorded	Number	Type of Instrument	C.T. Issue
2/9/1989		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
20/11/1989	Y630663	REQUEST	FOLIO CREATED EDITION 1
12/9/1990	Z201963	TRANSFER	EDITION 2
5/4/2006	DP1095078	DEPOSITED PLAN	FOLIO CANCELLED

*** END OF SEARCH ***

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

3/5/2017 12:13PM

FOLIO: 1/87800

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 6580 FOL 205

Recorded	Number	Type of Instrument	C.T. Issue
2/9/1989		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
23/11/1989		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
12/9/1990	Z212496	TRANSFER	EDITION 1
5/4/2006	DP1095078	DEPOSITED PLAN	FOLIO CANCELLED

*** END OF SEARCH ***

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

3/5/2017 8:44AM

FOLIO: 1/1095078

First Title(s): VOL 1085 FOL 175 OLD SYSTEM
Prior Title(s): 1/1672 6-7/1672
10-12/1672 15/1672
18-19/1672 24/1672
32-33/1672 1/74453
1/86314 1/87800
A-B/100548 1/123396
1/194776 1-6/194777
1/308365 92/663188
1/1069801 VOL 870 FOL 116
VOL 964 FOL 159 VOL 1018 FOL 16
VOL 2200 FOLS 3-4 VOL 2543 FOL 212
VOL 3102 FOL 71 VOL 10662 FOL 98
VOL 13928 FOL 160

Recorded	Number	Type of Instrument	C.T. Issue
5/4/2006	DP1095078	DEPOSITED PLAN	FOLIO CREATED EDITION 1
4/4/2013	AH642867	DEPARTMENTAL DEALING	
15/6/2016	AK509587	DEPARTMENTAL DEALING	

*** END OF SEARCH ***

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

3/5/2017 12:12PM

FOLIO: 6/194777

First Title(s): OLD SYSTEM
Prior Title(s): CA48131

Recorded	Number	Type of Instrument	C.T. Issue
14/2/1991	CA48131	CONVERSION ACTION	FOLIO CREATED EDITION 1
5/4/2006	DP1095078	DEPOSITED PLAN	FOLIO CANCELLED

*** END OF SEARCH ***

No. 37800 NOV 7 1951

R.P.2.

Fees:—

New South Wales.

APPLICATION TO BRING LANDS UNDER THE PROVISIONS OF THE REAL PROPERTY ACT, 1900.

FEE SIMPLE.[a]

a This form may be modified to suit the case of a leasehold title.

CAUTION.—Applicants are reminded that by virtue of the provisions of the Crimes Act, 1900, the penalties of perjury are attached to a false declaration concerning any matter or procedure under the Act, and that the utmost care is therefore necessary in framing (or reading over, if the form be filled up by an Attorney) every particular statement herein.
It is further provided by Section 126 of the Real Property Act, 1900, that any applicant procuring a Certificate through any fraud, error, omission, misrepresentation, or misdescription will, notwithstanding the issue of such Certificate, remain liable for damages to any person thereby prejudiced. And any person who fraudulently procures, assists in fraudulently procuring, or is privy to the fraudulent procurement of any Certificate of Title, is declared guilty of a misdemeanour, and liable to a penalty not exceeding £500, or imprisonment not exceeding three years; and any Certificate thereby procured is rendered void as between all parties or privies to the fraud.

REGISTRAR-GENERAL NEW SOUTH WALES

ONE POUND STAMP DUTY B 25051 T Total 4/7/6

b Here state Christian and surname (or names) in full with residence and occupation.

I[b] ~~WE~~ AUBREY JOHN CLARK of Lidcombe, Assembler

c "I am" or if the declaration is made by an attorney "C.D. of ..... is" (as the case may be).

d Here give description of the property in full. If the land is shown on a plan lodged with the application or is fully described in a deed, it will be sufficient to insert a reference to the area, town, parish, and county and words indicating that the land is shown on the plan or described in the deed in question. The application may include an appurtenant easement expressly created by an instrument not registered under the Real Property Act, 1900 (see section 14A). Unless the Registrar-General has previously dispensed with a plan of survey, an accurate plan, prepared and certified by a surveyor specially licensed under the Act, must accompany the application. If there be any rights of way or other rights or easements affecting the premises the particulars should be stated. If the space for description be insufficient, it may be completed by annexure which must however be identified as part of the declaration, by memorandum signed by the declarant and attesting officer.

do solemnly and sincerely declare, that[c] I am seised for an Estate in fee simple of[d] ALL THAT piece or parcel of land containing Twenty and three-quarter perches situated in the Municipality of Lidcombe Parish of Liberty Plains County of Cumberland State of New South Wales COMMENCING on the north eastern side of Mills Street at a point bearing south easterly and distant Five hundred and forty-nine feet four and three-quarter inches from the intersection of that side with the south eastern alignment of John Street bounded thence on the north west by part of the South eastern boundary of land in Real Property Application numbered 24454 bearing 41 minutes for one hundred and two feet thence on the north east by a line bearing ninety-two degrees forty-three minutes thirty seconds for Fifty-six feet four and one-half inches thence on the south east by a fenced line bearing One hundred and eighty-one degrees eight minutes thirty seconds for One hundred and one feet and three-quarters of an inch to the north eastern side of Mills Street aforesaid and thence on the south west by the side of that street bearing Two hundred and seventy-one degrees forty-six minutes forty seconds for Fifty-five feet six and three-quarter inches to the point of commencement.

e The full improved value should be stated.
f State whether "the whole" or "part."
g Insert allotment with reference to number and section on plan, if any, or if not, number of acres granted.
h Name of Grantee.

which land (including all improvements) is of the value of[e] Seven hundred pounds (£700. 0. 0.) and no more, and is[f] part of[g] sixty acres (Por. 32 ...) originally granted to[h] Patrick Kirk by Crown grant, under the hand of the Governor of the Colony, dated the 30th day of June 1823 G.L.13 P.159 (Ser.17) 26/11/51

k If there be any Lease add the words "except as follows" and insert particulars thereof.

And I further declare, that I verily believe there does not exist any lease or agreement for lease of the said land, for any term exceeding a tenancy for one year, or from year to year,[k] 26/5/52

l If there be any mortgage, lien, etc., add the words "except as follows" and insert particulars thereof.

Also, that there does not exist any mortgage, lien, writ of execution, charge or encumbrance, will or settlement, or any deed or writing, contract, or dealing (~~other than such lease or tenancy as aforesaid~~), giving any right, claim, or interest in or to the said land, or any part thereof, to any other person than myself[l] ~~ourselves~~

m Insert "unoccupied," or "in the occupation of" adding names and addresses of tenants in full. State also nature of tenancy, if not under some lease before mentioned. When the applicant is not in actual occupation, but has a caretaker or manager in occupation, the name of such caretaker or manager should be stated, together with the nature of his occupancy.

n Here insert names and residences of adjacent owners and occupiers on all sides.

And I further declare, that there is no person in possession or occupation of the said land or any part thereof adversely to my ~~our~~ Estate or Interest therein, and that the said land is now[m] in my own occupation

and that the owners and occupiers of adjacent lands are as follows[n] :—

	State whether on North, South, East, or West.	Name.	State whether owner or occupier.	Address.
(1)	West	Mr. R. A. Elliott	Owner and Occupier	14 Mill Street, Lidcombe
(2) (3)	East	Department of Public Instruction	Owner and Occupier	C/o General Post Office, Sydney
(4)	North	Mr. William Edward Wright	Owner and Occupier	9, Keating Street, Lidcombe.
(5)		Council.		

Cert. of T., issued Vol. 6580 Fol. 205
Dated 27 OCT 1952

90802

And I further declare, that the annexed Schedule, to which my signature is affixed, and which is to be taken as part of this Declaration,

o The declaration may be qualified to the extent to which Applicant's title has been previously passed by the Registrar General by inserting the words "Commencing with Conveyance dated ..... registered ....." or as the case may be. Otherwise all documents from the Crown Grant onwards must be entered in the Schedule.

contains a full and correct list o _____ of all settlements, deeds, documents, or instruments, maps, plans and papers relating to the land comprised in this application, so far as I have any means of ascertaining the same, distinguishing such as being in my possession or under my control, are herewith lodged and indicating where or with whom, so far as known to me, any others thereof are deposited. Also, that there does not exist any fact or circumstance whatever material to the title, which is not hereby fully and fairly disclosed to the utmost extent of my knowledge, information, and belief; and that there is not, to my knowledge and belief, any action or suit pending affecting the said land, nor any person who has or claims any estate, right, title or interest therein, or in any part thereof, otherwise than by virtue and to the extent of some lease or tenancy hereby fully disclosed p _____

p If there be any exception add the words "except as follows" and insert necessary particulars.

And I make this solemn Declaration, conscientiously believing the same to be true.

DATED at Sydney this 18th day of October 1951.

(RULE UP ALL BLANKS BEFORE SIGNING.)

r If made in New South Wales this declaration must be attested by the Registrar General or Deputy, or by a Notary Public, or by a Justice of the Peace, or Commissioner for Affidavits. If made outside the State it should be made according to the law of the State where made, before a person authorised by that law to take declarations. If the signature be by mark, the attestation must state that the document was read over to the declarant, and that he appeared fully to understand the contents. This applies also to the subjoined direction, particularly if a different person be nominated to receive certificate.

Made and subscribed by the abovenamed AUBREY JOHN CLARK this 18th day of October 1951. * in the presence of r

Signature of Applicant } E.J. Clark.

To the Registrar-General,—

I AUBREY JOHN CLARK of Number 16 Hill Street, Lidcombe the above declarant, do hereby apply to have the land described in the above declaration brought under the provisions of the Real Property Act, and request you to issue the Certificate of Title in the name of s myself.

s If to Applicant, say "myself"; if to other person write name at full length, with address and occupation.
If to two or more, state whether as joint tenants or tenants in common; if as tenants in common state shares. If to an infant, the age should be stated, and verified by Certificate of Birth, or by Statutory Declaration.
If to a married woman, the name of the husband, together with his residence and occupation, should be stated.

DATED at Sydney this 18th day of October 1951.

Witness to Signature— E.J. Clark

(Signature of Applicant) E.J. Clark.

* N.B.—The Schedule below and Certificate indorsed on fourth page should be also signed.

In no case can any alterations, however trifling, be allowed to be made after the application has been once declared, unless all the parties re-sign and re-declare the same. If it is discovered that any alterations are necessary, the applicant may make a statutory declaration setting out in what manner he desires the application to be altered, which declaration will then (unless the Registrar General considers that a fresh application ought to be made) be read as one with the application.

(RULE UP ALL BLANKS BEFORE SIGNING.)

SCHEDULE REFERRED TO.*

(TO BE SIGNED BY APPLICANT IMMEDIATELY BELOW THE LAST DOCUMENT SCHEDULED.)

To include not only Title Deeds, Probates, Letters of Administration, etc., but also the Surveyor's Plan or Statement in lieu thereof.

* For the particulars which this Schedule must comprise, see concluding part of Declaration, to which particular attention is directed, as any omission or mis-statement will render applicant liable to the penalties of false Declaration.

No.	Date.	Nature of Instrument.	Parties.	Registration. Book.	Registration. No.	When and by whom Lodged.
1.	1923	Abstract of Title	of William Edward Wright			Herewith R. Mentone 1.11.51
2.	15 Feb. 1937	Conveyance	William John Maunder of the one part and Fairy Ena Comfort Clark of the other part	1777	206	Herewith
3.	1 Oct. 1948	Acknowledgment	The Public Trustee of the one part and Frederick Alfred Clark of the other part ht?	2056	70	Herewith
4.	21 June 1951	Conveyance	Frederick Alfrod Clark of the one part and Aubrey John Clark of the other part	2177	445	Herewith

E.J. Clark

Rec'd docs 1-4 6-11-51

Should any transaction affecting the land in this application be entered into or any alterations in the buildings or fences be made subsequent to the date of the application, but prior to the issue of the Certificate of Title, the Registrar General should be informed immediately, and all documents evidencing such transaction should be lodged.

SCHEDULE REFERRED TO—(*continued*).*

(TO BE SIGNED BY APPLICANT, IF UTILISED, IMMEDIATELY BELOW THE LAST DOCUMENT SCHEDULED.)

No.	Date.	Nature of Instrument.	Parties.	Registration. Book.	Registration. No.	When and by whom Lodged.
5	—	Probate in the will of A. Stollen No 30724				Maunder, Metcalfe and Jeffrey.
6.	14·3·03	Agreement A. Stoller with H. Brown — as no effect		735	573	
7.	29·5·08	Conveyance H. Brown & anor to H. Brown.		857	235	
8	20·5·12	Mtge H. Brown to The Trustees of the Industrial & Provident Permanent Benefit Building & Investment Society.		967	387	
9.	8·9·22	Discharge of doc 8		1274	15	
10.	15·7·52	Lt from Crown Clerk of Auburn to W. Wilmenlove Esq.,				Lt 52/43917
11.	27·6·52	Certificate issued by the Stamp Duties Dept. under section 122 of the Stamp Duties Act.				
12.	7·8·52	Stat Decln of W. Wilmenlove				
13.	—	O.C. Will of Cm. Stollen				
14	—	O.C. Will of F. E. C. Clark.				
						Lt 52/45850
15.	13/8/52	Stat Decln of A. J. Clark				Lt 52/58517
16	23/10/52	" " " A. J. Clark.				

Rec'ived docs 1–16

Docs 5/9 may be delivered to Maunder Metcalfe Jeffrey

Doc 3 may " " W. Menlove

other docs to remain in case

[initials] 14/11/5[illegible]

☞ See indorsement overleaf.

N.V. Menlove
B90802

I certify that the within application is correct for the purposes of the Real Property Act, 1900†.

† Section 117 requires that this Certificate be signed by Applicant or his Solicitor and renders liable any person falsely or negligently certifying, to a penalty of £50; also, to damages recoverable by parties injured.
If by Solicitor, he should insert;—"And that I am the Solicitor of the within-named Applicant,", and should add his own address to his signature. The signature should be that of the Solicitor himself and not of his firm.

(Signature) N. J. Clark

RULE UP ALL BLANKS BEFORE SIGNING, EXCEPT SPACE IN SCHEDULE BELOW APPLICANT'S SIGNATURE.)

FEES.

PAYMENT OF THESE MUST ACCOMPANY THE APPLICATION.

Rec'd docs. 1-4 incl. 7/11/51

Receive River Plan. 7.11.51.

	£	s.	d.
Certificate of Title	1	10	0
Office Copy of Plan (when a Plan is furnished) ...	0	7	6
Preparation of Plan (when a Plan is not furnished)	1	0	0
Advertisement	1	10	0
Lodgment fee	1	0	0

☞ State to whom all correspondence relating to this Application should be sent, with address, as under, viz.:—

Name Neville V. Menlove

Occupation Solicitor

Post Town 110 Castlereagh Street Sydney

EXTRA FEES
Diagram 12/6
27 OCT 1952
Extra Folios...
15.

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 1/1095078

SEARCH DATE	TIME	EDITION NO	DATE
3/5/2017	8:42 AM	1	5/4/2006

LAND

LOT 1 IN DEPOSITED PLAN 1095078
AT LIDCOMBE
LOCAL GOVERNMENT AREA CUMBERLAND
PARISH OF LIBERTY PLAINS COUNTY OF CUMBERLAND
TITLE DIAGRAM DP1095078

FIRST SCHEDULE

MINISTER FOR EDUCATION AND TRAINING

SECOND SCHEDULE (7 NOTIFICATIONS)

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* 1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S) WITHIN THE PART(S) SHOWN SO INDICATED IN THE TITLE DIAGRAM
2 LAND EXCLUDES MINERALS AFFECTING THE PART SHOWN SO BURDENED IN THE TITLE DIAGRAM - SEE CROWN GRANT(S)
3 B338307 LAND EXCLUDES MINERALS (S.141 PUBLIC WORKS ACT, 1912) AFFECTING THE PART SHOWN SO BURDENED IN THE TITLE DIAGRAM
4 QUALIFIED TITLE. CAUTION PURSUANT TO SECTION 28J OF THE REAL PROPERTY ACT, 1900. ENTERED 27.9.2004 AS REGARDS THE PART IN BK 173 NO 953
5 DP1069801 EASEMENT FOR WATER SUPPLY PURPOSES 3 METRE(S) WIDE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
6 DP1069801 EASEMENT TO DRAIN WATER 4.06 METRE(S) WIDE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
7 DP1069801 EASEMENT FOR GAS MAIN 3 METRE(S) WIDE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

Appendix C: AMP Compliance Documentation

Air Monitoring Certificate

Clearsafe Environmental Solutions Pty Ltd
1/185 Berkeley Road, Unanderra NSW 2526
info@clearsafe.com.au
1300 042 962

Report Number: 40-7299-01-AM
Date of Report: 22/5/2017
Date of Monitoring: 20/5/2017
Site Address: Lidcombe Public School, Mills St
Lidcombe NSW 2141
Client Name: Beasy Pty Ltd
Client Address: 16 Orchardleigh St
Yennora NSW 2161

Client Contact: James Dang
Sampled By: Gonzalo Serna
Approved Counter: Shane Banics
Approved Signatory: Luke Heckenberg

Test Method: Airborne fibre monitoring in accordance with the Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres [NOHSC:3003(2005)] and Clearsafe method SOP.AM.01.

Notes: The results contained within this report relate only to the samples tested. This report should not be copied, presented or reviewed except in full.

Sample Number	Location	Code*	Time On	Time Off	Airflow On	Airflow Off	Fibres	Fields	Conc.**
40-7299/1	External, western boundary fence	1	07:30	13:00	2.02	2.02	0	100	<0.01
40-7299/2	External, western wall to lidcombe hall building	1	07:31	13:01	2.02	2.02	0	100	<0.01
40-7299/3	External, northern wall to child care facility F	1	07:32	13:02	2.02	2.02	0	100	<0.01
40-7299/4	External, northern wall to office building.	1	07:33	13:03	2.02	2.02	0	100	<0.01
40-7299/5	Field Blank	6					0	100	N/A

**** Concentration in Fibres/mL of air**

*** Sample Codes:**

1 - Asbestos removal
2 - Bag-out
3 - Enclosure dismantling
4 - Clearance
5 - Background
6 - Blank Sample
7 - Fibre Count Only
8 - Personal monitoring

NATA Accredited Laboratory No. 18542

Accredited for compliance with ISO/IEC 17025. The results of the tests, calibrations and/or measurements included in this document are traceable to Australian / national standards.

FRIABLE ASBESTOS REMOVAL LICENCE

Issued under the *Work Health and Safety Regulation 2011* (NSW). This licence is not transferable.

Licence: AD211426

Licence class: Class A

Licence period: From: 13/05/2013 To: 12/05/2018

Licence holder name: Beasy Pty Ltd

ABN: 58 110 959 549

ACN: 110 959 549

Address: 16 Orchardleigh Yennora NSW 2161

Description of the work that can be undertaken under this licence

- All friable asbestos removal work.
- All non friable asbestos removal work.

Licence Holder Obligations

A nominated supervisor must be present at the site whenever licensed friable asbestos removal work is being carried out and is readily available to attend the site when licensednon friable asbestos removal work is being carried out.

This licence document must be available for inspection.

All licensed asbestos removal work is to be notified to WorkCover NSW at least 5 days prior to the work commencing.

The licence holder must notify WorkCover NSW in writing of any changes in licence or supervisor details within 14 days.

Appendix D: Borehole Logs

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 1
1/1

Client: JDH ARCHITECTS

Project: PROPOSED NEW BUILDINGS

Location: LIDCOMBE PUBLIC SCHOOL, MILLS STREET, LIDCOMBE, NSW

Job No. 30429S
Date: 20-5-17
Method: SPIRAL AUGER JK205
Logged/Checked by: J.D./P.S.
R.L. Surface: ≈ 19.6m
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			FILL: Silty clay, high plasticity, dark brown, with fine to medium grained sand, trace of fine to medium grained igneous gravel and ash.	MC>PL			APPEARS POORLY COMPACTED
	■			■	N = 5 2,2,3	1		CH	SILTY CLAY: high plasticity, red brown and light grey, with fine to medium grained ironstone gravel.	MC>PL	VSt	240 260 235	RESIDUAL
			■										
				■	N = 19 5,8,11	2							
						3		-	SHALE: grey and brown, with sandstone and ironstone seams.	XW	EL		VERY LOW 'TC' BIT RESISTANCE
									SHALE: dark grey.	DW	L-M		LOW TO MODERATE RESISTANCE
						4					M-H		MODERATE TO HIGH RESISTANCE
									END OF BOREHOLE AT 4.1m				'TC' BIT REFUSAL
						5							
						6							
						7							

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. **2** 1/1

Client: JDH ARCHITECTS

Project: PROPOSED NEW BUILDINGS

Location: LIDCOMBE PUBLIC SCHOOL, MILLS STREET, LIDCOMBE, NSW

Job No. 30429S **Method:** SPIRAL AUGER JK205 **R.L. Surface:** ≈ 20.5m

Date: 20-5-17 **Datum:** AHD

Logged/Checked by: J.D./P.S.

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			FILL: Silty sand, fine to medium grained, grey and brown, with fine to coarse grained igneous gravel.	M			APPEARS POORLY COMPACTED
				■	N = 6 2,2,4			CH	SILTY CLAY: high plasticity, orange brown and light grey, with fine to medium grained ironstone gravel.	MC>PL	VSt	220 265 250	RESIDUAL
	■			■		1			SILTY CLAY: high plasticity, light grey, with ironstone bands.	MC≈PL	VSt-H		
	■			■	N = 23 5,8,15							320 300 450	
				■		2							
				■				-	SHALE: grey and brown, with fine to medium grained sandstone bands and iron indurated seams.	XW	EL		VERY LOW 'TC' BIT RESISTANCE WITH LOW TO MODERATE BANDS
				■		3							
				■						XW-DW	EL-VL		VERY LOW TO LOW RESISTANCE
				■		4							
									SHALE: dark grey.	DW	VL-L		LOW RESISTANCE
						5							
				■							L-M		LOW TO MODERATE RESISTANCE
						6			END OF BOREHOLE AT 6.0m				
						7							

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 3
1/1

Client: JDH ARCHITECTS

Project: PROPOSED NEW BUILDINGS

Location: LIDCOMBE PUBLIC SCHOOL, MILLS STREET, LIDCOMBE, NSW

Job No. 30429S
Date: 20-5-17
Method: SPIRAL AUGER JK205
Logged/Checked by: J.D./P.S.
R.L. Surface: ≈ 20.7m
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			FILL: Silty sand, fine to medium grained, brown, with fine to coarse grained sandstone gravel and cobbles, and concrete fragments.	D			APPEARS POORLY COMPACTED
					N = 11 6,5,6								
	■			■		1		CH	SILTY CLAY: high plasticity, red brown and orange brown, with fine to medium grained ironstone gravel.	MC≈PL	VSt	280 300 350	RESIDUAL
				■					as above, but light grey and orange brown.	MC<PL			TOO FRIABLE FOR HP TESTING
	■			■	N > 24 12,14, 10/50mm REFUSAL	2		-	SHALE: grey and brown, with sandstone and iron indurated seams.	XW	EL		VERY LOW 'TC' BIT RESISTANCE
				■					as above, but dark grey and brown.	DW	VL-L		LOW RESISTANCE WITH MODERATE BANDS
				■		3							
				■		4							
				■					SHALE: dark grey.		L-M		LOW TO MODERATE RESISTANCE
				■		5							
				■		6			END OF BOREHOLE AT 6.0m				
						7							

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 4
1/1

Client: JDH ARCHITECTS

Project: PROPOSED NEW BUILDINGS

Location: LIDCOMBE PUBLIC SCHOOL, MILLS STREET, LIDCOMBE, NSW

Job No. 30429S
Date: 20-5-17
Method: SPIRAL AUGER JK205
Logged/Checked by: J.D./P.S.
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		-	ASPHALTIC CONCRETE: 30mm.t FILL: Gravelly clay, fine to medium grained igneous and ironstone gravel, dark brown and grey, with fine to medium grained sand, trace of ash.	M			APPEARS POORLY COMPACTED
					N = 7 5,3,4	1		CH	SILTY CLAY: high plasticity, orange brown, with fine to coarse grained ironstone gravel, trace of roots.	MC>PL	VSt	240 260 275	RESIDUAL
						2		-	SANDSTONE: fine to medium grained, light grey.	XW	EL		VERY LOW 'TC' BIT RESISTANCE
						3			SHALE: brown and grey, with sandstone and ironstone seams.	DW	VL-L		VERY LOW RESISTANCE WITH MODERATE BANDS LOW RESISTANCE
						4					L-M		LOW TO MODERATE RESISTANCE
						5					M-H		MODERATE TO HIGH RESISTANCE
						6			END OF BOREHOLE AT 5.2m				'TC' BIT REFUSAL
						7							

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. **5** 1/1

Client: JDH ARCHITECTS

Project: PROPOSED NEW BUILDINGS

Location: LIDCOMBE PUBLIC SCHOOL, MILLS STREET, LIDCOMBE, NSW

Job No. 30429S **Method:** SPIRAL AUGER JK205 **R.L. Surface:** ≈ 18.0m

Date: 20-5-17 **Datum:** AHD

Logged/Checked by: J.D./P.S.

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			FILL: Silty sand, fine to medium grained, dark brown, with fine to medium grained igneous and ironstone gravel, trace of root fibres and concrete fragments.	D			APPEARS POORLY COMPACTED
	■		■		N = 7 2,3,4	1		CH	SILTY CLAY: high plasticity, light grey and orange brown, with fine to medium grained ironstone gravel.	MC>PL	VSt	230 300 285	
	■					2		-	SANDSTONE: fine to medium grained, light grey, with shale and iron indurated bands.	XW	EL		VERY LOW 'TC' BIT RESISTANCE WITH MODERATE BANDS
			■			3			SHALE: grey and brown, with iron indurated bands.	DW	VL-L		LOW TO MODERATE RESISTANCE WITH HIGH BANDS
						4							
						5					L-M		MODERATE TO HIGH RESISTANCE
						6			END OF BOREHOLE AT 6.0m				
						7							

ENVIRONMENTAL INVESTIGATION SERVICES

CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No. **6** **1/1**

Environmental logs are not to be used for geotechnical purposes

Client: JDH ARCHITECTS

Project: PROPOSED ALTERATIONS AND ADDITIONS

Location: LIDCOMBE PUBLIC SCHOOL, MILLS STREET, LIDCOMBE, NSW

Job No. E30429KP **Method:** SPIRAL AUGER JK205 **R.L. Surface:** ≈ 17.9m

Date: 20-5-17 **Datum:** AHD

Logged/Checked by: J.D.C./B.P.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■			0			FILL: Silty clay, low to medium plasticity, brown, trace of concrete, brick and glass fragments.	MC<PL			
					N = 10 3,4,6								
	■					1		CL-CH	SILTY CLAY: medium to high plasticity, light brown and red.	MC≈PL			
								-	SHALE: light grey, with iron indurated bands.	XW			
	■				N > 7 7/10mm REFUSAL				END OF BOREHOLE AT 1.6m				
						2							
						3							
						4							
						5							
						6							
						7							

ENVIRONMENTAL INVESTIGATION SERVICES

CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No. **7** **1/1**

Environmental logs are not to be used for geotechnical purposes

Client: JDH ARCHITECTS

Project: PROPOSED ALTERATIONS AND ADDITIONS

Location: LIDCOMBE PUBLIC SCHOOL, MILLS STREET, LIDCOMBE, NSW

Job No. E30429KP **Method:** HAND AUGER **R.L. Surface:** ≈ 18.8m

Date: 20-5-17 **Datum:** AHD

Logged/Checked by: J.D.C./B.P.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■			0			FILL: Silty clay, low to medium plasticity, brown, trace of concrete and brick fragments.	MC<PL			
									END OF BOREHOLE AT 0.5m				HAND AUGER REFUSAL
						1							
						2							
						3							
						4							
						5							
						6							
						7							

ENVIRONMENTAL INVESTIGATION SERVICES

CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No. **8** **1/1**

Environmental logs are not to be used for geotechnical purposes

Client: JDH ARCHITECTS

Project: PROPOSED ALTERATIONS AND ADDITIONS

Location: LIDCOMBE PUBLIC SCHOOL, MILLS STREET, LIDCOMBE, NSW

Job No. E30429KP **Method:** SPIRAL AUGER JK205 **R.L. Surface:** ≈ 18.8m

Date: 20-5-17 **Datum:** AHD

Logged/Checked by: J.D.C./B.P.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■			0			FILL: Silty clay, low to medium plasticity, brown, trace of fine to coarse grained igneous gravel and ash.	MC<PL			GRASS COVER
	■		■					CL-CH	SILTY CLAY: medium to high plasticity, red brown and light grey.	MC>PL			
						1			END OF BOREHOLE AT 1.2m				
						2							
						3							
						4							
						5							
						6							
						7							

ENVIRONMENTAL INVESTIGATION SERVICES

CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No. **9** **1/1**

Environmental logs are not to be used for geotechnical purposes

Client: JDH ARCHITECTS

Project: PROPOSED ALTERATIONS AND ADDITIONS

Location: LIDCOMBE PUBLIC SCHOOL, MILLS STREET, LIDCOMBE, NSW

Job No. E30429KP **Method:** SPIRAL AUGER JK205 **R.L. Surface:** ≈ 19.5m

Date: 20-5-17 **Datum:** AHD

Logged/Checked by: J.D.C./B.P.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■			0			FILL: Silty clay, low to medium plasticity, brown, trace of ash.	MC<PL			GRASS COVER
	■							CL-CH	SILTY CLAY: medium to high plasticity, red brown and light grey.	MC≈PL			
						1			END OF BOREHOLE AT 0.9m				
						2							
						3							
						4							
						5							
						6							
						7							

ENVIRONMENTAL INVESTIGATION SERVICES

CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No. **10** **1/1**

Environmental logs are not to be used for geotechnical purposes

Client: JDH ARCHITECTS

Project: PROPOSED ALTERATIONS AND ADDITIONS

Location: LIDCOMBE PUBLIC SCHOOL, MILLS STREET, LIDCOMBE, NSW

Job No. E30429KP **Method:** HAND AUGER **R.L. Surface:** ≈ 20.2m

Date: 20-5-17 **Datum:** AHD

Logged/Checked by: J.D.C./B.P.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■			0			FILL: Silty clay, low to medium plasticity, brown, trace of fine to coarse grained igneous gravel and brick fragments.	MC<PL			LEAF LITTER COVER
									END OF BOREHOLE AT 0.5m				HAND AUGER REFUSAL
						1							
						2							
						3							
						4							
						5							
						6							
						7							

ENVIRONMENTAL INVESTIGATION SERVICES

CONSULTING ENVIRONMENTAL ENGINEERS

EIS

Borehole No. 11 1/1

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Client: JDH ARCHITECTS

Project: PROPOSED ALTERATIONS AND ADDITIONS

Location: LIDCOMBE PUBLIC SCHOOL, MILLS STREET, LIDCOMBE, NSW

Job No. E30429KP **Method:** HAND AUGER **R.L. Surface:** ≈ 20.2m

Date: 20-5-17 **Datum:** AHD

Logged/Checked by: J.D.C./B.P.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■			0			FILL: Silty clay, low to medium plasticity, light brown, trace of brick fragments.	MC<PL			BARK/LEAF LITTER COVER
									END OF BOREHOLE AT 0.3m				HAND AUGER REFUSAL
						1							
						2							
						3							
						4							
						5							
						6							
						7							

ENVIRONMENTAL INVESTIGATION SERVICES

CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No. **12** **1/1**

Environmental logs are not to be used for geotechnical purposes

Client: JDH ARCHITECTS

Project: PROPOSED ALTERATIONS AND ADDITIONS

Location: LIDCOMBE PUBLIC SCHOOL, MILLS STREET, LIDCOMBE, NSW

Job No. E30429KP **Method:** HAND AUGER **R.L. Surface:** ≈ 19.9m

Date: 20-5-17 **Datum:** AHD

Logged/Checked by: J.D.C./B.P.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■			0			FILL: Clayey sand, fine to medium grained, brown, with organic material, trace of ash.	D			BARK COVER GEOGRID/ GEOFABIC
									FILL: Silty clay, low to medium plasticity, brown, trace of concrete and brick fragments and ash.				HAND AUGER REFUSAL
									END OF BOREHOLE AT 0.4m				
						1							
						2							
						3							
						4							
						5							
						6							
						7							

ENVIRONMENTAL INVESTIGATION SERVICES

CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No. **13** **1/1**

Environmental logs are not to be used for geotechnical purposes

Client: JDH ARCHITECTS

Project: PROPOSED ALTERATIONS AND ADDITIONS

Location: LIDCOMBE PUBLIC SCHOOL, MILLS STREET, LIDCOMBE, NSW

Job No. E30429KP **Method:** HAND AUGER **R.L. Surface:** ≈ 20.4m

Date: 20-5-17 **Datum:** AHD

Logged/Checked by: J.D.C./B.P.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■			0			FILL: Silty clay, low to medium plasticity, brown, with brick fragments, trace of ash and slag.	MC≈PL			
									END OF BOREHOLE AT 0.4m				HAND AUGER REFUSAL
						1							
						2							
						3							
						4							
						5							
						6							
						7							

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. **14** 1/1

Client: JDH ARCHITECTS

Project: PROPOSED NEW BUILDINGS

Location: LIDCOMBE PUBLIC SCHOOL, MILLS STREET, LIDCOMBE, NSW

Job No. 30429S **Method:** SPIRAL AUGER JK205 **R.L. Surface:** ≈ 20.2m

Date: 20-5-17 **Datum:** AHD

Logged/Checked by: J.D./P.S.

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			FILL: Silty clay, medium to high plasticity, dark brown, with fine to medium grained sand, trace of fine to medium grained ironstone and igneous gravel.	MC<PL			
				■	N = 12 4,6,6								
				■		1		CH	SILTY CLAY: high plasticity, orange brown and light brown, with fine to medium grained igneous gravel.	MC<PL	VSt- H	>600	RESIDUAL
				■				-	SHALE: light grey and ironstone bands.	XW	EL		VERY LOW 'TC' BIT RESISTANCE
									END OF BOREHOLE AT 1.5m				
						2							
						3							
						4							
						5							
						6							
						7							

ENVIRONMENTAL INVESTIGATION SERVICES

CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No. **15** **1/1**

Environmental logs are not to be used for geotechnical purposes

Client: JDH ARCHITECTS

Project: PROPOSED ALTERATIONS AND ADDITIONS

Location: LIDCOMBE PUBLIC SCHOOL, MILLS STREET, LIDCOMBE, NSW

Job No. E30429KP **Method:** HAND AUGER **R.L. Surface:** ≈ 20.5m

Date: 20-5-17 **Datum:** AHD

Logged/Checked by: J.D.C./B.P.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■			0			FILL: Silty clayey sand, fine to medium grained, light brown, trace of slag, organic material and concrete fragments.	M			HAND AUGER REFUSAL
									END OF BOREHOLE AT 0.3m				
						1							
						2							
						3							
						4							
						5							
						6							
						7							

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. **16** 1/1

Client: JDH ARCHITECTS

Project: PROPOSED NEW BUILDINGS

Location: LIDCOMBE PUBLIC SCHOOL, MILLS STREET, LIDCOMBE, NSW

Job No. 30429S **Method:** SPIRAL AUGER JK205 **R.L. Surface:** ≈ 21.0m

Date: 20-5-17 **Datum:** AHD

Logged/Checked by: J.D./P.S.

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	■			■	N = 7 3,3,4	0			FILL: Sandy clay, low plasticity, dark brown, fine to medium grained sand, with fine to medium grained igneous gravel, trace of ceramic fragments and ash.	MC<PL			
	■			■		1		CH	SILTY CLAY: high plasticity, red brown and light grey, with fine to medium grained ironstone gravel.	MC>PL	St		RESIDUAL
				■				-	SHALE: light grey.	XW	EL		VERY LOW 'TC' BIT RESISTANCE
						2			END OF BOREHOLE AT 1.5m				
						3							
						4							
						5							
						6							
						7							

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):

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.

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.

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.

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

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

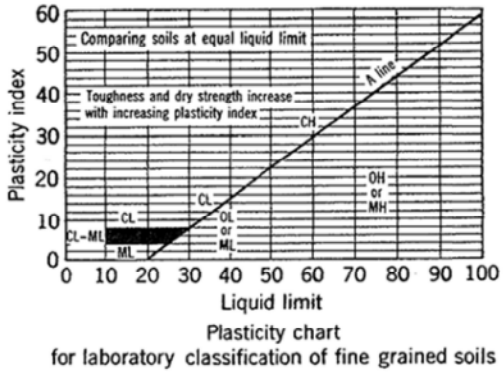
OTHER MATERIALS


CONCRETE


BITUMINOUS CONCRETE, COAL


COLLUVIUM

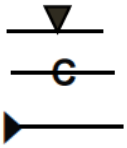
Field Identification Procedures (Excluding particles larger than 75 μm and basing fractions on estimated weights)						Group Symbols[a]	Typical Names	Information Required for Describing Soils	Laboratory Classification Criteria
Coarse-grained soils More than half of material is *larger* than 75 μm sieve 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
			Predominantly one size or a range of sizes with some intermediate sizes missing			*GP*	Poorly graded gravels, gravel-sand mixtures, little or no fines		
		Gravels with fines (appreciable amount of 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		$C_U = \frac{D_{60}}{D_{10}}$ 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
			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								
	Silts and clays liquid limit less than 50		Dry Strength (crushing characteristics)	Dilatancy (reaction to shaking)	Toughness (consistency near plastic limit)				
			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. 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)	VL L MD D VD ( )	**Density Index (ID) Range (%)** / **SPT ' N' Value Range (Blows/300mm)** Very Loose <15 / 0-4 Loose 15-35 / 4-10 Medium Dense 35-65 / 10-30 Dense 65-85 / 30-50 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.

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	0.03	Easily remoulded by hand to a material with soil properties.
Very Low:	VL	0.1	May be crumbled in the hand. Sandstone is "sugary" and friable.
Low:	L	0.3	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.
Medium Strength:	M	1	A piece of core 150 mm long x 50mm dia. can be broken by hand with difficulty. Readily scored with knife.
High:	H	3	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.
Very High:	VH	10	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.
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.

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 E: Laboratory Reports & COC Documents

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Envirolab Services Pty Ltd - Sydney | ABN 37 112 535 645

CERTIFICATE OF ANALYSIS 167600

Client:

Environmental Investigation Services
PO Box 976
North Ryde BC
NSW 1670

Attention: Brendan Page

Sample log in details:

Your Reference:	**E30429KP, Lidcombe**
No. of samples:	2 materials 39 soils
Date samples received / completed instructions received	22/05/17 / 22/05/17

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: / Issue Date:	30/05/17 / 29/05/17
Date of Preliminary Report:	Not Issued

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Accredited for compliance with ISO/IEC 17025 - Testing **Tests not covered by NATA are denoted with *.**

Results Approved By:

David Springer
General Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	167600-1	167600-3	167600-5	167600-7	167600-9
Your Reference	---------- -	BH1	BH2	BH3	BH4	BH5
Depth	----------	0.2-0.3	0.1-0.2	0.1-0.3	0.1-0.3	0-0.2
Date Sampled		20/05/2017	20/05/2017	20/05/2017	20/05/2017	20/05/2017
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	24/05/2017	24/05/2017	24/05/2017	24/05/2017	24/05/2017
Date analysed	-	25/05/2017	25/05/2017	25/05/2017	25/05/2017	25/05/2017
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
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	109	109	110	107	110

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	167600-11	167600-14	167600-15	167600-18	167600-20
Your Reference	---------- -	BH6	BH7	BH8	BH9	BH10
Depth	----------	0-0.2	0-0.3	0-0.2	0-0.3	0-0.3
Date Sampled		20/05/2017	20/05/2017	20/05/2017	20/05/2017	20/05/2017
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	24/05/2017	24/05/2017	24/05/2017	24/05/2017	24/05/2017
Date analysed	-	25/05/2017	25/05/2017	25/05/2017	25/05/2017	25/05/2017
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
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	105	114	111	112	113

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	167600-21	167600-23	167600-24	167600-25	167600-27
Your Reference	---------- -	BH11	BH12	BH13	BH14	BH15
Depth	----------	0-0.3	0.2-0.4	0-0.3	0.1-0.2	0-0.2
Date Sampled		20/05/2017	20/05/2017	20/05/2017	20/05/2017	20/05/2017
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	24/05/2017	24/05/2017	24/05/2017	24/05/2017	24/05/2017
Date analysed	-	25/05/2017	25/05/2017	25/05/2017	25/05/2017	25/05/2017
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
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	106	102	102	99	102

vTRH(C6-C10)/BTEXN in Soil		
Our Reference:	UNITS	167600-28
Your Reference	---------- -	BH16
Depth	----------	0.1-0.3
Date Sampled		20/05/2017
Type of sample		SOIL
Date extracted	-	24/05/2017
Date analysed	-	25/05/2017
TRHC$_6$ - C$_9$	mg/kg	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
Total +ve Xylenes	mg/kg	<1
naphthalene	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	102

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	167600-1	167600-3	167600-5	167600-7	167600-9
Your Reference	---------- -	BH1	BH2	BH3	BH4	BH5
Depth	----------	0.2-0.3	0.1-0.2	0.1-0.3	0.1-0.3	0-0.2
Date Sampled		20/05/2017	20/05/2017	20/05/2017	20/05/2017	20/05/2017
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	25/05/2017	25/05/2017	25/05/2017	25/05/2017	25/05/2017
Date analysed	-	25/05/2017	25/05/2017	25/05/2017	25/05/2017	25/05/2017
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	100	770	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	230	450	<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	260	1,100	<100	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	120	290	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	380	1,400	<50	<50
Surrogate o-Terphenyl	%	86	84	108	88	84

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	167600-11	167600-14	167600-15	167600-18	167600-20
Your Reference	---------- -	BH6	BH7	BH8	BH9	BH10
Depth	----------	0-0.2	0-0.3	0-0.2	0-0.3	0-0.3
Date Sampled		20/05/2017	20/05/2017	20/05/2017	20/05/2017	20/05/2017
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	25/05/2017	25/05/2017	25/05/2017	25/05/2017	25/05/2017
Date analysed	-	25/05/2017	25/05/2017	25/05/2017	25/05/2017	25/05/2017
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100	420	<100	120
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	130	470	<100	280
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	140	780	<100	300
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	<100	230	<100	130
Total +ve TRH (>C10-C40)	mg/kg	<50	140	1,000	<50	430
Surrogate o-Terphenyl	%	84	85	95	82	83

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	167600-21	167600-23	167600-24	167600-25	167600-27
Your Reference	---------- -	BH11	BH12	BH13	BH14	BH15
Depth	----------	0-0.3	0.2-0.4	0-0.3	0.1-0.2	0-0.2
Date Sampled		20/05/2017	20/05/2017	20/05/2017	20/05/2017	20/05/2017
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	25/05/2017	25/05/2017	25/05/2017	25/05/2017	25/05/2017
Date analysed	-	25/05/2017	25/05/2017	25/05/2017	25/05/2017	25/05/2017
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	350	<100	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	310	200	<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	580	240	140	<100	110
TRH>C$_{34}$-C$_{40}$	mg/kg	150	130	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	730	370	140	<50	110
Surrogate o-Terphenyl	%	98	84	83	85	85

svTRH (C10-C40) in Soil		
Our Reference:	UNITS	167600-28
Your Reference	---------- -	BH16
Depth	----------	0.1-0.3
Date Sampled		20/05/2017
Type of sample		SOIL
Date extracted	-	25/05/2017
Date analysed	-	25/05/2017
TRHC$_{10}$ - C$_{14}$	mg/kg	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100
Total +ve TRH (>C10-C40)	mg/kg	<50
Surrogate o-Terphenyl	%	87

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- - ---------- 	167600-1 BH1 0.2-0.3 20/05/2017 SOIL	167600-3 BH2 0.1-0.2 20/05/2017 SOIL	167600-5 BH3 0.1-0.3 20/05/2017 SOIL	167600-7 BH4 0.1-0.3 20/05/2017 SOIL	167600-9 BH5 0-0.2 20/05/2017 SOIL
Date extracted	-	24/05/2017	24/05/2017	24/05/2017	24/05/2017	24/05/2017
Date analysed	-	25/05/2017	25/05/2017	25/05/2017	25/05/2017	25/05/2017
Naphthalene	mg/kg	<0.1	<0.1	0.6	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	4.7	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	0.6	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	2.6	<0.1	<0.1
Phenanthrene	mg/kg	0.4	<0.1	38	0.2	<0.1
Anthracene	mg/kg	<0.1	<0.1	7.1	<0.1	<0.1
Fluoranthene	mg/kg	1	0.3	54	0.3	<0.1
Pyrene	mg/kg	1.1	0.4	55	0.3	<0.1
Benzo(a)anthracene	mg/kg	0.5	0.2	27	0.1	<0.1
Chrysene	mg/kg	0.5	0.2	18	0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	1	0.4	28	0.2	<0.2
Benzo(a)pyrene	mg/kg	0.73	0.3	21	0.1	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	0.6	0.2	12	0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	2.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	0.4	0.2	8.9	<0.1	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	1	<0.5	30	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	1	<0.5	30	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	1	<0.5	30	<0.5	<0.5
Total +ve PAH's	mg/kg	6.4	2.2	280	1.5	<0.05
Surrogate p-Terphenyl-d14	%	101	109	118	105	104

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- - ---------- 	167600-11 BH6 0-0.2 20/05/2017 SOIL	167600-14 BH7 0-0.3 20/05/2017 SOIL	167600-15 BH8 0-0.2 20/05/2017 SOIL	167600-18 BH9 0-0.3 20/05/2017 SOIL	167600-20 BH10 0-0.3 20/05/2017 SOIL
Date extracted	-	24/05/2017	24/05/2017	24/05/2017	24/05/2017	24/05/2017
Date analysed	-	25/05/2017	25/05/2017	25/05/2017	25/05/2017	25/05/2017
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	0.3	<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	0.6	0.2	1.7	<0.1	0.2
Anthracene	mg/kg	<0.1	<0.1	0.6	<0.1	0.2
Fluoranthene	mg/kg	1.6	1.2	12	0.3	0.9
Pyrene	mg/kg	1.6	1.3	14	0.4	0.9
Benzo(a)anthracene	mg/kg	0.8	0.8	8.7	0.2	0.7
Chrysene	mg/kg	0.7	0.6	5.7	0.2	0.4
Benzo(b,j+k)fluoranthene	mg/kg	1	1	13	0.4	0.3
Benzo(a)pyrene	mg/kg	0.78	0.82	8.7	0.2	0.4
Indeno(1,2,3-c,d)pyrene	mg/kg	0.6	0.7	6.3	0.2	0.4
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	0.8	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	0.4	0.4	4.1	0.1	0.2
Benzo(a)pyrene TEQ calc (zero)	mg/kg	1.1	1.1	12	<0.5	0.6
Benzo(a)pyrene TEQ calc(half)	mg/kg	1.1	1.1	12	<0.5	0.6
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	1.1	1.1	12	<0.5	0.6
Total +ve PAH's	mg/kg	8.4	7.4	76	1.9	4.6
Surrogate p-Terphenyl-d14	%	107	107	114	104	112

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- - ---------- 	167600-21 BH11 0-0.3 20/05/2017 SOIL	167600-23 BH12 0.2-0.4 20/05/2017 SOIL	167600-24 BH13 0-0.3 20/05/2017 SOIL	167600-25 BH14 0.1-0.2 20/05/2017 SOIL	167600-27 BH15 0-0.2 20/05/2017 SOIL
Date extracted	-	24/05/2017	24/05/2017	24/05/2017	24/05/2017	24/05/2017
Date analysed	-	25/05/2017	25/05/2017	25/05/2017	25/05/2017	25/05/2017
Naphthalene	mg/kg	<0.1	<0.1	0.4	<0.1	<0.1
Acenaphthylene	mg/kg	0.7	0.2	0.9	<0.1	0.3
Acenaphthene	mg/kg	0.2	<0.1	0.1	<0.1	<0.1
Fluorene	mg/kg	0.2	<0.1	0.8	<0.1	0.1
Phenanthrene	mg/kg	6.3	0.3	9.2	0.2	1.4
Anthracene	mg/kg	1.2	0.2	2.4	<0.1	0.4
Fluoranthene	mg/kg	17	1.9	14	0.6	3.2
Pyrene	mg/kg	17	2.4	12	0.6	3.0
Benzo(a)anthracene	mg/kg	10	2.2	6.8	0.3	1.8
Chrysene	mg/kg	6.3	1.4	4.9	0.3	1.2
Benzo(b,j+k)fluoranthene	mg/kg	11	3.7	8.5	0.5	2.2
Benzo(a)pyrene	mg/kg	6.9	2.3	5.0	0.2	1.4
Indeno(1,2,3-c,d)pyrene	mg/kg	4.6	1.9	2.3	0.2	1
Dibenzo(a,h)anthracene	mg/kg	0.6	0.2	0.7	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	2.8	1.1	2.3	<0.1	0.5
Benzo(a)pyrene TEQ calc (zero)	mg/kg	10	3.3	7.5	<0.5	1.9
Benzo(a)pyrene TEQ calc(half)	mg/kg	10	3.3	7.5	<0.5	1.9
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	10	3.3	7.5	<0.5	1.9
Total +ve PAH's	mg/kg	85	18	70	3.0	16
Surrogate p-Terphenyl-d14	%	117	112	101	111	109

PAHs in Soil		
Our Reference:	UNITS	167600-28
Your Reference	----------	BH16
	-	
Depth	----------	0.1-0.3
Date Sampled		20/05/2017
Type of sample		SOIL
Date extracted	-	24/05/2017
Date analysed	-	25/05/2017
Naphthalene	mg/kg	<0.1
Acenaphthylene	mg/kg	<0.1
Acenaphthene	mg/kg	<0.1
Fluorene	mg/kg	<0.1
Phenanthrene	mg/kg	0.2
Anthracene	mg/kg	<0.1
Fluoranthene	mg/kg	0.9
Pyrene	mg/kg	1
Benzo(a)anthracene	mg/kg	0.5
Chrysene	mg/kg	0.5
Benzo(b,j+k)fluoranthene	mg/kg	0.9
Benzo(a)pyrene	mg/kg	0.50
Indeno(1,2,3-c,d)pyrene	mg/kg	0.4
Dibenzo(a,h)anthracene	mg/kg	<0.1
Benzo(g,h,i)perylene	mg/kg	0.2
Benzo(a)pyrene TEQ calc (zero)	mg/kg	0.7
Benzo(a)pyrene TEQ calc(half)	mg/kg	0.7
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	0.7
Total +ve PAH's	mg/kg	5.1
Surrogate p-Terphenyl-d14	%	110

Organochlorine Pesticides in soil						
Our Reference:	UNITS	167600-1	167600-5	167600-9	167600-14	167600-18
Your Reference	----------	BH1	BH3	BH5	BH7	BH9
	-					
Depth	----------	0.2-0.3	0.1-0.3	0-0.2	0-0.3	0-0.3
Date Sampled		20/05/2017	20/05/2017	20/05/2017	20/05/2017	20/05/2017
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	24/05/2017	25/05/2017	24/05/2017	24/05/2017	24/05/2017
Date analysed	-	24/05/2017	24/05/2017	24/05/2017	24/05/2017	24/05/2017
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	97	100	95	98	89

Organochlorine Pesticides in soil				
Our Reference:	UNITS	167600-21	167600-24	167600-28
Your Reference	----------	BH11	BH13	BH16
	-			
Depth	----------	0-0.3	0-0.3	0.1-0.3
Date Sampled		20/05/2017	20/05/2017	20/05/2017
Type of sample		SOIL	SOIL	SOIL
Date extracted	-	25/05/2017	24/05/2017	25/05/2017
Date analysed	-	24/05/2017	24/05/2017	24/05/2017
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
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	100	93	92

Organophosphorus Pesticides Our Reference: Your Reference	UNITS ----------	167600-1 BH1	167600-5 BH3	167600-9 BH5	167600-14 BH7	167600-18 BH9
Depth	----------	0.2-0.3	0.1-0.3	0-0.2	0-0.3	0-0.3
Date Sampled		20/05/2017	20/05/2017	20/05/2017	20/05/2017	20/05/2017
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	24/05/2017	25/05/2017	24/05/2017	24/05/2017	24/05/2017
Date analysed	-	24/05/2017	24/05/2017	24/05/2017	24/05/2017	24/05/2017
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	97	100	95	98	89

Organophosphorus Pesticides Our Reference: Your Reference	UNITS ----------	167600-21 BH11	167600-24 BH13	167600-28 BH16
Depth	----------	0-0.3	0-0.3	0.1-0.3
Date Sampled		20/05/2017	20/05/2017	20/05/2017
Type of sample		SOIL	SOIL	SOIL
Date extracted	-	25/05/2017	24/05/2017	25/05/2017
Date analysed	-	24/05/2017	24/05/2017	24/05/2017
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	100	93	92

PCBs in Soil						
Our Reference:	UNITS	167600-1	167600-5	167600-9	167600-14	167600-18
Your Reference	---------- -	BH1	BH3	BH5	BH7	BH9
Depth	----------	0.2-0.3	0.1-0.3	0-0.2	0-0.3	0-0.3
Date Sampled		20/05/2017	20/05/2017	20/05/2017	20/05/2017	20/05/2017
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	24/05/2017	25/05/2017	24/05/2017	24/05/2017	24/05/2017
Date analysed	-	24/05/2017	24/05/2017	24/05/2017	24/05/2017	24/05/2017
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	97	100	95	98	89

PCBs in Soil				
Our Reference:	UNITS	167600-21	167600-24	167600-28
Your Reference	---------- -	BH11	BH13	BH16
Depth	----------	0-0.3	0-0.3	0.1-0.3
Date Sampled		20/05/2017	20/05/2017	20/05/2017
Type of sample		SOIL	SOIL	SOIL
Date extracted	-	25/05/2017	24/05/2017	25/05/2017
Date analysed	-	24/05/2017	24/05/2017	24/05/2017
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1
Surrogate TCLMX	%	100	93	92

Acid Extractable metals in soil						
Our Reference:	UNITS	167600-1	167600-3	167600-5	167600-7	167600-9
Your Reference	----------	BH1	BH2	BH3	BH4	BH5
Depth	- ----------	0.2-0.3	0.1-0.2	0.1-0.3	0.1-0.3	0-0.2
Date Sampled		20/05/2017	20/05/2017	20/05/2017	20/05/2017	20/05/2017
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date prepared	-	24/05/2017	24/05/2017	24/05/2017	24/05/2017	24/05/2017
Date analysed	-	24/05/2017	24/05/2017	24/05/2017	24/05/2017	24/05/2017
Arsenic	mg/kg	13	8	6	8	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	17	13	15	13	13
Copper	mg/kg	20	21	17	27	19
Lead	mg/kg	66	87	54	33	26
Mercury	mg/kg	0.2	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	6	9	6	6	40
Zinc	mg/kg	48	95	72	95	49

Acid Extractable metals in soil						
Our Reference:	UNITS	167600-11	167600-14	167600-15	167600-18	167600-20
Your Reference	----------	BH6	BH7	BH8	BH9	BH10
Depth	- ----------	0-0.2	0-0.3	0-0.2	0-0.3	0-0.3
Date Sampled		20/05/2017	20/05/2017	20/05/2017	20/05/2017	20/05/2017
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date prepared	-	24/05/2017	24/05/2017	24/05/2017	24/05/2017	24/05/2017
Date analysed	-	24/05/2017	24/05/2017	24/05/2017	24/05/2017	24/05/2017
Arsenic	mg/kg	6	11	17	15	8
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	14	13	17	14	19
Copper	mg/kg	23	16	27	13	26
Lead	mg/kg	110	62	72	47	77
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	10	6	8	5	14
Zinc	mg/kg	170	110	120	54	140

Acid Extractable metals in soil						
Our Reference:	UNITS	167600-21	167600-23	167600-24	167600-25	167600-27
Your Reference	---------- -	BH11	BH12	BH13	BH14	BH15
Depth	----------	0-0.3	0.2-0.4	0-0.3	0.1-0.2	0-0.2
Date Sampled		20/05/2017	20/05/2017	20/05/2017	20/05/2017	20/05/2017
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date prepared	-	24/05/2017	24/05/2017	24/05/2017	24/05/2017	24/05/2017
Date analysed	-	24/05/2017	24/05/2017	24/05/2017	24/05/2017	24/05/2017
Arsenic	mg/kg	9	23	72	13	23
Cadmium	mg/kg	<0.4	<0.4	0.7	<0.4	0.5
Chromium	mg/kg	17	16	24	22	17
Copper	mg/kg	16	31	93	43	31
Lead	mg/kg	54	63	920	170	380
Mercury	mg/kg	0.2	<0.1	0.3	0.1	<0.1
Nickel	mg/kg	7	8	12	8	9
Zinc	mg/kg	69	67	480	180	290

Acid Extractable metals in soil			
Our Reference:	UNITS	167600-28	167600-30
Your Reference	---------- -	BH16	DUPJDC1
Depth	----------	0.1-0.3	-
Date Sampled		20/05/2017	20/05/2017
Type of sample		SOIL	SOIL
Date prepared	-	24/05/2017	24/05/2017
Date analysed	-	24/05/2017	24/05/2017
Arsenic	mg/kg	14	24
Cadmium	mg/kg	0.9	0.5
Chromium	mg/kg	24	20
Copper	mg/kg	87	33
Lead	mg/kg	630	410
Mercury	mg/kg	0.2	<0.1
Nickel	mg/kg	17	12
Zinc	mg/kg	530	330

Moisture						
Our Reference:	UNITS	167600-1	167600-3	167600-5	167600-7	167600-9
Your Reference	---------- -	BH1	BH2	BH3	BH4	BH5
Depth	----------	0.2-0.3	0.1-0.2	0.1-0.3	0.1-0.3	0-0.2
Date Sampled		20/05/2017	20/05/2017	20/05/2017	20/05/2017	20/05/2017
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date prepared	-	25/05/2017	25/05/2017	25/05/2017	25/05/2017	25/05/2017
Date analysed	-	26/05/2017	26/05/2017	26/05/2017	26/05/2017	26/05/2017
Moisture	%	12	18	8.2	14	5.0

Moisture						
Our Reference:	UNITS	167600-11	167600-14	167600-15	167600-18	167600-20
Your Reference	---------- -	BH6	BH7	BH8	BH9	BH10
Depth	----------	0-0.2	0-0.3	0-0.2	0-0.3	0-0.3
Date Sampled		20/05/2017	20/05/2017	20/05/2017	20/05/2017	20/05/2017
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date prepared	-	25/05/2017	25/05/2017	25/05/2017	25/05/2017	25/05/2017
Date analysed	-	26/05/2017	26/05/2017	26/05/2017	26/05/2017	26/05/2017
Moisture	%	8.7	9.6	16	15	9.6

Moisture						
Our Reference:	UNITS	167600-21	167600-23	167600-24	167600-25	167600-27
Your Reference	---------- -	BH11	BH12	BH13	BH14	BH15
Depth	----------	0-0.3	0.2-0.4	0-0.3	0.1-0.2	0-0.2
Date Sampled		20/05/2017	20/05/2017	20/05/2017	20/05/2017	20/05/2017
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date prepared	-	25/05/2017	25/05/2017	25/05/2017	25/05/2017	25/05/2017
Date analysed	-	26/05/2017	26/05/2017	26/05/2017	26/05/2017	26/05/2017
Moisture	%	9.6	12	18	15	11

Moisture						
Our Reference:	UNITS	167600-28	167600-30	167600-33	167600-34	167600-35
Your Reference	---------- -	BH16	DUPJDC1	BH2	BH2	BH2
Depth	----------	0.1-0.3	-	0.1-0.2	0.7-1	1.5-1.95
Date Sampled		20/05/2017	20/05/2017	20/05/2017	20/05/2017	20/05/2017
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date prepared	-	25/05/2017	25/05/2017	25/05/2017	25/05/2017	25/05/2017
Date analysed	-	26/05/2017	26/05/2017	26/05/2017	26/05/2017	26/05/2017
Moisture	%	14	11	[NT]	[NT]	[NT]

Moisture				
Our Reference:	UNITS	167600-39	167600-40	167600-41
Your Reference	----------	BH5	BH5	BH5
	-			
Depth	----------	0-0.2	0.8-0.95	1.8-2
Date Sampled		20/05/2017	20/05/2017	20/05/2017
Type of sample		SOIL	SOIL	SOIL
Date prepared	-	25/05/2017	25/05/2017	25/05/2017
Date analysed	-	26/05/2017	26/05/2017	26/05/2017

Asbestos ID - soils						
Our Reference:	UNITS	167600-1	167600-3	167600-5	167600-7	167600-9
Your Reference	---------- -	BH1	BH2	BH3	BH4	BH5
Depth	----------	0.2-0.3	0.1-0.2	0.1-0.3	0.1-0.3	0-0.2
Date Sampled		20/05/2017	20/05/2017	20/05/2017	20/05/2017	20/05/2017
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date analysed	-	26/05/2017	26/05/2017	26/05/2017	26/05/2017	26/05/2017
Sample mass tested	g	Approx. 40g	Approx. 30g	Approx. 20g	Approx. 30g	Approx. 15g
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	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	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	No asbestos detected

Asbestos ID - soils						
Our Reference:	UNITS	167600-11	167600-14	167600-15	167600-18	167600-20
Your Reference	---------- -	BH6	BH7	BH8	BH9	BH10
Depth	----------	0-0.2	0-0.3	0-0.2	0-0.3	0-0.3
Date Sampled		20/05/2017	20/05/2017	20/05/2017	20/05/2017	20/05/2017
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date analysed	-	26/05/2017	26/05/2017	26/05/2017	26/05/2017	26/05/2017
Sample mass tested	g	Approx. 20g	Approx. 20g	Approx. 15g	11.17g	Approx. 20g
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	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	Chrysotile asbestos detected 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	No asbestos detected

Asbestos ID - soils						
Our Reference:	UNITS	167600-21	167600-23	167600-24	167600-25	167600-27
Your Reference	---------- -	BH11	BH12	BH13	BH14	BH15
Depth	----------	0-0.3	0.2-0.4	0-0.3	0.1-0.2	0-0.2
Date Sampled		20/05/2017	20/05/2017	20/05/2017	20/05/2017	20/05/2017
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date analysed	-	26/05/2017	26/05/2017	26/05/2017	26/05/2017	26/05/2017
Sample mass tested	g	Approx. 30g	Approx. 20g	Approx. 15g	Approx. 30g	Approx. 15g
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	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	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	No asbestos detected

Asbestos ID - soils		
Our Reference:	UNITS	167600-28
Your Reference	---------- -	BH16
Depth	----------	0.1-0.3
Date Sampled		20/05/2017
Type of sample		SOIL
Date analysed	-	26/05/2017
Sample mass tested	g	Approx. 25g
Sample Description	-	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected

Soil Aggressivity Our Reference: Your Reference	UNITS ----------	167600-33 BH2	167600-34 BH2	167600-35 BH2	167600-39 BH5	167600-40 BH5
	-					
Depth	----------	0.1-0.2	0.7-1	1.5-1.95	0-0.2	0.8-0.95
Date Sampled		20/05/2017	20/05/2017	20/05/2017	20/05/2017	20/05/2017
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
pH 1:5 soil:water	pH Units	7.3	5.7	5.8	7.4	5.5
Chloride, Cl 1:5 soil:water	mg/kg	10	<10	20	20	38
Sulphate, SO4 1:5 soil:water	mg/kg	38	<10	160	130	68
Resistivity in soil*	ohm m	55	100	110	90	81

Soil Aggressivity Our Reference: Your Reference	UNITS ----------	167600-41 BH5
	-	
Depth	----------	1.8-2
Date Sampled		20/05/2017
Type of sample		SOIL
pH 1:5 soil:water	pH Units	6.5
Chloride, Cl 1:5 soil:water	mg/kg	10
Sulphate, SO4 1:5 soil:water	mg/kg	59
Resistivity in soil*	ohm m	140

Texture and Salinity*						
Our Reference:	UNITS	167600-33	167600-34	167600-35	167600-39	167600-40
Your Reference	---------- -	BH2	BH2	BH2	BH5	BH5
Depth	----------	0.1-0.2	0.7-1	1.5-1.95	0-0.2	0.8-0.95
Date Sampled		20/05/2017	20/05/2017	20/05/2017	20/05/2017	20/05/2017
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date prepared	-	25/05/2017	25/05/2017	25/05/2017	25/05/2017	25/05/2017
Date analysed	-	25/05/2017	25/05/2017	25/05/2017	25/05/2017	25/05/2017
Electrical Conductivity 1:5 soil:water	µS/cm	180	98	93	110	120
Texture Value	-	10	8.0	7.0	9.0	8.0
TEXTURE	-	Loam	Light Medium Clay	Medium Clay	Clay Loam	Light Medium Clay
ECe	dS/m	2	<2	<2	<2	<2
Class	-	NON SALINE	NON SALINE	NON SALINE	NON SALINE	NON SALINE

Texture and Salinity*		
Our Reference:	UNITS	167600-41
Your Reference	---------- -	BH5
Depth	----------	1.8-2
Date Sampled		20/05/2017
Type of sample		SOIL
Date prepared	-	25/05/2017
Date analysed	-	25/05/2017
Electrical Conductivity 1:5 soil:water	µS/cm	74
Texture Value	-	8.0
TEXTURE	-	Light Medium Clay
ECe	dS/m	<2
Class	-	NON SALINE

CEC Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- - ---------- 	167600-33 BH2 0.1-0.2 20/05/2017 SOIL	167600-40 BH5 0.8-0.95 20/05/2017 SOIL
Date prepared	-	25/05/2017	25/05/2017
Date analysed	-	25/05/2017	25/05/2017
Exchangeable Ca	meq/100g	8.0	14
Exchangeable K	meq/100g	0.3	0.2
Exchangeable Mg	meq/100g	1.5	2.4
Exchangeable Na	meq/100g	0.30	0.17
Cation Exchange Capacity	meq/100g	10	17

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-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. 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.
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-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. 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-012	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-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's. 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-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.
Org-006	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.

Method ID	Methodology Summary
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105+/-5 °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.
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-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B. Alternatively determined by colourimetry/turbidity using Discrete Analyer.
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.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell at 25°C in accordance with APHA latest edition 2510 and Rayment & Lyons.
INORG-123	Determined using a "Texture by Feel" method.
Metals-009	Determination of exchangeable cations and cation exchange capacity in soils using 1M Ammonium Chloride exchange and ICP-AES analytical finish.

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	-			24/05/2017	167600-1	24/05/2017 || 24/05/2017	LCS-4	24/05/2017
Date analysed	-			25/05/2017	167600-1	25/05/2017 || 25/05/2017	LCS-4	25/05/2017
TRHC$_6$ - C$_9$	mg/kg	25	Org-016	<25	167600-1	<25 || <25	LCS-4	101%
TRHC$_6$ - C$_{10}$	mg/kg	25	Org-016	<25	167600-1	<25 || <25	LCS-4	101%
Benzene	mg/kg	0.2	Org-016	<0.2	167600-1	<0.2 || <0.2	LCS-4	94%
Toluene	mg/kg	0.5	Org-016	<0.5	167600-1	<0.5 || <0.5	LCS-4	105%
Ethylbenzene	mg/kg	1	Org-016	<1	167600-1	<1 || <1	LCS-4	98%
m+p-xylene	mg/kg	2	Org-016	<2	167600-1	<2 || <2	LCS-4	103%
o-Xylene	mg/kg	1	Org-016	<1	167600-1	<1 || <1	LCS-4	98%
naphthalene	mg/kg	1	Org-014	<1	167600-1	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	119	167600-1	109 || 108 || RPD: 1	LCS-4	116%

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	-			24/05/2017	167600-1	25/05/2017 || 25/05/2017	LCS-4	24/05/2017
Date analysed	-			25/05/2017	167600-1	25/05/2017 || 25/05/2017	LCS-4	25/05/2017
TRHC$_{10}$ - C$_{14}$	mg/kg	50	Org-003	<50	167600-1	<50 || <50	LCS-4	104%
TRHC$_{15}$ - C$_{28}$	mg/kg	100	Org-003	<100	167600-1	<100 || <100	LCS-4	104%
TRHC$_{29}$ - C$_{36}$	mg/kg	100	Org-003	<100	167600-1	<100 || <100	LCS-4	106%
TRH>C$_{10}$-C$_{16}$	mg/kg	50	Org-003	<50	167600-1	<50 || <50	LCS-4	104%
TRH>C$_{16}$-C$_{34}$	mg/kg	100	Org-003	<100	167600-1	<100 || <100	LCS-4	104%
TRH>C$_{34}$-C$_{40}$	mg/kg	100	Org-003	<100	167600-1	<100 || <100	LCS-4	106%
Surrogate o-Terphenyl	%		Org-003	84	167600-1	86 || 84 || RPD: 2	LCS-4	91%

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			24/05/2017	167600-1	24/05/2017 || 24/05/2017	LCS-4	24/05/2017
Date analysed	-			25/05/2017	167600-1	25/05/2017 || 25/05/2017	LCS-4	25/05/2017
Naphthalene	mg/kg	0.1	Org-012	<0.1	167600-1	<0.1 || <0.1	LCS-4	97%
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	167600-1	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	167600-1	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012	<0.1	167600-1	<0.1 || <0.1	LCS-4	92%
Phenanthrene	mg/kg	0.1	Org-012	<0.1	167600-1	0.4 || 0.3 || RPD: 29	LCS-4	99%
Anthracene	mg/kg	0.1	Org-012	<0.1	167600-1	<0.1 || 0.1	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	167600-1	1 || 1.1 || RPD: 10	LCS-4	98%
Pyrene	mg/kg	0.1	Org-012	<0.1	167600-1	1.1 || 1.2 || RPD: 9	LCS-4	94%
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	167600-1	0.5 || 0.5 || RPD: 0	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012	<0.1	167600-1	0.5 || 0.5 || RPD: 0	LCS-4	81%
Benzo(b,j +k)fluoranthene	mg/kg	0.2	Org-012	<0.2	167600-1	1 || 1 || RPD: 0	[NR]	[NR]

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	167600-1	0.73 || 0.54 || RPD: 30	LCS-4	91%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	167600-1	0.6 || 0.3 || RPD: 67	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	167600-1	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	167600-1	0.4 || 0.4 || RPD: 0	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012	103	167600-1	101 || 101 || RPD: 0	LCS-4	132%
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	-			24/05/2017	167600-1	24/05/2017 || 24/05/2017	LCS-4	24/05/2017
Date analysed	-			24/05/2017	167600-1	24/05/2017 || 24/05/2017	LCS-4	24/05/2017
HCB	mg/kg	0.1	Org-005	<0.1	167600-1	<0.1 || <0.1	[NR]	[NR]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	167600-1	<0.1 || <0.1	LCS-4	105%
gamma-BHC	mg/kg	0.1	Org-005	<0.1	167600-1	<0.1 || <0.1	[NR]	[NR]
beta-BHC	mg/kg	0.1	Org-005	<0.1	167600-1	<0.1 || <0.1	LCS-4	104%
Heptachlor	mg/kg	0.1	Org-005	<0.1	167600-1	<0.1 || <0.1	LCS-4	105%
delta-BHC	mg/kg	0.1	Org-005	<0.1	167600-1	<0.1 || <0.1	[NR]	[NR]
Aldrin	mg/kg	0.1	Org-005	<0.1	167600-1	<0.1 || <0.1	LCS-4	99%
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	167600-1	<0.1 || <0.1	LCS-4	112%
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	167600-1	<0.1 || <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	167600-1	<0.1 || <0.1	[NR]	[NR]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	167600-1	<0.1 || <0.1	[NR]	[NR]
pp-DDE	mg/kg	0.1	Org-005	<0.1	167600-1	<0.1 || <0.1	LCS-4	115%
Dieldrin	mg/kg	0.1	Org-005	<0.1	167600-1	<0.1 || <0.1	LCS-4	118%
Endrin	mg/kg	0.1	Org-005	<0.1	167600-1	<0.1 || <0.1	LCS-4	104%
pp-DDD	mg/kg	0.1	Org-005	<0.1	167600-1	<0.1 || <0.1	LCS-4	113%
Endosulfan II	mg/kg	0.1	Org-005	<0.1	167600-1	<0.1 || <0.1	[NR]	[NR]
pp-DDT	mg/kg	0.1	Org-005	<0.1	167600-1	<0.1 || <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	167600-1	<0.1 || <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	167600-1	<0.1 || <0.1	LCS-4	74%
Methoxychlor	mg/kg	0.1	Org-005	<0.1	167600-1	<0.1 || <0.1	[NR]	[NR]
Surrogate TCMX	%		Org-005	90	167600-1	97 || 101 || RPD: 4	LCS-4	117%

QUALITY CONTROL Organophosphorus Pesticides	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			24/05/2017	167600-1	24/05/2017 || 24/05/2017	LCS-4	24/05/2017
Date analysed	-			24/05/2017	167600-1	24/05/2017 || 24/05/2017	LCS-4	24/05/2017
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	<0.1	167600-1	<0.1 || <0.1	[NR]	[NR]
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	167600-1	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos	mg/kg	0.1	Org-008	<0.1	167600-1	<0.1 || <0.1	LCS-4	83%
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	<0.1	167600-1	<0.1 || <0.1	[NR]	[NR]
Diazinon	mg/kg	0.1	Org-008	<0.1	167600-1	<0.1 || <0.1	[NR]	[NR]
Dichlorvos	mg/kg	0.1	Org-008	<0.1	167600-1	<0.1 || <0.1	LCS-4	75%
Dimethoate	mg/kg	0.1	Org-008	<0.1	167600-1	<0.1 || <0.1	[NR]	[NR]
Ethion	mg/kg	0.1	Org-008	<0.1	167600-1	<0.1 || <0.1	LCS-4	83%
Fenitrothion	mg/kg	0.1	Org-008	<0.1	167600-1	<0.1 || <0.1	LCS-4	86%
Malathion	mg/kg	0.1	Org-008	<0.1	167600-1	<0.1 || <0.1	LCS-4	83%
Parathion	mg/kg	0.1	Org-008	<0.1	167600-1	<0.1 || <0.1	LCS-4	90%
Ronnel	mg/kg	0.1	Org-008	<0.1	167600-1	<0.1 || <0.1	LCS-4	88%
Surrogate TCMX	%		Org-008	90	167600-1	97 || 101 || RPD: 4	LCS-4	89%

QUALITY CONTROL PCBs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			24/05/2017	167600-1	24/05/2017 || 24/05/2017	LCS-4	24/05/2017
Date analysed	-			24/05/2017	167600-1	24/05/2017 || 24/05/2017	LCS-4	24/05/2017
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	167600-1	<0.1 || <0.1	[NR]	[NR]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	167600-1	<0.1 || <0.1	[NR]	[NR]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	167600-1	<0.1 || <0.1	[NR]	[NR]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	167600-1	<0.1 || <0.1	[NR]	[NR]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	167600-1	<0.1 || <0.1	[NR]	[NR]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	167600-1	<0.1 || <0.1	LCS-4	104%
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	167600-1	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%		Org-006	90	167600-1	97 || 101 || RPD: 4	LCS-4	89%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			24/05/2017	167600-1	24/05/2017 || 24/05/2017	LCS-4	24/05/2017
Date analysed	-			24/05/2017	167600-1	24/05/2017 || 24/05/2017	LCS-4	24/05/2017
Arsenic	mg/kg	4	Metals-020	<4	167600-1	13 || 14 || RPD: 7	LCS-4	106%
Cadmium	mg/kg	0.4	Metals-020	<0.4	167600-1	<0.4 || <0.4	LCS-4	89%
Chromium	mg/kg	1	Metals-020	<1	167600-1	17 || 23 || RPD: 30	LCS-4	99%
Copper	mg/kg	1	Metals-020	<1	167600-1	20 || 13 || RPD: 42	LCS-4	99%
Lead	mg/kg	1	Metals-020	<1	167600-1	66 || 74 || RPD: 11	LCS-4	93%
Mercury	mg/kg	0.1	Metals-021	<0.1	167600-1	0.2 || 0.2 || RPD: 0	LCS-4	119%
Nickel	mg/kg	1	Metals-020	<1	167600-1	6 || 7 || RPD: 15	LCS-4	92%
Zinc	mg/kg	1	Metals-020	<1	167600-1	48 || 41 || RPD: 16	LCS-4	94%
QUALITY CONTROL Soil Aggressivity	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	[NT]	[NT]	LCS-4	101%
Chloride, Cl 1:5 soil:water	mg/kg	10	Inorg-081	<10	[NT]	[NT]	LCS-4	86%
Sulphate, SO4 1:5 soil:water	mg/kg	10	Inorg-081	<10	[NT]	[NT]	LCS-4	91%
Resistivity in soil*	ohm m	1	Inorg-002	<1.0	[NT]	[NT]	[NR]	[NR]
QUALITY CONTROL Texture and Salinity*	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			25/05/2017	[NT]	[NT]	LCS-4	25/05/2017
Date analysed	-			25/05/2017	[NT]	[NT]	LCS-4	25/05/2017
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	<1	[NT]	[NT]	LCS-4	100%
Texture Value	-		INORG-123	[NT]	[NT]	[NT]	[NR]	[NR]
Class	-		INORG-123	[NT]	[NT]	[NT]	[NR]	[NR]
QUALITY CONTROL CEC	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			25/05/2017	[NT]	[NT]	LCS-4	25/05/2017
Date analysed	-			25/05/2017	[NT]	[NT]	LCS-4	25/05/2017
Exchangeable Ca	meq/100g	0.1	Metals-009	<0.1	[NT]	[NT]	LCS-4	106%
Exchangeable K	meq/100g	0.1	Metals-009	<0.1	[NT]	[NT]	LCS-4	114%
Exchangeable Mg	meq/100g	0.1	Metals-009	<0.1	[NT]	[NT]	LCS-4	107%
Exchangeable Na	meq/100g	0.1	Metals-009	<0.1	[NT]	[NT]	LCS-4	107%

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	167600-24	24/05/2017 || 24/05/2017	167600-5	24/05/2017
Date analysed	-	167600-24	25/05/2017 || 25/05/2017	167600-5	25/05/2017
TRHC$_6$ - C$_9$	mg/kg	167600-24	<25 || <25	167600-5	80%
TRHC$_6$ - C$_{10}$	mg/kg	167600-24	<25 || <25	167600-5	80%
Benzene	mg/kg	167600-24	<0.2 || <0.2	167600-5	75%
Toluene	mg/kg	167600-24	<0.5 || <0.5	167600-5	85%
Ethylbenzene	mg/kg	167600-24	<1 || <1	167600-5	75%
m+p-xylene	mg/kg	167600-24	<2 || <2	167600-5	83%
o-Xylene	mg/kg	167600-24	<1 || <1	167600-5	75%
naphthalene	mg/kg	167600-24	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%	167600-24	102 || 97 || RPD: 5	167600-5	99%
QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	167600-24	25/05/2017 || 25/05/2017	167600-5	24/05/2017
Date analysed	-	167600-24	25/05/2017 || 25/05/2017	167600-5	25/05/2017
TRHC$_{10}$ - C$_{14}$	mg/kg	167600-24	<50 || <50	167600-5	113%
TRHC$_{15}$ - C$_{28}$	mg/kg	167600-24	<100 || 300	167600-5	82%
TRHC$_{29}$ - C$_{36}$	mg/kg	167600-24	<100 || 190	167600-5	105%
TRH>C$_{10}$-C$_{16}$	mg/kg	167600-24	<50 || <50	167600-5	113%
TRH>C$_{16}$-C$_{34}$	mg/kg	167600-24	140 || 440 || RPD: 103	167600-5	82%
TRH>C$_{34}$-C$_{40}$	mg/kg	167600-24	<100 || 100	167600-5	105%
Surrogate o-Terphenyl	%	167600-24	83 || 88 || RPD: 6	167600-5	108%
QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	167600-24	24/05/2017 || 24/05/2017	167600-5	24/05/2017
Date analysed	-	167600-24	25/05/2017 || 25/05/2017	167600-5	25/05/2017
Naphthalene	mg/kg	167600-24	0.4 || 0.3 || RPD: 29	167600-5	90%
Acenaphthylene	mg/kg	167600-24	0.9 || 1.0 || RPD: 11	[NR]	[NR]
Acenaphthene	mg/kg	167600-24	0.1 || 0.1 || RPD: 0	[NR]	[NR]
Fluorene	mg/kg	167600-24	0.8 || 0.9 || RPD: 12	167600-5	72%
Phenanthrene	mg/kg	167600-24	9.2 || 9.9 || RPD: 7	167600-5	#
Anthracene	mg/kg	167600-24	2.4 || 2.5 || RPD: 4	[NR]	[NR]
Fluoranthene	mg/kg	167600-24	14 || 14 || RPD: 0	167600-5	#
Pyrene	mg/kg	167600-24	12 || 12 || RPD: 0	167600-5	#
Benzo(a)anthracene	mg/kg	167600-24	6.8 || 6.7 || RPD: 1	[NR]	[NR]
Chrysene	mg/kg	167600-24	4.9 || 4.8 || RPD: 2	167600-5	#
Benzo(b,j+k)fluoranthene	mg/kg	167600-24	8.5 || 8.2 || RPD: 4	[NR]	[NR]
Benzo(a)pyrene	mg/kg	167600-24	5.0 || 4.9 || RPD: 2	167600-5	#
Indeno(1,2,3-c,d)pyrene	mg/kg	167600-24	2.3 || 2.1 || RPD: 9	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	167600-24	0.7 || 0.6 || RPD: 15	[NR]	[NR]

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Benzo(g,h,i)perylene	mg/kg	167600-24	2.3 || 2.1 || RPD: 9	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	167600-24	101 || 102 || RPD: 1	167600-5	134%
QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	167600-24	24/05/2017 || 25/05/2017	167600-5	24/05/2017
Date analysed	-	167600-24	24/05/2017 || 24/05/2017	167600-5	24/05/2017
HCB	mg/kg	167600-24	<0.1 || <0.1	[NR]	[NR]
alpha-BHC	mg/kg	167600-24	<0.1 || <0.1	167600-5	122%
gamma-BHC	mg/kg	167600-24	<0.1 || <0.1	[NR]	[NR]
beta-BHC	mg/kg	167600-24	<0.1 || <0.1	167600-5	113%
Heptachlor	mg/kg	167600-24	<0.1 || <0.1	167600-5	127%
delta-BHC	mg/kg	167600-24	<0.1 || <0.1	[NR]	[NR]
Aldrin	mg/kg	167600-24	<0.1 || <0.1	167600-5	124%
Heptachlor Epoxide	mg/kg	167600-24	<0.1 || <0.1	167600-5	127%
gamma-Chlordane	mg/kg	167600-24	<0.1 || <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	167600-24	<0.1 || <0.1	[NR]	[NR]
Endosulfan I	mg/kg	167600-24	<0.1 || <0.1	[NR]	[NR]
pp-DDE	mg/kg	167600-24	<0.1 || <0.1	167600-5	136%
Dieldrin	mg/kg	167600-24	<0.1 || <0.1	167600-5	137%
Endrin	mg/kg	167600-24	<0.1 || <0.1	167600-5	139%
pp-DDD	mg/kg	167600-24	<0.1 || <0.1	167600-5	139%
Endosulfan II	mg/kg	167600-24	<0.1 || <0.1	[NR]	[NR]
pp-DDT	mg/kg	167600-24	<0.1 || <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	167600-24	<0.1 || <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	167600-24	<0.1 || <0.1	167600-5	105%
Methoxychlor	mg/kg	167600-24	<0.1 || <0.1	[NR]	[NR]
Surrogate TCMX	%	167600-24	93 || 91 || RPD: 2	167600-5	124%

QUALITY CONTROL Organophosphorus Pesticides	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	167600-24	24/05/2017 || 25/05/2017	167600-5	24/05/2017
Date analysed	-	167600-24	24/05/2017 || 24/05/2017	167600-5	24/05/2017
Azinphos-methyl (Guthion)	mg/kg	167600-24	<0.1 || <0.1	[NR]	[NR]
Bromophos-ethyl	mg/kg	167600-24	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos	mg/kg	167600-24	<0.1 || <0.1	167600-5	90%
Chlorpyriphos-methyl	mg/kg	167600-24	<0.1 || <0.1	[NR]	[NR]
Diazinon	mg/kg	167600-24	<0.1 || <0.1	[NR]	[NR]
Dichlorvos	mg/kg	167600-24	<0.1 || <0.1	167600-5	83%
Dimethoate	mg/kg	167600-24	<0.1 || <0.1	[NR]	[NR]
Ethion	mg/kg	167600-24	<0.1 || <0.1	167600-5	101%
Fenitrothion	mg/kg	167600-24	<0.1 || <0.1	167600-5	108%
Malathion	mg/kg	167600-24	<0.1 || <0.1	167600-5	77%
Parathion	mg/kg	167600-24	<0.1 || <0.1	167600-5	105%
Ronnel	mg/kg	167600-24	<0.1 || <0.1	167600-5	99%
Surrogate TCMX	%	167600-24	93 || 91 || RPD: 2	167600-5	99%

QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	167600-24	24/05/2017 || 25/05/2017	167600-5	24/05/2017
Date analysed	-	167600-24	24/05/2017 || 24/05/2017	167600-5	24/05/2017
Aroclor 1016	mg/kg	167600-24	<0.1 || <0.1	[NR]	[NR]
Aroclor 1221	mg/kg	167600-24	<0.1 || <0.1	[NR]	[NR]
Aroclor 1232	mg/kg	167600-24	<0.1 || <0.1	[NR]	[NR]
Aroclor 1242	mg/kg	167600-24	<0.1 || <0.1	[NR]	[NR]
Aroclor 1248	mg/kg	167600-24	<0.1 || <0.1	[NR]	[NR]
Aroclor 1254	mg/kg	167600-24	<0.1 || <0.1	167600-5	100%
Aroclor 1260	mg/kg	167600-24	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%	167600-24	93 || 91 || RPD: 2	167600-5	99%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	167600-24	24/05/2017 || 24/05/2017	167600-5	24/05/2017
Date analysed	-	167600-24	24/05/2017 || 24/05/2017	167600-5	24/05/2017
Arsenic	mg/kg	167600-24	72 || 75 || RPD: 4	167600-5	92%
Cadmium	mg/kg	167600-24	0.7 || 0.7 || RPD: 0	167600-5	84%
Chromium	mg/kg	167600-24	24 || 23 || RPD: 4	167600-5	93%
Copper	mg/kg	167600-24	93 || 120 || RPD: 25	167600-5	105%
Lead	mg/kg	167600-24	920 || 940 || RPD: 2	167600-5	94%
Mercury	mg/kg	167600-24	0.3 || 0.3 || RPD: 0	167600-5	91%
Nickel	mg/kg	167600-24	12 || 14 || RPD: 15	167600-5	92%
Zinc	mg/kg	167600-24	480 || 480 || RPD: 0	167600-5	101%

QUALITY CONTROL Soil Aggressivity	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
pH 1:5 soil:water	pH Units	167600-33	7.3 || 7.2 || RPD: 1
Chloride, Cl 1:5 soil:water	mg/kg	167600-33	10 || 10 || RPD: 0
Sulphate, SO4 1:5 soil:water	mg/kg	167600-33	38 || 29 || RPD: 27
Resistivity in soil*	ohm m	167600-33	55 || [N/T]
QUALITY CONTROL CEC	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date prepared	-	167600-40	25/05/2017 || 25/05/2017
Date analysed	-	167600-40	25/05/2017 || 25/05/2017
Exchangeable Ca	meq/100 g	167600-40	14 || 14 || RPD: 0
Exchangeable K	meq/100 g	167600-40	0.2 || 0.3 || RPD: 40
Exchangeable Mg	meq/100 g	167600-40	2.4 || 3.1 || RPD: 25
Exchangeable Na	meq/100 g	167600-40	0.17 || 0.21 || RPD: 21

Report Comments:

PAH in soil:

Percent recovery is not possible to report as the high concentration of analytes in the sample/s have caused interference.

Sample 167600-27; Chrysotile asbestos identified in matted material, it is estimated to be 1.19g/kg in 11.17g of soil (i.e. > reporting limit for the method of 0.1g/kg).

Asbestos ID was analysed by Approved Identifier: Lucy Zhu
Asbestos ID was authorised by Approved Signatory: Paul Ching

INS: Insufficient sample for this test
NR: 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

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 (+/-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.

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 Details	
Client	Environmental Investigation Services
Attention	Brendan Page

Sample Login Details	
Your Reference	E30429KP, Lidcombe
Envirolab Reference	**167600**
Date Sample Received	22/05/2017
Date Instructions Received	22/05/2017
Date Results Expected to be Reported	**30/05/2017**

Sample Condition	
Samples received in appropriate condition for analysis	YES
No. of Samples Provided	2 materials 39 soils
Turnaround Time Requested	Standard
Temperature on receipt (°C)	11.2
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

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@envirolabservices.com.au	Email: jhurst@envirolabservices.com.au

Sample and Testing Details on 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*	*PCBs in Soil*	*Acid Extractable metals in soil*	*Asbestos ID - soils*	*Soil Aggressivity*	*Texture and Salinity**	*CEC*	*On Hold*
BH1-0.2-0.3	✓	✓	✓	✓	✓	✓	✓	✓				
BH1-0.8-0.95												✓
BH2-0.1-0.2	✓	✓	✓				✓	✓				
BH2-0.7-0.95												✓
BH3-0.1-0.3	✓	✓	✓	✓	✓	✓	✓	✓				
BH3-1.5-1.85												✓
BH4-0.1-0.3	✓	✓	✓				✓	✓				
BH4-0.7-0.95												✓
BH5-0-0.2	✓	✓	✓	✓	✓	✓	✓	✓				
BH5-0.8-0.95												✓
BH6-0-0.2	✓	✓	✓				✓	✓				
BH6-1-1.3												✓
BH6-1.5-1.6												✓
BH7-0-0.3	✓	✓	✓	✓	✓	✓	✓	✓				
BH8-0-0.2	✓	✓	✓				✓	✓				
BH8-0.5-0.7												✓
BH8-0.7-0.9												✓
BH9-0-0.3	✓	✓	✓	✓	✓	✓	✓	✓				
BH9-0.7-0.9												✓
BH10-0-0.3	✓	✓	✓				✓	✓				
BH11-0-0.3	✓	✓	✓	✓	✓	✓	✓	✓				
BH12-0-0.2												✓
BH12-0.2-0.4	✓	✓	✓				✓	✓				
BH13-0-0.3	✓	✓	✓	✓	✓	✓	✓	✓				
BH14-0.1-0.2	✓	✓	✓				✓	✓				
BH14-0.75-0.95												✓
BH15-0-0.2	✓	✓	✓				✓	✓				
BH16-0.1-0.3	✓	✓	✓	✓	✓	✓	✓	✓				
BH16-0.7-0.95												✓
DUPJDC1							✓					
F1												✓
Playing Fields												✓
BH2-0.1-0.2									✓	✓	✓	
BH2-0.7-1									✓	✓		
BH2-1.5-1.95									✓	✓		
BH3-0.1-0.3												✓
BH3-0.8-1												✓
BH3-1.5-1.85												✓

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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	PCBs in Soil	Acid Extractable metals in soil	Asbestos ID - soils	Soil Aggressivity	Texture and Salinity*	CEC	On Hold
BH5-0-0.2									✓	✓		
BH5-0.8-0.95									✓	✓	✓	
BH5-1.8-2									✓	✓		

SAMPLE AND CHAIN OF CUSTODY FORM

TO:		FROM:
ENVIROLAB SERVICES PTY LTD	EIS Job Number: E30429KP	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		Attention: Brendan Page
Attention: Aileen	Page: 1 of 2	

Location:	Lidcombe	Sample Preserved in Esky on Ice
Sampler:	JDC	Tests Required

Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 6a	Combo 3a	8 Metals	Asbestos
20/05/2017	1	BH1	0.2-0.3	G, A	0	Fill	X			
20/05/2017	2	↓	0.8-0.95			Silty Clay				
20/05/2017	3	BH2	0.1-0.2			Fill		X		
20/05/2017	4	↓	0.7-0.95			Silty Clay				
20/05/2017	5	BH3	0.1-0.5			Fill	X			
20/05/2017	6	↓	1.5-1.85		↓	Silty Clay				
20/05/2017	7	BH4	0.1-0.3		1.8	Fill		X		
20/05/2017	8	↓	0.7-0.95		0.1	Silty Clay				
20/05/2017	9	BH5	0-0.2		0	Fill	X			
20/05/2017	10	↓	0.8-0.95			Silty Clay				
20/05/2017	11	BH6	0-0.2	↓		Fill		X		
20/05/2017	12		1-1.3	G		Silty Clay				
20/05/2017	13	↓	1.5-1.6	↓		Shale				
20/05/2017	14	BH7	0-0.3	G, A		Fill	X			
20/05/2017	15	BH8	0-0.2			Fill		X		
20/05/2017	16		0.5-0.7	↓		↓				
20/05/2017	17	↓	0.7-0.9	G		Silty Clay				
20/05/2017	18	BH9	0-0.3	G, A		Fill	X			
20/05/2017	19	↓	0.7-0.9	G		Silty Clay				
20/05/2017	20	BH10	0-0.3	G, A		Fill		X		
20/05/2017	21	BH11	0-0.3				X			
20/05/2017	22	BH12	0-0.2							
20/05/2017	23	↓	0.2-0.4					X		
20/05/2017	24	BH13	0-0.3				X			
20/05/2017	25	BH14	0.1-0.2	↓	↓	↓		X		

ENVIROLAB

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 167600.

Date Received: 22/5/17.
Time Received: 1800.
Received by: BB
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Remarks (comments/detection limits required):
Hold all samples where no testing is marked

Sample Containers:
G - 250mg Glass Jar
A - Ziplock Asbestos Bag
P - Plastic Bag

Relinquished By:	Date:	Time:	Received By:	Date:
BP	22/5/17	2400		

SAMPLE AND CHAIN OF CUSTODY FORM

TO:		FROM:
ENVIROLAB SERVICES PTY LTD	EIS Job Number: E30429KP	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		Attention: Brendan Page
Attention: Aileen	Page: 2 of 2	

Location:	Lidcombe	Sample Preserved in Esky on Ice
Sampler:	JDC	Tests Required

Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 6a	Combo 3a	8 Metals	Asbestos		Aggressivity	ECe (texture)	CEC				
16/5/17																		
20/05/2017	26	BH14	0.75-0.95	G, A	0	Silty Clay												
20/05/2017	27	BH15	0-0.2	↓	↓	Fill		X										
20/05/2017	28	BH16	0.1-0.3			Fill	X											
20/05/2017	29	↓	0.7-0.95	↓	↓	Silty Clay												
20/05/2017	30	DUPLICI	–	–	–	–			X									
20/05/2017	31	F1	Surface	A	–	Fragment												
20/05/2017	32	Playing Fields	↓	↓	–	Fragments												
20/05/2017	33	BH2	0-1-0.2	P	–	Fill						X	X	X				
20/05/2017	34	↓	0.7-1	↓	↓	Silty Clay						X	X					
20/05/2017	35	↓	1.5-1.95			↓						X	X					
20/05/2017	36	BH3	0.1-0.5			Fill												
20/05/2017	37	↓	0.8-1			Silty Clay												
20/05/2017	38	↓	1.5-1.85			↓												
20/05/2017	39	BH5	0-0.2			Fill						X	X					
20/05/2017	40	↓	0.8-0.95			Silty Clay						X	X	X				
20/05/2017	41	↓	1.8-2	↓	↓	↓						X	X					
20/05/2017																		
20/05/2017																		
20/05/2017																		
20/05/2017																		
20/05/2017																		
20/05/2017																		
20/05/2017																		
20/05/2017																		
20/05/2017																		

Remarks (comments/detection limits required):	Sample Containers:
Hold all samples where no testing is marked.	G - 250mg Glass Jar A - Ziplock Asbestos Bag P - Plastic Bag

Relinquished By:	Date:	Time:	Received By:	Date:
BP	22/5/17	2.40pm.	Kevin	

Appendix F: Report Explanatory Notes

STANDARD SAMPLING PROCEDURE (SSP)

These protocols specify the basic procedures to be used when sampling soils or groundwater for environmental site assessments undertaken by EIS. The purpose of these protocols is to provide standard methods for: sampling, decontamination procedures for sampling equipment, sample preservation, sample storage and sample handling. Deviations from these procedures must be recorded.

Soil Sampling

- Prepare a borehole/test pit log or made a note of the sample description for stockpiles.
- Layout sampling equipment on clean plastic sheeting to prevent direct contact with ground surface. The work area should be at a distance from the drill rig/excavator such that the machine can operate in a safe manner.
- Ensure all sampling equipment has been decontaminated prior to use.
- Remove any surface debris from the immediate area of the sampling location.
- Collect samples and place in glass jar with a Teflon seal. This should be undertaken as quickly as possible to prevent the loss of any volatiles. If possible, fill the glass jars completely.
- Collect samples for asbestos analysis and place in a zip-lock plastic bag.
- Label the sampling containers with the EIS job number, sample location (eg. BH1), sampling depth interval and date. If more than one sample container is used, this should also be indicated (eg. 2 = Sample jar 1 of 2 jars).
- Photoionisation detector (PID) screening of volatile organic compounds (VOCs) should be undertaken on samples using the soil sample headspace method. Headspace measurements are taken following equilibration of the headspace gasses in partly filled zip-lock plastic bags. PID headspace data is recorded on the borehole/test pit log and the chain of custody forms.
- Record the lithology of the sample and sample depth on the borehole/test pit log generally in accordance with AS1726-1993[15].
- Store the sample in a sample container cooled with ice or chill packs. On completion of the sampling the sample container should be delivered to the lab immediately or stored in the refrigerator prior to delivery to the lab. All samples are preserved in accordance with the standards outlined in the report.
- Check for the presence of groundwater after completion of each borehole using an electronic dip metre or water whistle. Boreholes should be left open until the end of fieldwork. All groundwater levels in the boreholes should be rechecked on the completion of the fieldwork.
- Backfill the boreholes/test pits with the excavation cuttings or clean sand prior to leaving the site.

Decontamination Procedures for Soil Sampling Equipment

- All sampling equipment should be decontaminated between every sampling location. This excludes single use PVC tubing used for push tubes etc. Equipment and materials required for the decontamination include:
  - Phosphate free detergent (Decon 90);
  - Potable water;
  - Stiff brushes; and
  - Plastic sheets.
- Ensure the decontamination materials are clean prior to proceeding with the decontamination.
- Fill both buckets with clean potable water and add phosphate free detergent to one bucket.

[15] Standards Australia, (1993), *Geotechnical Site Investigations.* (AS1726-1993)

- In the bucket containing the detergent, scrub the sampling equipment until all the material attached to the equipment has been removed.
- Rinse sampling equipment in the bucket containing potable water.
- Place cleaned equipment on clean plastic sheets.

If all materials are not removed by this procedure, high-pressure water cleaning is recommended. If any equipment is not completely decontaminated by both these processes, then the equipment should not be used until it has been thoroughly cleaned.

Groundwater Sampling

Groundwater samples are more sensitive to contamination than soil samples and therefore adhesion to this protocol is particularly important to obtain reliable, reproducible results. The recommendations detailed in AS/NZS 5667.1:1998 are considered to form a minimum standard.

The basis of this protocol is to maintain the security of the borehole and obtain accurate and representative groundwater samples. The following procedure should be used for collection of groundwater samples from previously installed groundwater monitoring wells.

- After monitoring well installation, at least three bore volumes should be pumped from the monitoring wells (well development) to remove any water introduced during the drilling process and/or the water that is disturbed during installation of the monitoring well. This should be completed prior to purging and sampling.
- Groundwater monitoring wells should then be left to recharge for at least three days before purging and sampling. Prior to purging or sampling, the condition of each well should observed and any anomalies recorded on the field data sheets. The following information should be noted: the condition of the well, noting any signs of damage, tampering or complete destruction; the condition and operation of the well lock; the condition of the protective casing and the cement footing (raised or cracked); and, the presence of water between protective casing and well.
- Take the groundwater level from the collar of the piezometer/monitoring well using an electronic dip meter. The collar level should be taken (if required) during the site visit using a dumpy level and staff.
- Purging and sampling of piezometers/monitoring wells is done on the same site visit when using micro-purge (or other low flow) techniques.
- Layout and organize all equipment associated with groundwater sampling in a location where they will not interfere with the sampling procedure and will not pose a risk of contaminating samples. Equipment generally required includes:
  - Stericup single-use filters (for heavy metals samples);
  - Bucket with volume increments;
  - Sample containers: teflon bottles with 1 ml nitric acid, 75mL glass vials with 1 mL hydrochloric acid, 1 L amber glass bottles;
  - Bucket with volume increments;
  - Flow cell;
  - pH/EC/Eh/Temperature meters;
  - Plastic drums used for transportation of purged water;
  - Esky and ice;
  - Nitrile gloves;
  - Distilled water (for cleaning);
  - Electronic dip meter;
  - Low flow peristaltic pump and associated tubing; and
  - Groundwater sampling forms.

- Ensure all non-disposable sampling equipment is decontaminated or that new disposable equipment is available prior to any work commencing at a new location. The procedure for decontamination of groundwater equipment is outlined at the end of this section.
- Disposable gloves should be used whenever samples are taken to protect the sampler and to assist in avoidance of contamination.
- Groundwater samples are obtained from the monitoring wells using low flow sampling equipment to reduce the disturbance of the water column and loss of volatiles.
- During pumping to purge the well, the pH, temperature, conductivity, dissolved oxygen, redox potential and groundwater levels are monitored (where possible) using calibrated field instruments to assess the development of steady state conditions. Steady state conditions are generally considered to have been achieved when the difference in the pH measurements was less than 0.2 units and the difference in conductivity was less than 10%.
- All measurements are recorded on specific data sheets.
- Once steady state conditions are considered to have been achieved, groundwater samples are obtained directly from the pump tubing and placed in appropriate glass bottles, BTEX vials or plastic bottles.
- All samples are preserved in accordance with water sampling requirements specified by the laboratory and placed in an insulated container with ice. Groundwater samples are preserved by immediate storage in an insulated sample container with ice.
- At the end of each water sampling complete a chain of custody form for samples being sent to the laboratory.

Decontamination Procedures for Groundwater Sampling Equipment

- All equipment associated with the groundwater sampling procedure (other than single-use items) should be decontaminated between every sampling location.
- The following equipment and materials are required for the decontamination procedure:
  - Phosphate free detergent;
  - Potable water;
  - Distilled water; and
  - Plastic Sheets or bulk bags (plastic bags).
- Fill one bucket with clean potable water and phosphate free detergent, and one bucket with distilled water.
- Flush potable water and detergent through pump head. Wash sampling equipment and pump head using brushes in the bucket containing detergent until all materials attached to the equipment are removed.
- Flush pump head with distilled water.
- Change water and detergent solution after each sampling location.
- Rinse sampling equipment in the bucket containing distilled water.
- Place cleaned equipment on clean plastic sheets.
- If all materials are not removed by this procedure that equipment should not be used until it has been thoroughly cleaned

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)[16] methods and those described in *Environmental Sampling and Analysis, A Practical Guide,* (1991)[17].

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).

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).

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.

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.

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;

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[16] US EPA, (1994). *SW-846: Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.* (US EPA SW-846)

[17] Keith., H, (1991). *Environmental Sampling and Analysis, A Practical Guide.*

- All blank data reported;
- 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.

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).

Blanks

The purpose of laboratory and field blanks is to check for artefacts and interferences that may arise during sampling, transport and analysis.

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%.

$$\frac{\text{(Spike Sample Result – Sample Result) x 100}}{\text{Concentration of Spike Added}}$$

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.

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:

$$\frac{(D1 - D2) \times 100}{\{(D1 + D2)/2\}}$$

SCREENING CRITERIA DEFINITIONS

The following definitions have been adopted based on Schedule B(1) of NEPM (2013) and are relevant to Tier 1 screening criteria adopted for contamination assessments.

Health investigation levels (HILs) have been developed for a broad range of metals and organic substances. The HILs are applicable for assessing human health risk via all relevant pathways of exposure. The HILs are generic to all soil types and apply generally to a depth of 3 m below the surface for residential use. Site-specific conditions should determine the depth to which HILs apply for other land uses.

Health screening levels (HSLs) have been developed for selected petroleum compounds and fractions and are applicable to assessing human health risk via the inhalation and direct contact pathways. The HSLs depend on specific soil physicochemical properties, land use scenarios, and the characteristics of building structures. They apply to different soil types, and depths below surface to >4 m.

Ecological investigation levels (EILs) have been developed for selected metals and organic substances and are applicable for assessing risk to terrestrial ecosystems. EILs depend on specific soil physicochemical properties and land use scenarios and generally apply to the top 2 m of soil.

Ecological screening levels (ESLs) have been developed for selected petroleum hydrocarbon compounds and total petroleum/recoverable hydrocarbon (TPH/TRH) fractions and are applicable for assessing risk to terrestrial ecosystems. ESLs broadly apply to coarse- and fine-grained soils and various land uses. They are generally applicable to the top 2 m of soil.

Groundwater investigation levels (GILs) are the concentrations of a contaminant in groundwater above which further investigation (point of extraction) or a response (point of use) is required. GILs are based on Australian water quality guidelines and drinking water guidelines and are applicable for assessing human health risk and ecological risk from direct contact (including consumption) with groundwater.

Management Limits for Petroleum hydrocarbons are applicable to petroleum hydrocarbon compounds only. They are applicable as screening levels following evaluation of human health and ecological risks and risks to groundwater resources. They are relevant for operating sites where significant sub-surface leakage of petroleum compounds has occurred and when decommissioning industrial and commercial sites.

Interim soil vapour health investigation levels (interim HILs) have been developed for selected volatile organic chlorinated compounds (VOCCs) and are applicable to assessing human health risk by the inhalational pathway. They have interim status pending further scientific work on volatile gas modelling from the sub-surface to building interiors for chlorinated compounds.

Appendix G: Data (QA/QC) Evaluation

DATA (QA/QC) EVALUATION

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.

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.

Field QA/QC Samples and Analysis

A summary of the field QA/QC samples collected and analysed for this assessment is provided in the following table:

Sample Type	Sample Identification	Frequency (of Sample Type)	Analysis Performed
Intra-laboratory duplicate (soil)	DUPJDC1 (primary sample BH15, 0-0.2m)	Approximately 6% of primary samples	Heavy metals, TRH/BTEX, PAHs

The results for the field QA/QC samples are detailed in the laboratory summary Table D attached to the assessment report and are discussed in the subsequent sections of this Data (QA/QC) Evaluation report.

Data Assessment Criteria

EIS 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 less than 50% RPD for concentrations greater than 10 times the PQL, less than 75% RPD for concentrations between five and 10 times the PQL and less than 100% RPD for concentrations that are less than five times the PQL. RPD failures will be considered qualitatively on a case-by-case basis taking into account factors such as the sample type, collection methods and the specific analyte where the RPD exceedance was reported.

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.

DATA EVALUATION

Sample Collection, Storage, Transport and Analysis

Samples were collected by trained field staff in accordance with the EIS SSP. The SSP was developed to be consistent with relevant guidelines, including NEPM (2013) and other guidelines made under the CLM Act 1997. Appropriate sample preservation, handling and storage procedures were adopted. Laboratory analysis was undertaken within specified holding times in accordance with Schedule B(3) of NEPM (2013) and the laboratory NATA accredited methodologies.

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;
- Asbestos was reported to be present in one sample below the laboratory NATA reporting limit. The laboratory note the presence of asbestos, but indicate that the concentration was below their limit of reporting (see page 33 of laboratory report 167600); and
- Consistent units were used to report the analysis results.

Laboratory PQLs

Appropriate PQLs were adopted for the analysis. All PQLs were above the SAC to enable a direct assessment against the Tier 1 criteria.

Field QA/QC Sample Results

Field Duplicates

The results indicated that field precision was acceptable. All RPDs were within the acceptable range.

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) and the results were considered to be acceptable for the purpose of this assessment.

There were several non-conformances reported for PAH matrix spike recovery values in one sample. These were attributed to interference from high concentrations of these analytes in the sample. EIS consider that these results do not affect the reliability of the dataset. There were no other non-conformances reported.

DATA QUALITY SUMMARY

EIS 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 assessment objectives.

Appendix H: UCL Calculations

	A	B	C	D	E	F	G	H	I	J	K	L
1	UCL Statistics for Uncensored Full Data Sets											
2												
3	User Selected Options											
4	Date/Time of Computation	7/06/2017 9:51:58 AM										
5	From File	WorkSheet.xls										
6	Full Precision	OFF										
7	Confidence Coefficient	95%										
8	Number of Bootstrap Operations	2000										
9												
10												
11	Lead											
12												
13	General Statistics											
14	Total Number of Observations					16		Number of Distinct Observations				15
15								Number of Missing Observations				0
16	Minimum					26		Mean				178.2
17	Maximum					920		Median				69
18	SD					253.2		Std. Error of Mean				63.29
19	Coefficient of Variation					1.421		Skewness				2.292
20												
21	Normal GOF Test											
22	Shapiro Wilk Test Statistic					0.611		Shapiro Wilk GOF Test				
23	5% Shapiro Wilk Critical Value					0.887		Data Not Normal at 5% Significance Level				
24	Lilliefors Test Statistic					0.356		Lilliefors GOF Test				
25	5% Lilliefors Critical Value					0.222		Data Not Normal at 5% Significance Level				
26	Data Not Normal at 5% Significance Level											
27												
28	Assuming Normal Distribution											
29	95% Normal UCL							95% UCLs (Adjusted for Skewness)				
30	95% Student's-t UCL					289.1		95% Adjusted-CLT UCL (Chen-1995)				321
31								95% Modified-t UCL (Johnson-1978)				295.2
32												
33	Gamma GOF Test											
34	A-D Test Statistic					1.638		Anderson-Darling Gamma GOF Test				
35	5% A-D Critical Value					0.765		Data Not Gamma Distributed at 5% Significance Level				
36	K-S Test Statistic					0.292		Kolmogrov-Smirnoff Gamma GOF Test				
37	5% K-S Critical Value					0.222		Data Not Gamma Distributed at 5% Significance Level				
38	Data Not Gamma Distributed at 5% Significance Level											
39												
40	Gamma Statistics											
41	k hat (MLE)					0.953		k star (bias corrected MLE)				0.816
42	Theta hat (MLE)					187		Theta star (bias corrected MLE)				218.4
43	nu hat (MLE)					30.49		nu star (bias corrected)				26.1
44	MLE Mean (bias corrected)					178.2		MLE Sd (bias corrected)				197.3
45								Approximate Chi Square Value (0.05)				15.46
46	Adjusted Level of Significance					0.0335		Adjusted Chi Square Value				14.53
47												
48	Assuming Gamma Distribution											
49	95% Approximate Gamma UCL (use when n>=50))					300.9		95% Adjusted Gamma UCL (use when n<50)				320.1
50												
51	Lognormal GOF Test											
52	Shapiro Wilk Test Statistic					0.868		Shapiro Wilk Lognormal GOF Test				
53	5% Shapiro Wilk Critical Value					0.887		Data Not Lognormal at 5% Significance Level				
54	Lilliefors Test Statistic					0.23		Lilliefors Lognormal GOF Test				
55	5% Lilliefors Critical Value					0.222		Data Not Lognormal at 5% Significance Level				
56	Data Not Lognormal at 5% Significance Level											
57												

58	Lognormal Statistics										
59				Minimum of Logged Data	3.258			Mean of logged Data	4.573		
60				Maximum of Logged Data	6.824			SD of logged Data	1.018		
61											
62	Assuming Lognormal Distribution										
63				95% H-UCL	333.7			90% Chebyshev (MVUE) UCL	286.2		
64				95% Chebyshev (MVUE) UCL	345.5			97.5% Chebyshev (MVUE) UCL	427.7		
65				99% Chebyshev (MVUE) UCL	589.2						
66											
67	Nonparametric Distribution Free UCL Statistics										
68	Data do not follow a Discernible Distribution (0.05)										
69											
70	Nonparametric Distribution Free UCLs										
71				95% CLT UCL	282.3			95% Jackknife UCL	289.1		
72				95% Standard Bootstrap UCL	279.4			95% Bootstrap-t UCL	477.5		
73				95% Hall's Bootstrap UCL	355.2			95% Percentile Bootstrap UCL	282.9		
74				95% BCA Bootstrap UCL	327.7						
75				90% Chebyshev(Mean, Sd) UCL	368.1			95% Chebyshev(Mean, Sd) UCL	454.1		
76				97.5% Chebyshev(Mean, Sd) UCL	573.4			99% Chebyshev(Mean, Sd) UCL	807.9		
77											
78	Suggested UCL to Use										
79				95% Chebyshev (Mean, Sd) UCL	454.1						
80											
81	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.										
82	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)										
83	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.										
84	For additional insight the user may want to consult a statistician.										
85											
86											
87	BaP TEQ										
88											
89	General Statistics										
90				Total Number of Observations	16			Number of Distinct Observations	11		
91								Number of Missing Observations	0		
92				Minimum	0.25			Mean	4.403		
93				Maximum	30			Median	1.05		
94				SD	7.785			Std. Error of Mean	1.946		
95				Coefficient of Variation	1.768			Skewness	2.716		
96											
97	Normal GOF Test										
98				Shapiro Wilk Test Statistic	0.601			Shapiro Wilk GOF Test			
99				5% Shapiro Wilk Critical Value	0.887			Data Not Normal at 5% Significance Level			
100				Lilliefors Test Statistic	0.314			Lilliefors GOF Test			
101				5% Lilliefors Critical Value	0.222			Data Not Normal at 5% Significance Level			
102	Data Not Normal at 5% Significance Level										
103											
104	Assuming Normal Distribution										
105				95% Normal UCL				95% UCLs (Adjusted for Skewness)			
106				95% Student's-t UCL	7.815			95% Adjusted-CLT UCL (Chen-1995)	9.017		
107								95% Modified-t UCL (Johnson-1978)	8.035		
108											
109	Gamma GOF Test										
110				A-D Test Statistic	1.059			Anderson-Darling Gamma GOF Test			
111				5% A-D Critical Value	0.794			Data Not Gamma Distributed at 5% Significance Level			
112				K-S Test Statistic	0.253			Kolmogrov-Smirnoff Gamma GOF Test			
113				5% K-S Critical Value	0.227			Data Not Gamma Distributed at 5% Significance Level			
114	Data Not Gamma Distributed at 5% Significance Level										

115											
116					Gamma Statistics						
117					k hat (MLE)	0.523			k star (bias corrected MLE)	0.467	
118					Theta hat (MLE)	8.415			Theta star (bias corrected MLE)	9.432	
119					nu hat (MLE)	16.74			nu star (bias corrected)	14.94	
120					MLE Mean (bias corrected)	4.403			MLE Sd (bias corrected)	6.444	
121									Approximate Chi Square Value (0.05)	7.219	
122					Adjusted Level of Significance	0.0335			Adjusted Chi Square Value	6.615	
123											
124					Assuming Gamma Distribution						
125					95% Approximate Gamma UCL (use when n>=50))	9.112			95% Adjusted Gamma UCL (use when n<50)	9.943	
126											
127					Lognormal GOF Test						
128					Shapiro Wilk Test Statistic	0.892			Shapiro Wilk Lognormal GOF Test		
129					5% Shapiro Wilk Critical Value	0.887			Data appear Lognormal at 5% Significance Level		
130					Lilliefors Test Statistic	0.171			Lilliefors Lognormal GOF Test		
131					5% Lilliefors Critical Value	0.222			Data appear Lognormal at 5% Significance Level		
132					Data appear Lognormal at 5% Significance Level						
133											
134					Lognormal Statistics						
135					Minimum of Logged Data	-1.386			Mean of logged Data	0.277	
136					Maximum of Logged Data	3.401			SD of logged Data	1.586	
137											
138					Assuming Lognormal Distribution						
139					95% H-UCL	21.1			90% Chebyshev (MVUE) UCL	9.509	
140					95% Chebyshev (MVUE) UCL	12.01			97.5% Chebyshev (MVUE) UCL	15.47	
141					99% Chebyshev (MVUE) UCL	22.28					
142											
143					Nonparametric Distribution Free UCL Statistics						
144					Data appear to follow a Discernible Distribution at 5% Significance Level						
145											
146					Nonparametric Distribution Free UCLs						
147					95% CLT UCL	7.604			95% Jackknife UCL	7.815	
148					95% Standard Bootstrap UCL	7.443			95% Bootstrap-t UCL	12.14	
149					95% Hall's Bootstrap UCL	17.57			95% Percentile Bootstrap UCL	7.753	
150					95% BCA Bootstrap UCL	9.813					
151					90% Chebyshev(Mean, Sd) UCL	10.24			95% Chebyshev(Mean, Sd) UCL	12.89	
152					97.5% Chebyshev(Mean, Sd) UCL	16.56			99% Chebyshev(Mean, Sd) UCL	23.77	
153											
154					Suggested UCL to Use						
155					99% Chebyshev (Mean, Sd) UCL	23.77					
156											
157					Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.						
158					These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)						
159					and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.						
160					For additional insight the user may want to consult a statistician.						
161											

Appendix I: Guidelines and Reference Documents

CRC Care, (2011). Technical Report No. 10 – Health screening levels for hydrocarbons in soil and groundwater Part 1: Technical development document

CRC Care, (2017). Technical Report No. 39 – Risk-based management and guidance for benzo(a)pyrene

Contaminated Land Management Act 1997 (NSW)

NSW EPA / Department of Urban Affairs and Planning, (1998). Managing Land Contamination, Planning Guidelines SEPP55 – Remediation of Land

NSW EPA, (2006). Guidelines for the NSW Site Auditor Scheme, 2nd Edition

NSW EPA, (2015). Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997

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)