



Douglas Partners

Geotechnics | Environment | Groundwater

Report on
Preliminary Site (Contamination) Investigation with
Limited Sampling

Proposed Development
142 - 150 Narrow Neck Road, Katoomba

Prepared for
VDM Prime Pty Ltd

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The undersigned, on behalf of Douglas Partners Pty Ltd, confirm that this document and all attached drawings, logs and test results have been checked and reviewed for errors, omissions and inaccuracies.

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Report on Preliminary Site (Contamination) Investigation with Limited Sampling Proposed Development 142 - 150 Narrow Neck Road, Katoomba

1. Introduction

Douglas Partners Pty Ltd (Douglas) has been engaged by Fides Environmental on behalf of VDM Prime Pty Ltd to complete this preliminary site (contamination) investigation with limited sampling (PSI) undertaken for a proposed development for the site at 142 - 150 Narrow Neck Road, Katoomba (the site). The site is shown on Drawing 1, Appendix A.

The investigation was undertaken in accordance with Douglas' proposal P210791.00 dated 11 November 2021.

The objective of the PSI is to assess the potential for contamination at the site based on past and present land uses and to comment on the need for further investigation and/or management with regard to the proposed development. It is understood that the report will be used to support a development application for the proposed development.

This report must be read in conjunction with all appendices including the notes provided in Appendix B.

The following key guidelines were consulted in the preparation of this report:

- NEPC *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]* (NEPC, 2013); and
- NSW EPA *Guidelines for Consultants Reporting on Contaminated Land* (NSW EPA, 2020).

Douglas carried out a geotechnical investigation in conjunction with this PSI, the results of which are presented in a separate report (Report 210791.00.R.001.Rev3).

2. Proposed Development

It is understood that the proposed development will involve the construction of 218 residential apartments (with 15% of the residential GFA is allocated to the provision of in-fill affordable housing), 52 serviced apartments, resident facilities (ancillary wellness center) within Building H, restaurants, various information & education facilities, green connections, and secure parking.

Based on the revised drawings supplied (Antoniades Architects, Project Number 24012, Drawing Nos: DA3.07 Rev B, DA3.08 Rev B, DA3.09 Rev B, DA3.10 Rev B and DA3.11 Rev B, dated 18 December 2025), the proposed basement levels across the development ranges from RL 992.5 m to RL 1007.29 m. Due to the sloping nature of the site, excavation of up to about 9 m is expected to be required along the western side of the proposed hotel and northern side of the proposed restaurant to achieve the basement levels. It is estimated that up to about 8 m of excavation will be required to achieve the basement levels for the proposed unit buildings.

3. Scope of Works

The scope of work for the PSI comprised:

- A review of geological, soil, acid sulfate soil, salinity and hydrogeological published information to assess and document the site's environmental setting;
- Search for groundwater bores on or adjacent to the site registered with the NSW Department of Primary Industries (DPI) Water;
- A review of site history information, comprising:
 - Historical aerial photographs;
 - Current and historical title deeds and Deposited Plans to identify previous owners that may indicate a potentially contaminating activity;
 - Search of the NSW EPA Land Information public databases held under the Contaminated Land Management Act 1997 and the Protection of the Environment Operations Act 1997 for the site and adjoining properties;
 - Records held by SafeWork NSW for any Hazardous Chemicals stored on premises;
 - Council Section 10.7 Planning Certificate;
- A site walkover to identify conditions that may indicate potential areas of environmental concern (PAEC);
- Preparation of a preliminary conceptual site model (CSM);
- Sampling of surficial soils using a track-mounted rig at seven locations, using a hand auger at four locations, and using a 5-tonne excavator with a 450 mm wide bucket at eight locations;
- Analysis of selected soil samples for the following common contaminants at a NATA accredited laboratory:
 - Metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc);
 - Total recoverable hydrocarbons (TRH);
 - Benzene, toluene, ethylbenzene and xylenes (BTEX);
 - Polycyclic aromatic hydrocarbons (PAH);
 - Organochlorine pesticides (OCP);
 - Organophosphorus pesticides (OPP);
 - Polychlorinated biphenyls (PCB);
 - Total phenols; and
 - Asbestos (30 g soil samples for screening purposes).
- Provision of this PSI report outlining the methodology and results of the investigation, provide comment on identified areas of environmental concern (AEC), a CSM and recommendations for further works if considered necessary.

4. Site Information

Site Address	142 - 150 Narrow Neck Road, Katoomba
Legal Description	Lot 1 Deposited Plan 1026915
Area	16 860m ²
Zoning	R3: Medium Density Residential
Local Council Area	Blue Mountains City Council
Current Use	Undeveloped – old golf course
Surrounding Uses	North – Residential East – Recreational– golf course South – Recreational– golf course West – Residential/Undeveloped Land

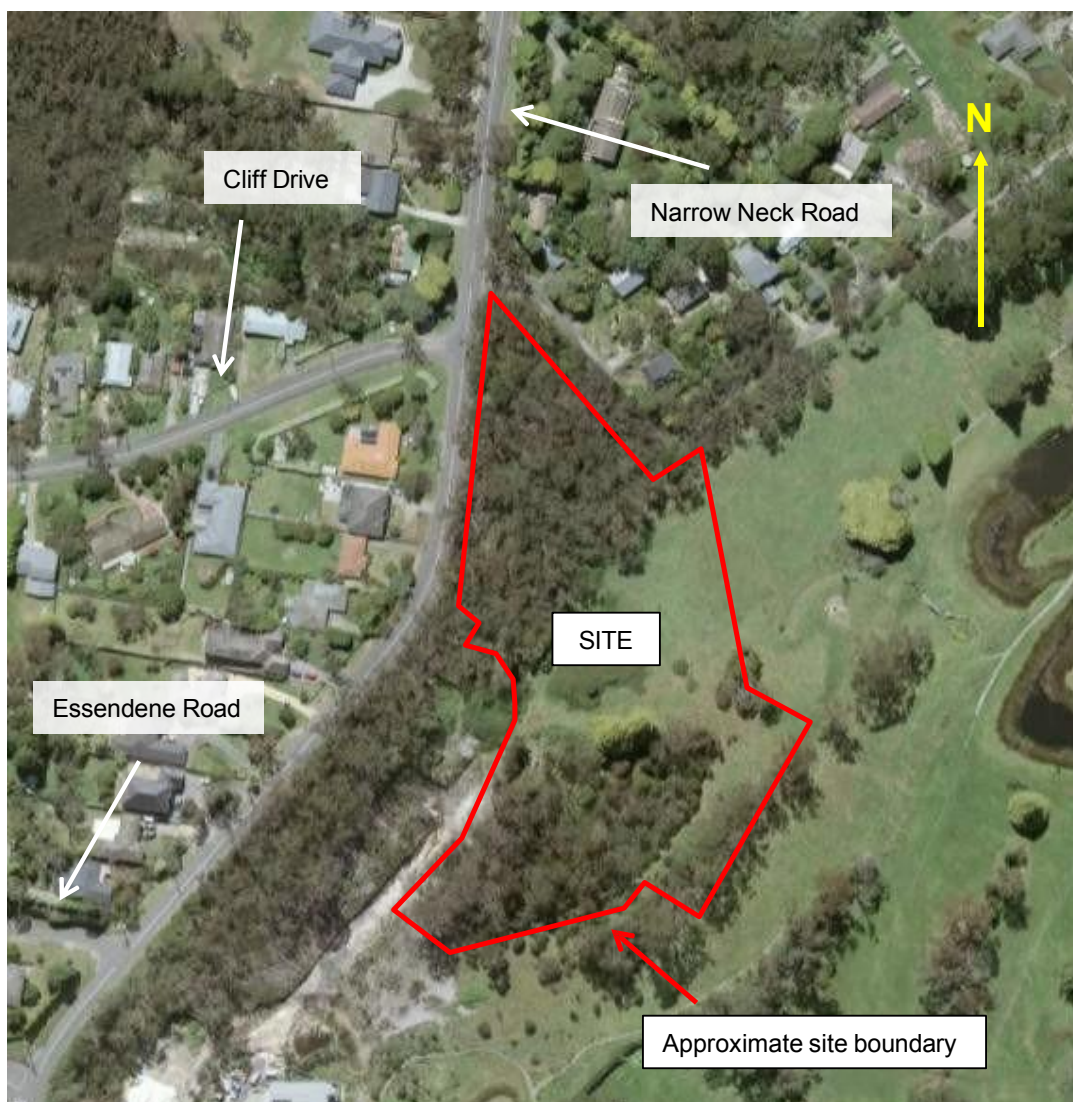


Figure 1: Site Location (Source: Metro Map)

5. Environmental Setting

5.1 Topography

The regional topography generally comprises narrow crests and moderately inclined side slopes with elevations to between 990 m and 1010 m relative to Australian Height Datum (AHD). Site surface levels generally fall towards the south-east with gradients estimated to be up to 12°. The overall difference in level is estimated to be approximately 15 m from the highest part of the site (approximately 1013 m AHD on the northwest side) to the lowest (approximately 998 m AHD on the southeast side).

5.2 Site Geology

Reference to the Katoomba 1:100 000 Soil Landscape Sheet indicates that the site is located within the Medlow Bath soil landscape group. The Medlow Bath group typically consists of moderately deep, well-drained earthy sands and yellow earths on crests with moderately deep, well-drained yellow earths and earthy sands and imperfectly drained grey earths on side slopes. The Medlow Bath Group is characterised by stony, acid soils of very low fertility, very high potential aluminium toxicity and moderate erodibility, localised rock outcrop and localised shallow soils.

Reference to the Katoomba 1:50 000 scale Geological Series Sheet indicates that the site is underlain by Banks Wall Sandstone of the Narrabeen Group of Triassic age. Banks Wall Sandstone typically comprises quartz and slightly lithic sandstone with minor interbedded claystone.

5.3 Acid Sulphate Soils

Review of published mapping indicates that the site is in an area of 'no known occurrence of acid sulfate soils'. The NSW Acid Sulfate Soils Manual 1998 published by the Acid Sulfate Soils Management Advisory Committee (ASSMAC) indicates that ASS (and Potential Acid Sulfate Soils – PASS) normally occur in alluvial or estuarine soils below RL 5 m AHD although occasionally are encountered up to RL 12 m AHD.

5.4 Surface Water and Groundwater

The closest surface water receptors to the site are five ponds varying in size from about 870 m² to 2080 m² located about 50 m to 110 m to the east and south of the site. Kedumba River is located approximately 790 m east of the site.

A search of the NSW Department of Primary Industries Water (DPI Water) online map of registered groundwater works was undertaken as part of the investigation. The search, carried out on 17 May 2022, identified three registered groundwater bores within 500 m of the site. The three groundwater bores from within 500 m of the site are summarised in Table 1.

Table 1: Summary of Available Information from Nearby Registered Groundwater Bores

Bore ID Authorised Purpose Completion Year Status	Location Relative to Site	Final Depth (m)	Standing Water Level (m bgl)
GW058879 Domestic groundwater bore 1983	335 m west	100	90
GW058054 Domestic groundwater bore 1982	80 m north	43	20
GW060304 Recreational groundwater bore 1982	165 north-east	33	20

Note: bgl – below ground level

6. Site History

6.1 Historical Aerial Photography

Several historical aerial photographs were obtained from public databases. Extracts of the aerial photographs are included in Appendix C. A summary of key features observed for the site and surrounding land is presented in Table 2.

Table 2: Summary of Historical Aerial Photographs

Year	Site	Surrounding Land Use
1966	The site appeared largely undeveloped with the north-western portion heavily vegetated, and a dam located towards the centre of the site. A small area appeared to be cleared on the western side of the site.	The surrounding land to the north appeared largely undeveloped with a few rural properties. A golf course appeared to be located on the land to the east and south. Surrounding land to the west appeared largely undeveloped.
1975	The site appeared to be largely unchanged from the 1966 photograph.	The surrounding land to the north appeared to have been partially cleared. Some rural properties appeared to have been constructed to the west. Surrounding land to the south and east appeared largely unchanged from the 1966 photograph.
1980	The site appeared to be largely unchanged from the 1975 photograph.	Surrounding land to the north, south, east and west appeared largely unchanged from the 1975 photograph.

Year	Site	Surrounding Land Use
1989	The site appeared to be largely unchanged from the 1980 photograph except the dam appeared to have been filled in.	The land to the north and west appeared to have been further developed. The land to the east and south appeared largely unchanged from the 1980 photograph.
1990	The site appeared to be largely unchanged from the 1989 photograph.	The surrounding land appeared to have remained largely unchanged from the 1989 photograph.
1994	The site appeared to be largely unchanged from the 1990 photograph.	The surrounding land appeared to have remained largely unchanged from the 1990 photograph.
2007	The site appeared to be largely unchanged from the 1990 photograph except for slightly more vegetation and a track made in the southern half of the site.	The surrounding land to the south-west and west appeared to have been developed further with additional residential properties constructed and under construction. The surrounding land to the east and south appeared to have undergone landscaping activities and the construction of dams. The surrounding land to the north appeared to have remained largely unchanged from the 1994 photograph.
2011	The site appeared to be largely unchanged from the 2007 photograph.	The surrounding land appeared to have remained largely unchanged from the 2007 photograph.
2016	The site appeared to be largely unchanged from the 2011 photograph	The surrounding land appeared to have remained largely unchanged from the 2011 photograph.

A brief review of satellite images sourced from Metro Map from 2016 to 2022 was also carried out. The site and surrounding land appeared to remain largely unchanged between 2016 and 2022 except for the further residential development to the south-west of the site.

6.2 Title Deeds

A historical title deeds search was used to obtain ownership and occupancy information including company names and the occupations of individuals. The title information can assist in the identification of previous land uses by the company names or the site owners and can, therefore, assist in establishing whether there were potentially contaminating activities occurring at the site. A summary of the title deeds and possible land uses (with reference to the aerial photographs and other historical searches) is presented in Table 3. The complete copy of the search and cadastre map is included in Appendix D.

Table 3: Historical Title Deeds

Date of Acquisition and Term Held	Registered Proprietor(s) & Occupations	Inferred Land Use
	<i>As regards part numbered (1) on Cadastral Records Enquiry Report</i>	
Circa 1887	Road provided for in D.P. 2060	Road
1930	Application for the Closing and Purchase of Roads: Road Purchase Application by The Council of the Municipality of Katoomba	Road
1933 to 2004	The Council of the Municipality of Katoomba Then: The Blue Mountains City Council Now: Council of the City of Blue Mountains	Recreational
	<i>As regards part numbered (2) on Cadastral Records Enquiry Report</i>	
1921 to 1944	The South Katoomba Land Company Limited	Recreational
1944 to 1948	Marjorie Grace Harrison (Spinster)	Rural residential
1948 to 1951	Philip George Harrison (Boarding House Proprietor)	Rural residential
1951 to 2004	The Blue Mountains City Council Now: Council of the City of Blue Mountains	Recreational
	<i>As regards part numbered (3) on Cadastral Records Enquiry Report</i>	
1921 to 1928	The South Katoomba Land Company Limited	Recreational
1928 to 2004	The Council of the Municipality of Katoomba Then: The Blue Mountains City Council Now: Council of the City of Blue Mountains	Recreational
	<i>As regards part numbered (4) on Cadastral Records Enquiry Report</i>	
1921 to 1941	The South Katoomba Land Company Limited	Recreational
1941 to 1941	Henry Selwyn Ziems (Motor Garage Proprietor)	Rural residential
1941 to 1951	Ellen Norah Carroll (Married Woman)	Rural residential
1951 to 2004	The Blue Mountains City Council Now: Council of the City of Blue Mountains	Recreational
	<i>As regards part numbered (5) on Cadastral Records Enquiry Report</i>	
1921 to 1933	The South Katoomba Land Company Limited	Recreational
1933 to 2004	The Council of the Municipality of Katoomba Then: The Blue Mountains City Council Now: Council of the City of Blue Mountains	Recreational

Date of Acquisition and Term Held	Registered Proprietor(s) & Occupations	Inferred Land Use
	<i>As regards part numbered (6) on Cadastral Records Enquiry Report</i>	
1921 to 1941	The South Katoomba Land Company Limited	Recreational
1941 to 1951	Henry Selwyn Ziems (Motor Garage Proprietor)	Rural residential
1951 to 2004	The Blue Mountains City Council Now: Council of the City of Blue Mountains	Recreational
	<i>As regards the whole of the subject land</i>	
2004 to 2018	Katoomba Escarpments Estate Pty Ltd	Recreational/Unused
2018 to date	# Kee Blue Mountains Pty Ltd	Unused

Denotes current registered proprietor

Leases: - NIL

Easements: -

- 14.06.2001 (D.P. 1026915): Easement to drain water 3.5 metre(s) wide (F) affecting the part(s) shown so burdened in the title diagram.

6.3 Public Registers and Planning Records

EPA Notices available under Section 58 of the Contaminated Lands Management Act (CLM Act)	There were no records of notices for the site or adjacent sites.
Database searched 17 May 2022	
Sites notified to EPA under Section 60 of the CLM Act	The site and adjacent sites were not listed as a notified contaminated site.
Database searched 17 May 2022	
Licences listed under Section 308 of the Protection of the Environment Operations Act 1997 (POEO Act)	There were no records issued to the site or adjacent sites.

Database searched 17 May 2022	
SafeWork NSW dated 8 June 2022	A SafeWork search, received on 22 June 2022, did not locate any records held by SafeWork pertaining to the storage of hazardous chemicals. The results are included in Appendix E.
Planning Certificate Section 10.7 (2 & 5) 10 May 2022	The site is subject to a Contaminated Lands Policy for contaminated and potentially contaminated land. (provided in Appendix E)
Council Records	No relevant records were available at the time of reporting

6.4 Site History Integrity Assessment

The information used to establish the history of the site was sourced from reputable and reliable reference documents, many of which were official records held by Government departments/agencies. The databases maintained by various Government agencies potentially can contain high quality information, but some of these do not contain any data at all.

In particular, aerial photographs can provide high quality information that is generally independent of memory or documentation. They are only available at intervals of several years, so some gaps exist in the information from this source. The observed site features are open to different interpretations and can be affected by the time of day and/or year at which they were taken, as well as specific events, such as flooding. Care has been taken to consider different possible interpretations of aerial photographs and to consider them in conjunction with other lines of evidence.

6.5 Summary of Site History

The site history information suggests that parts of the site were used as a road between circa 1887 and 1933 after which the site was predominantly used for recreational and/or rural residential purposes. Between 1928 and 1951 the site was acquired by The Blue Mountains City Council after which the site was only used for recreational purposes. The dam located towards the centre of the site was filled in sometime between 1980 and 1989. In 2004 the land was acquired by Katoomba Escarpments Estate Pty Ltd and again used for recreational purposes until 2013 when the Katoomba Golf Club ceased operation. In 2018 the site was acquired by the current owner and has since been unused.

7. Site Walkover

A site walkover was undertaken by an environmental scientist on 13 May 2022. The general site topography was consistent with that described in Section 5.1. The site layout appears to have remained unchanged from the 2011 aerial photograph. The following key site features pertinent to the PSI were observed (refer to photographs in Appendix F). The locations of these key site features are shown on the Site Features Plan (refer to Drawing 7, Appendix F).

- An area of discarded building waste was located in the western portion of the site. The building waste appeared to comprise bricks, metal star pickets, metal pipes and wire (Photographs 1 and 2). Most of the area was covered with thick blackberry bushes therefore a thorough inspection of all surfaces within the area of building waste was not possible;
- The ruins of a former structure were located in the south western portion of the site. The ruins appeared to comprise a floor and wall of a former structure constructed of large sandstone blocks (Photographs 3 and 4);
- Large patches of weeds comprised of blackberry bushes and privet were located in the central (filled in dam location) and south eastern portions of the site (Photographs 5, 6, 7 and 8). A limited investigation, including shallow scraping with an excavator was completed within the weed patches at several locations and did not identify any anthropogenic material or fill beneath the patches. Given the dense nature of the patches, however, a thorough inspection of all surfaces beneath the weed patches was not possible;
- Remnant native bushland and the remains of an old, unsealed road were located across the southern portion of the site (Photograph 9);
- Metal irrigation pipes were observed sticking out of the ground surface in the southern portion of the site (Photograph 16);
- Remnant native bushland was located across most of the northern portions of the site (Photographs 10, 11 and 12);
- The remainder of the site was mostly vacant and largely grass covered paddocks (Photograph 13);
- Residential properties were located to the west, southwest and north of the site (Photographs 14 and 15);
- A golf course was located to the immediate east and southeast of the site.

8. Preliminary Conceptual Site Model

A conceptual site model (CSM) is a representation of site-related information regarding contamination sources, receptors and exposure pathways between those sources and receptors. The CSM provides the framework for identifying how the site became contaminated and how potential receptors may be exposed to contamination either in the present or the future i.e. it enables an assessment of the potential source – pathway – receptor linkages (complete pathways).

Potential Sources

Based on the current investigation, the following potential sources of contamination and associated contaminants of potential concern (COPC) have been identified.

- S1: Fill: May be associated with levelling on the site, filling the former dam and potential burying of waste.
 - o COPC include metals, total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene, xylene (BTEX), polycyclic aromatic hydrocarbons (PAH), polychlorinated biphenyls (PCB), organochlorine pesticides (OCP), organophosphorus pesticides (OPP), phenols and asbestos.

- S2: Possible former buildings.
 - o COPC include asbestos, synthetic mineral fibres (SMF), lead and PCB.
- S3: Building waste.
 - o COPC include metals, TRH, BTEX, PAH, PCB, OCP, OPP, phenols and asbestos.
- S4: Buried irrigation pipes.
 - o COPC include asbestos.

Potential Receptors

The following potential human receptors have been identified:

- R1: Current site users [open access];
- R2: Construction and maintenance workers;
- R3: End users [residential]; and
- R4: Adjacent site users [residential].

The following potential environmental receptors have been identified:

- R5: Surface water [insert surface water body / bodies at risk; and whether fresh, brackish or saline];
- R6: Groundwater; and
- R7: Terrestrial ecosystems.

Potential Pathways

The following potential pathways in relation to human receptors have been identified:

- P1: Ingestion and dermal contact;
- P2: Inhalation of dust and/or vapours;

The following potential pathways in relation to the environmental receptors have been identified:

- P3: Surface water run-off;
- P4: Lateral migration of groundwater providing base flow to water bodies;
- P5: Leaching of contaminants and vertical migration into groundwater; and
- P6: Inhalation, ingestion and absorption.

Summary of Potentially Complete Exposure Pathways

A 'source–pathway–receptor' approach has been used to assess the potential risks of harm being caused to human or environmental receptors from contamination sources on or in the vicinity of the site, via exposure pathways (potential complete pathways). The possible pathways between the above sources (S1 and S2) and receptors (R1 to R7) are provided in below Table 4.

Table 4: Summary of Potentially Complete Exposure Pathways

Source and COPC	Transport Pathway	Receptor	Risk Management Action
S1: Fill -Metals, TRH, BTEX, PAH, OCP, OPP and asbestos S2: Possible former buildings - asbestos, synthetic mineral fibres (SMF), lead and PCB. S3: Building waste -Metals, TRH, BTEX, PAH, OCP, OPP and asbestos S3: Buried irrigation pipes - asbestos	P1: Ingestion and dermal contact P2: Inhalation of dust and/or vapours	R1: Current users [open access] R2: Construction and maintenance workers R3: End users [residential]	An intrusive investigation is recommended to assess possible contamination including testing of the soils. If contamination is identified testing of groundwater may be required.
	P2: Inhalation of dust and/or vapours	R4: Adjacent site users [residential]	
	P3: Surface water run-off P4: Lateral migration of groundwater providing base flow to water bodies	R5: Surface water	
	P5: Leaching of contaminants and vertical migration into groundwater	R6: Groundwater	
	P6: Inhalation, ingestion and absorption	R7: Terrestrial ecosystems	

9. Sampling and Analysis Quality Plan

9.1 Data Quality Objectives

The PSI was devised with references to the seven-step data quality objective process which is provided in Appendix B Schedule B2, NEPC (2013). The DQO process is outlined in Appendix G.

9.2 Soil Sampling Locations and Rationale

Based on the CSM and data quality objectives (DQO) the following sampling rationale was adopted.

A systematic sampling strategy based on the NSW EPA *Contaminated Sites, Sampling Design Guidelines* (NSW EPA, 1995) would require approximately 27 locations. However, as this is the PSI stage and given the restricted access in areas of the site samples were collected from 13 locations.

Environmental field work including a site walkover and soil sampling was undertaken on 12 and 13 May 2022 in conjunction with Douglas' geotechnical investigation.

The sampling locations are shown on Drawing 1, Appendix A. The samples were obtained from test pits and boreholes located in readily accessible areas of the site and provided a limited (albeit preliminary) coverage of the soil profile and contamination status.

Selected soil samples were analysed for the chemicals of concern listed in Section 7. Samples were selected based on site observations (fill type), and their location within the subsoil strata (*i.e.* fill or natural).

9.3 Soil Sampling Procedures

Environmental sampling was performed with reference to standard operating procedures. All sampling data was recorded on test pit or borehole logs (Appendix J) and samples selected for laboratory analysis were recorded on Douglas chain-of-custody (CoC) sheets (Appendix K). The general soil sampling procedure comprised:

- Soil samples were recovered directly from augers or excavator bucket;
- Use of disposable sampling equipment including disposable nitrile gloves;
- Transfer of samples into laboratory-prepared glass jars and capping immediately with Teflon lined lids;
- Wear a new disposable nitrile glove for each sample point thereby minimising potential for cross-contamination;
- Collect 10% replicate samples for QC purposes;
- Labelling of sampling containers with individual and unique identification details, including project number, sample location and sample depth;
- Placement of sample containers and zip-lock bags for asbestos analysis into a cooled, insulated and sealed container for transport to the laboratory; and
- Use chain of custody documentation.

10. Site Assessment Criteria

The site assessment criteria (SAC) applied in the current investigation are informed by the CSM (Section 7) which identified human and environmental receptors to potential contamination on the site. Analytical results are assessed (as a Tier 1 assessment) against the SAC comprising primarily the investigation and screening levels of Schedule B1 of NEPC (2013).

The investigation and screening levels applied in the current investigation comprise levels adopted for a generic residential land use scenario. The derivation of the SAC is included in Appendix H and the adopted SAC are listed on the summary analytical results tables in Appendix I.

11. Results

11.1 Field Observations

The test pit and borehole logs from the investigation are provided in Appendix J. Notes defining classification methods and terms used to describe the soils and rocks are included in Appendix B.

The subsurface conditions encountered in the boreholes and test pits can be described as follows:

- Topsoil - sandy clay or silty sand topsoil with rootlets throughout, to depths of between 0.1 m and 0.3 m in Bores 1, 1A, 2A, 4, 7, 8 and 17;
- Fill - silty sand fill to depths of between 0.2 m and 0.8 m in Pit 1, Pit 6, Bore 9, Pit 10, Pit 14, Pit 15 and Pit 16. Inclusions of gravel, roots, rock fragments, roadbase gravel and charcoal were observed within the fill;
- Natural Soil - typically stiff sandy clay or loose to dense clayey sand to depths ranging between 0.7 m to 2.6 m in all test pits and boreholes. Very loose to loose clayey sands were encountered in Bore 12 between 0.9 m and 1.8 m depth;
- Weathered Rock - very low strength, extremely and highly weathered sandstone below depths of between 0.7 m and 2.6 m in all test pits and boreholes, except Bores 4, 7, 8 and 17. Sandy clay seams were encountered within the sandstone profile.

Free groundwater was observed at depths of between 0.9 m and 2.2 m in Bores 1A, 2A, 11, 12 and 13 and Pits 1, 5 and 14 during auger drilling or excavation. Backfilling of the boreholes (excluding Bores 1A, 2A and 3) and test pits at the completion of drilling and excavation precluded long-term monitoring of the groundwater levels. It is noted, however, that groundwater levels are affected by preceding climatic conditions and soil/rock permeability and can therefore fluctuate with time.

11.2 Soil Laboratory Testing Results

The results of the laboratory analysis undertaken are presented in the results summary tables in Appendix I (Tables I1 and I2). The full NATA laboratory certificates of analysis together with the chain of custody and sample receipt information are attached in Appendix K.

The analytical results for contaminants cadmium, TRH, BTEX, naphthalene, OPP, phenol and PCB in the soil samples were below the practical quantitation limit (PQL).

The analytical results for contaminants arsenic, chromium, copper, lead, mercury, nickel, zinc, benzo(a)pyrene TEQ, total PAH, OCP were reported within the relevant SAC.

The analytical results for benzo(a)pyrene (BaP) were all within the relevant SAC except for two samples. The concentration of benzo(a)pyrene (BaP) in sample BH9/0.0 - 0.1 was 0.89 mg/kg and in sample BH9/0.0 – 0.1 (triplicate) was 0.81 mg/kg both exceeding the ESL – A of 0.7 mg/kg.

11.3 Asbestos Testing Results

Reported concentrations of asbestos in the soil samples were below the laboratory limit of reporting of 0.1 g/kg in all samples.

11.4 Quality Assurance and Quality Control

The field QA/QC procedures for sampling were undertaken with reference to Douglas Partners' *Field Procedures Manual*.

The analytical laboratory used is (NATA) accredited and is required to conduct in-house QA/QC procedures (as outlined in Appendix L). These results are included in the laboratory certificate presented in Appendix K and are evaluated in Appendix L.

12. Discussion

The site history review indicates that the site has predominantly been used for residential and recreational purposes. It is possible that asbestos containing materials were used in the construction of any residential and associated structures based on the construction likely being prior to the 1980s.

Neighbouring land and nearby properties appear to have been used historically for recreational and residential purposes over the last 100 years.

A limited programme of soil sampling and analysis indicated that the concentrations of metals/metalloids, PAH, BTEX, TRH, PCB, OCP, OPP, phenols and asbestos in all soil samples analysed were below the adopted SAC except for two samples within the fill soils on-site. These were as follows:

- BH9/0.0 – 0.1 which reported benzo(a)pyrene (BaP) 0.89 mg/kg and BH9/0.0 – 0.1 (triplicate) 0.81 mg/kg, exceeding the adopted ESL criteria of 0.7 mg/kg.

It is noted that the BaP ESL is a low reliability value. Higher reliability screening levels have been published in CRC CARE *Risk-based Management and Remediation Guidance for Benzo(a)pyrene* (CRC CARE, 2017). The high reliability value of 33 mg/kg (or ranging from 21 mg/kg to 135 mg/kg) for fresh B(a)P suggests that the concentrations of B(a)P detected at the site are unlikely to pose an acceptable risk to terrestrial ecology and therefore the exceedance is not considered to be of concern.

Asbestos was not encountered in any of the boreholes or test pits and was not detected above the reporting limit in any of samples analysed for asbestos. No building rubble or demolition waste was observed in the fill at any of the borehole or test pit locations. Notwithstanding this, it is noted that while boreholes and test pits are suitable for identifying the general soil composition in that location, they are not efficient in assessing the site for physical contaminants such as asbestos. Therefore, the presence of asbestos, and other CoPCs in areas not tested cannot be ruled out based on this preliminary investigation.

The groundwater is expected to flow downgradient towards the south-east of the site (towards a tributary of Kedumba River). Testing of the groundwater was not included within this investigation. Based on the results of soil analysis, a groundwater investigation is considered unwarranted at this stage.

13. Conclusions and Recommendations

The scope of the preliminary site investigation (contamination) with limited sampling included a desktop study, a site walkover, a preliminary CSM and limited intrusive investigation. Preliminary results indicate that there is a relatively low potential for significant contamination given the site history and existing site conditions.

Due to the restricted access in parts of the site Douglas recommends that further investigation be carried out once the site has been cleared. This would involve a targeted walkover of the parts of the site that were inaccessible during this current investigation including the infilled dam, area of buried irrigation pipes and area of discarded building waste.

Soil to be excavated for which a beneficial reuse on-site cannot be found as a part of the future development will require classification in accordance with NSW EPA, Waste Classification Guidelines Part 1: Classifying Waste. Alternatively, the excess materials may be assessed for beneficial reuse under a resource recovery exemption such as NSW EPA, Resource Recovery Order under Part 9, Clause 93 of the Protection of Environment Operations (Waste) Regulation (2014) – The excavated natural material order 2014.

Based on the current investigation, it is considered the site is suitable (from a contamination perspective) for the proposed mixed-use development comprising 224 apartments, 52 serviced apartments, wellness and arts hub, restaurants, green connections, and secure parking subject to the above recommendations. This may change if further investigation identifies actual contamination at the site.

14. References

- CRC CARE. (2017). *Risk-based Management and Remediation Guidance for Benzo(a)pyrene*. Technical Report no. 39: Cooperative Research Centre for Contamination Assessment and Remediation of the Environment.
- NEPC. (2013). *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]*. Australian Government Publishing Services Canberra: National Environment Protection Council.
- NSW EPA. (1995). *Contaminated Sites, Sampling Design Guidelines*. NSW Environment Protection Authority.
- NSW EPA. (2020). *Guidelines for Consultants Reporting on Contaminated Land*. Contaminated Land Guidelines: NSW Environment Protection Authority.

15. Limitations

Douglas Partners Pty Ltd (Douglas) has prepared this report for this project at 142 - 150 Narrow Neck Road, Katoomba in accordance with Douglas' proposal dated 11 November 2021 and acceptance received from Katrina Lam of Icon Project Management Pty Ltd on behalf of VDM Prime Pty Ltd dated 3 May 2022 and email proposal dated 9 September 2024. The work was carried out under Douglas Engagement Terms. This report is provided for the exclusive use of VDM Prime Pty Ltd for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of Douglas, does so entirely at its own risk and without recourse to Douglas for any loss or damage. In preparing this report Douglas has necessarily relied upon information provided by the client and/or their agents.

The results provided in the report are indicative of the sub-surface conditions on the site only at the specific sampling and/or testing locations, and then only to the depths investigated and at the time the work was carried out. Sub-surface conditions can change abruptly due to variable geological processes and also as a result of human influences. Such changes may occur after Douglas' field testing has been completed.

Douglas' advice is based upon the conditions encountered during this investigation. The accuracy of the advice provided by Douglas in this report may be affected by undetected variations in ground conditions across the site between and beyond the sampling and/or testing locations. The advice may also be limited by budget constraints imposed by others or by site accessibility.

The assessment of atypical safety hazards arising from this advice is restricted to the environmental components set out in this report and based on known project conditions and stated design advice and assumptions. While some recommendations for safe controls may be provided, detailed 'safety in design' assessment is outside the current scope of this report and requires additional project data and assessment.

This report must be read in conjunction with all of the attached notes and should be kept in its entirety without separation of individual pages or sections. Douglas cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by Douglas. This is because this report has been written as advice and opinion rather than instructions for construction.

Asbestos has/has not been detected by observation and/or by laboratory analysis, either on the surface of the site, or at the test locations sampled and analysed. Building demolition materials, such as bricks, were, however, located in below-ground fill and at the ground surface, and these are considered as indicative of the possible presence of hazardous building materials (HBM), including asbestos.

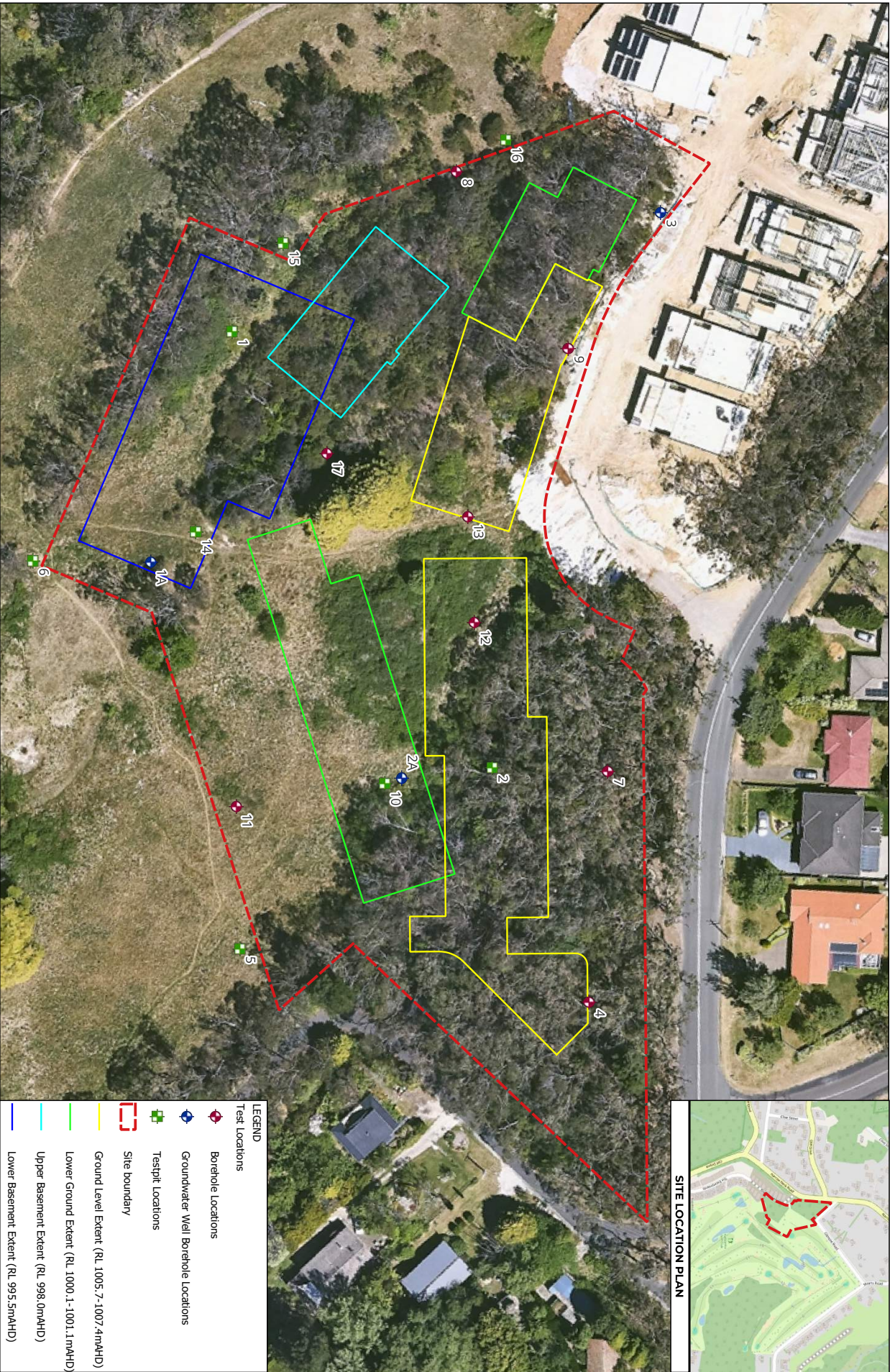
Although the sampling plan adopted for this investigation is considered appropriate to achieve the stated project objectives, there are necessarily parts of the site that have not been sampled and

is either due to undetected variations in ground conditions or to budget constraints (as discussed above), or to parts of the site being inaccessible and not available for inspection/sampling, or to vegetation preventing visual inspection and reasonable access. It is therefore considered possible that HBM, including asbestos, may be present in unobserved or untested parts of the site, between and beyond sampling locations, and hence no warranty can be given that asbestos is not present.

Douglas Partners Pty Ltd

Appendix A

Drawing 1



LEGEND	
Test Locations	
	Borehole Locations
	Groundwater Well Borehole Locations
	Testpit Locations
	Site boundary
	Ground Level Extent (RL 1005.7-1007.4mAHD)
	Lower Ground Extent (RL 1000.1-1001.1mAHD)
	Upper Basement Extent (RL 998.0mAHD)
	Lower Basement Extent (RL 995.5mAHD)

REV	DESCRIPTION/COMMENT	DATE	DRAWN BY
4	Updated Basement Layout	11/02/2023	AH
SCALE			
1mm @ A3			
OFFICE NORTH WEST SYDNEY Unit 2/555 Wetherill Road, Roseville Hills, NSW 2155 (02) 4666 0450			
CLIENT		NOTE	
7BBH PTY LTD		1: Basemap from Micromap dated 22/10/2023	
COORDINATE REFERENCE SYSTEM: GDA2020, MGA ZONE58		PROJECT NAME:	
PROPOSED DEVELOPMENT PROJECT ADDRESS: 142-150 NARROW NECK ROAD, KATOOMBIA		DRAWING TITLE:	
SITE AND TEST LOCATION PLAN		PROJECT NO: 210791.00	
REVISION:		DRAWING NO: 1	
4			

Appendix B

About This Report

Introduction

These notes have been provided to amplify DP's report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

DP's reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

Copyright

This report is the property of Douglas Partners Pty Ltd. The report may only be used for the purpose for which it was commissioned and in accordance with the Conditions of Engagement for the commission supplied at the time of proposal. Unauthorised use of this report in any form whatsoever is prohibited.

Borehole and Test Pit Logs

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

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole 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. They may not be the same at the time of construction as are indicated in the report; 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 first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or 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 a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, DP will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, DP cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, DP will be pleased to assist with investigations or advice to resolve the matter.

continued next page

About this 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, DP requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

Information for Contractual Purposes

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. DP would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.

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Introduction to Terminology, Symbols and Abbreviations

Douglas Partners' reports, investigation logs, and other correspondence may use terminology which has quantitative or qualitative connotations. To remove ambiguity or uncertainty surrounding the use of such terms, the following sets of notes pages may be attached Douglas Partners' reports, depending on the work performed and conditions encountered:

- Soil Descriptions;
- Rock Descriptions; and
- Sampling, insitu testing, and drilling methodologies

In addition to these pages, the following notes generally apply to most documents.

Abbreviation Codes

Site conditions may also be presented in a number of different formats, such as investigation logs, field mapping, or as a written summary. In some of these formats textual or symbolic terminology may be presented using textual abbreviation codes or graphic symbols, and, where commonly used, these are listed alongside the terminology definition. For ease of identification in these note pages, textual codes are presented in these notes in the following style **XW**. Code usage conforms with the following guidelines:

- Textual codes are case insensitive, although herein they are generally presented in upper case; and
- Textual codes are contextual (i.e. the same or similar combinations of characters may be used in different contexts with different meanings (for example **PL** is used for plastic limit in the context of soil moisture condition, as well as in **PL (A)** for point load test result in the testing results column)).

Data Integrity Codes

Subsurface investigation data recorded by Douglas Partners is generally managed in a highly structured database environment, where records "span" between a top and bottom depth interval. Depth interval "gaps" between records are considered to introduce ambiguity, and, where appropriate, our practice guidelines may require contiguous data sets. Recording meaningful data is not always appropriate (for example assigning a "strength" to a concrete pavement) and the following codes may be used to maintain contiguity in such circumstances.

Term	Description	Abbreviation Code
Core loss	No core recovery	KL
Unknown	Information was not available to allow classification of the property. For example, when auguring in loose, saturated sand auger cuttings may not be returned.	UK
No data	Information required to allow classification of the property was not available. For example if drilling is commenced from the base of a hole predilled by others	ND
Not Applicable	Derivation of the properties not appropriate or beyond the scope of the investigation. For example providing a description of the strength of a concrete pavement	NA

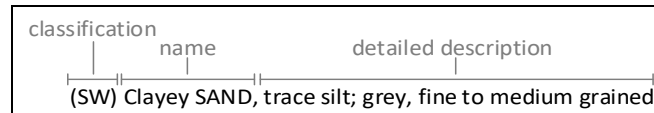
Graphic Symbols

Douglas Partners' logs contain a "graphic" column which provides a pictorial representation of the basic composition of the material. The symbols used are directly representing the material name stated in the adjacent "Description of Strata" column, and as such no specific graphic symbology legend has been provided in these notes.

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Introduction

All materials which are not considered to be “in-situ rock” are described in general accordance with the soil description model of AS 1726-2017 Part 6.1.3, and can be broken down into the following description structure:



The “classification” comprises a two character “group symbol” providing a general summary of dominant soil characteristics. The “name” summarises the particle sizes within the soil which most influence it’s behaviour. The detailed description presents more information about the soil’s composition, condition, structure, and origin.

Classification, naming and description of soils requires the relative proportion of particles of different sizes within the whole soil mixture to be considered.

Particle size designation and Behaviour Model

Solid particles within a soil are differentiated on the basis of size.

The engineering behaviour properties of a soil can subsequently be modelled to be either “fine grained” (also known as “cohesive” behaviour) or “coarse grained” (“non cohesive” behaviour), depending on the relative proportion of fine or coarse fractions in the soil mixture.

Particle Size Fraction	Particle Size (mm)	Behaviour Model	
		Behaviour	Approximate Dry Mass
Boulder	>200	Excluded from particle behaviour model as “oversize”	
Cobble	63 - 200		
Gravel ¹	2.36 - 63	Coarse	>65%
Sand ¹	0.075 - 2.36		
Silt	0.002 - 0.075	Fine	>35%
Clay	<0.002		

¹ – refer grain size subdivision descriptions below

The behaviour model boundaries defined above are not precise, and the material behaviour should be assumed from the name given to the material (which considers the particle fraction which dominates the behaviour, refer “component proportions” below), rather than strict observance of the proportions of particle sizes. For example, if a material is named a “Sandy CLAY”, this is indicative that the material exhibits fine grained behaviour, even if the dry mass of coarse grained material may exceed 65%.

Component proportions

The relative proportion of the dry mass of each particle size fraction is assessed to be a “primary”, “secondary”, or “minor” component of the soil mixture, depending on it’s influence over the soils behaviour.

Component Proportion Designation	Definition ¹	Relative Proportion	
		In Fine Grained Soil	In Coarse Grained Soil
Primary	The component (particle size designation, refer above) which dominates the engineering behaviour of the soil	The clay/silt component with the greater proportion	The sand/gravel component with the greater proportion
Secondary	Any component which is not the primary, but is significant to the engineering properties of the soil	Any component with greater than 30% proportion	Any granular component with greater than 30%; or Any fine component with greater than 12%
Minor ²	Present in the soil, but not significant to it’s engineering properties	All other components	All other components

¹ – As defined in AS1726-2017 6.1.4.4

² – in the detailed material description, minor components are split into two further sub categories. Refer “identification of minor components” below

Composite Materials

In certain situations a lithology description may describe more than one material, for example, collectively describing a layer of interbedded sand and clay. In such a scenario, the two materials would be described independently, with the names preceded or followed by a statement describing the arrangement by which the materials co-exist. For example “INTERBEDDED Silty CLAY AND SAND”.

Classification

The soil classification comprises a two character group symbol. The first symbol identifies the primary component. The second symbol identifies either the grading or presence of fines in a coarse grained soil, or the plasticity in a fine grained soil. Refer AS1726-2017 6.1.6 for further clarification.

Soil Name

For most soils the name is derived with the primary component included as the noun (in upper case), preceded by any secondary components stated in an adjective form. In this way the soil name also describes the general composition and indicates the dominant behaviour of the material.

Component ¹	Prominence in Soil Name
Primary	Noun (eg "CLAY")
Secondary	Adjective modifier (eg "Sandy")
Minor	No influence

¹ – for determination of component proportions, refer component proportions on previous page

For materials which cannot be disaggregated, or which are not comprised of rock or mineral fragments, the names "ORGANIC MATTER" or "ARTIFICIAL MATERIAL" may be used, in accordance with AS1726-2017 Table 14.

Commercial or colloquial names are not used for the soil name where a component derived name is possible (for example "Gravelly SAND" rather than "CRACKER DUST").

Identification of minor components

Minor components are identified in the soil description immediately following the soil name. The minor component fraction is usually preceded with a term indicating the relative proportion of the component.

Minor Component Proportion Term	Relative Proportion	
	In Fine Grained Soil	In Coarse Grained Soil
With	All fractions: 15-30%	clay/silt: 5-12% sand/gravel: 15-30%
Trace	All fractions: 0-15%	clay/silt: 0-5% sand/gravel: 0-15%

Soil Composition

Plasticity

Descriptive Term	Laboratory liquid limit range	
	Silt	Clay
Non-plastic materials	Not applicable	Not applicable
Low plasticity	≤50	≤35
Medium plasticity	Not applicable	>35 and ≤50
High plasticity	>50	>50

Note, Plasticity descriptions generally describe the plasticity behaviour of the whole of the fine grained soil, not individual fine grained fractions.

Grain Size

	Type	Particle size (mm)
Gravel	Coarse	19 - 63
	Medium	6.7 - 19
	Fine	2.36 - 6.7
Sand	Coarse	0.6 - 2.36
	Medium	0.21 - 0.6
	Fine	0.075 - 0.21

Grading

Grading Term	Particle size (mm)
Well	A good representation of all particle sizes
Poorly	An excess or deficiency of particular sizes within the specified range
Uniformly	Essentially of one size
Gap	A deficiency of a particular particle size with the range

Note, AS1726-2017 provides terminology for additional attributes not listed here.

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Soil Condition

Moisture

The moisture condition of soils is assessed relative to the plastic limit for fine grained soils, while for coarse grained soils it is assessed based on the appearance and feel of the material. The moisture condition of a material is considered to be independent of stratigraphy (although commonly these are related), and this data is presented in its own column on logs.

Applicability	Term	Tactile Assessment	Abbreviation code
Fine	Dry of plastic limit	Hard and friable or powdery	<PL
	Near plastic limit	Can be moulded	≈PL
	Wet of plastic limit	Water residue remains on hands when handling	>PL
	Near liquid limit	"oozes" when agitated	≈LL
	Wet of liquid limit	"oozes"	>LL
Coarse	Dry	Non-cohesive and free running	D
	Moist	Feels cool, darkened in colour, particles may stick together	M
	Wet	Feels cool, darkened in colour, particles may stick together, free water forms when handling	W

The abbreviation code **NDF**, meaning "not-assessable due to drilling fluid use" may also be used.

Note, observations relating to free ground water or drilling fluids are provided independent of soil moisture condition.

Consistency/Density/Compaction/Cementation/Extremely Weathered Rock

These concepts give an indication of how the material may respond to applied forces (when considered in conjunction with other attributes of the soil). This behaviour can vary independent of the composition of the material, and on logs these are described in an independent column and are generally mutually exclusive (i.e it is inappropriate to describe both consistency and compaction at the same time). The method by which the behaviour is described depends on the behaviour model and other characteristics of the soil as follows:

- In fine grained soils, the "consistency" describes the ease with which the soil can be remoulded, and is generally correlated against the materials undrained shear strength;
- In granular materials, the relative density describes how tightly packed the particles are, and is generally correlated against the density index;
- In anthropogenically modified materials the compaction of the material is described qualitatively;
- In cemented soils (both natural and anthropogenic), the cemented "strength" is described qualitatively, relative to the difficulty with which the material is disaggregated; and
- In soils of extremely weathered rock origin, the engineering behaviour may be governed by relic rock features, and expected behaviour needs to be assessed based the overall material description

Quantitative engineering performance of these materials may be determined by laboratory testing, or estimated by correlated field tests (for example penetration or shear vane testing), or by tactile methods, as appropriate.

Consistency (fine grained soils)

Consistency Term	Tactile Assessment	Undrained Shear Strength (kPa)	Abbreviation Code
Very soft	Extrudes between fingers when squeezed	<12	VS
Soft	Mouldable with light finger pressure	>12 - ≤25	S
Firm	Mouldable with strong finger pressure	>25 - ≤50	F
Stiff	Cannot be moulded by fingers	>50 - ≤100	ST
Very stiff	Indented by thumbnail	>100 - ≤200	VST
Hard	Indented by thumbnail with difficulty	>200	H
Friable	Easily crumbled or broken into small pieces by hand	-	FR

Relative Density (coarse grained soils)

Tactile assessment of relative density is difficult, and generally requires penetration testing, hence a tactile assessment guide is not provided.

Relative Density Term	Density Index	Abbreviation Code
Very loose	<15	VL
Loose	>15-≤35	L
Medium dense	>35-≤65	MD
Dense	>65-≤85	D
Very dense	>85	VD

Soil Descriptions

Terminology
Symbols
Abbreviations

Compaction (anthropogenically modified soil)

Compaction Term	Abbreviation Code
Well compacted	WC
Poorly compacted	PC
Moderately compacted	MC
Variably compacted	VC

Cementation (natural and anthropogenic)

Cementation Term	Abbreviation Code
Moderately cemented	MCE
Weakly cemented	WKCE
Cemented	CE
Strongly bound	SB
Weakly bound	WB
Unbound	UB

Extremely Weathered Rock

AS1726-2017 considers weathered rock material to be soil if the unconfined compressive strength is less than 0.6 MPa (i.e. very low strength rock). These materials may be identified as “extremely weathered rock” in reports and by the abbreviation code **XWR** on log sheets. This identification is not correlated to any specific qualitative or quantitative behaviour, and the engineering properties of this material must therefore be assessed according to engineering principles with reference to any relic rock structure, fabric, or texture described in the description.

Soil Origin

Term	Description	Abbreviation Code
Residual	Derived from in-situ weathering of the underlying rock	RES
Extremely weathered material	Formed from in-situ weathering of geological formations. Has strength of less than ‘very low’ as per AS1726 but retains the structure or fabric of the parent rock.	XWM
Alluvial	Deposited by streams and rivers	ALV
Estuarine	Deposited in coastal estuaries	EST
Marine	Deposited in a marine environment	MAR
Lacustrine	Deposited in freshwater lakes	LCS
Aeolian	Carried and deposited by wind	AE0
Colluvial	Soil and rock debris transported down slopes by gravity	COL
Topsoil	Mantle of surface soil, often with high levels of organic material	TOP
Fill	Any material which has been moved by man	FILL
Littoral	Deposited on the lake or sea shore	LIT
Unidentifiable	Not able to be identified	UID

Cobbles and Boulders

The presence of particles considered to be “oversize” may be described using one of the following strategies:

- Oversize encountered in a minor proportion (when considered relative to the wider area) are noted in the soil description; or
- Where a significant proportion of oversize is encountered, the cobbles/boulders are described independent of the soil description, in a similar manner to composite soils (described above) but qualified with “MIXTURE OF”.

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Rock Strength

Rock strength is defined by the unconfined compressive strength and it refers to the strength of the rock substance and not the strength of the overall rock mass, which may be considerably weaker due to defects.

The Point Load Strength Index $I_{s(50)}$ is commonly used to provide an estimate of the rock strength and site specific correlations should be developed to allow UCS values to be determined. The point load strength test procedure is described by Australian Standard AS4133.4.1-2007. The terms used to describe rock strength are as follows:

Strength Term	Unconfined Compressive Strength (MPa)	Point Load Index ¹ $I_{s(50)}$ MPa	Abbreviation Code
Very low	0.6 - 2	0.03 - 0.1	VL
Low	2 - 6	0.1 - 0.3	L
Medium	6 - 20	0.3 - 1.0	M
High	20 - 60	1 - 3	H
Very high	60 - 200	3 - 10	VH
Extremely high	>200	>10	EH

¹ Assumes a ratio of 20:1 for UCS to $I_{s(50)}$. It should be noted that the UCS to $I_{s(50)}$ ratio varies significantly for different rock types and specific ratios may be required for each site.

On investigation logs only, the following data contiguity codes may be in rock strength tables for layers or seams of material "within rock", but for which the equivalent UCS strength is less than 0.6 MPa.

Scenario	Abbreviation Code
The material encountered has an equivalent UCS strength of less than 0.6 MPa, and therefore is considered to be soil (as per Note 1 of Table 20 of AS 1726-2017). The properties of the material encountered over this interval are described in the "Description of Strata" and soil properties columns.	SOIL
The material encountered has an equivalent UCS strength of less than 0.6 MPa, and therefore is considered to be soil (as per Note 1 of Table 20 of AS 1726-2017). The prominence of the material is such that it can be considered to be a seam (as defined in Table 22 of AS1726-2017) and the properties of the material are described in the defect column.	SEAM

Degree of Weathering

The degree of weathering of rock is classified as follows:

Weathering Term	Description	Abbreviation Code
Residual Soil ^{1,2}	Material is weathered to such an extent that it has soil properties. Mass structure and material texture and fabric of original rock are no longer visible, but the soil has not been significantly transported.	RS
Extremely weathered ^{1,2}	Material is weathered to such an extent that it has soil properties. Mass structure and material texture and fabric of original rock are still visible	XW
Highly weathered	The whole of the rock material is discoloured, usually by iron staining or bleaching to the extent that the colour of the original rock is not recognisable. Rock strength is significantly changed by weathering. Some primary minerals have weathered to clay minerals. Porosity may be increased by leaching, or may be decreased due to deposition of weathering products in pores.	HW
Moderately weathered	The whole of the rock material is discoloured, usually by iron staining or bleaching to the extent that the colour of the original rock is not recognisable, but shows little or no change of strength from fresh rock.	MW
Slightly weathered	Rock is partially discoloured with staining or bleaching along joints but shows little or no change of strength from fresh rock.	SW
Fresh	No signs of decomposition or staining.	FR
Note: If HW and MW cannot be differentiated use DW (see below)		
Distinctly weathered	Rock strength usually changed by weathering. The rock may be highly discoloured, usually by iron staining. Porosity may be increased by leaching or may be decreased due to deposition of weathered products in pores.	DW

¹ – AS1726-2017 6.1.9 provides similar definitions for "residual soil" and "extremely weathered material" as soil origins. Generally, the soil origin terms would be used above the depth at which very low strength or stronger rock material is first encountered, while both soil origin and weathering should may be stated for soil encountered below the first contact with rock material, where appropriate.

² –The parent rock type, of which the residual/extremely weathered material is a derivative, will be stated in the description (where discernible).

Degree of Alteration

The degree of alteration of the rock material (physical or chemical changes caused by hot gasses or liquids at depth) is classified as follows:

Term	Description	Abbreviation Code
Extremely altered	Material is altered to such an extent that it has soil properties. Mass structure and material texture and fabric of original rock are still visible.	XA
Highly altered	The whole of the rock material is discoloured, usually by staining or bleaching to the extent that the colour of the original rock is not recognisable. Rock strength is changed by alteration. Some primary minerals are altered to clay minerals. Porosity may be increased by leaching, or may be decreased due to precipitation of secondary materials in pores.	HA
Moderately altered	The whole of the rock material is discoloured, usually by staining or bleaching to the extent that the colour of the original rock is not recognisable but shows little or no change of strength from fresh rock.	MA
Slightly altered	Rock is slightly discoloured but shows little or no change of strength from fresh rock	SA
Note: If HA and MA cannot be differentiated use DA (see below)		
Distinctly altered	Rock strength usually changed by alteration. The rock may be highly discoloured, usually by staining or bleaching. Porosity may be increased by leaching, or may be decreased due to precipitation of secondary minerals in pores.	DA

Degree of Fracturing

The following descriptive classification apply to the spacing of natural occurring fractures in the rock mass. It includes bedding plane partings, joints and other defects, but excludes drilling breaks. These terms are generally not required on investigation logs where fracture spacing is presented as a histogram, and where used are presented in an unabbreviated format.

Term	Description
Fragmented	Fragments of <20 mm
Highly Fractured	Core lengths of 20-40 mm with occasional fragments
Fractured	Core lengths of 30-100 mm with occasional shorter and longer sections
Slightly Fractured	Core lengths of 300 mm or longer with occasional sections of 100-300 mm
Unbroken	Core contains very few fractures

Rock Quality Designation

The quality of the cored rock can be measured using the Rock Quality Designation (RQD) index, defined as:

$$RQD \% = \frac{\text{cumulative length of 'sound' core sections} \geq 100 \text{ mm long}}{\text{total drilled length of section being assessed}}$$

where 'sound' rock is assessed to be rock of low strength or stronger. The RQD applies only to natural fractures. If the core is broken by drilling or handling (i.e. drilling breaks) then the broken pieces are fitted back together and are not included in the calculation of RQD.

Stratification Spacing

These terms may be used to describe the spacing of bedding partings in sedimentary rocks. Where used, these terms are generally presented in an unabbreviated format

Term	Separation of Stratification Planes
Thinly laminated	< 6 mm
Laminated	6 mm to 20 mm
Very thinly bedded	20 mm to 60 mm
Thinly bedded	60 mm to 0.2 m
Medium bedded	0.2 m to 0.6 m
Thickly bedded	0.6 m to 2 m
Very thickly bedded	> 2 m

Rock Descriptions

Terminology
Symbols
Abbreviations

Defect Descriptions

Defect Type

Term	Abbreviation Code
Bedding plane	B
Clay seam	CS
Cleavage	CV
Crushed zone	CZ
Decomposed seam	DS
Fault	F
Joint	J
Lamination	LAM
Parting	PT
Sheared zone	SZ
Vein	VN
Drilling/handling break	DB , HB
Fracture	FCT

Rock Defect Orientation

Term	Abbreviation Code
Horizontal	H
Vertical	V
Sub-horizontal	SH
Sub-vertical	SV

Rock Defect Coating

Term	Abbreviation Code
Clean	CLN
Coating	CO
Healed	HE
Infilled	INF
Stained	STN
Tight	TI
Veneer	VEN

Rock Defect Infill

Term	Abbreviation Code
Calcite	CA
Carbonaceous	CBS
Clay	CLY
Iron oxide	FE
Manganese	MN
Silty	SLT

Rock Defect Shape/Planarity

Term	Abbreviation Code
Curved	CU
Irregular	IR
Planar	PL
Stepped	ST
Undulating	UN

Rock Defect Roughness

Term	Abbreviation Code
Polished	PO
Rough	RO
Slickensided	SL
Smooth	SM
Very rough	VR

Other Rock Defect Attributes

Term	Abbreviation Code
Fragmented	FG
Band	BND
Quartz	QTZ

Defect Orientation

The inclination of defects is always measured from the perpendicular to the core axis.

intentionally blank

intentionally blank

Sampling and Testing

A record of samples retained and field testing performed is usually shown on a Douglas Partners' log with samples appearing to the left of a depth scale, and selected field and laboratory testing (including results, where relevant) appearing to the right of the scale, as illustrated below:

SAMPLE			DEPTH (m)	TESTING	
SAMPLE REMARKS	TYPE	INTERVAL		TEST TYPE	RESULTS AND REMARKS
	SPT		1.0 1.45	SPT	4, 9, 11 N=20

Sampling

The type or intended purpose for which a sample was taken is indicated by the following abbreviation codes.

Sample Type	Code
Auger sample	A
Acid sulfate sample	ASS
Bulk sample	B
Core sample	C
Disturbed sample	D
Sample from SPT test	SPT
Environmental sample	E
Gas sample	G
Jar sample	J
Undisturbed tube sample	U ¹
Water sample	W
Piston sample	P
Core sample for unconfined compressive strength testing	UCS

¹ – numeric suffixes indicate tube diameter/width in mm

The above codes only indicate that a sample was retained, and not that testing was scheduled or performed.

Field and Laboratory Testing

A record that field and laboratory testing was performed is indicated by the following abbreviation codes.

Test Type	Code
Pocket penetrometer (kpa)	PP
Photo ionisation detector	PID
Standard Penetration Test	SPT
Shear vane (kpa)	V
Unconfined compressive strength, (MPa)	UCS
Point load test, axial (A), diametric (D), irregular (I)	PLT()

Field and laboratory testing (continued)

Test Type	Code
Dynamic cone penetrometer, followed by blow count penetration increment in mm (cone tip, generally in accordance with AS1289.6.3.2)	DCP/150
Perth sand penetrometer, followed by blow count penetration increment in mm (flat tip, generally in accordance with AS1289.6.3.3)	PSP/150

Groundwater Observations

▷	seepage/inflow
▽	standing or observed water level
NFGWO	no free groundwater observed
OBS	Observations obscured by drilling fluids

Drilling or Excavation Methods/Tools

The drilling/excavation methods used to perform the investigation may be shown either in a dedicated column down the left hand edge of the log, or stated in the log footer. In some circumstances abbreviation codes may be used.

Method	Abbreviation Code
Excavator/backhoe bucket	B ¹
Toothed bucket	TB ¹
Mud/blade bucket	MB ¹
Ripping tyne/ripper	RT
Rock breaker/hydraulic hammer	RB
Hand auger	HA ¹
NMLC series coring	NMLC
HMLC series coring	HMLC
NQ coring	NQ
HQ coring	HQ
PQ coring	PQ
Push tube	PT ¹
Rock roller	RR ¹
Solid flight auger. Suffixes (TC) and (V) indicate tungsten carbide or v-shaped tip respectively	SFA ¹
Sonic drilling	SON ¹
Vibrocore	VC ¹
Wash bore (unspecified bit type)	WB ¹
Existing exposure	X
Hand tools (unspecified)	HT
Predrilled	PD
Specialised bit (refer report)	SPEC ¹
Diatube	DT ¹
Hollow flight auger	HFA ¹
Vacuum excavation	VE

¹ – numeric suffixes indicate tool diameter/width in mm

Introduction

The Cone Penetration Test (CPT) is a sophisticated soil profiling test carried out in-situ. A special cone shaped probe is used which is connected to a digital data acquisition system. The cone and adjoining sleeve section contain a series of strain gauges and other transducers which continuously monitor and record various soil parameters as the cone penetrates the soils.

The soil parameters measured depend on the type of cone being used, however they always include the following basic measurements

- Cone tip resistance q_c
- Sleeve friction f_s
- Inclination (from vertical) i
- Depth below ground z

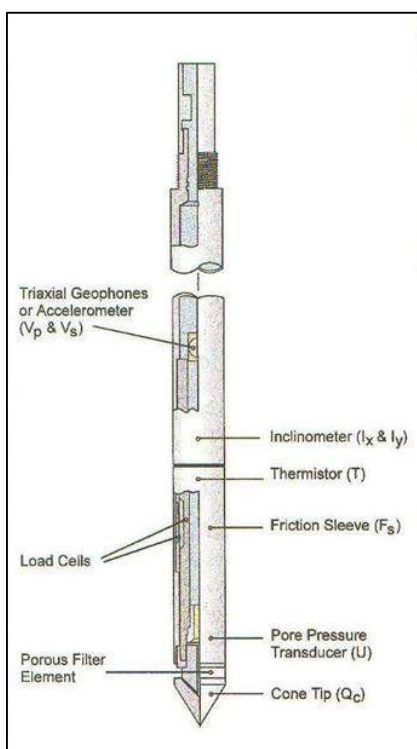


Figure 1: Cone Diagram

The inclinometer in the cone enables the verticality of the test to be confirmed and, if required, the vertical depth can be corrected.

The cone is thrust into the ground at a steady rate of about 20 mm/sec, usually using the hydraulic rams of a purpose built CPT rig, or a drilling rig. The testing is carried out in accordance with the Australian Standard AS1289 Test 6.5.1.



Figure 2: Purpose built CPT rig

The CPT can penetrate most soil types and is particularly suited to alluvial soils, being able to detect fine layering and strength variations. With sufficient thrust the cone can often penetrate a short distance into weathered rock. The cone will usually reach refusal in coarse filling, medium to coarse gravel and on very low strength or better rock. Tests have been successfully completed to more than 60 m.

Types of CPTs

Douglas Partners (and its subsidiary GroundTest) owns and operates the following types of CPT cones:

Type	Measures
Standard	Basic parameters (q_c , f_s , i & z)
Piezocone	Dynamic pore pressure (u) plus basic parameters. Dissipation tests estimate consolidation parameters
Conductivity	Bulk soil electrical conductivity (σ) plus basic parameters
Seismic	Shear wave velocity (V_s), compression wave velocity (V_p), plus basic parameters

Strata Interpretation

The CPT parameters can be used to infer the Soil Behaviour Type (SBT), based on normalised values of cone resistance (Q_t) and friction ratio (F_r). These are used in conjunction with soil classification charts, such as the one below (after Robertson 1990)

Cone Penetration testing

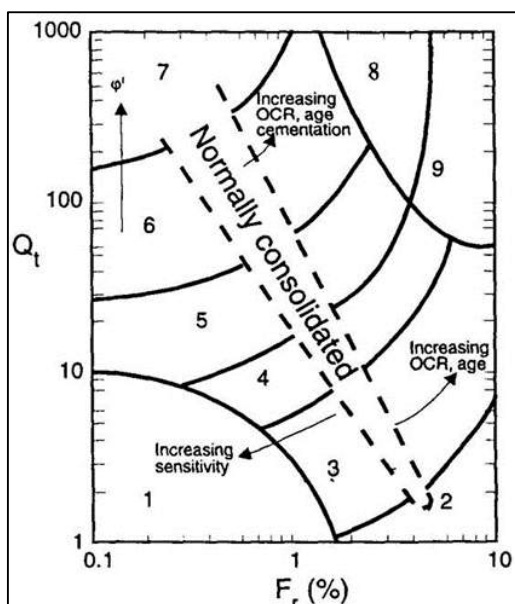


Figure 3: Soil Classification Chart

DP's in-house CPT software provides computer aided interpretation of soil strata, generating soil descriptions and strengths for each layer. The software can also produce plots of estimated soil parameters, including modulus, friction angle, relative density, shear strength and over consolidation ratio.

DP's CPT software helps our engineers quickly evaluate the critical soil layers and then focus on developing practical solutions for the client's project.

Engineering Applications

There are many uses for CPT data. The main applications are briefly introduced below:

Settlement

CPT provides a continuous profile of soil type and strength, providing an excellent basis for settlement analysis. Soil compressibility can be estimated from cone derived moduli, or known consolidation parameters for the critical layers (eg. from laboratory testing). Further, if pore pressure dissipation tests are undertaken using a piezocone, in-situ consolidation coefficients can be estimated to aid analysis.

Pile Capacity

The cone is, in effect, a small scale pile and, therefore, ideal for direct estimation of pile capacity. DP's in-house program ConePile can analyse most pile types and produces pile capacity versus depth plots. The analysis methods are based on proven static theory and empirical studies, taking account of scale effects, pile materials and method of installation. The results are expressed in limit state format, consistent with the Piling Code AS2159.

Dynamic or Earthquake Analysis

CPT and, in particular, Seismic CPT are suitable for dynamic foundation studies and earthquake response analyses, by profiling the low strain shear modulus G_0 . Techniques have also been developed relating CPT results to the risk of soil liquefaction.

Other Applications

Other applications of CPT include ground improvement monitoring (testing before and after works), salinity and contaminant plume mapping (conductivity cone), preloading studies and verification of strength gain.

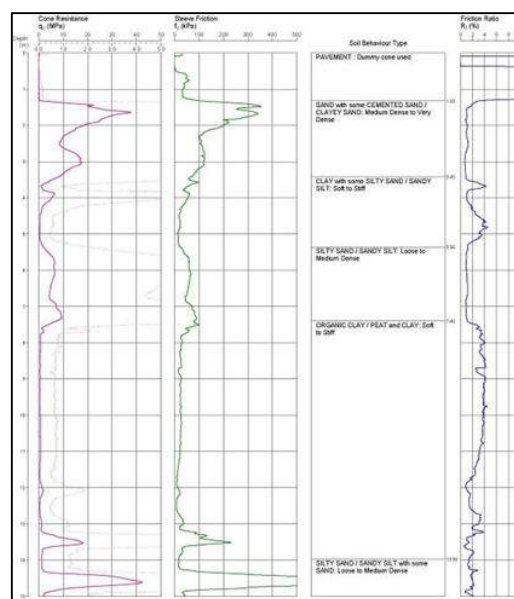
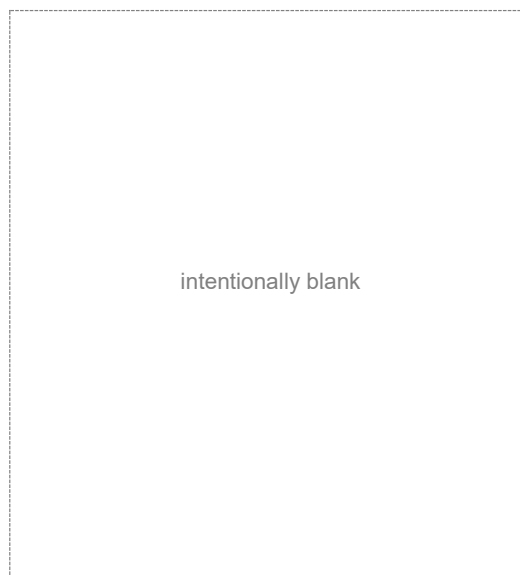


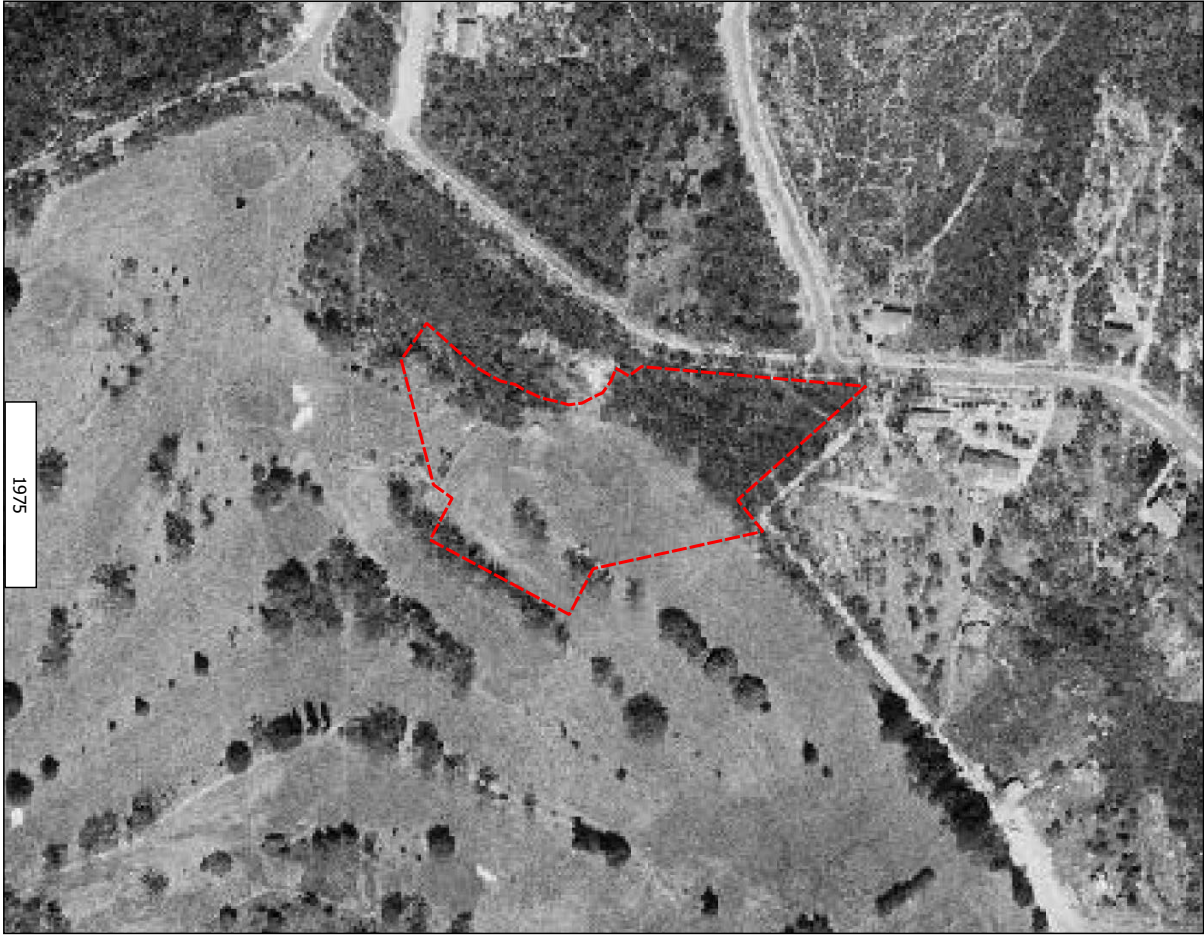
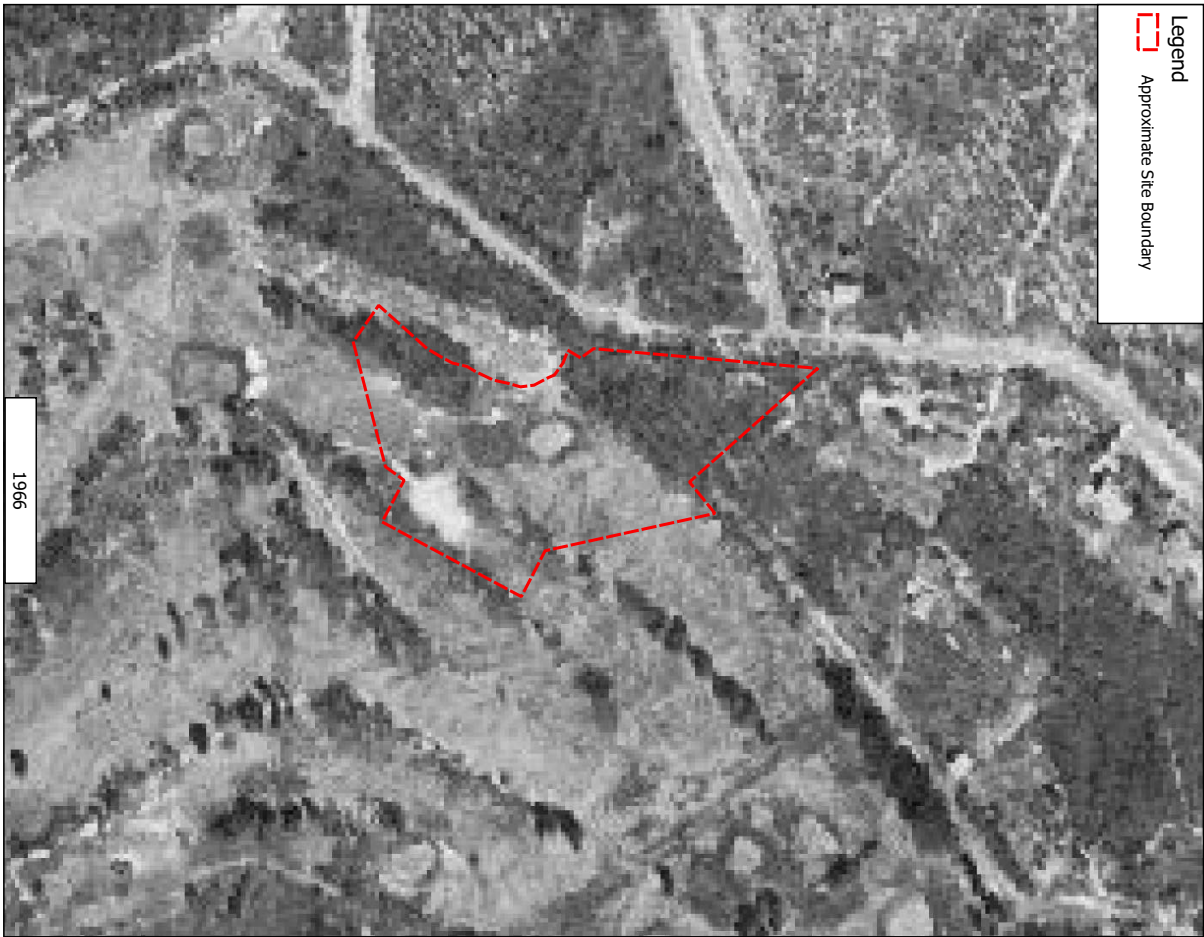
Figure 4: Sample Cone Plot



Appendix C

Historical Aerial Photographs

Legend
Approximate Site Boundary



Douglas Partners
Geotechnics | Environment | Groundwater

CLIENT: VDM Prime Pty Ltd
OFFICE: NW Sydney
SCALE: 1:2500 @ A3
DRAWN BY: KN
DATE: 23.05.2022

TITLE:
Historical Aerial Photographs
Proposed Development
142 - 150 Narrow Neck Road, Katoomba



PROJECT No: 210791.00
DRAWING No: 2
REVISION: 0

Legend
Approximate Site Boundary



Douglas Partners
Geotechnics | Environment | Groundwater

CLIENT: VDM Prime Pty Ltd	
OFFICE: NW Sydney	DRAWN BY: KN
SCALE: 1:2500 @ A3	DATE: 23.05.2022

TITLE:
Historical Aerial Photographs
Proposed Development
142 - 150 Narrow Neck Road, Katoomba



PROJECT No:210791.00	
DRAWING No:	3
REVISION:	0

Legend
 Approximate Site Boundary



70 0 70 140 210 280 m
 1990



1994



Douglas Partners
 Geotechnics | Environment | Groundwater

CLIENT: VDM Prime Pty Ltd
 OFFICE: NW Sydney
 SCALE: 1:2500 @ A3
 DRAWN BY: KN
 DATE: 23.05.2022

TITLE:
 Historical Aerial Photographs
 Proposed Development
 142 - 150 Narrow Neck Road, Katoomba



PROJECT No:210791.00
 DRAWING No: 4
 REVISION: 0

Legend
Approximate Site Boundary



Douglas Partners
Geotechnics | Environment | Groundwater

CLIENT: VDM Prime Pty Ltd
OFFICE: NW Sydney
SCALE: 1:2500 @ A3
DRAWN BY: KN
DATE: 23.05.2022

TITLE:
Historical Aerial Photographs
Proposed Development
142 - 150 Narrow Neck Road, Katoomba



PROJECT No:210791.00
DRAWING No: 5
REVISION: 0

Legend
Approximate Site Boundary



Douglas Partners
Geotechnics | Environment | Groundwater

CLIENT: VDM Prime Pty Ltd
OFFICE: NW Sydney
SCALE: 1:2500 @ A3

DRAWN BY: KN
DATE: 23.05.2022

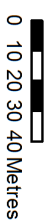
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Historical Aerial Photographs
Proposed Development
142 - 150 Narrow Neck Road, Katoomba



PROJECT No:210791.00
DRAWING No: 6
REVISION: 0

Appendix D

Historical Title Deeds



Cadastral Records Enquiry Report : Lot DP4025915

Locality : KATOOMBA
LGA : BLUE MOUNTAINS

Parish : MEGALONG
County : COOK

	Status	Surv/Comp	Purpose
DP1711			
Lot(s): 8 Section : C			
 DP1270176	PRE-ALLOCATED	UNAVAILABLE	SUBDIVISION
DP270422			
Lot(s): 1, 3, 26, 27, 28, 29, 30			
 DP1026915	HISTORICAL	SURVEY	SUBDIVISION
Lot(s): 26, 27, 28, 29, 30			
 DP270422	HISTORICAL	SURVEY	COMMUNITY PLAN
Lot(s): 1			
 DP270422	REGISTERED	SURVEY	COMMUNITY SUBDIVISION PLAN
 DP1153707	REGISTERED	COMPILATION	EASEMENT
 SP74576	REGISTERED	COMPILATION	STRATA PLAN
DP557848			
Lot(s): 2			
 NSW GAZ. 11-02-2011 Folio : 598 LOT 2 DP557848 RESERVED AS PART OF BLUE MOUNTAINS NATIONAL PARK			
DP1003971			
Lot(s): 112			
 DP882291	HISTORICAL	SURVEY	SUBDIVISION
DP1026915			
Lot(s): 5			
 DP1711	HISTORICAL	COMPILATION	UNRESEARCHED
 DP2060	HISTORICAL	COMPILATION	UNRESEARCHED
 DP1012606	HISTORICAL	COMPILATION	ROADS ACT, 1993
 DP1012607	HISTORICAL	COMPILATION	ROADS ACT, 1993
 DP1012608	HISTORICAL	COMPILATION	ROADS ACT, 1993
 DP1153707	REGISTERED	COMPILATION	EASEMENT
Lot(s): 1, 2			
 DP329050	HISTORICAL	COMPILATION	UNRESEARCHED
Lot(s): 2			
 DP270422	REGISTERED	SURVEY	COMMUNITY SUBDIVISION PLAN
 DP271340	PRE-ALLOCATED	UNAVAILABLE	COMMUNITY PLAN
 DP880470	HISTORICAL	COMPILATION	ROADS ACT, 1993
Lot(s): 1, 2, 5			
 DP130768	HISTORICAL	COMPILATION	DEPARTMENTAL
DP1074422			
Lot(s): 5			
 DP271388	PRE-ALLOCATED	UNAVAILABLE	COMMUNITY PLAN
 DP593545	HISTORICAL	COMPILATION	SUBDIVISION
Road			
Polygon Id(s): 105190303			
 EX-SUR 81/42 DP450367			

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

PLAN FORM 2

SIGNATURES AND SEALS ONLY

The Common Seal of THE COUNCIL OF THE CITY OF BLUE MOUNTAINS was hereto affixed in pursuance of a resolution passed at a duly convened meeting held on the 26th day of OCTOBER 1997



Barrie Hamilton
CITY ENGINEER

John Allen
CITY ENGINEER

Crown Lands Office Approval

PLAN APPROVED _____

Land District _____

Paper No _____

Page No _____

Subdivision Certificate No. **4997**

Consent Authority: **Blue Mountains City Council**

Date of Endorsement: **15 May 2001**

Accreditation No. _____

File No. **4997/2005**

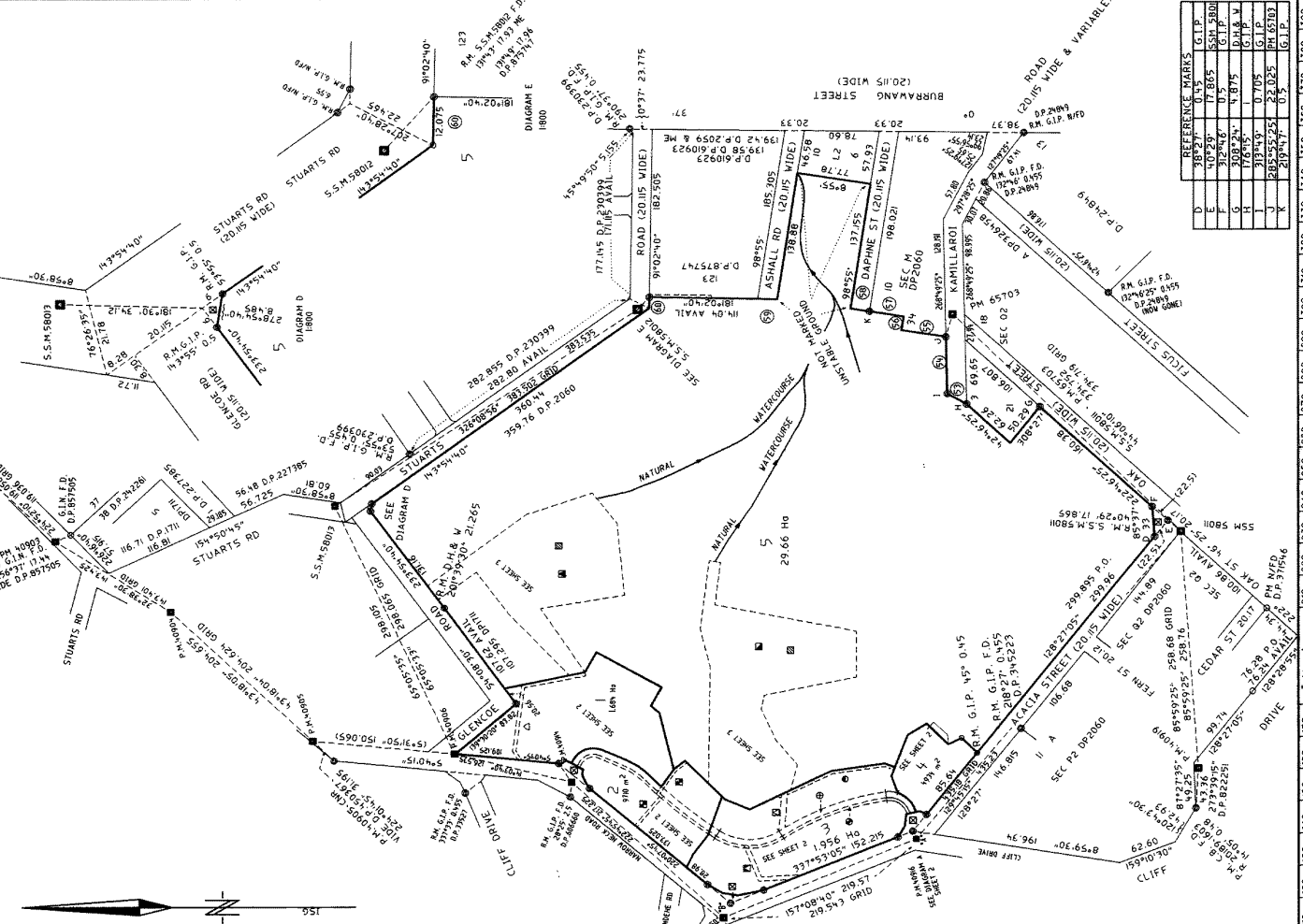
Note: This plan is to be lodged electronically in the Land Titles Office. The plan must be accompanied by a copy of the electronic or digital format approved by the Registrar-General.

MARK	1:5 G. CO-ORDINATES	NORTHING	ZONE ACC.
P.M.4.0902	234 755.044	1 267 693.708	561 3
P.M.4.0903	234 755.044	1 267 693.708	561 3
P.M.4.0904	234 755.044	1 267 693.708	561 3
P.M.4.0905	234 755.044	1 267 693.708	561 3
P.M.4.0906	234 453.374	1 267 339.680	561 3
P.M.4.0907	234 438.906	1 267 190.331	561 3
P.M.4.0908	234 221.02	1 266 949.083	561 3
P.M.4.0909	234 221.02	1 266 949.083	561 3
P.M.4.0910	234 221.02	1 266 949.083	561 3
P.M.4.0911	234 345.973	1 266 705.836	561 3
P.M.4.0912	234 422.490	1 266 409.453	561 3
P.M.4.0913	234 680.538	1 266 127.542	561 3
P.M.4.0914	234 722.873	1 266 99.869	561 3
P.M.4.0915	234 93.488	1 266 667.898	561 3

Reference	1:5 G. CO-ORDINATES	NORTHING	ZONE ACC.
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52	267.07	1 267 693.708	561 3
53	267.07	1 267 693.708	561 3
54	267.07	1 267 693.708	561 3
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56	267.07	1 267 693.708	561 3
57	267.07	1 267 693.708	561 3
58	267.07	1 267 693.708	561 3
59	267.07	1 267 693.708	561 3
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COMBINED SCALE & SEA LEVEL FACTOR: 0.99984

SOURCE: 1:5 G. CO-ORDINATES ADOPTED FROM S.C.T.M.S. 10 JULY 1998



DP1026915

Registered: **14-6-2001**

C.A.: SEE CERTIFICATE

Title System: **TORRENS**

Purpose: **SUBDIVISION**

Ref Map: **U2860-3**

Last Plans: **DP1026915, DP1026916, DP1026917, DP1026918, DP1026919, DP1026920, DP1026921, DP1026922, DP1026923, DP1026924, DP1026925, DP1026926, DP1026927, DP1026928, DP1026929, DP1026930, DP1026931, DP1026932, DP1026933, DP1026934, DP1026935, DP1026936, DP1026937, DP1026938, DP1026939, DP1026940, DP1026941, DP1026942, DP1026943, DP1026944, DP1026945, DP1026946, DP1026947, DP1026948, DP1026949, DP1026950, DP1026951, DP1026952, DP1026953, DP1026954, DP1026955, DP1026956, DP1026957, DP1026958, DP1026959, DP1026960, DP1026961, DP1026962, DP1026963, DP1026964, DP1026965, DP1026966, DP1026967, DP1026968, DP1026969, DP1026970, DP1026971, DP1026972, DP1026973, DP1026974, DP1026975, DP1026976, DP1026977, DP1026978, DP1026979, DP1026980, DP1026981, DP1026982, DP1026983, DP1026984, DP1026985, DP1026986, DP1026987, DP1026988, DP1026989, DP1026990, DP1026991, DP1026992, DP1026993, DP1026994, DP1026995, DP1026996, DP1026997, DP1026998, DP1026999, DP1027000, DP1027001, DP1027002, DP1027003, 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DP1026915

Registered: H 14-6-2001

This is sheet 2 of my plan in 4 sheets dated 21.11.2000

Surveyor registered under the Surveyors Act 1978

This is sheet 2 of plan in 4 sheets covered by subdivision certificate No. 48977 of

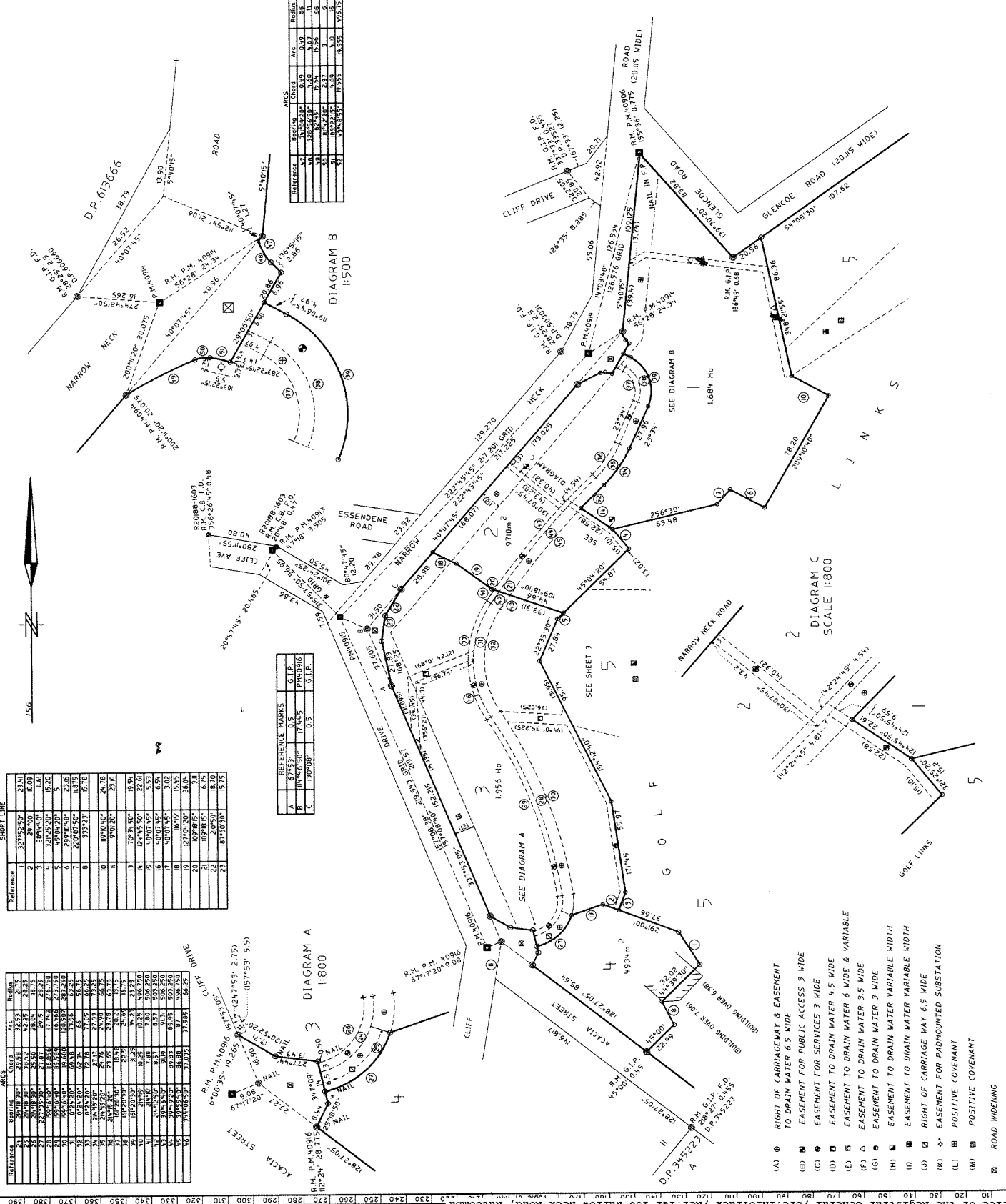
Authorised Person/General Manager/Professional Engineer

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

PLANS USED CONT
D.P. 102608 D.P. 10096 R.P. 2411
D.P. 102609 D.P. 10096 R.P. 2411
D.P. 102607 D.P. 345223

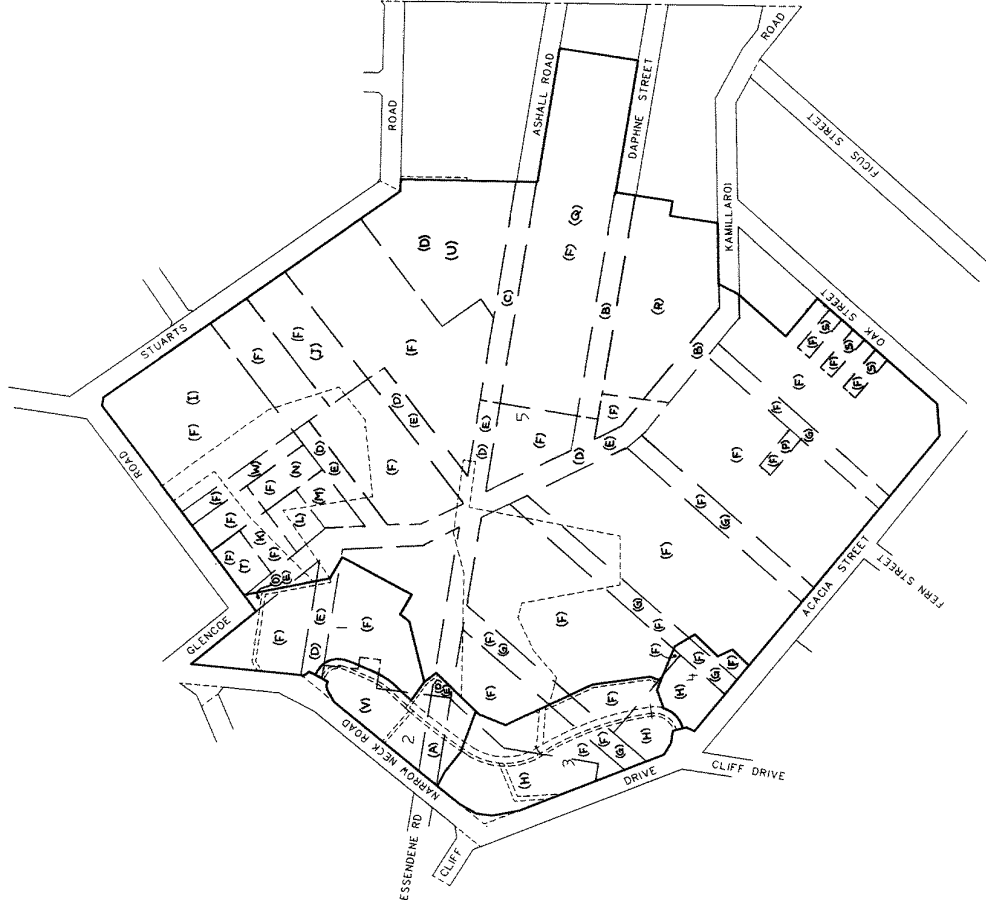
Reduction Ratio 1:1500

SURVEYOR'S REFERENCE: 167-80-2 002



DP1026915

PLAN SHOWING MINERAL EXCEPTIONS & RESERVATIONS
& CONDITIONS IN FAVOUR OF THE CROWN.



- (D) EXCEPTION OF MINERALS & RESERVATIONS & CONDITIONS IN FAVOUR OF THE CROWN-SEE CROWN GRANT
- (F) RESERVATIONS & CONDITIONS IN CROWN GRANT
- (E) EXCEPTING LAND BELOW A DEPTH OF 19.24 METRES - SEE CROWN GRANT
- LAND EXCLUDES MINERALS VIDE - (B) 6879870 - (S) 672221
- LAND EXCLUDES MINERALS (S.171) CROWN LANDS ACT) VIDE - (A) 9429417 - (C) 6926153
- LAND EXCLUDES MINERALS & IS SUBJECT TO RIGHTS TO MINE VIDE - (G) A83082 (J) 120256 (K) 122788 (L) 256541 (M) 193380 (N) 197783 (P) A10285 (Q) C462797 (T) 185187 (W) 259563
- LAND EXCLUDES MINERALS (S.194) PUBLIC WORKS ACT) VIDE - (H) C698604 (R) C558745 (U) C331949 (V) F5597141

Registered: **11/14-6-2001**

This is sheet 4 of my plan in 4 sheets dated 21.11.2000

Surveyor registered under the Surveyors Act 1979

This is sheet 4 of my plan in 4 sheets covered by subdivision certificate No. 4897 of 15 May 2001

Authorised Person/Geometrist/Professional Engineer

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

InfoTrack
J B H...
S...
Katoomba

DP 2060

PLAN

of

MBA SOUTH

MB 29.7.90
WBAK 20.4.90

2060
DP2060®

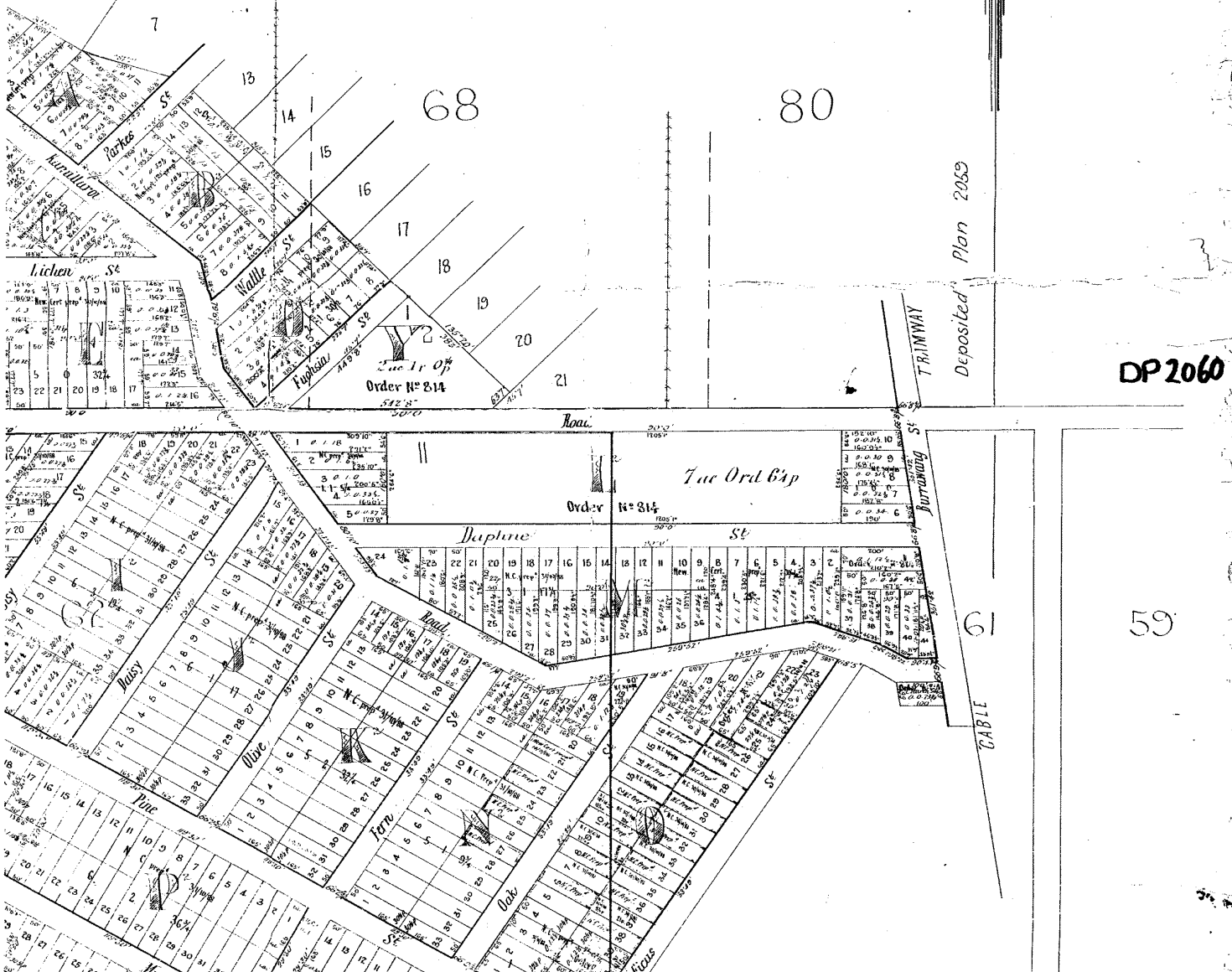
of parts of Portions N° 62, 64, 66, 68, 70 and 72

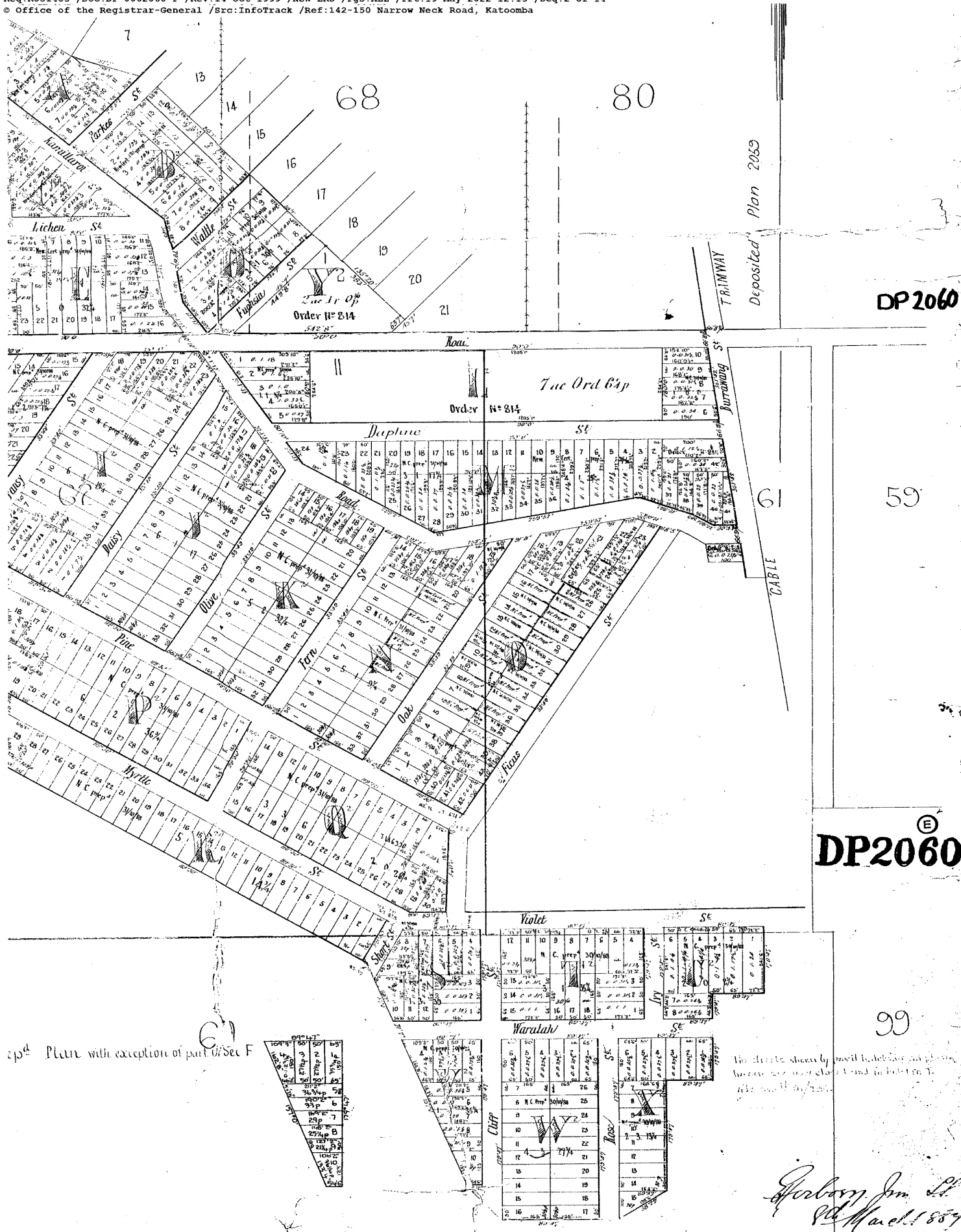
CALONG C^o of COOK

London Chartered Bank of Australia 3rd July 1886 Vol. 399 fol. 91 Vol. 357 fol. 78
19th April 1886. 783. 136
21st October 1887. 853. 22
15th February 1888. 875. 85

prepared for lot 1 Sec M² 4 lot 21 Sec 1² 10000 Vol. fo:

Residue prepared 10000 Vol. fo: Deposited Plan 171





DP2060

99

Forbes, Jm. Ld.
 19th March 1889

82

Deposited

Plan

1711

39

Brougham St

20

19

18

17

16

15

14

Clare St

14

13

12

11

Essendene

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DP 2060

76

The streets shown by pink hatching on plan are now closed and included in the 133082 site survey M4 591

75

NOTE - All Streets 66' wide

This is the Plan marked 'A' referred to in annexed declaration of Eugene E. W. Herbert of Chief Surveyor made before me this 8th day of March 1887

Eugene E. W. Herbert

Note: Portions edged red ^{now} included in Dep'd Plan with exception of part of Sec F

Scale of 200ft to 1 inch

DP 2060[®]

DP 2060

DP 2060 ^④

PLAN

of

KATOOMBA

Being a subdivision of parts of Portions Nos 62, 66, 68,

P^H of MECALONG C^O of COOK

Part of portions 61 & 63 Grant to The London Chartered Bank of Australia 18th July 1886 Vol
 764 77
 62
 60
 3rd April 1886
 2nd October 1887
 1st February 1888

New Cert: prepared for lot 1 Sec: M 4 lot 21 Sec: 2 project York

Residue prepared Deposited

82

77

Deposited

Plan

17H

39

Brougham St

20

19

18

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Essendene

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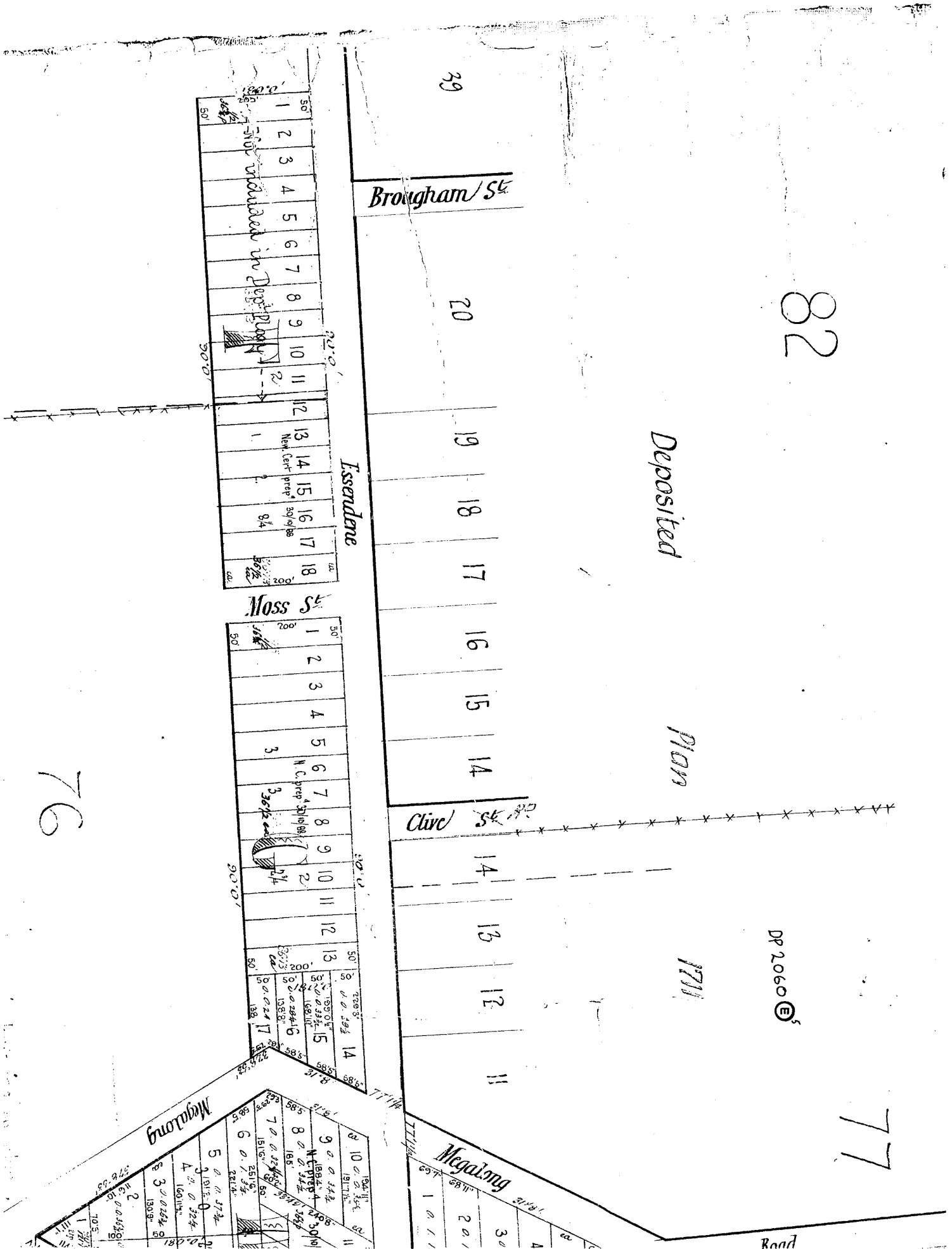
76

The streets shown by pencil markings on plan
 are now closed and included in the A33062
 site under M 591

DP 2060

75

NOTE: All Streets 66' wide



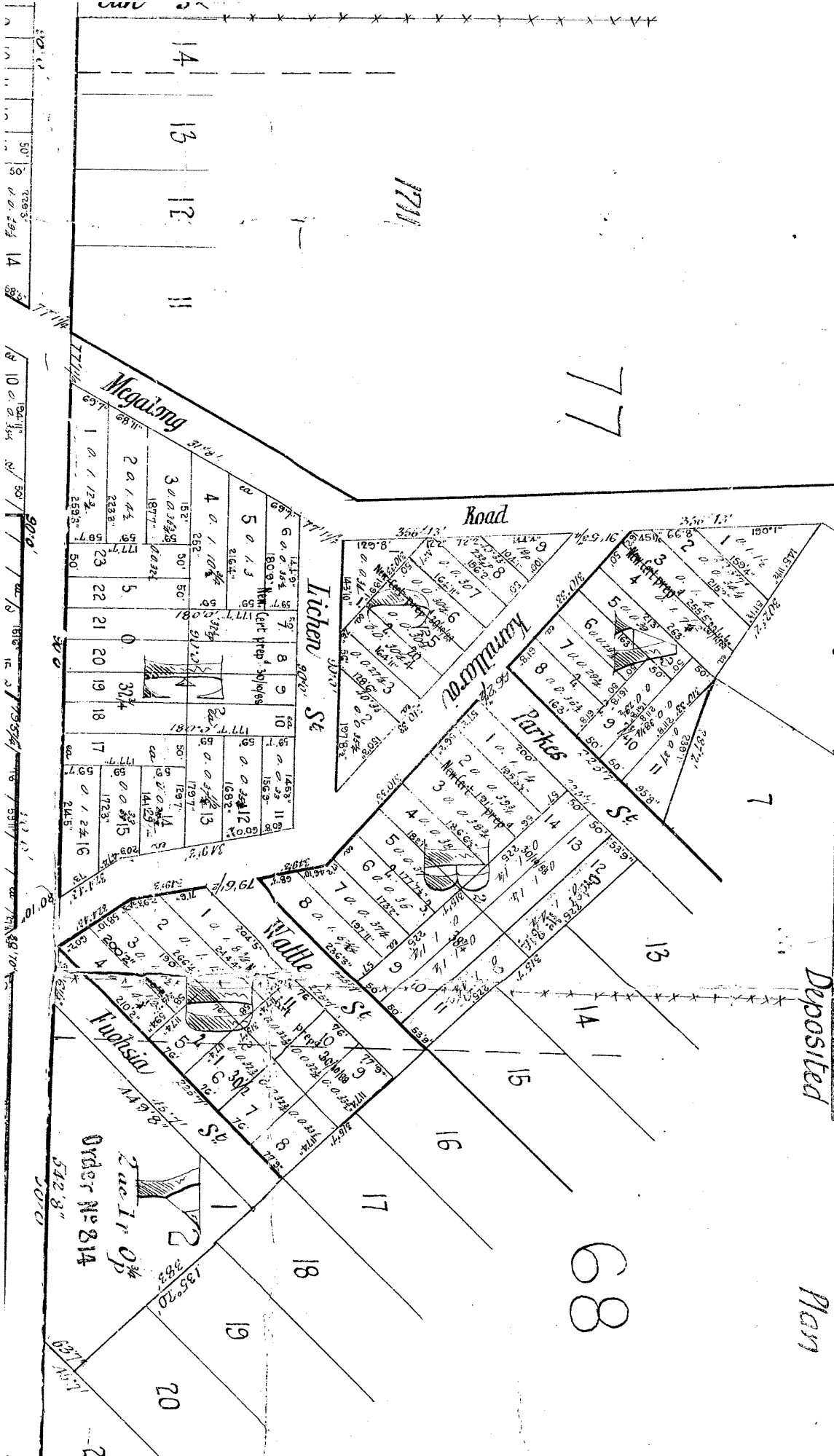
Part of portions 61 & 68 Grant to The London Chartered Bank of Australia
 76177
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 18th July 1886 Vol. 799 fol. 91 } 14857 fol. 78
 19th April 1886 " 783 " 126 }
 21st October 1887, 859 " 22 }
 15th February 1888, 875 " 85 }

New Cert: prepared for lot 1 Sec M² 4 lot 21 Sec 12
 DP2060 ©

Residue prepared 19133

Deposited

Plan



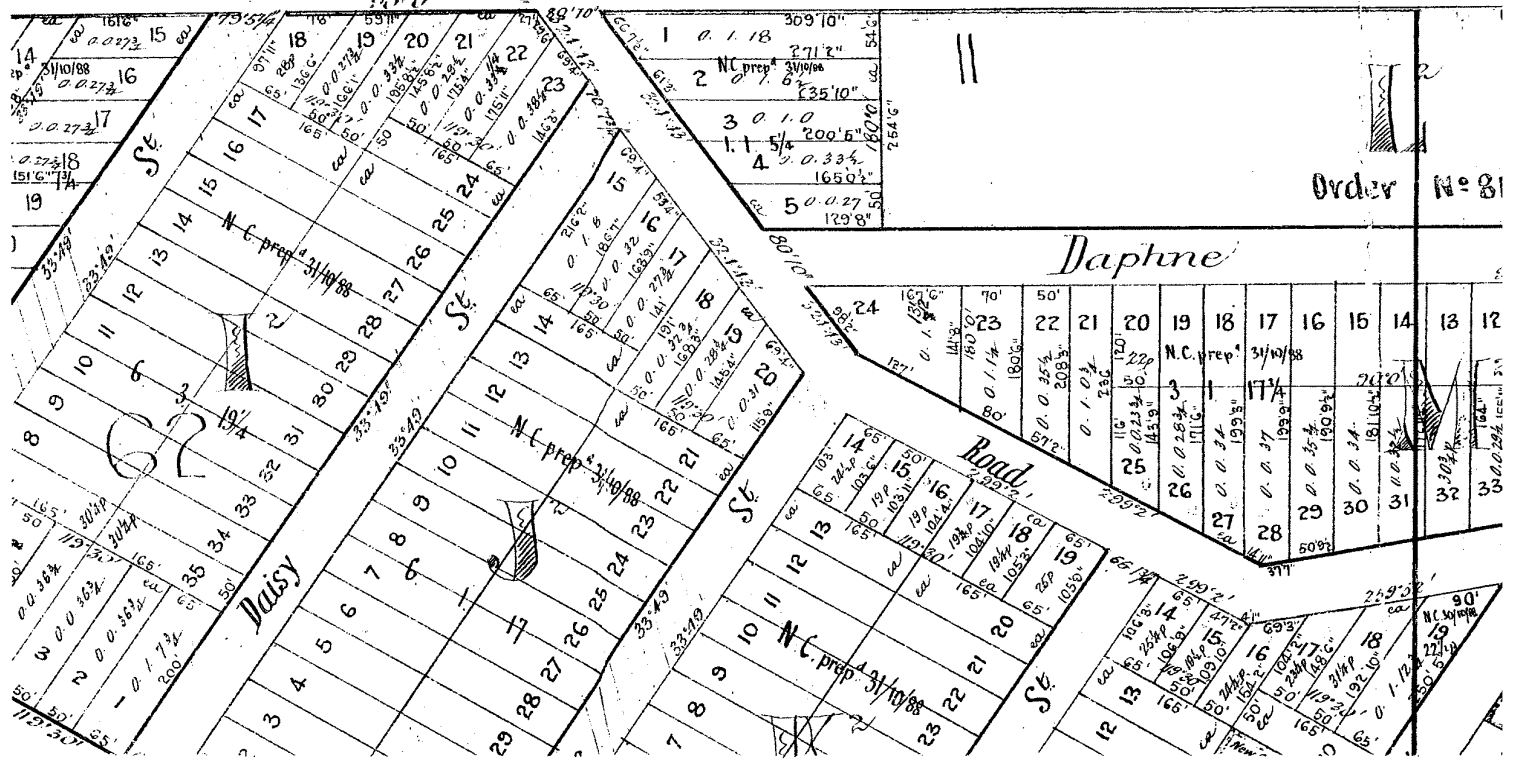
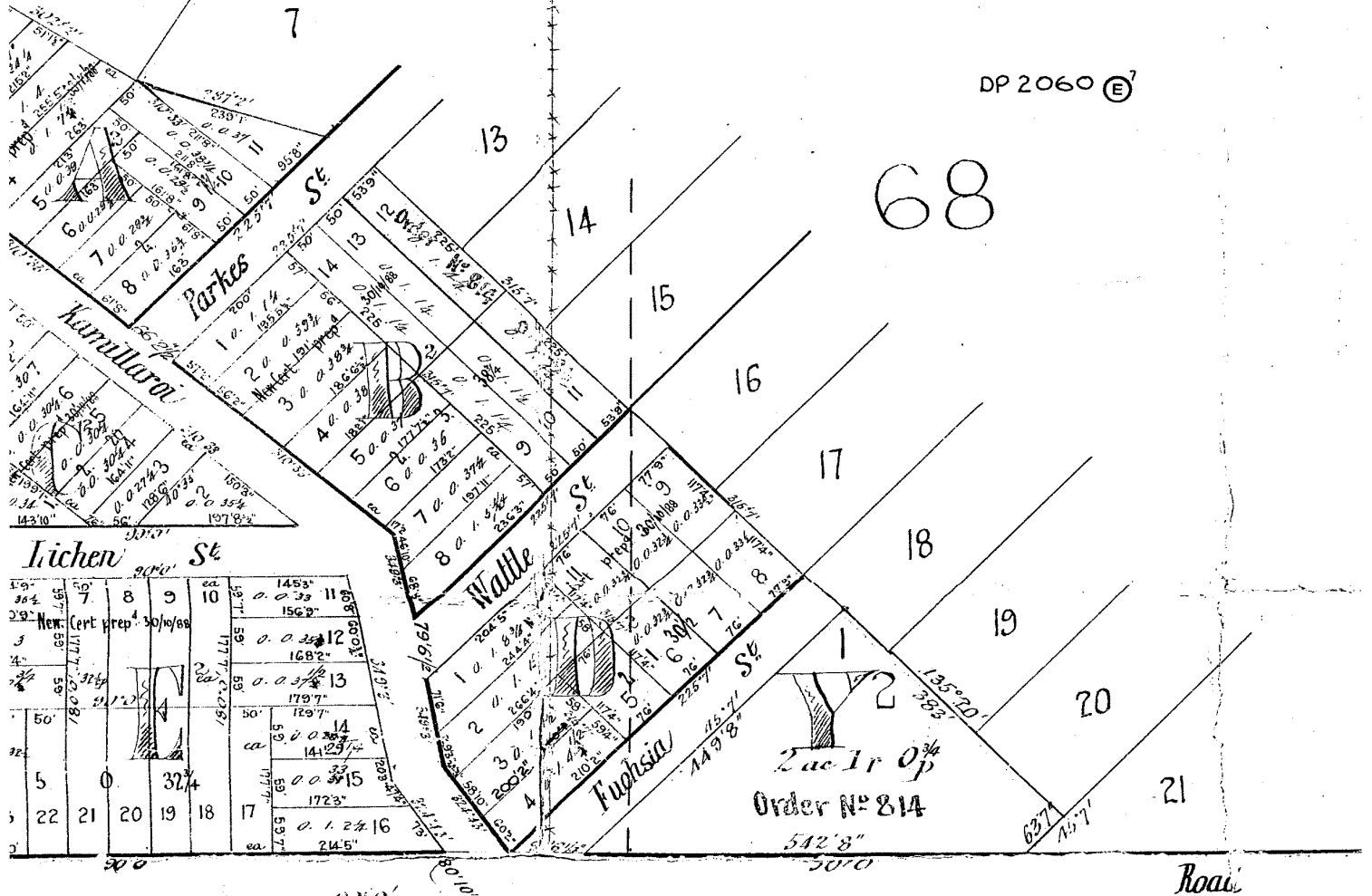
Order No 214
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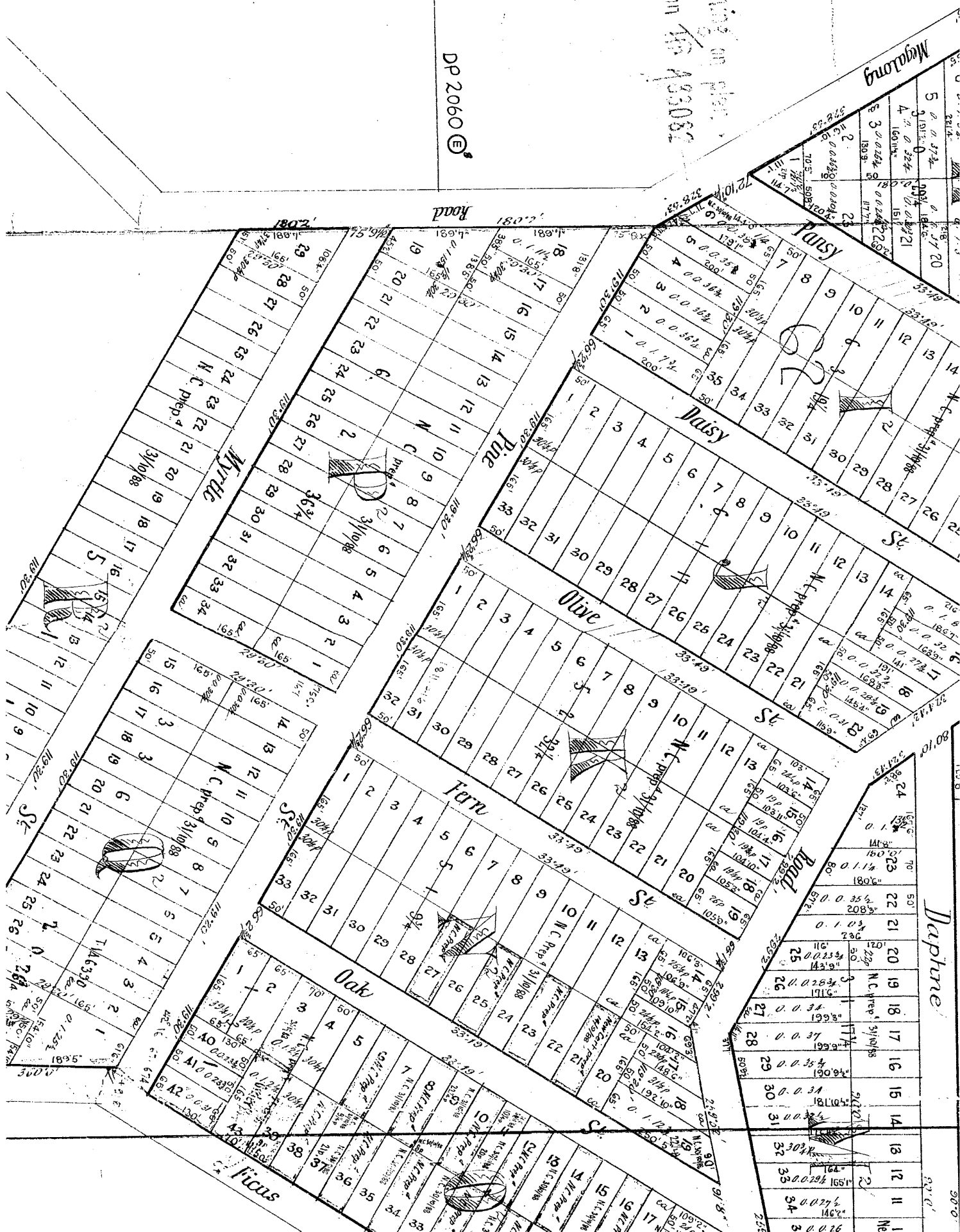
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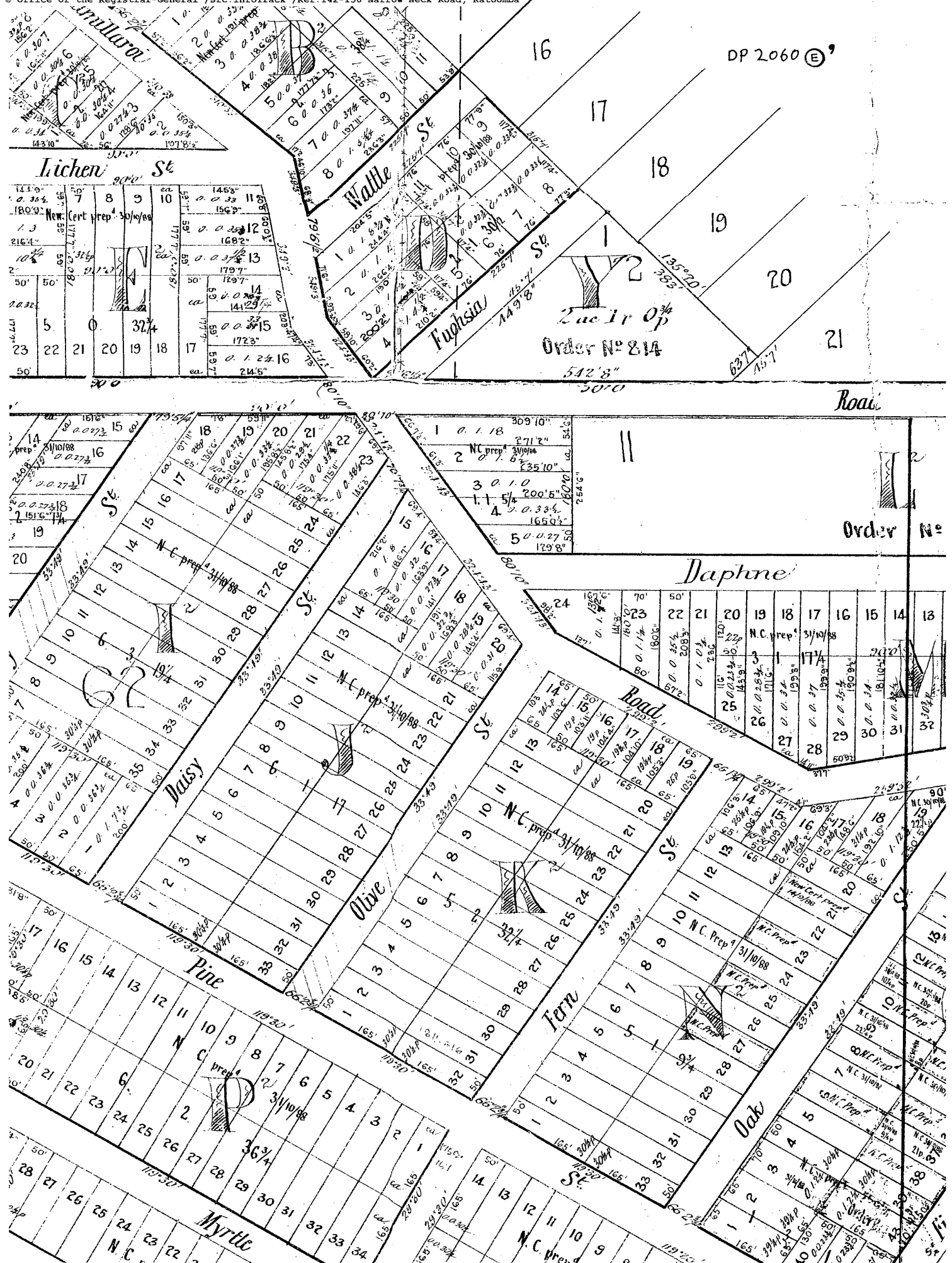
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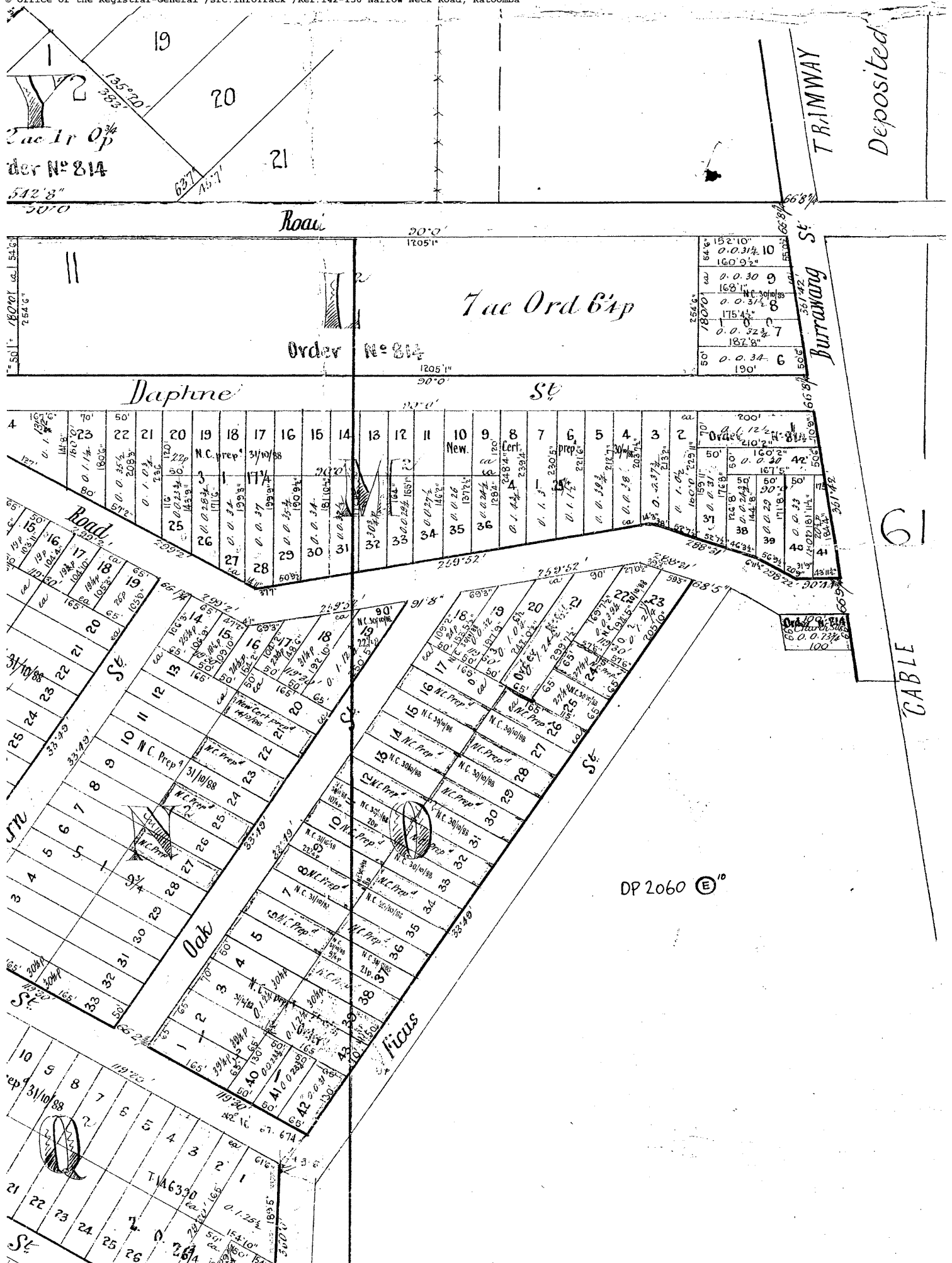
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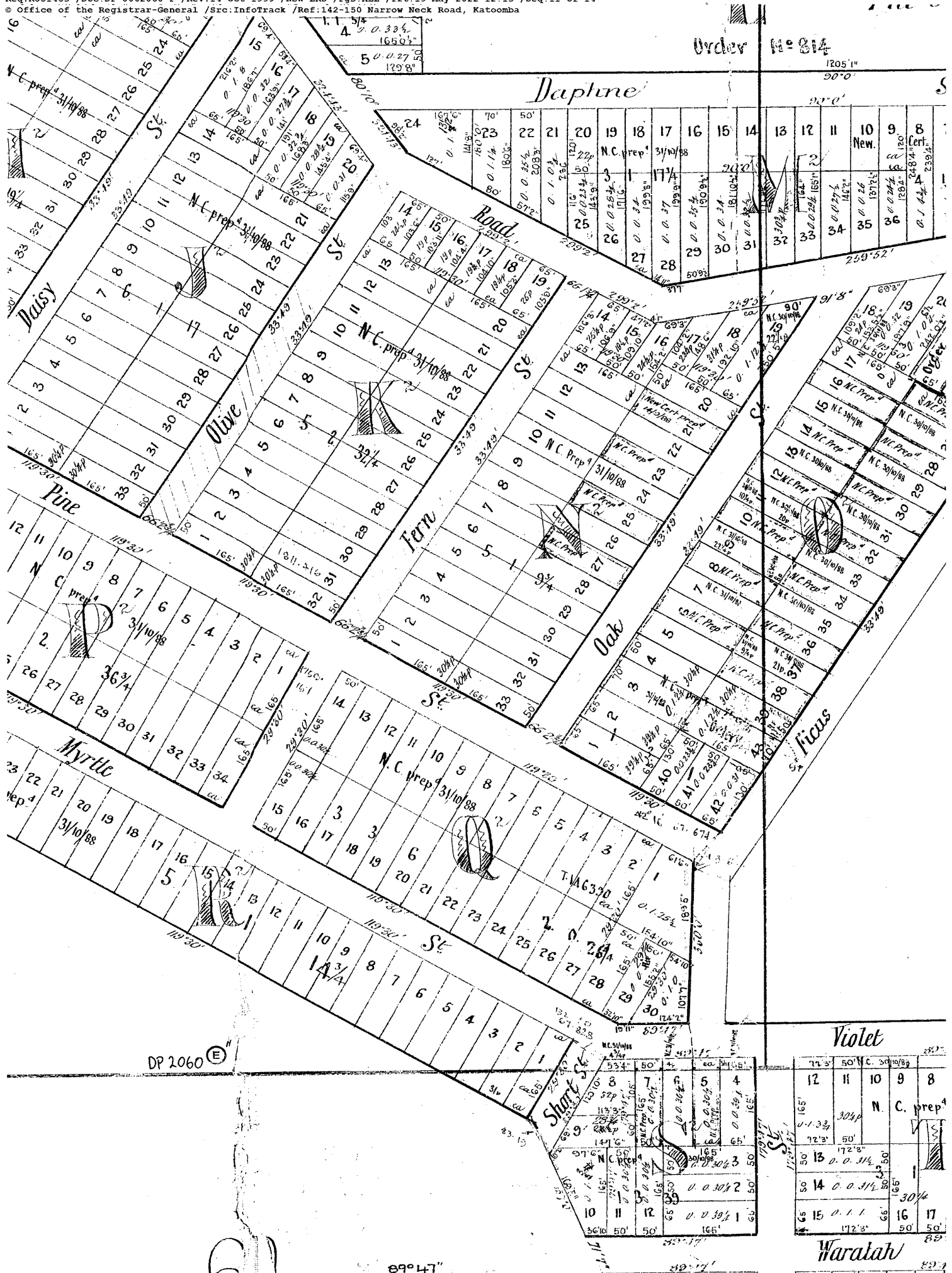
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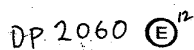


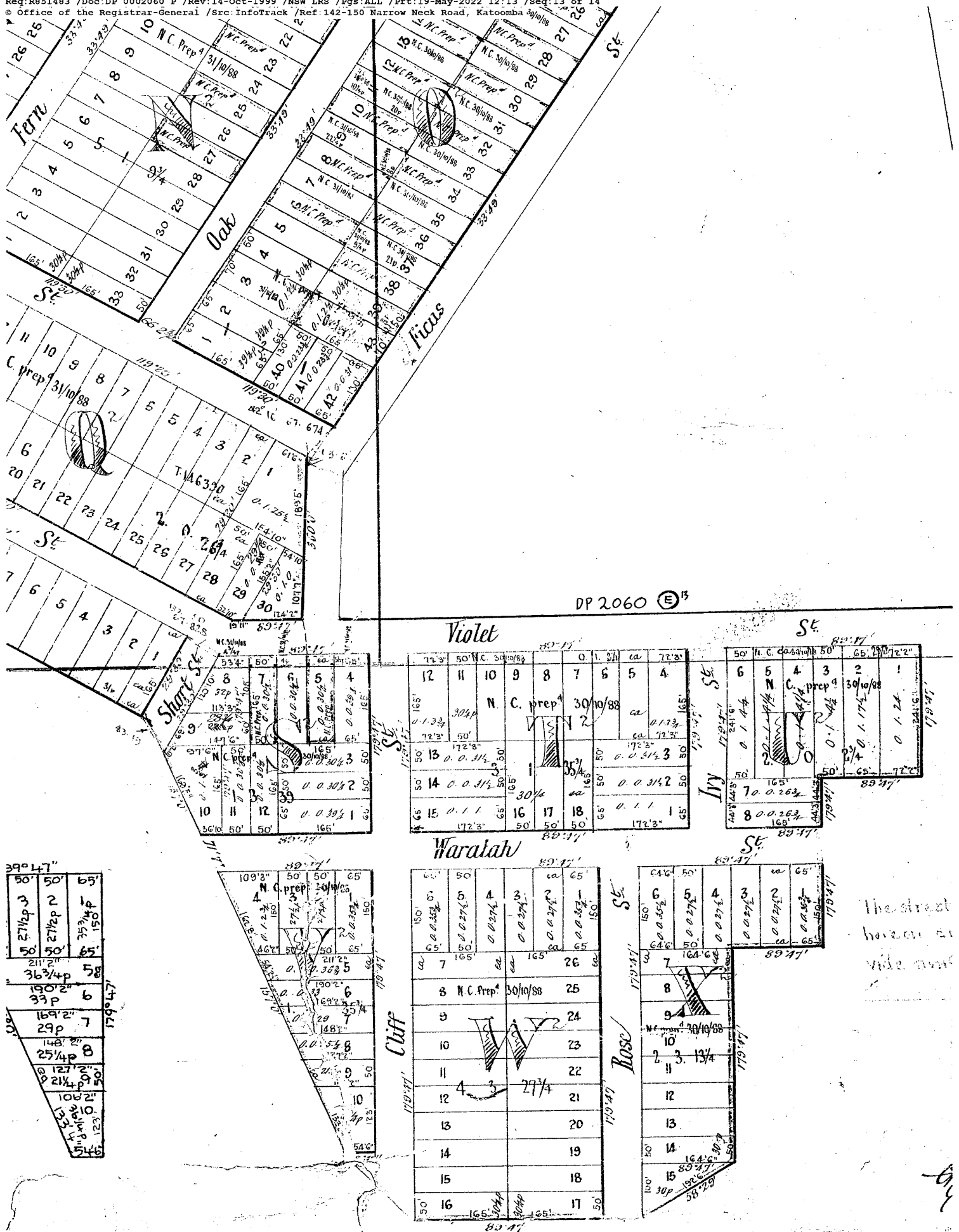












The street
has been
wide open

(5824) Sydney, 16th May, 1930.

APPLICATIONS FOR THE CLOSING AND PURCHASE OF ROADS.

NOTICE is hereby given that application has been made under the Public Roads Act, 1902, for the closing and purchase of the roads described in the Schedule hereunder, and that it is intended to close same, unless valid objections are found to exist.

Any person desiring to lodge objections should forward the same in writing, addressed to the Minister for Lands, within one month from the date of this notice.

R. T. BALL, Minister for Lands.

Road Purchase Application by The Council of the Municipality of Katoomba, about 5 acres 3 roods. The private subdivision roads known as Lichen-street, Wattle-street and Fuchsia-street, and parts of the private subdivision roads known as Kamillaroi-road and Daphne-street, within portions 77, 68 and 62, and shown on deposited plan 2,060; part of Crown subdivision road (boundary road) known as Essendene-road separating part of portions 77 and 68 from part of portion 62, as now included within the external boundaries of the golf links, parish of Megalong, county of Cook, Land District of Penrith, Municipality of Katoomba.
(Roads 1929-1,051)

Road Purchase Application by James Bradshaw Houston, 12 acres 1 rood. Reserved road within portion C.P.L. 21, Hay, of 1,920 acres, parish, county and Shire of Waradgery, Land District of Hay.
(Roads 1929-1,011)

Road Purchase Application by Gordon Allen Ridley, 9 acres 1 rood. The unnecessary boundary road separating portions 3 and 4 from portions 2 and 87, exclusive of the part necessary to preserve continuity of the reserved (public) road within portions 2 and 3; also boundary road separating portion 53 from portion 27, parish of Grabine, county of Georgiana, Land District of Carcoar, Crookwell Shire.
(Roads 1929-304)

Road Purchase Application by Benjamin Willoughby Erratt, 16 acres 2 roods. The unnecessary boundary road separating portion 146 from portions 132, 120 and 90, parish of Bogabri, county of Nandewar, Land District of Gunnedah, Namoi Shire.
(Roads 1929-565)

Road Purchase Application by David Valentine Wilson, 29 acres 3 roods 15 perches. The unnecessary reserved road road within portion 132; boundary roads separating portion 132 from portions 145 and 149; separating portion 90 from portions 45 and 166; separating portions 122 and 90 from portions 89, 139 and 123 to the south-western corner of portion 123, parish of Bogabri, county of Nandewar, Land District of Gunnedah, Namoi Shire.
(Roads 1929-745)

Road Purchase Application by William James Trembath, 6 acres 1 rood 30 perches. The unnecessary boundary road separating portion 28 from portion 34, parish of Moomboodool, county of Cooper, Land District of Narrandera, Yanko Shire.
(Roads 1929-886)

Road Purchase Application by J. H. Waite and Sons, 2 acres 1 rood. Boundary road separating portion 72 from portion 45, parish of Dora Dora, county of Goulburn, Land District of Albury, Holbrook Shire.
(Roads 1929-910)

Road Purchase Application by Robert Charles Bertram Barton, 19 acres 2 roods 30 perches. The unnecessary reserved roads within and along the southern boundary of portion 51 and within and along the northern boundary of portion 54; boundary road separating portion 31 from portion 52 and the public road R. 13,660-1,603 separating portion 31 from the railway lands at Elong Elong, parish of Narran, county of Lincoln, Land District of Dubbo, Cobar Shire.
(Roads 1929-918)

Road Purchase Application by William Alfred Kneller, 16 acres. The unnecessary public boundary road separating portion 25 from portion 22, parish of Quinn, county of White, Land District of Narrabri, Namoi Shire.
(Roads 1929-993)

Road Purchase Application by John Drysdale, 13 acres. The unnecessary public boundary road separating portion 26 from portion 22, parish of Quinn, county of White, Land District of Narrabri, Namoi Shire.
(Roads 1929-1,195)

Road Purchase Application by William Patrick Stake-lum, 2 acres 2 roods 20 perches. Boundary (public) road separating portions 306 and 307 from portions 310, 311 and 312, parish, county, Land District and Shire of Urana.
(Roads 1929-1,254)

Road Purchase Application by Albert John Barton, 15 acres 1 rood. The unnecessary public boundary road separating portion 23 from portion 24, parish of Quinn, county of White, Land District of Narrabri, Namoi Shire.
(Roads 1929-1,196)

Road Purchase Application by Thomas Peel Ellis, junior, 2 acres 3 roods. The unnecessary southern reserved (public) road within portion 34, and unnecessary boundary (public) road separating portion 34 from the Bowman River, parish of Craven, county of Gloucester, Land District of Gloucester, Gloucester Shire.
(Roads 1929-1,010)

Road Purchase Application by Leslie Angus Evans and Arthur Evans, 15 acres 2 roods. The unnecessary road separating portions 75 and 77 from portion 2, end of road, portion 74, end of road and portions 69, 68 and 67; the unnecessary reserved road within portion 67, parish of Burdekin, county of Inglis, Land District of Tamworth, Cobar Shire.
(Roads 1929-845)

Road Purchase Application by Richard Russell Pugh, about 4½ perches. A strip 10 feet wide and of variable width of road known as Vernon-street, adjoining lot 1, deposited plan 16,416, and forming part of crown boundary road separating portion 84 from portion 112, as shown on plan catalogued H. 4-2,110, sheet 2, parish and Municipality of Hunters Hill, county of Cumberland, Metropolitan Land District.
(Roads 1930-9)

Road Purchase Application by John Murdoch McLeod, Neil McLeod, Walter Hugh McLeod and Alexander Kenneth McLeod, 30 acres. The unnecessary reserved road within portion 19, parish of Murrungundie, county of Lincoln, Land District of Dubbo, Cobar Shire.
(Roads 1929-592)

Road Purchase Application by John Neville Fraser, 220 acres. The unnecessary boundary road separating portion 9 from portions 7, 26 and 8, and the unnecessary reserved road within portion 26, parish of Barraba. The unnecessary boundary road separating portions 8, end of road, 9, 16 and 18, parish of Barraba, from portions 1, end of road, 6, 7 and 9, parish of Balpool. The unnecessary boundary road separating portions 1, 2, end of road, 3, 4, 21 and 20 from portions 6, end of road, 5, 18 and 8; the unnecessary boundary road separating portions 2, 6, 7, 9 and 12 from portions 3, 5, 8, 10 and 11; the unnecessary boundary road separating portion 21 from portions 13, end of road, 15 and 16; the unnecessary boundary road separating portion 13 from portions 14 and 23; the unnecessary reserved road within portion 6 and the unnecessary northern reserved road within portion 21, parish of Balpool. The unnecessary boundary road separating portion 1 from portion 2, parish of Yadabal, and portion 21, parish of Balpool, parishes of Balpool, Barraba and Yadabal, county of Wakool, Land District of Deniliquin, Wakool Shire.
(Roads 1929-759)

Road Purchase Application by Robert Kirkwood Carter, 29 acres 1 rood. The unnecessary reserved road 200 links wide within portion 21, parish of Gilgai, county of Flinders, Land District of Nyngan, Bogan Shire.
(Roads 1927-7)

Road Purchase Application by Charles Samuel Folling-ton, 2 acres 3 roods 2 perches. The unnecessary part of reserved road within portion 105 within and along part of an eastern boundary; and thence along the most southerly northern boundary from a point 1 chain south from the south-eastern corner of portion 107, parish of Burdekin, county of Inglis, Land District of Tamworth, Cobar Shire.
(Roads 1929-1,044)

Road Purchase Application by Chippendale Estate Ltd., 3 7/10th perches. The private subdivision road (lane) extending from Vine-street to Hudson-street and traversing the eastern part of the land comprised in C.T. 3,960, fol. 221, within portion 396, parish of Alexandria, county of Cumberland, Metropolitan Land District, Municipality of Redfern.
(Roads 1929-1,118)

F 559741

OCT 29 11 38

CONVEYANCING ACTS, 1919-19
REAL PROPERTY ACT, 1900.

Notice of Resumption of Land subject to the provisions
of Real Property Act, 1900.

I, ARTHUR HERIOT SIMPSON ^{Office} State Crown Solicitor's ^{DO} HEREBY CERTIFY that the copy Gazette Notification herunto annexed is a true copy of the Gazette Notification contained in the Government Gazette of the Twentyfourth day of August one thousand nine hundred and fiftyone, declaring that the land therein described, being the land mentioned in the Schedule hereunder written, has been resumed. AND I REQUEST that you will deal with and give effect to the said Notification as if the same were a Memorandum of Transfer of the land therein described duly executed under the Real Property Act, 1900, and I, the said ARTHUR HERIOT SIMPSON HEREBY CERTIFY that this instrument is correct for the purposes of the Real Property Act, 1900, AND I FURTHER CERTIFY that I was appointed by writing dated the Fifth day of September, one thousand nine hundred and forty-six under his hand and official seal by THE MINISTER FOR PUBLIC WORKS to sign this Certificate on behalf of the said Minister and that I have received no notice or information of the revocation of such appointment.

SCHEDULE.

Lot	Section	Deposited Plan or Name of Estate	Part or Whole	Volume	Folio
Lots 7, 8 and 9	Sec. C2	Deposited Plan 2060	Whole	5468	197
Lots 1 to 3 inc.	" E2	do	"	5264	107
Lot 4 and pt. Lots 5 and 6	" E2	do	"	5264	106

B

DATED this *twenty third* day of *October*, in the year of Our Lord one thousand nine hundred and ~~forty~~ fiftyone.

SIGNED by the said
ARTHUR HERIOT SIMPSON
in the presence of *W. Jones*

A. H. Simpson

THE REGISTRAR GENERAL
SYDNEY.

[Published in Government Gazette No. 138 of 24th
August, 1951.]

LOCAL GOVERNMENT ACT, 1919.—PUBLIC WORKS
ACT, 1912.

BLUE MOUNTAINS CITY COUNCIL: PUBLIC RECREATION.

Acquisition of Land.

APPLICATION by The Blue Mountains City Council having been made that the land described in the Schedule hereto be appropriated or resumed for the purpose of public recreation, IT IS HEREBY NOTIFIED AND DECLARED by His Excellency the Lieutenant-Governor, acting with the advice of the Executive Council and by the Minister for Public Works, that so much of the said land as is Crown land is hereby appropriated and so much of the said land as is private property is hereby resumed under Division 1 of Part V of the Public Works Act, 1912, for the purpose aforesaid; AND the Minister for Public Works hereby further notifies that the said land is vested in *The Blue Mountains City Council*.

Dated at Sydney, this 15th day of August, 1951.

K. W. STREET, Lieutenant-Governor.

By His Excellency's Command,
J. J. CAHILL, Minister for Public Works.

SCHEDULE.

All that piece or parcel of land situate in the City of Blue Mountains, parish of Megalong and county of Cook, being lots 7, 8 and 9, section C2, deposited plan 2,060,—having an area of 1 rood 32½ perches or thereabouts, and said to be in the possession of Marjorie G. Harrison.

And also, all that piece or parcel of land situate as aforesaid, being lots 1, 2, 3, 4 and parts of 5 and 6, section E2, deposited plan 2,060, being also the whole of land comprised in Certificate of Title, volume 5,264, folios 106 and 107,—having an area of 1 acre 2 roods 6 perches or thereabouts, and said to be in the possession of Ellen N. Carroll and another.

(Misc. 51-1,843)

(3267)

Sydney: A. H. Pettifer, Government Printer—1951.

This is the copy Gazette Notification referred to in the annexed Certificate.

Witness

Welford

A. H. Simpson

No. **F 559741**

LODGED by
State Crown Solicitor,
237 Macquarie Street,
Sydney.

NOTICE OF RESUMPTION.

Particulars entered in Register Book.

Vol. *5264* . Fols *1068 107*
" *5468* " *197* ✓

the *13th*
day of *November* 19*51*
at *12* minutes
o'clock in the noon.

J. H. Pells

Registrar-General.



NOTICE.

*Munis, Abstract of coal, minerals, deposits, etc.,
done by M.P.D. (S. 44)*

Crown land is hereby appropriated, and so much of the said land as is private property is hereby resumed under Division 1 of Part V of the Public Works Act, 1912, for the purpose aforesaid; AND the Minister for Public Works hereby further notifies that the said land is vested in *The Council of the Shire of Sutherland*.

Dated at Sydney, this 15th day of August, 1951.

K. W. STREET, Lieutenant-Governor.

J. J. CAHILL, Minister for Public Works.

SCHEDULE.

All that piece or parcel of land situate at Green Point, in the Shire of Sutherland, parish of Sutherland, county of Cumberland, and State of New South Wales, being part of portion 64 of parish and being lots 14 and 15: Commencing on the western side of Green Point road at a point bearing 359 degrees 59 minutes 20 seconds and distant 84 feet 10 inches from the intersection of that side of that road with the northern boundary of lot 148, d.p. 14,716 and bounded thence on the east by part of the said western side of Green Point road bearing 359 degrees 59 minutes 20 seconds for 168 feet 3½ inches, thence on the north by the southern boundary of Lease No. D654560 bearing 259 degrees 12 minutes 20 seconds for 1,010 feet to the high water mark of Carina Bay thence on the west by part of the said high water mark of Carina Bay bearing generally south-westerly to the northern boundary of Lease No. D525243 and thence on the south by the said northern boundary of Lease No. D525243 bearing 79 degrees 9 minutes 45 seconds for 1,085 feet to the point of commencement,—and containing an area of 4 acres and 4½ perches or thereabouts.

(Misc. 51-896)

(3261)

LOCAL GOVERNMENT ACT, 1919.—PUBLIC WORKS ACT, 1912.

BLUE MOUNTAINS CITY COUNCIL: PUBLIC RECREATION.

Acquisition of Land.

APPLICATION by The Blue Mountains City Council having been made that the land described in the Schedule hereto be appropriated or resumed for the purpose of public recreation, IT IS HEREBY NOTIFIED AND DECLARED by His Excellency the Lieutenant-Governor, acting with the advice of the Executive Council and by the Minister for Public Works, that so much of the said land as is Crown land is hereby appropriated and so much of the said land as is private property is hereby resumed under Division 1 of Part V of the Public Works Act, 1912, for the purpose aforesaid; AND the Minister for Public Works hereby further notifies that the said land is vested in *The Blue Mountains City Council*.

Dated at Sydney, this 15th day of August, 1951.

K. W. STREET, Lieutenant-Governor.

By His Excellency's Command,

J. J. CAHILL, Minister for Public Works.

SCHEDULE.

All that piece or parcel of land situate in the City of Blue Mountains, parish of Megalong and county of Cook, being lots 7, 8 and 9, section C2, deposited plan 2,060,—having an area of 1 rood 32½ perches or thereabouts, and said to be in the possession of Marjorie G. Harrison.

And also, all that piece or parcel of land situate as aforesaid, being lots 1, 2, 3, 4 and parts of 5 and 6, section E2, deposited plan 2,060, being also the whole of land comprised in Certificates of Title, volume 5,264, folios 106 and 107,—having an area of 1 acre 2 roods 6 perches or thereabouts, and said to be in the possession of Ellen N. Carroll and another.

(Misc. 51-1,843)

(3267)

FIRE BRIGADES ACT, 1909-1949.—PUBLIC WORKS ACT, 1912, AS AMENDED.

Acquisition of Land.

IT is hereby notified and declared by His Excellency the Lieutenant-Governor, acting with the advice of the Executive Council, that so much of the land described in the Schedule hereto as is Crown land is hereby appropriated, and so much of the said land described in the said Schedule as is private property is hereby resumed, under the Public Works Act, 1912, as amended, for a certain authorised work, namely, the erection of a fire station at Wingham, and it is hereby further notified and declared that the said land is vested in the Board of Fire Commissioners of New South Wales for the purposes of the Fire Brigades Act, 1909-1949.

Dated this 15th day of August, 1951.

K. W. STREET, Lieutenant-Governor.

By His Excellency's Command,

J. J. CAHILL, Minister for Public Works.

SCHEDULE.

All that piece or parcel of land situate in the Municipality of Wingham, parish of Wingham and county of Macquarie, being part of allotment 19, section 18, town of Wingham: Commencing on the southern side of Farquhar-street at a point bearing 270 degrees 43 minutes 15 seconds and distant 67.73 links from the north-western corner of lot 3, shown on plan annexed to dealing D. 761,902; and bounded thence on the east by a line bearing 180 degrees 43 minutes 1 chain 78.07 links to the north-western boundary of lot 25, deposited plan 21,438; on the south-east by part of that boundary and part of the north-western boundary of lot 24 together bearing 251 degrees 8 minutes 64.32 links; on the west by a line bearing 43 minutes 1 chain 99.63 links to the aforesaid southern side of Farquhar-street; and on the north by that side of that street bearing 90 degrees 43 minutes 15 seconds 60.6 links to the point of commencement,—having an area of 18½ perches or thereabouts, and said to be in the possession of Annie M. Gibson and Amelia Gibson.

(Misc. 51-1,515)

(3121)

METROPOLITAN WATER, SEWERAGE AND DRAINAGE ACT, 1924-1949.

WATER SUPPLY PURPOSES: CITY OF GREATER WOLLONGONG.

Acquisition of Easement.

APPLICATION by the Metropolitan Water, Sewerage and Drainage Board having been made that an easement or right to use the surface and the subsoil or undersurface of the land described in the Schedule hereto be appropriated or resumed for water mains and access, IT IS HEREBY NOTIFIED AND DECLARED by His Excellency the Lieutenant-Governor, acting with the advice of the Executive Council, and by the Minister for Public Works, that an easement or right as aforesaid over so much of the said land as is Crown land is hereby appropriated and an easement or right as aforesaid over so much of the said land as is private property is hereby resumed under Division 1 of Part V of the Public Works Act, 1912, for the purposes aforesaid; AND the Minister for Public Works hereby further notifies that the said easement or right is vested in *The Metropolitan Water, Sewerage and Drainage Board*.

Dated at Sydney, this 15th day of August, 1951.

K. W. STREET, Lieutenant-Governor.

J. J. CAHILL, Minister for Public Works.

SCHEDULE.

All that piece or parcel of land containing 2 roods 14½ perches or thereabouts, situate at Keellogues, in the City of Greater Wollongong, parish of Wollongong, county of Camden, and State of New South Wales, being the site of a reserved road 50 links wide, and also being part of 1,280 acres originally granted to John Hubert Plunkett by Crown grant dated the 12th April, 1837: Commencing at the north-eastern corner of the land comprised within Deed of Conveyance Registered No. 269, Book 1,348; and bounded thence on the north by a line bearing 100 degrees 48 minutes distant 50 decimal 03 links; thence on the east by part of the western boundary of deposited plan 4,728 and part of the western boundary of the land comprised within Certificate of Title, volume 4,091, folio 17, bearing 188 degrees 54 minutes, a total distance of 1,184 decimal 16 links; thence on the south by a line bearing 280 degrees 40 minutes 20 seconds distant 50 decimal 02 links to the south-eastern corner of the aforesaid land comprised within Deed of Conveyance Registered No. 269, Book 1,348; thence on the west by the eastern boundary of that land bearing 8 degrees 54 minutes distant 1,184 decimal 27 links to the point of commencement.

All bearings are relative to the Trigonometrical Meridian.

(Misc. 51/1,916)

(3111)

Department of Education, Sydney, 7th August, 1951.

NEW PUBLIC SCHOOL.

IT is hereby notified, for general information, in accordance with the provisions of the 34th section of the Public Instruction Act of 1880, that it is proposed to establish a Public School at RATHMINES in lieu of the existing Provisional School, as from the 1st July, 1951.

(3812)

R. J. HEFFRON, Minister for Education.



LAND
REGISTRY
SERVICES

Historical Title

Information Provided Through
Infotrack
Ph. 1800 738 524 Fax. 1800 738 533

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE

18/5/2022 1:23PM

FOLIO: 1/130768

First Title(s): VOL 4564 FOL 23

Prior Title(s): VOL 4564 FOL 23

Recorded	Number	Type of Instrument	C.T. Issue
28/7/1995	DP130768	DEPOSITED PLAN	FOLIO CREATED CT NOT ISSUED
1/8/1995		AMENDMENT: VOL FOL INDEX	
2/8/1999	6053596	DEPARTMENTAL DEALING	
14/6/2001	DP1026915	DEPOSITED PLAN	FOLIO CANCELLED RESIDUE REMAINS

*** END OF SEARCH ***

142-150 Narrow Neck Road, Katoomba

PRINTED ON 18/5/2022

InfoTrack an approved NSW Information Broker hereby certifies that the information contained in this document has been provided electronically by the Registrar General in accordance with Section 96B(2) of the Real Property Act 1900.

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Received: 18/05/2022 13:23:32



SEARCH DATE

18/5/2022 1:24PM

FOLIO: 1/329050

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

Prior Title(s): VOL 4599 FOL 201

Recorded	Number	Type of Instrument	C.T. Issue
21/12/1988		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
14/8/1989		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
14/6/2001	DP1026915	DEPOSITED PLAN	FOLIO CANCELLED

*** END OF SEARCH ***



SEARCH DATE

18/5/2022 11:04AM

FOLIO: 1/1026915

First Title(s): VOL 783 FOL 126

Prior Title(s): 1/130768

1/329050

VOL 4212 FOL 101 VOL 5264 FOLS 106-107

VOL 5468 FOL 197

Recorded	Number	Type of Instrument	C.T. Issue
14/6/2001	DP1026915	DEPOSITED PLAN	FOLIO CREATED CT NOT ISSUED
14/6/2001	7660255	POSITIVE COVENANT	EDITION 1
23/8/2004	AA848159	REQUEST	
23/8/2004	AA848160	TRANSFER	
23/8/2004	AA848161	POSITIVE COVENANT	
23/8/2004	AA848162	REQUEST	
23/8/2004	AA851026	MORTGAGE	EDITION 2
23/8/2004	AA883650	CAVEAT	
10/12/2004	AB148968	MORTGAGE	EDITION 3
5/5/2009	AE651899	DISCHARGE OF MORTGAGE	EDITION 4
28/2/2012	AG839612	WITHDRAWAL OF CAVEAT	
5/6/2012	AH29080	MORTGAGE	EDITION 5
14/11/2012	AH364637	DEPARTMENTAL DEALING	
30/9/2013	AI51337	DEPARTMENTAL DEALING	
15/10/2014	AI949097	CAVEAT	
24/10/2014	AI928044	WITHDRAWN - WITHDRAWAL OF CAVEAT	
24/10/2014	AI912792	REJECTED - CAVEAT	
1/11/2014	AI928045	TRANSFER OF MORTGAGE	EDITION 6
16/6/2016	AK514138	MORTGAGE	EDITION 7
21/6/2016	AK514292	TRANSFER OF MORTGAGE	
25/5/2017	AM423683	DISCHARGE OF MORTGAGE	EDITION 8
29/6/2017	AM520790	MORTGAGE	EDITION 9

END OF PAGE 1 - CONTINUED OVER

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE

18/5/2022 11:04AM

FOLIO: 1/1026915

PAGE 2

Recorded -----	Number -----	Type of Instrument -----	C.T. Issue -----
13/7/2017	AM548327	DEPARTMENTAL DEALING	EDITION 10
14/7/2017	AM566685	POSTPONEMENT OF MORTGAGE	EDITION 11
21/7/2017	AM577421	RELEASE OR EXTINGUISHMENT OF RESTRICTION ON THE USE OF LAND	
21/7/2017	AM577422	RELEASE OR EXTINGUISHMENT OF POSITIVE COVENANT	
14/6/2018	AN417516	WITHDRAWAL OF CAVEAT	
20/8/2018	AN595358	DEPARTMENTAL DEALING	
20/8/2018	AN595469	DEPARTMENTAL DEALING	
26/10/2018	AN794618	TRANSFER	
26/10/2018	AN794619	MORTGAGE	
26/10/2018	AN794620	DISCHARGE OF MORTGAGE	EDITION 12
1/11/2018	AN818076	CHANGE OF NAME	
1/11/2018	AN818077	POSTPONEMENT OF MORTGAGE	
1/11/2018	AN828871	DEPARTMENTAL DEALING	EDITION 13
4/9/2019	AP505204	CAVEAT	
29/11/2019	AP714173	CAVEAT	
2/6/2021	AR109260	WITHDRAWAL OF CAVEAT	
2/6/2021	AR109261	WITHDRAWAL OF CAVEAT	
30/9/2021	AR475549	CAVEAT	
26/10/2021	AR553752	CAVEAT	EDITION 14
17/11/2021	AR588009	APPLICATION FOR PREPARATION OF LAPSING NOTICE	
17/11/2021	AR618131	WITHDRAWAL OF CAVEAT	EDITION 15

*** END OF SEARCH ***

142-150 Narrow Neck Road, Katoomba

PRINTED ON 18/5/2022

Form: 01T
Release: 2.1
www.lpi.nsw.gov.au

TRANSFER
New South Wales
Real Property Act 1900



AA848160U

PRIVACY NOTE: this information is legally required and will become part of the public record

STAMP DUTY

Office of State Revenue NSW Treasury SEC. 162Y/277S44 VENDOR DUTY ENDORSED ID: 2067096-EXEMPT	NEW SOUTH WALES DUTY 02-08-2004 0002097426-001 SECTION 18(2) DUTY \$ *****2.00
--	---

(A) [REDACTED]

(B) **LODGED BY**

Delivery Box 877B	Name, Address or DX and Telephone VEREYERS LAWYERS C/O BOX 164 SYDNEY 2000 DX 1026 SYDNEY Reference: MC	CODES T TW (Sheriff)
----------------------	---	-------------------------------

(C) [REDACTED]

(D) **CONSIDERATION** The transferor acknowledges receipt of the consideration of \$ 1,400,000.00 and as regards

(E) **ESTATE** the land specified above transfers to the transferee an estate in fee simple

(F) **SHARE TRANSFERRED**

(G) Encumbrances (if applicable):

(H) [REDACTED]

(I)

(J) **DATE**

TENANCY:

23 JULY 2004

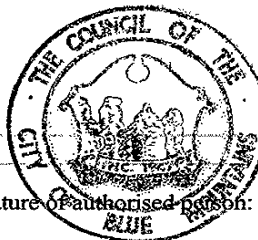
Certified correct for the purposes of the Real Property Act 1900 by the corporation named below the common seal of which was affixed pursuant to the authority specified and in the presence of the authorised person(s) whose signature(s) appear(s) below.
Corporation: Council of the City of Blue Mountains
Authority: section 127 of the Corporations Act 2001

Signature of authorised person: x

Name of authorised person:

Office held:

[Signature]
MAYOR



Signature of authorised person: x

Name of authorised person:

Office held:

[Signature]
TERRI HAMILTON
COUNCILLOR

Certified correct for the purposes of the Real Property Act 1900 and executed on behalf of the corporation named below by the authorised person(s) whose signature(s) appear(s) below pursuant to the authority specified.
Corporation: Katoomba Escarpments Estate Pty Ltd
Authority: section 127 of the Corporations Act 2001

Signature of authorised person:

Name of authorised person:

Office held:

[Signature]
MARK F GREEN

Signature of authorised person: TRANSFEREE

Name of authorised person:

Office held:

Form: 01T
Release: 6-2

TRANSFER

New South Wales
Real Property Act 1900

AN794618T

PRIVACY NOTE: Section 31B of the Real Property Act 1900 (RP Act) authorises the Registrar General to collect the information required by this form for the establishment and maintenance of the Real Property Act Register. Section 96B RP Act requires that the Register is made available to any person for search upon payment of a fee, if any.

STAMP DUTY

Revenue NSW use only

NEW SOUTH WALES DUTY
23-07-2018 0009406523-001
SECTION 273B(1)-ORIGINAL
NO DUTY PAYABLE
NO SURCHARGE DUTY PAYABLE

(A) [REDACTED] E

(B) LODGED BY

Document
Collection
Box
688E

Name, Address or DX, Telephone, and Customer Account Number if any
Pikes & Verekers Lawyers
Dx 521 SYDNEY NSW LLDN. 123507A.
t: 02 9262 6188
Reference: DC: 180393

CODES
T
TW

(C) [REDACTED] R

(D) CONSIDERATION The transferor acknowledges receipt of the consideration of \$ 195,000.00 and as regards

(E) ESTATE the abovementioned land transfers to the transferee an estate in fee simple

(F) SHARE
TRANSFERRED

(G) Encumbrances (if applicable): AA851026 AH29080 AM520790 AM566685

(H) [REDACTED]

(I) TENANCY:

DATE 29 June 2018

(J) Certified correct for the purposes of the Real Property Act 1900 and executed on behalf of the company named below by the authorised person(s) whose signature(s) appear(s) below pursuant to the authority specified.

Company: Katoomba Escarpments Estate Pty Ltd
Authority: section 127 of the Corporations Act 2001

Signature of authorised person:



Signature of authorised person:

Name of authorised person: Gregory Louis Reed

Office held: Sole Director/Secretary

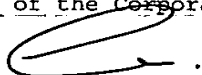
Name of authorised person:

Office held:

Certified correct for the purposes of the Real Property Act 1900 and executed on behalf of the company named below by the authorised person(s) whose signature(s) appear(s) below pursuant to the authority specified.

Company: KEE Blue Mountains Pty Ltd
Authority: section 127 of the Corporations Act 2001

Signature of authorised person:



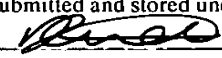
Signature of authorised person:

Name of authorised person: Gregory Louis Reed

Office held: Sole Director/Secretary

Name of authorised person:

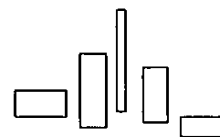
Office held:

(K) The transferee's solicitor certifies that the eNOS data relevant to this dealing has been submitted and stored under eNOS ID No. 1616327 Full name: Rebecca Marie Darr Signature: 

* s117 RP Act requires that you must have known the signatory for more than 12 months or have sighted identifying documentation.
ALL HANDWRITING MUST BE IN BLOCK CAPITALS Page 1 of 1 1708

FILIV VVITIT/N 179618

Level 2 Postal address: T 02 9262 6188 E info@pvlaw.com.au
50 King Street GPO Box 164 F 02 9262 6175 W www.pvlaw.com.au
Sydney 2000 Sydney 2001 DX 521 Sydney ABN 77 357 538 421



PIKES & VEREKERS
LAWYERS

24 October 2018

The Registrar General
NSW Land Registry Services
1 Prince Albert Road
SYDNEY NSW 2000

BY HAND DELIVERY

Dear Sir

KATOOMBA ESCARPMENTS ESTATE PTY LTD TRANSFER TO KEE BLUE MOUNTAINS PTY LTD
142-150 NARROW NECK ROAD, KATOOMBA
Our ref RMD:DC:180393
Your ref AN794618

We refer to NSW Land Registry Services' letter of 22 October 2018. A copy of same is **enclosed** with this letter.

In response to the abovementioned letter, we confirm that Transfer AN794618 is to be registered subject to the following mortgages:

1. Mortgage to Vereker Administration Pty Limited dealing No. AH29080; and
2. Mortgage to Bermess Pty Limited registered dealing No. AA851026.

We would be grateful if you could attend to registration of Transfer AN794618, Mortgage AN794619 and Discharge of Mortgage AN794620 as soon as possible.

If you have any queries, please contact the writer.

Yours faithfully

Diarna Cuda
Solicitor





FOLIO: 1/1026915

SEARCH DATE	TIME	EDITION NO	DATE
18/5/2022	10:57 AM	15	17/11/2021

LAND

LOT 1 IN DEPOSITED PLAN 1026915
AT KATOOMBA
LOCAL GOVERNMENT AREA BLUE MOUNTAINS
PARISH OF MEGALONG COUNTY OF COOK
TITLE DIAGRAM DP1026915

FIRST SCHEDULE

KEE BLUE MOUNTAINS PTY LTD

(T AN794618)

SECOND SCHEDULE (15 NOTIFICATIONS)

- 1 LAND EXCLUDES MINERALS AND IS SUBJECT TO RESERVATIONS AND CONDITIONS IN FAVOUR OF THE CROWN WITHIN THE PART(S) SHOWN SO INDICATED IN THE TITLE DIAGRAM - SEE CROWN GRANT(S)
- 2 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S) WITHIN THE PART(S) SHOWN SO INDICATED IN THE TITLE DIAGRAM
- 3 EXCEPTING THE LAND BELOW A DEPTH FROM THE SURFACE OF 15.24 METRES BY THE CROWN GRANT AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
- 4 F559741 LAND EXCLUDES MINERALS (S.141 PUBLIC WORKS ACT, 1912) AFFECTING THE PART(S) SHOWN SO INDICATED IN THE TITLE DIAGRAM
- 5 DP1026915 RIGHT OF CARRIAGEWAY AND EASEMENT TO DRAIN WATER 6.5 METRE(S) WIDE (A) APPURTENANT TO THE LAND ABOVE DESCRIBED
- 6 DP1026915 EASEMENT TO DRAIN WATER 6 METRE(S) WIDE AND VARIABLE (E) APPURTENANT TO THE LAND ABOVE DESCRIBED
- 7 DP1026915 EASEMENT TO DRAIN WATER 3.5 METRE(S) WIDE (F) AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
- 8 DP1026915 EASEMENT TO DRAIN WATER VARIABLE WIDTH (H) APPURTENANT TO THE LAND ABOVE DESCRIBED
- 9 DP1026915 EASEMENT TO DRAIN WATER VARIABLE WIDTH (I) APPURTENANT TO THE LAND ABOVE DESCRIBED
- 10 DP1026915 POSITIVE COVENANT (L) REFERRED TO AND NUMBERED (12) IN THE S. 88B INSTRUMENT
- 11 DP1026915 POSITIVE COVENANT (M) REFERRED TO AND NUMBERED (13) IN THE S. 88B INSTRUMENT
- 12 AN794619 MORTGAGE TO VEREKER ADMINISTRATION PTY LTD
AN818077 POSTPONEMENT OF MORTGAGE. THE ORDER OF

END OF PAGE 1 - CONTINUED OVER

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 1/1026915

PAGE 2

SECOND SCHEDULE (15 NOTIFICATIONS) (CONTINUED)

REGISTRATION OF THIS MORTGAGE HAS CHANGED

- 13 AH29080 MORTGAGE TO VEREKER ADMINISTRATION PTY LTD
- 14 AA851026 MORTGAGE TO SYDNEY FUNDERS PTY LIMITED (SEE AI928045
AK514292 AN818076)
- * 15 AR475549 CAVEAT BY VDM PRIME PTY LTD

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

142-150 Narrow Neck Road, Katoomba

PRINTED ON 18/5/2022

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

Appendix E

SafeWork Hazardous Chemicals Search
Council Planning Certificate

Kristine Nicodemus

From: Licensing <licensing@safework.nsw.gov.au>
Sent: Wednesday, 22 June 2022 10:17 AM
To: Gavin Boyd
Subject: SafeWork NSW: 00706701 –Site Search application – Result not found [ref:_00D281hl6J._5004a8Mxx4:ref]

Security Classification: Sensitive Personal
Please do not amend the subject line of this email

Dear Gavin

**Re: Site Search for Schedule 11 Hazardous Chemicals on premises
Application – Result not found**

I refer to your application for a Site Search for Schedule 11 Hazardous Chemicals on premises for the following site: 142-150 Narrow Neck Road Katoomba NSW 2780.

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

If you have any further information or if you have any questions, please use one of the following options, quoting the SafeWork NSW enquiry reference number: 00706701

- Email: licensing@safework.nsw.gov.au
- Phone: 13 10 50

Kind regards

Gabriela Draper

Licensing Representative

SafeWork NSW | Better Regulation Division

Department of Customer Service

p- 13 10 50

e- licensing@safework.nsw.gov.au | www.customerservice.nsw.gov.au

Level 3, 32 Mann Street, Gosford, NSW 2250



We are always looking for ways that we can improve our services. You may be contacted by email in the next few weeks to complete a short survey and provide us with your feedback on what we did well and where we can improve. If you do not wish to participate in our surveys, please email us at: licensingQA@customerservice.nsw.gov.au and we will ensure that you are not contacted.



ref:_00D281hl6J._5004a8Mxx4:ref



Certificate No. 22/91950

Douglas Partners Pty Ltd
Unit 2, 593 Withers Rd
ROUSE HILL NSW 2155

(02) 4780 5000

PLANNING CERTIFICATE ISSUED UNDER SECTION 10.7

ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979, AS AMENDED

Your Ref:

LAND DESCRIPTION: L 1 DP 1026915
142-150 Narrow Neck Road, KATOOMBA NSW 2780

INFORMATION PURSUANT TO SECTION 10.7 (2) OF THE ACT

1. Names of relevant planning instruments and DCPs

- (1) The name of each environmental planning instrument that applies to the carrying out of development on the land.

Blue Mountains Local Environmental Plan L.E.P. 2015 Published 21/12/15 (Commenced 15/2/16).

Blue Mountains Local Environmental Plan LEP 2015 – Amendment 11 Published 19/3/2021

Blue Mountains Local Environmental Plan 2015 – Amendment 4 Published 3/11/17

State Environmental Planning Policy No 65—Design Quality of Residential Apartment Development,

State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004.

State Environmental Planning Policy (Exempt and Complying Development Codes) 2008

State Environmental Planning Policy (Housing) 2021

- Chapter 2 - Affordable housing
- Chapter 3 - Diverse housing

State Environmental Planning Policy (Primary Production) 2021

- Chapter 2 - Primary production and rural development

State Environmental Planning Policy (Resources and Energy) 2021

- Chapter 2 - Mining, petroleum production and extractive industries

State Environmental Planning Policy (Resilience and Hazards) 2021

- Chapter 3 - Hazardous and offensive development
- Chapter 4 - Remediation of land

State Environmental Planning Policy (Industry and Employment) 2021

- Chapter 3 - Advertising and signage

State Environmental Planning Policy (Transport and Infrastructure) 2021

- Chapter 2 - Infrastructure
- Chapter 3 - Educational establishments and child care facilities
- Chapter 4 - Major infrastructure corridors

State Environmental Planning Policy (Biodiversity and Conservation) 2021

- Chapter 2 - Vegetation in non-rural areas
- Chapter 4 - Koala habitat protection 2021
- Chapter 7 - Canal estate development
- Chapter 8 - Sydney drinking water catchment
- Chapter 9 - Hawkesbury-Nepean River

State Environmental Planning Policy (Planning Systems) 2021

- Chapter 2 - State and regional development
- Chapter 4 - Concurrences and consents

State Environmental Planning Policy (Precincts—Western Parkland City) 2021

- Chapter 2 - State significant precincts
- Chapter 4 - Western Sydney Aerotropolis

- (2) The name of 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).

Amendment to State Environmental Planning Policy (Infrastructure) 2007 – Changes to landscape rehydration infrastructure planning rules (Exhibited 20/12/2021 to 28/02/2022)

Amendment to SEPP (Infrastructure) 2007 and related amendment to SEPP (Educational Establishments and Child Care Facilities) 2017 (Exhibited 15/12/2021 to 11/02/2022)

Draft State Environmental Planning Policy (Design and Place) 2021 (Exhibited 10/12/2021 to 28/02/2022)

Amendment to State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 - Fun SEPP - Proposed changes to support outdoor dining, artisan food and drink premises, events, and small live music or arts venues (Exhibited 29/10/2021 – 22/11/2021)

Amendment to State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 – Building Business Back Better (Exhibited 31/03/2021 to 9/05/2021)

Amendment to State Environmental Planning Policy (Infrastructure) 2007 – Health Services Facilities (Exhibited 20/11/2020 to 17/12/2020)

Amendment to State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 – Limited Local Character Area exclusion from the Low Rise Housing Diversity Code (Exhibited 12/11/2020 to 29/1/2021)

State Environmental Planning Policy (State and Regional Development) 2011 – Water Treatment Facilities Amendment (Exhibited 2/3/2020 to 16/3/2020)

Proposed Remediation of Land State Environmental Planning Policy (the new SEPP) (Exhibited 25/1/18 to 13/4/18).

Draft State Environmental Planning Policy (Environment) 2017 (Exhibited 31/10/17 to 31/1/18).

- (3) The name of each development control plan that applies to the carrying out of development on the land.

Blue Mountains Development Control Plan 2015.

Note: Blue Mountains Development Control Plan 2015 can be viewed on Councils Website with the following link:

<https://www.bmcc.nsw.gov.au/development/planning-rules/development-controls-for-land-zoned-under-LEP-2015/DCP-2015>

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

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)”):

- (i) the following local environmental plan and zone apply:

LEP 2015	R3 - Medium Density Residential
-----------------	--

- (ii) the following local environmental plan and general provision apply:

LEP 2015	• Protected Area - Slope Constraint Area (Clause 6.4) • Protected Area - Escarpment Area (Clause 6.12) • Precincts: R3-KA17 (see Part 7) which incorporates Design Excellence (Clause 6.19) • Affordable Rental Housing Area (Clause 6.22) • Floor Space Ratio – 0.6:1 (Clause 4.4)
-----------------	--

- **Maximum Height of Buildings 8 metres (Clause 4.3)**
- **Minimum Subdivision Lot Size – 720m² (Clause 4.1)**

(iii) the following draft local environment plan and proposed zone/general provisions apply:

N/A

Note:

The Local Environmental Plans for the above zones and provisions can be viewed on Council's Website in the following link:

<https://www.bmcc.nsw.gov.au/planning-rules/development-controls-for-land-zoned-under-lep-2015>

Provisions relating to environmentally sensitive land, ecological buffer area, riparian land and watercourses refer to both mapped and unmapped environmental attributes. Should these provisions not be identified in this certificate they may nonetheless be applicable following site analysis and development assessment.

Should the property identified in this certificate be subject to one or more zones and or provisions under the relevant Local Environmental Plan, you should initially ascertain the location and extent of the relevant zone and or provisions either by visiting Council's website or by viewing the relevant zoning maps at Council's Business & Information Centres at Katoomba or Springwood.

Confirmation of the location or extent of the relevant zone/provision can be provided by Council through the purchase of a certified copy of the relevant map under Section 10.8(2) of the Environmental Planning and Assessment Act, the fee for which is prescribed under Clause 262 of the Environmental Planning and Assessment Regulation 2000.

(b) the purposes for which the instrument provides that development may be carried out within the zone without the need for development consent:

Environmental protection works; Home businesses; Home occupations

(c) the purposes for which the instrument provides that development may not be carried out within the zone except with development consent:

Attached dwellings; Bed and breakfast accommodation; Boarding houses; Building identification signs; Business identification signs; Centre-based child care facilities; Community facilities; Dual occupancies; Dwelling houses; Entertainment facilities; Environmental facilities; Exhibition homes; Flood mitigation works; Group homes; Home-based child care; Hostels; Information and education facilities; Multi dwelling housing; Neighbourhood shops; Office premises; Oyster aquaculture; Places of public worship; Public administration buildings; Recreation areas; Residential flat buildings; Respite day care centres; Restaurants or cafes; Roads; Seniors housing; Serviced apartments; Tank-based aquaculture

- (d) the purposes for which the instrument provides that development is prohibited within the zone:

Any other development not specified in subclauses (b) and (c) above.

- (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:

The land is not affected by provisions prescribing minimum dimensions for the erection of a dwelling-house.

- (f) whether the land includes or comprises critical habitat:

The land does not include or comprise critical habitat.

- (g) whether the land is in a conservation area (however described):

The land has not been identified as being within a heritage conservation area and/or Period Housing Area.

- (h) whether an item of environmental heritage (however described) is situated on the land:

An item of environmental heritage is not situated on the land.

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

To the extent that the land is within any zone (however described) under:

- (a) Part 3 of the *State Environmental Planning Policy (Sydney Region Growth Centres) 2006* (**the 2006 SEPP**), or

N/A

- (b) a Precinct Plan (within the meaning of the 2006 SEPP), or

N/A

- (c) a proposed Precinct Plan that is or has been the subject of community consultation or on public exhibition under the Act,

N/A

the particulars referred to in clause 2 (a)–(h) in relation to that land (with a reference to “the instrument” in any of those paragraphs being read as a reference to Part 3 of the 2006 SEPP, or the Precinct Plan or proposed Precinct Plan, as the case requires).

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.

Housing Code

Complying development under this Code for the land use zone applying to the land, may not apply to the part of the land that has the land exemption, listed below including the extent, however, if only one land exemption covers the whole land then complying development may not apply for that reason.

The land is affected by specific land exemptions:

- Land is wholly Protected Area - Escarpment Area, identified by an environmental planning instrument as being within a protected area cl 1.19(1)(e)(v)
- Land is partly Protected Area - Slope Constraint Area, identified by an environmental planning instrument as being within a protected area cl 1.19(1)(e)(v)

Rural Housing Code

Complying development under this Code may not be carried out on the land, as the land is not in a land use zone permitted for this Code. (See cl 1.6 of the Codes).

Low Rise Housing Diversity Code

Complying development under this Code for the land use zone applying to the land, may not apply to the part of the land that has the land exemption, listed below including the extent, however, if only one land exemption covers the whole land then complying development may not apply for that reason.

The land is affected by specific land exemptions:

- Land is wholly Protected Area - Escarpment Area, identified by an environmental planning instrument as being within a protected area cl 1.19(1)(e)(v)
- Land is partly Protected Area - Slope Constraint Area, identified by an environmental planning instrument as being within a protected area cl 1.19(1)(e)(v)

Housing Alterations Code

Subdivision 1 – Internal alterations

Subdivision 2 – External alterations to dwelling houses

Subdivision 2A – External alterations to residential accommodation other than dwelling houses

Subdivision 3 – Attic Conversions

Complying development under this Code may be carried out on the land.

General Development Code

Subdivision 1 – Bed and breakfast accommodation

Subdivision 2 – Home businesses

Complying development under this Code may be carried out on the land.

Subdivision 3 – Tents, marquees or booths for community events

Subdivision 4 – Stages or platforms for community events

Subdivision 6 – Waterways structures

Complying development under this Code may not be carried out on the land as the land use for this purpose is not permissible in the land use zone applied to the land. (see cl 1.6 of the Codes SEPP)

Industrial and Business Alterations Code

Subdivision 1 – Building alterations (internal)

Subdivision 4 – Mechanical ventilation systems

Subdivision 5 – Shop fronts and awnings

Subdivision 6 – Skylights and roof windows

Subdivision 9 – Development ancillary to the use of land

Subdivision 10 – Earthworks, retaining walls and structural support

Subdivision 11 – Driveways, hard stand spaces, pathways and paving

Subdivision 11A – Click and collect bays, drive through facilities and goods collection lockers

Subdivision 12 – Fences

Complying development under this Code may be carried out on the land.

Subdivision 7 – Projecting wall signs

Subdivision 8 – Freestanding pylon and directory board signs

Complying development under this Code may not be carried out on the land as the land use for this purpose is not permissible in the land use zone applied to the land. (see cl 1.6 of the Codes SEPP)

Industrial and Business Buildings Code

Complying development under this Code may not be carried out on the land, as the land is not in a land use zone permitted for this Code. (See cl 1.6 of the Codes).

Container Recycling Facilities Code

Complying development under this Code may not be carried out on the land, as the land is not in a land use zone permitted for this Code. (See cl 1.6 of the Codes).

Subdivision Code

Complying development under this Code may be carried out on the land.

Demolition Code

Complying development under this Code may be carried out on the land.

Fire Safety Code

Complying development under this Code may be carried out on the land.

NOTE: The Blue Mountains Local Government Area is not land to which the Greenfield Housing Code and Inland Code applies and therefore is not included in the suite of complying development codes above.

NOTE: The above responses apply only to the land exemptions for complying development set out in 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 (Codes SEPP). Additional to the above, further requirements may have to be met to determine whether complying development may or may not apply for each of the codes, to ascertain whether other conditions apply, more information is available at www.planning.nsw.gov.au/housingcode and the Code SEPP can be viewed and downloaded from the NSW Legislation website: <http://www.legislation.nsw.gov.au/maintop/view/inforce/epi+572+2008+cd+0+N>

4.-4A. (Repealed)

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 seawalls, revetments, groynes and beach nourishment) that existed before the commencement of section 553B of the *Local Government Act 1993*.

There are no 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) consent in writing by the owner or previous owners.

5. Mine Subsidence

Whether or not the land is proclaimed to be a mine subsidence district within the meaning of the *Coal Mine Subsidence Compensation Act 2017*:

The land has not been proclaimed to be a Mine Subsidence District within the meaning of the *Coal Mine Subsidence Compensation Act 2017*.

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*: **No.**
 - Local Road Widening width:
 - State Road Widening width:
- b) any environmental planning instrument: **No.**
 - Local Road Widening width:
 - State and other Road Widening width:
- c) any resolution of the council: **No.**
 - Local Road Widening width:

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

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 council,

that restricts the development of the land because of the likelihood of:

- | | |
|-------------------------|-----------|
| (i) land slip | NO |
| (ii) bushfire | NO |
| (iii) tidal inundation | NO |
| (iv) subsidence | NO |
| (v) acid sulphate soils | NO |

or any other risk (other than flooding)

- | | |
|---|-------------|
| (vi) unhealthy building land | NO |
| (vii) contaminated and
potentially contaminated Land | YES* |

* 'Council has adopted by resolution a policy on contaminated land and potentially contaminated land, which may restrict the development of the land. This policy is implemented when zoning or land use changes are proposed on lands that have previously been used for certain purposes. Consideration of Council's adopted policy and the application of provisions under relevant State legislation is warranted.'
(Note: This is a statement of Council's policy only and is not a statement of whether or not the land is contaminated or potentially contaminated. Additional information may be available from Council by obtaining a Section 10.7 (5) Planning Certificate.)

7A Flood related development controls

- (1) If the land or part of the land is within the flood planning area and subject to flood related development controls.

The Council does not know.

Note: A Flood Risk Management Study and Plan has not been prepared for the catchment in which the land is located. The Council does not know the location and identity of land within the catchment that may be wholly or partly below the Council's Flood Planning Level (FPL), being the level of the 1:100 year flood plus 500mm freeboard.

The Flood Liable Land Policy provides information concerning the preparation of flood risk management studies and plans within the City, and the Council's flood related development controls. The

Flood Liable Land Policy can be viewed in the download area on Council's Website with the following link:

<https://www.bmcc.nsw.gov.au/documents/flood-liable-land-policy>

- (2) If the land or part of the land is between the flood planning area and the probable maximum flood and subject to flood related development controls.

The Council does not know.

Note: A Flood Risk Management Study and Plan has not been prepared for the catchment in which the land is located. The Council does not know the location and identity of land within the catchment that may be wholly or partly below the Council's Flood Planning Level (FPL), being the level of the 1:100 year flood plus 500mm freeboard.

The Flood Liable Land Policy provides information concerning the preparation of flood risk management studies and plans within the City, and the Council's flood related development controls. The Flood Liable Land Policy can be viewed in the download area on Council's Website with the following link:

<https://www.bmcc.nsw.gov.au/documents/flood-liable-land-policy>

- (3) In this clause—

flood planning area has the same meaning as in the Floodplain Development Manual.

Floodplain Development Manual means the Floodplain Development Manual (ISBN 0 7347 5476 0) published by the NSW Government in April 2005.

probable maximum flood has the same meaning as in the Floodplain Development Manual.

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 3.15 of the Act.

No environmental planning instrument, deemed environmental planning instrument or draft environmental planning instrument applying to the land provides for the acquisition of the land by a public authority, as referred to in Section 3.15 of the Act.

9. Contributions plans

The name of each contributions plan applying to the land.

Blue Mountains Citywide Infrastructure Contributions Plan.

9A. Biodiversity certified land

If the land is biodiversity certified land under Part 8 of the *Biodiversity Conservation Act 2016*, a statement to that effect.

Note. Biodiversity certified land includes land certified under Part 7AA of the *Threatened Species Conservation Act 1995* that is taken to be certified under Part 8 of the *Biodiversity Conservation Act 2016*.

This land is not biodiversity certified land within the meaning of Part 8 of the *Biodiversity Conservation Act 2016*.

10. Biodiversity stewardship sites

If the land is a biodiversity stewardship site under a biodiversity stewardship agreement under Part 5 of the *Biodiversity Conservation Act 2016*, 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).

Note. Biodiversity stewardship agreements include biobanking agreements under Part 7A of the *Threatened Species Conservation Act 1995* that are taken to be biodiversity stewardship agreements under Part 5 of the *Biodiversity Conservation Act 2016*.

This land is not a biodiversity stewardship site under a biodiversity stewardship agreement under Part 5 of the *Biodiversity Conservation Act 2016*.

NOTE: For further information contact the BioBanking Team at the Office of Environment and Heritage on:

Address: PO Box A290, Sydney South NSW 1232

Telephone: 131 555

Fax: (02) 9995 6795

Email: biobanking@environment.nsw.gov.au

Website: www.environment.nsw.gov.au/biobanking

Copies of all Biobanking agreements are available on the BioBanking Public Register accessible via the BioBanking website listed above.

10A. Native vegetation clearing set asides

If the land contains a set aside area under section 60ZC of the *Local Land Services Act 2013*, a statement to that effect (but only if the council has been notified of the existence of the set aside area by Local Land Services or it is registered in the public register under that section).

This land does not contain a set aside area under section 60ZC of the *Local Land Services Act 2013*

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 wholly bush fire prone land.

Note: The Council has determined whether the land is bush fire prone land on the basis of the map certified by the Commissioner of the NSW Rural Fire Service on 20 May 2009 for the purpose of s.10.3(2) of *Environmental Planning & Assessment Act 1979*. The map used for this determination was received by Council from the NSW Rural Fire Service on 15 June 2009.

12. Property vegetation plans

If the land is land to which a property vegetation plan approved under Part 4 of the *Native Vegetation Act 2003* (and that continues in force) 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).

There is not a property vegetation plan applying to this land.

13. Orders under 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).

There are no Orders under Trees (Disputes Between Neighbours) Act 2006 applying to this land.

14. Directions under Part 3A

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 is no direction by the Minister currently in force pursuant to Section 75P (2) (c1) of the Act applying to this land.

15. Conditions for seniors housing

If *State Environmental Planning Policy (Housing) 2021*, Chapter 3, Part 5 applies to the land, a statement setting out terms of a kind referred to in the Policy, section 88(2) that have been imposed as a condition of development consent granted after 11 October 2007 in relation to the land.

There are no conditions of development consent that have been imposed on this land referred to by Chapter 3, Part 5, section 88(2) of the *State Environmental Planning Policy (Housing) 2021*.

16. Site compatibility certificates for infrastructure or schools or TAFE establishments

A statement of whether there is a valid site compatibility certificate (infrastructure) or site compatibility certificate (schools or TAFE establishments) 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.

There are no valid site compatibility certificates (infrastructure) or site compatibility certificate (schools or TAFE establishments) of which the council is aware, relating to this 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 for which the certificate is current, and
 - (b) that a copy may be obtained from the head office of the Department.

There are no current site compatibility certificates (affordable rental housing) of which the council is aware, relating to this land.

- (2) If *State Environmental Planning Policy (Housing) 2021*, Chapter 2, Part 2, Division 1 or 5 applies to the land, a statement setting out terms of a kind referred to in the Policy, section 21(1) or 40(1) that have been imposed as a condition of development consent in relation to the land of the land.

There are no conditions of development consent that have been imposed on this land referred to by Chapter 2, Part 2, Division 1 or 5, section 21(1) or 40(1) of the *State Environmental Planning Policy (Housing) 2021*.

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.

There are no development plans applying 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.

There are no subdivision orders applying to the land.

- (3) Words and expressions used in this clause have the same meaning as they have in Part 16C of this Regulation.

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

There is not a current site verification certificate of which the council is aware in respect of the land.

Note. A site verification certificate sets out the Secretary'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

N/A

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

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.

As at the date that this Planning Certificate was issued, the property has not been identified on the Loose-fill Asbestos Insulation Register or has not been notified to Council by the NSW Fair Trading that a residential dwelling erected on this land as having been identified of containing loose-fill asbestos ceiling insulation.

21 Affected building notices and building product rectification orders

- (1) A statement of whether there is any affected building notice of which the council is aware that is in force in respect of the land.

There are no affected building notices in force of which the council is aware in respect of the land.

- (2) A statement of:

- (a) whether there is any building product rectification order of which the council is aware that is in force in respect of the land and has not been fully complied with, and

There is no building product rectification order in force of which the council is aware in respect of the land that has not been fully complied with.

- (b) whether any notice of intention to make a building product rectification order of which the council is aware has been given in respect of the land and is outstanding.

There is not any notice of intention to make a building product rectification order of which the council is aware that has been given in respect of the land and is outstanding.

- (3) In this clause:

affected building notice has the same meaning as in Part 4 of the *Building Products (Safety) Act 2017*.

building product rectification order has the same meaning as in the *Building Products (Safety) Act 2017*.

22 Western Sydney Aerotropolis

For land to which State Environmental Planning Policy (Precincts-Western Parkland City) 2021, Chapter 4 applies, whether the land is—

- (a) in an ANEF or ANEC contour of 20 or greater as referred to in clause 9 of that Chapter, section 4.17, or

N/A

- (b) shown on the Lighting Intensity and Wind Shear Map under that Policy, or

N/A

- (c) shown on the Obstacle Limitation Surface Map under that Policy, or

The land is not shown on the Obstacle Limitation Surface Map under the State Environmental Planning Policy (Western Sydney Aerotropolis) 2020

- (d) in the “public safety area” on the Public Safety Area Map under that Policy, or

N/A

- (e) in the “3 kilometre wildlife buffer zone” or the “13 kilometre wildlife buffer zone” on the Wildlife Buffer Zone Map under that Policy.

N/A

Note. The following matters are prescribed by section 59 (2) of the *Contaminated Land Management Act 1997* as additional matters 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,

N/A

- (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,

N/A

- (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,

N/A

- (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,

N/A

- (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 at any time to the local authority issuing the certificate.

N/A

Information is provided only to the extent that Council has been notified by relevant public authorities at the time of issue.

INFORMATION PURSUANT TO SECTION 10.7 (5) OF THE ACT

1. Does the property adjoin a Heritage Item and/or Heritage Conservation Area?

No.

2. Contaminated and Potentially Contaminated Land

- * Council's records indicate that the land **has not** been used for potentially contaminating activity listed in Table 1 of the "*Managing Land Contamination Planning Guidelines SEPP 55 – Remediation of Land*"
- * Are there results of any site investigations held by Council? **No**
- * Is there any notification of remediation? **No**
- * Are there copies of any site audit statement held by Council? **No**

3. Conservation Agreements

Whether the land is land to which a Conservation Agreement has been made between the landholder and the Minister for the Environment in accordance with provisions of the National Parks and Wildlife Act 1974, to which Council has been notified of the conservation agreement.

There is not a Conservation Agreement that has been made between the landholder and the Minister for the Environment in accordance with provisions of the National Parks and Wildlife Act 1974 applying to this land that Council has been notified of.

ROSEMARY DILLON,
Chief Executive Officer

Per:



Date **10/5/2022**

Appendix F

Site Photographs
Site Features Plan



Photo 1 - Bricks in Dumped Building Waste



Photo 2 - Metal Starpickets and Wire

 Douglas Partners Geotechnics Environment Groundwater	Site Photographs	PROJECT: 210791.00
	Proposed Development	PLATE No: 1
	142-150 Narrow Neck Road, Katoomba	REV: A
	CLIENT: VDM Prime Pty Ltd	DATE: May-22



Photo 3 - Sandstone Ruins



Photo 4 - Sandstone Ruins



Site Photographs

Proposed Development

142-150 Narrow Neck Road, Katoomba

CLIENT: VDM Prime Pty Ltd

PROJECT: 210791.00

PLATE No: 2

REV: A

DATE: May-22



Photo 5 - Blackberry



Photo 6 - Blackberry

	Site Photographs	PROJECT: 210791.00
	Proposed Development	PLATE No: 3
	142-150 Narrow Neck Road, Katoomba	REV: A
	CLIENT: VDM Prime Pty Ltd	DATE: May-22



Photo 7 - Blackberry



Photo 8 - Blackberry

 Douglas Partners Geotechnics Environment Groundwater	Site Photographs	PROJECT: 210791.00
	Proposed Development	PLATE No: 4
	142-150 Narrow Neck Road, Katoomba	REV: A
	CLIENT: VDM Prime Pty Ltd	DATE: May-22



Photo 9 - Remnant Bushland



Photo 10 - Remnant Bushland



Site Photographs

Proposed Development

142-150 Narrow Neck Road, Katoomba

CLIENT: VDM Prime Pty Ltd

PROJECT: 210791.00

PLATE No: 5

REV: A

DATE: May-22



Photo 11 - Western Side of Remnant Bushland



Photo 12 - North Eastern Side of Remnant Bushland



Site Photographs

Proposed Development

142-150 Narrow Neck Road, Katoomba

CLIENT: VDM Prime Pty Ltd

PROJECT: 210791.00

PLATE No: 6

REV: A

DATE: May-22



Photo 13 - Grass Paddocks



Photo 14 - Residential Properties

 Douglas Partners Geotechnics Environment Groundwater	Site Photographs	PROJECT: 210791.00
	Proposed Development	PLATE No: 7
	142-150 Narrow Neck Road, Katoomba	REV: A
	CLIENT: VDM Prime Pty Ltd	DATE: May-22



Photo 15 - Residential Properties



Photo 16 - Metal Irrigation Pipes



Site Photographs

Proposed Development

142-150 Narrow Neck Road, Katoomba

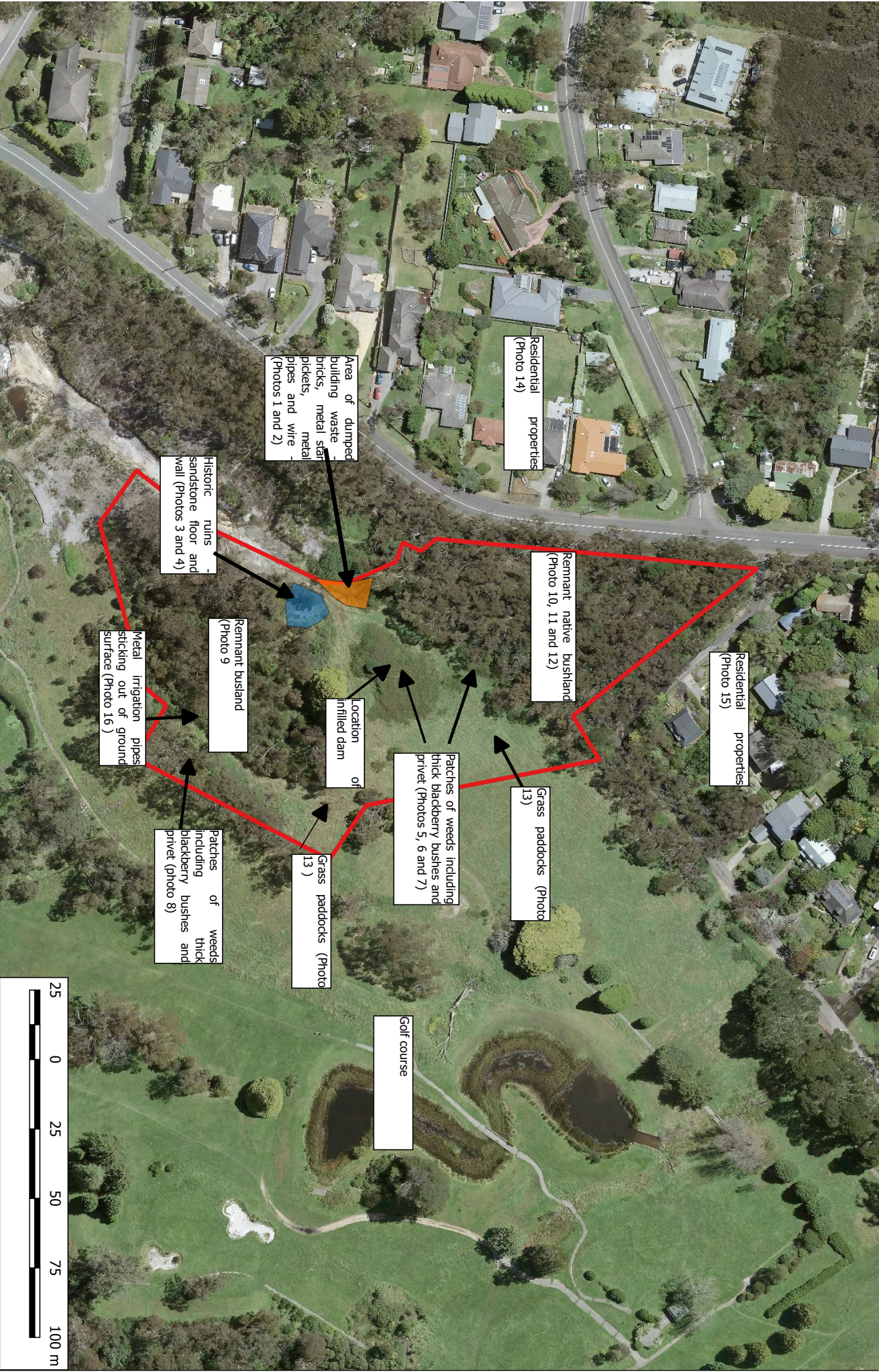
CLIENT: VDM Prime Pty Ltd

PROJECT: 210791.00

PLATE No: 8

REV: A

DATE: May-22



**Douglas Partners**
Geotechnics | Environment | Groundwater

CLIENT: VDM Prime Pty Ltd	TITLE: Site Features Plan
OFFICE: North West Sydney	PROJ. #: 210791.00
SCALE: As shown	DRAWN BY: GAR
	DATE: 26 May 2022
142 - 150 Narrow Neck Road, Katoomba NSW	
MGA	REVISION: 0

DRAWING No: 7
REVISION: 0

Appendix G

Data Quality Objectives

Appendix G

Data Quality Objectives

142 - 150 Narrow Neck Road, Katoomba

G1.0 Data Quality Objectives

The DSI has been devised broadly in accordance with the seven-step data quality objective (DQO) process which is provided in Appendix B, Schedule B2 of NEPC *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]* (NEPC, 2013).

Step	Summary
1: State the problem	The objective of the investigation is to assess the potential for contamination at the site with respect to the proposed land use. The report is being undertaken as the land is to be redeveloped. A preliminary conceptual site model (CSM) has been prepared (Section 8) for the proposed development. The project team consisted of experienced environmental engineers and scientists working in the roles of Project Principal, Project Reviewer, Project Manager, field staff.
2: Identify the decisions / goal of the study	The site history has identified possible contaminating previous uses which are identified in the CSM (Section 8). The CSM identifies the associated contaminants of potential concern (COPC) and the likely impacted media. The site assessment criteria (SAC) for each of the COPC are detailed in Appendix H. The decision is to establish whether or not the results fall below the SAC or whether or not the 95% upper confidence limit of the sample population falls below the SAC. On this basis, an assessment of the site's suitability from a contamination perspective will be derived and a decision made on whether (or not) further assessment and / or remediation will be required.
3: Identify the information inputs	Inputs to the investigation will be the results of analysis of samples to measure the concentrations of COPC identified in the CSM (Section 8) at the site using NATA accredited laboratories and methods, where possible. The SAC for each of the COPC are detailed in Appendix H.
4: Define the study boundaries	The lateral boundaries of the investigation area are shown on Drawing 1, Appendix A. The vertical boundaries are to the extent of contamination impact as determined from the site history assessment and site observations. The assessment is limited to the timeframe over which the field investigation was undertaken. Constraints to the assessment are identified and discussed in the conclusions of the report, Section 13.
5: Develop the analytical approach (or decision rule)	The decision rule is to compare all analytical results with SAC (Appendix H, based on NEPC (2013)). Where guideline values are absent, other sources of guideline values accepted by NEPC (2013) shall be adopted where possible. Where a sample result exceeds the adopted criterion, a further site-specific assessment will be made as to the risk posed by the presence of that contaminant(s).

Step	Summary
	Initial comparisons will be with individual results then, where required, summary statistics (including mean, standard deviation and 95% upper confidence limit (UCL) of the arithmetic mean (95% UCL)) to assess potential risks posed by the site contamination. Quality control results are to be assessed according to their relative percent difference (RPD) values. For field duplicates, triplicates and laboratory results, RPDs should generally be below 30%; for field blanks and rinsates, results should be at or less than the limits of reporting (NEPC, 2013). The field and laboratory quality assurance assessment is included in Appendix L.
6: Specify the performance or acceptance criteria	Baseline condition: Contaminants at the site exceed human health and environmental SAC and pose a potentially unacceptable risk to receptors (null hypothesis). Alternative condition: Contaminants at the site comply with human health and environmental SAC and as such, do not pose a potentially unacceptable risk to receptors (alternative hypothesis). Unless conclusive information from the collected data is sufficient to reject the null hypothesis, it is assumed that the baseline condition is true.
7: Optimise the design for obtaining data	As the purpose of the sampling program is to assess for potential contamination across the site, the sampling program is reliant on professional judgement to identify and sample the potentially affected areas. Further details regarding the proposed sampling plan are presented in Section 9.

G2.0 References

NEPC. (2013). *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]*. Australian Government Publishing Services Canberra: National Environment Protection Council.

Douglas Partners Pty Ltd

Appendix H

Site Assessment Criteria

Appendix H

Site Assessment Criteria

142 - 150 Narrow Neck Road, Katoomba

H1.0 Introduction

H1.1 Guidelines

The following key guidelines were consulted for deriving the site assessment criteria (SAC):

- NEPC *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013)* [NEPM] (NEPC, 2013).
- CRC CARE *Health screening levels for petroleum hydrocarbons in soil and groundwater* (CRC CARE, 2011).

H1.2 General

The SAC applied in the current investigation are informed by the CSM which identified human and environmental receptors to potential contamination at the site. Analytical results are assessed (as a Tier 1 assessment) against the SAC comprising primarily the investigation and screening levels of Schedule B1 of NEPC (2013).

The following inputs are relevant to the selection and/or derivation of the SAC:

- Land use: residential
 - Corresponding to land use category 'A', residential with garden / accessible soil (home grown produce <10% fruit and vegetable intake, (no poultry)), also includes children's day care centres, preschools and primary schools.
- Soil type: sand

H2.0 Soils

H2.1 Health Investigation and Screening Levels

The generic health investigation levels (HIL) and health screening levels (HSL) are considered to be appropriate for the assessment of human health risk via all relevant pathways of exposure associated with contamination at the site. The adopted soil HIL and HSL for the contaminants of concern are in Table 1 and Table 2.

Table 1: Health Investigation Levels (mg/kg)

Contaminant	HIL-A
Metals	
Arsenic	100
Cadmium	20
Chromium (VI)	100
Copper	6000
Lead	300
Mercury (inorganic)	40
Nickel	400
Zinc	7400
PAH	
B(a)P TEQ	3
Total PAH	300
Phenols	
Phenol	3000
Pentachlorophenol	100
OCP	
DDT+DDE+DDD	240
Aldrin and dieldrin	6
Chlordane	50
Endosulfan	270
Endrin	10
Heptachlor	6
HCB	10
Methoxychlor	300
OPP	
Chlorpyrifos	160
PCB	
PCB	1

Table 2: Health Screening Levels (mg/kg)

Contaminant	HSL-A&B	HSL-A&B	HSL-A&B
SAND	0 m to <1 m	1 m to <2 m	2 m to <4 m
Benzene	0.5	0.5	0.5
Toluene	160	220	310
Ethylbenzene	55	NL	NL
Xylenes	40	60	95
Naphthalene	3	NL	NL
TRH F1	45	70	110
TRH F2	110	240	440

Notes: TRH F1 is TRH C₆-C₁₀ minus BTEX

TRH F2 is TRH >C₁₀-C₁₆ minus naphthalene

The soil saturation concentration (C_{sat}) is defined as the soil concentration at which the porewater phase cannot dissolve any more of an individual chemical. The soil vapour that is in equilibrium with the porewater will be at its maximum. If the derived soil HSL exceeds C_{sat}, a soil vapour source concentration for a petroleum mixture could not exceed a level that would result in the maximum allowable vapour risk for the given scenario. For these scenarios, no HSL is presented for these chemicals and the HSL is shown as 'not limiting' or 'NL'

The HSL for direct contact derived from CRC CARE (2011) are in Table 3.

Table 3: Health Screening Levels for Direct Contact (mg/kg)

Contaminant	DC HSL-A
Benzene	100
Toluene	14 000
Ethylbenzene	4500
Xylenes	12 000
Naphthalene	1400
TRH F1	4400
TRH F2	3300
TRH F3	4500
TRH F4	6300

Notes: TRH F1 is TRH C₆-C₁₀ minus BTEX

TRH F2 is TRH >C₁₀-C₁₆ minus naphthalene

H2.2 Asbestos in Soil

Based on the CSM and/or current site access limitations, a detailed asbestos assessment was not considered to be warranted at this stage. However, due to the history of widespread use of ACM

products across Australia, ACM can be encountered unexpectedly and sporadically at a site. Therefore, the presence or absence of asbestos at a limit of reporting of 0.1 g/kg (AS:4964) has been adopted for this investigation / assessment as an initial screen.

H2.3 Ecological Investigation Levels

Ecological investigation levels (EIL) and added contaminant limits (ACL), where appropriate, have been derived in NEPC (2013) for arsenic, copper, chromium (III), nickel, lead, zinc, DDT and naphthalene. The adopted EIL, derived using the interactive (excel) calculation spreadsheet on the NEPM toolbox website are shown in Table 5, with inputs into their derivation shown in Table 4.

Table 4: Inputs to the Derivation of the Ecological Investigation Levels

Variable	Input	Rationale
Age of contaminants	"Aged" (>2 years)	Given the potential sources of soil contamination are from historic use, the contamination is considered as "aged" (>2 years)
pH	4	Conservative value assumed based on soil type for initial screening
CEC	5 cmol _c /kg	Conservative value assumed based on soil type for initial screening
Clay content	10%	Conservative value for initial screening
Traffic volumes	Low	Conservative assumption
State / Territory	NSW	-

Table 5: Ecological Investigation Levels (mg/kg)

Contaminant	EIL-A-B-C
Metals	
Arsenic	100
Copper	55
Nickel	35
Chromium III	410
Lead	1100
Zinc	150
PAH	
Naphthalene	170

Contaminant	EIL-A-B-C
OCP	
DDT	180

H2.4 Ecological Screening Levels

Ecological screening levels (ESL) are used to assess the risk of selected petroleum hydrocarbon compounds, BTEX and benzo(a)pyrene to terrestrial ecosystems. The adopted ESL are shown in Table 6.

Table 6: Ecological Screening Levels (mg/kg)

Contaminant	Soil Type	EIL-A-B-C
Benzene	Coarse	50
Toluene	Coarse	85
Ethylbenzene	Coarse	70
Xylenes	Coarse	105
TRH F1	Coarse/ Fine	180*
TRH F2	Coarse/ Fine	120*
TRH F3	Coarse	300
TRH F4	Coarse	2800
B(a)P	Coarse	0.7

Notes: ESL are of low reliability except where indicated by * which indicates that the ESL is of moderate reliability
 TRH F1 is TRH C₆-C₁₀ minus BTEX
 TRH F2 is TRH >C₁₀-C₁₆ including naphthalene

H2.5 Management Limits

In addition to appropriate consideration and application of the HSL and ESL, there are additional considerations which reflect the nature and properties of petroleum hydrocarbons, including:

- Formation of observable light non-aqueous phase liquids (LNAPL);
- Fire and explosion hazards;
- Effects on buried infrastructure eg: penetration of, or damage to, in-ground services.

The adopted management limits are in Table 7.

Table 7: Management Limits (mg/kg)

Contaminant	Soil Type	ML-A-B-C
TRH F1	Coarse	700
TRH F2	Coarse	1000
TRH F3	Coarse	2500
TRH F4	Coarse	10 000

Notes: TRH F1 is TRH C₆-C₁₀ including BTEX
 TRH F2 is TRH >C₁₀-C₁₆ including naphthalene

H3.0 References

ANZECC. (2000). *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. Australia and New Zealand Environment and Conservation Council.

ANZG. (2018). *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. Canberra, ACT: Australian and New Zealand Governments and Australian state and territory governments.

CRC CARE. (2011). *Health screening levels for petroleum hydrocarbons in soil and groundwater*. Parts 1 to 3, Technical Report No. 10: Cooperative Research Centre for Contamination Assessment and Remediation of the Environment.

HEPA. (2020). *PFAS National Environmental Management Plan (NEMP)*. Version 2.0: Heads of EPAs Australia and New Zealand and Australian Government Department of the Environment.

NEPC. (2013). *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]*. Australian Government Publishing Services Canberra: National Environment Protection Council.

NHMRC. (2008). *Guidelines for Managing Risks In Recreational Water*.

NHMRC, NRMCC. (2016). *Australian Drinking Water Guidelines 6 2011, Version 3.2*. Canberra: National Health and Medical Research Council, National Resource Management Ministerial Council.

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Appendix I

Summary of Laboratory Results

Table 12: Summary of Laboratory Results – Phenol, OCP, OPP, PCB, Asbestos

[illegible]

No

- QA/QC replicate of sample listed directly below the primary sample
- Reported naphthalene laboratory result obtained from BTEXN suite
- Criteria applies to DDT only

Site Assessment Criteria (SAC):

Refer to the SAC section of report for information of SAC sources and all other. Summary information as follows:

SAC based on generic land use thresholds for Residential A with garden/accrassible soil

Residential / Low - High Density (NEPC, 2013)

HSL AB
Potential / Low - High Density (vapour infusion) (NEPC, 2013)

© 2011 Blackwell Publishing Ltd *Journal of Internal Medicine* 270: 103–110

Residential Rental and Public Open Space, *WSP* 2013

Appendix J

Borehole and Test Pit Logs

TEST PIT LOG

CLIENT: VDM Prime Pty Ltd
PROJECT: Proposed Development
LOCATION: 142 - 150 Narrow Neck Road, Katoomba

SURFACE LEVEL: 1002.9
COORDINATE E:249300.4 **N:** 6265393
DATUM/GRID: GDA2020 Zone 56

LOCATION ID: 1
PROJECT No: 210791.00
DATE: 13/05/22
SHEET: 1 of 1

[illegible]

PLANT: 5 Tonne excavator

OPERATOR: A&A Hire

LOGGED: SI

METHOD: 600mm wide bucket attachment

REMARKS: BD113052022 sampled at 0.0 to 0.1m depth

BOREHOLE LOG

CLIENT: VDM Prime Pty Ltd
PROJECT: Proposed Development
LOCATION: 142 - 150 Narrow Neck Road, Katoomba

SURFACE LEVEL: 1001
COORDINATE E:249320.6 N: 6265438
DATUM/GRID: GDA2020 Zone 56
DIP/AZIMUTH: 90°/---

LOCATION ID: 1A
PROJECT No: 210791.00
DATE: 05/06/22
SHEET: 1 of 2

CONDITIONS ENCOUNTERED														SAMPLE			TESTING	
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	SOIL		WEATH.	DEPTH (m)	STRENGTH	RECOVERY (%)	RQD	FRACTURE SPACING (m)	DEFECTS & REMARKS	SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
				ORIGIN ^(#)	CONSIS. ⁽¹⁾ DENSITY, ⁽²⁾													
Free groundwater observed at 1.0m	0.0	FILL/ (CI) Sandy CLAY; dark brown; medium plasticity; with rootlets throughout (Topsoil)		FILL		NA								A		0.0		
	0.2	(CL) Sandy CLAY; pale brown, mottled orange/yellow; low plasticity; trace gravel		RES	F TO ST	<PL								A		0.4		
	0.8	(CL) Sandy CLAY; yellow/orange; low plasticity; trace gravel		RES	ST TO VST	<PL								A		0.9		
	1.3	Clayey SAND; pale yellow, mottled orange; well graded		RES										SPT		1.4		
	2.0	2.0m: possible weathered sandstone below		RES	D	M								A		1.45		
CORE LOSS;	2.6	CORE LOSS;					2.6							SPT		2.5	SPT	30/100
	3.0																	
	4.0																	
	4.63	SANDSTONE; pale yellow; distinct and indistinct bedding 0-10", Narrabeen Sandstone		XWM		SW-MW	4.63									4.63		

NOTES: ^(#)Soil origin is "probable" unless otherwise stated. ⁽¹⁾Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: ⁽¹⁾Soil origin is "probable" unless otherwise stated. ⁽²⁾Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Hanjin D&B 8D

OPERATOR: Sytech Drilling

LOGGED: RD

METHOD: 110mm Spiral Flight Auger to 2.6m, NMLC coring to 8.0m

CASING: HQ to 2.6m, HW to 8.0m

REMARKS: Well Construction Details: 5-8.0m Screen, 0-5.0m Blank, 0.5m Stickup, Gravel from 4.0m, Bentonite 0-4.0m

BOREHOLE LOG

CLIENT: VDM Prime Pty Ltd
PROJECT: Proposed Development
LOCATION: 142 - 150 Narrow Neck Road, Katoomba

SURFACE LEVEL: 1001
COORDINATE E:249320.6 N: 6265438
DATUM/GRID: GDA2020 Zone 56
DIP/AZIMUTH: 90°/---

LOCATION ID: 1A
PROJECT No: 210791.00
DATE: 05/06/22
SHEET: 2 of 2

GROUNDWATER	CONDITIONS ENCOUNTERED											SAMPLE		TESTING				
	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	SOIL				ROCK				SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
					ORIGIN ^(#)	CONSISTENCY ⁽¹⁾	DENSITY ⁽¹⁾	MOISTURE	WEATH.	DEPTH (m)	STRENGTH	RECOVERY (%)	RQD	FRACTURE SPACING (m)	DEFECTS & REMARKS			
Free groundwater observed at 1.0m			SANDSTONE; pale yellow; distinct and indistinct bedding 0-10°, Narrabeen Sandstone (continued)		XWM				SW-MW	5.07	VL	25	18		5.09-5.22m, B x3 0°-10° PL, VEN			
		5.32	CORE LOSS;							5.32	VL							
		6.1								6.1	VL							
		6.33	CORE LOSS;							6.33	VL							
		6.1	SANDSTONE; pale yellow; distinct and indistinct bedding 0-10°, Narrabeen Sandstone		XWM				SW									
		6.33	CORE LOSS;															
		7										0	0					
		7										0	0					
		8.0	Borehole discontinued at 8.00m depth							8.0								

NOTES: ⁽¹⁾Soil origin is "probable" unless otherwise stated. ⁽²⁾Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Hanjin D&B 8D

OPERATOR: Sytech Drilling

LOGGED: RD

METHOD: 110mm Spiral Flight Auger to 2.6m, NMLC coring to 8.0m

CASING: HQ to 2.6m, HW to 8.0m

REMARKS: Well Construction Details: 5-8.0m Screen, 0-5.0m Blank, 0.5m Stickup, Gravel from 4.0m, Bentonite 0-4.0m



TEST PIT LOG

CLIENT: VDM Prime Pty Ltd
PROJECT: Proposed Development
LOCATION: 142 - 150 Narrow Neck Road, Katoomba

SURFACE LEVEL:
COORDINATE E:249255.4 N: 6265485.6
DATUM/GRID:

LOCATION ID: 2
PROJECT No: 210791.00
DATE: 13/05/22
SHEET: 1 of 1

CONDITIONS ENCOUNTERED						SAMPLE			TESTING AND REMARKS						
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN ^(#)	CONSIS. ^(*) DENSITY ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS		
No free groundwater observed		0.0	FILL/ Silty SAND; grey to grey brown; trace gravel, grass roots		FILL	PC	M		A	0.0 - 0.1	0.0				
		0.3	FILL/ (SC) Clayey SAND; red brown; fine to medium		FILL	VC	M		B	0.1 - 0.2	0.1				
								A	0.2 - 0.3	0.2					
								E	0.3 - 0.4	0.3					
										0.4					
		0.8	(SC) Clayey SAND; pale grey brown; fine to medium; trace ironstone bands		RES	D	M		A	0.4 - 0.5	0.4				
		1							E	0.5 - 0.6	0.5				
		1.2	SANDSTONE; pale grey and brown; fine to medium; very low strength, with extremely weathered bands, Narrabeen Sandstone		XWM	XWR	NA			0.6 - 0.8	0.6				
										0.8 - 0.9	0.8				
										0.9 - 1.0	0.9				
										1.0 - 1.2	1.0				
										1.2 - 1.4	1.2				
										1.4 - 1.5	1.4				
										1.5 - 1.9	1.5				
										1.9 - 2.0	1.9				
		2.0	Test pit discontinued at 2.00m depth								A	2.0	2.0		
		3									3				
		4									4				

NOTES: ^(#)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 5 Tonne excavator
METHOD: 600mm wide bucket attachment
REMARKS:

OPERATOR: A&A Hire

LOGGED: SI

BOREHOLE LOG

CLIENT: VDM Prime Pty Ltd
PROJECT: Proposed Development
LOCATION: 142 - 150 Narrow Neck Road, Katoomba

SURFACE LEVEL: 1008
COORDINATE E:249274.2 N: 6265486.1
DATUM/GRID: GDA2020 Zone 56
DIP/AZIMUTH: 90°/---

LOCATION ID: 2A
PROJECT No: 210791.00
DATE: 05/06/22
SHEET: 1 of 1

CONDITIONS ENCOUNTERED						SAMPLE		TESTING AND REMARKS		
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN ^(#)	CONSIS. (%) DENSITY (%)	MOISTURE	REMARKS	TYPE	INTERVAL	TEST TYPE
Groundwater observed at 2.2m	0.0	FILL/ (Cl) Sandy CLAY; brown; medium plasticity; with rootlets throughout (Topsoil)		FILL		NA		A	0.0-0.1	
	0.2	(SC) Clayey SAND; pale brown; fine to medium		RES	D	NA		A	0.1-0.4	
	0.6	(SC) Clayey SAND; pale grey brown; fine to medium		RES	MD TO MD	NA		A	0.4-0.9	
	1.0	SANDSTONE; pale grey brown; fine to medium; very low strength, with extremely weathered bands and clayey sand bands, Narrabeen sandstone						A	0.9-1.0	
1007								E	1.0-2.4	
								SPT	2.4-2.5	30/90
									2.5-2.61	
								SPT	2.61-2.61	25/110
1006	2									
1005	3									
1004	4									
	4.15	Borehole discontinued at 4.15m depth								

NOTES: ^(#)Soil origin is "probable" unless otherwise stated. ⁽¹⁾Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Hanjin D&B 8D
METHOD: 110mm Spiral Flight Auger to 4.15m
REMARKS: Well Construction Details: 1-4.0m Screen, 0-1.0m Blank, Gravel 0.5-4.0m, Bentonite 0-0.5m, Stickup 1.0m

OPERATOR: Sytech Drilling
CASING: Not used

LOGGED: RD

BOREHOLE LOG

CLIENT: VDM Prime Pty Ltd
PROJECT: Proposed Development
LOCATION: 142 - 150 Narrow Neck Road, Katoomba

SURFACE LEVEL: 1004.1
COORDINATE E:249211.5 N: 6265376.1
DATUM/GRID: GDA2020 Zone 56
DIP/AZIMUTH: 90°/---

LOCATION ID: 3
PROJECT No: 210791.00
DATE: 12/05/22
SHEET: 1 of 1

CONDITIONS ENCOUNTERED						SAMPLE			TESTING AND REMARKS			
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN ^(#)	CONSIS. ^(%) DENSITY ^(%)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
No free groundwater observed	0.0	(SM) Silty SAND; pale grey; fine		RES	VL	M		A	0.0 - 0.1	0.0	DCP/150	
	0.2	(SC) Clayey SAND; brown then pale grey brown; fine to medium		RES	MD TO D	M		A	0.1 - 0.5	0.1		
	0.8	SANDSTONE; pale grey and brown; fine to medium; very low strength, with extremely weathered bands and clayey sand bands, Narrabeen Sandstone		XWM	XWR	NA		A	0.5 - 0.9	0.4		
	1.0							A	0.9 - 1.0	0.5		
	2.0							A	1.9 - 2.0	1.5		
	3.0						A	2.9 - 3.0	2.0			
	3.05						SPT	3.0 - 3.05	2.5	SPT	20/50	
	4.0	Borehole discontinued at 4.00m depth								4		

NOTES: ^(#)Soil origin is "probable" unless otherwise stated. ^(%)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: ^(#)Soil origin is "probable" unless otherwise stated. ^(%)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Massenza (Hanjin)

OPERATOR: Sytech Drilling

LOGGED: SI

METHOD: Spiral Flight Auger to 4.0m

CASING: Not used

REMARKS: Standpipe installed to 4.0m (Screen 0.5m to 4.0m, Blank 0.5m to 1.0m, Gravel 0.3 to 4.0m, Bentonite ground surface to 0.3m, Stickup 1.0m)

BOREHOLE LOG

CLIENT: VDM Prime Pty Ltd
PROJECT: Proposed Development
LOCATION: 142 - 150 Narrow Neck Road, Katoomba

SURFACE LEVEL: 1013.1
COORDINATE E:249240 N: 6265534.8
DATUM/GRID: GDA2020 Zone 56
DIP/AZIMUTH: 90°/---

LOCATION ID: 4
PROJECT No: 210791.00
DATE: 07/06/22
SHEET: 1 of 1

CONDITIONS ENCOUNTERED						SAMPLE			TESTING AND REMARKS	
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN ^(#)	CONSIS. ^(*) DENSITY ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	TEST TYPE
No free groundwater observed	0.0	FILL/ Silty SAND; pale brown; with rootlets throughout (Topsoil)		FILL	L	NA		A	0.0 - 0.1	
	0.1	(SP) Clayey SAND; pale red/orange; trace pebbles and gravel		RES	MD TO D	M		E	0.1 - 0.5	
No free groundwater observed	0.7	Borehole discontinued at 0.70m depth Hand Auger Refusal on gravel								
	1.0									
No free groundwater observed	2.0									
	3.0									
No free groundwater observed	4.0									
	5.0									

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Hand Tools
METHOD: Hand Auger
REMARKS:

OPERATOR: RD
CASING: Not used

LOGGED: RD

TEST PIT LOG

CLIENT: VDM Prime Pty Ltd
PROJECT: Proposed Development
LOCATION: 142 - 150 Narrow Neck Road, Katoomba

SURFACE LEVEL: 997
COORDINATE E:249310 N: 6265517.8
DATUM/GRID: GDA2020 Zone 56

LOCATION ID: 5
PROJECT No: 210791.00
DATE: 13/05/22
SHEET: 1 of 1

CONDITIONS ENCOUNTERED						SAMPLE			TESTING AND REMARKS		
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN ^(#)	CONSIS. ^(*) DENSITY ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE
Free groundwater observed at 1.8m	0.0	(SM) Silty SAND; pale grey; trace of grass roots		RES	VL	M		A	0.0 - 0.1	0.0 - 0.1	DCP/150
	0.4	(SC) Clayey SAND; orange brown to pale brown; fine to medium						A	0.1 - 0.4		
996	0.4			RES	L TO MD	M		E	0.4 - 0.5	0.4 - 0.5	
	1.0							B	0.5 - 1.0		
1.8	1.8	1.8m: becoming wet		RES	L TO MD	M		A	1.0 - 1.4	1.0 - 1.4	
	2.0	SANDSTONE; pale grey and brown; fine to medium; very low strength, Narrabeen Sandstone						A	1.4 - 1.5		
995	2.0	Test pit discontinued at 2.00m depth		XWM	XWR	NA		A	1.5 - 1.9	1.5 - 1.9	
994	3									3	
993	4									4	

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 5 Tonne excavator
METHOD: 600mm wide bucket attachment
REMARKS: BD213052022 sampled at 0.0 to 0.1m depth

OPERATOR: A&A Hire

LOGGED: SI

TEST PIT LOG

CLIENT: VDM Prime Pty Ltd
PROJECT: Proposed Development
LOCATION: 142 - 150 Narrow Neck Road, Katoomba

SURFACE LEVEL: 997
COORDINATE E:249345.2 N: 6265435.8
DATUM/GRID: GDA2020 Zone 56

LOCATION ID: 6
PROJECT No: 210791.00
DATE: 13/05/22
SHEET: 1 of 1

CONDITIONS ENCOUNTERED						SAMPLE			TESTING AND REMARKS				
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN ^(#)	CONSIS. ^(*) DENSITY ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	
No free groundwater observed	0.0	FILL/ Silty SAND; grey brown; fine; trace gravel (igneous)		FILL	PC	M		A	0.0 - 0.1	0.0	DCP/150		
	0.2	(SC) Clayey SAND; brown; fine to medium; trace ironstone gravel		RES	L TO MD	M		B	0.1 - 0.4	0.1			
	1.0	(SC) Clayey SAND; pale grey brown; fine to medium		RES	MD TO D	M		A	0.4 - 0.9	0.4			
	1.7	SANDSTONE; pale grey; fine to medium; very low strength, with extremely weathered bands, Narrabeen Sandstone		XWM	XWR	NA		A	0.9 - 1.0	0.9			
	2.2	Test pit discontinued at 2.20m depth											
	3.0									3			
	4.0									4			

NOTES: ^(#)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: ^(#)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 5 Tonne excavator
METHOD: 600mm wide bucket attachment
REMARKS:

OPERATOR: A&A Hire

LOGGED: SI

BOREHOLE LOG

CLIENT: VDM Prime Pty Ltd
PROJECT: Proposed Development
LOCATION: 142 - 150 Narrow Neck Road, Katoomba

SURFACE LEVEL: 1013
COORDINATE E:249232.3 N: 6265488.2
DATUM/GRID: GDA2020 Zone 56
DIP/AZIMUTH: 90°/---

LOCATION ID: 7
PROJECT No: 210791.00
DATE: 07/06/22
SHEET: 1 of 1

CONDITIONS ENCOUNTERED						SAMPLE			TESTING AND REMARKS		
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN ^(#)	CONSIS. ^(*) DENSITY ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE
No free groundwater observed	0.0	FILL/ Silty SAND; dark brown; with rootlets throughout (Topsoil)		FILL	L	NA		A	0.1		DCP/150
	0.2	(SC) Clayey SAND; pale red/orange; medium to coarse; with pebbles and gravel, trace clay		RES	MD TO D	M		E	0.2		
	0.8	Borehole discontinued at 0.80m depth Hand Auger Refusal on gravel									
	1.0										
	2.0										
	3.0										
	4.0										

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Hand Tools
METHOD: Hand Auger
REMARKS:

OPERATOR: RD
CASING: Not used

LOGGED: RD

BOREHOLE LOG

CLIENT: VDM Prime Pty Ltd
PROJECT: Proposed Development
LOCATION: 142 - 150 Narrow Neck Road, Katoomba

SURFACE LEVEL: 999.7
COORDINATE E:249252.4 N: 6265364.1
DATUM/GRID: GDA2020 Zone 56
DIP/AZIMUTH: 90°/---

LOCATION ID: 8
PROJECT No: 210791.00
DATE: 07/06/22
SHEET: 1 of 1

CONDITIONS ENCOUNTERED							SAMPLE			TESTING AND REMARKS			
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN ^(#)	CONSIS. ^(*) DENSITY ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	
No free groundwater observed	0.0	FILL/ Silty SAND; dark brown; with rootlets throughout (Topsoil)		FILL	L	NA		A		0.0	DCP/150		
	0.25	(CL-CI) Sandy CLAY; dark orange; low to medium plasticity; trace gravel		RES	ST	<PL		E		0.1			
	0.75	Borehole discontinued at 0.75m depth Hand Auger Refusal on gravel								0.5			
	1.0									0.6			
	2.0									1.0			
	3.0									2.0			
	4.0									3.0			
										4.0			

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Hand Tools
METHOD: Hand Auger
REMARKS:

OPERATOR: RD
CASING: Not used

LOGGED: RD

BOREHOLE LOG

CLIENT: VDM Prime Pty Ltd
PROJECT: Proposed Development
LOCATION: 142 - 150 Narrow Neck Road, Katoomba

SURFACE LEVEL: 1008.6
COORDINATE E:249232.7 N: 6265401.7
DATUM/GRID: GDA2020 Zone 56
DIP/AZIMUTH: 90°/---

LOCATION ID: 9
PROJECT No: 210791.00
DATE: 12/05/22
SHEET: 1 of 1

CONDITIONS ENCOUNTERED						SAMPLE		TESTING AND REMARKS	
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN ^(#)	CONSIS. ^(*) DENSITY ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL
No free groundwater observed	0.0	FILL/ Silty SAND; pale grey brown; fine; trace asphalt, rock fragments		FILL	PC	M		A	0.0 - 0.1
	0.2	(SC) Clayey SAND; brown then pale grey; fine to medium		RES	MD TO D	M		A	0.1 - 0.2
	0.65	SANDSTONE; pale grey and brown; fine to medium; very low strength, with extremely weathered bands and clayey sand bands, Narrabeen Sandstone						A	0.2 - 0.4
	1.0	0.65-1.5m: extremely weathered sandstone (very dense sand)						A	0.4 - 0.5
	1.45							SPT	0.5 - 0.8
	1.9							A	0.8 - 0.9
	2.0							A	0.9 - 1.0
	2.9							A	1.0 - 1.45
	3.0							A	1.45 - 1.9
	3.9							A	1.9 - 2.0
	4.0	Borehole discontinued at 4.00m depth						A	2.0 - 2.9
	1004								

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Massenza (Hanjin)
METHOD: Spiral Flight Auger to 4.0m
REMARKS:

OPERATOR: Sytech Drilling
CASING: Not used

LOGGED: SI

TEST PIT LOG

CLIENT: VDM Prime Pty Ltd
PROJECT: Proposed Development
LOCATION: 142 - 150 Narrow Neck Road, Katoomba

SURFACE LEVEL: 1007.5
COORDINATE E:249277.5 N: 6265486.8
DATUM/GRID: GDA2020 Zone 56

LOCATION ID: 10
PROJECT No: 210791.00
DATE: 13/05/22
SHEET: 1 of 1

CONDITIONS ENCOUNTERED						SAMPLE			TESTING AND REMARKS		
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN ^(#)	CONSIS. ^(*) DENSITY ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE
No free groundwater observed	0.0	FILL/ Silty SAND; grey; trace gravel, grass and plant roots		FILL	PC	M		A	0.0 - 0.1	0.0	DCP/150
	0.3	(SC) Clayey SAND; pale brown; fine to medium		RES	MD	M		B A E	0.1 - 0.3	0.1	
	0.95	SANDSTONE; pale grey brown; very low strength, Narrabeen Sandstone (possible boulder)		XWM	XWR	NA		A	0.3 - 0.95	0.3	
	1.2	Test pit discontinued at 1.20m depth									
	1006										
	2										
	1005										
	3										
	1004										
	4										
	1003										

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 5 Tonne excavator
METHOD: 600mm wide bucket attachment
REMARKS:

OPERATOR: A&A Hire

LOGGED: SI

BOREHOLE LOG

CLIENT: VDM Prime Pty Ltd
PROJECT: Proposed Development
LOCATION: 142 - 150 Narrow Neck Road, Katoomba

SURFACE LEVEL: 1002.4
COORDINATE E:249308.1 N: 6265488.8
DATUM/GRID: GDA2020 Zone 56
DIP/AZIMUTH: 90°/---

LOCATION ID: 11
PROJECT No: 210791.00
DATE: 12/05/22
SHEET: 1 of 1

CONDITIONS ENCOUNTERED						SAMPLE		TESTING AND REMARKS					
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN ^(#)	CONSIS. ^(%)	DENSITY ^(%)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
Free groundwater observed at 0.9m whilst auger	0.0	Silty SAND; grey; fine; trace gravel, roots		RES	L		M		A	0.0 - 0.1	0.0	DCP/150	5
	0.2	(SC) Clayey SAND; brown and orange brown; fine to medium		RES	L TO MD		M		A	0.1 - 0.4	0.1	DCP/150	
	0.85	SANDSTONE; pale grey and brown; fine to medium; very low strength, with extremely weathered bands, Narrabeen Sandstone							A	0.4 - 0.9	0.4	DCP/150	
	1.0								E	0.9 - 1.0	0.9	DCP/150	
	1.35								SPT	1.0 - 1.35	1.0	SPT	18,25,25/50
	2.0								A	1.35 - 1.9	1.35		
	2.5								SPT	1.9 - 2.5	1.9	SPT	17,20/150
	3.0									2.5 - 2.8	2.5		
	4.0	Borehole discontinued at 4.00m depth								2.8 - 4.0	2.8		

NOTES: ^(#)Soil origin is "probable" unless otherwise stated. ^(%)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Massenza (Hanjin)
METHOD: Spiral Flight Auger to 4.0m
REMARKS:

OPERATOR: Sytech Drilling
CASING: Not used

LOGGED: SI

BOREHOLE LOG

CLIENT: VDM Prime Pty Ltd
PROJECT: Proposed Development
LOCATION: 142 - 150 Narrow Neck Road, Katoomba

SURFACE LEVEL: 1009.5
COORDINATE E:249256.7 N: 6265455.6
DATUM/GRID: GDA2020 Zone 56
DIP/AZIMUTH: 90°/---

LOCATION ID: 12
PROJECT No: 210791.00
DATE: 12/05/22
SHEET: 1 of 1

CONDITIONS ENCOUNTERED						SAMPLE		TESTING AND REMARKS	
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN ^(#)	CONSIS. (%) DENSITY (%)	MOISTURE	REMARKS	DEPTH (m)	RESULTS AND REMARKS
Free groundwater observed at 0.9m whilst auger	0.0	(CL) Silty CLAY; grey; low plasticity; trace fine sand		RES	VS	W		0.0	
	0.2	(SC) Silty SAND; brown; fine to medium; trace ironstone gravel		RES	MD TO D	M		0.1	
	0.9	(SC) Clayey SAND; brown; fine; (possible void)		RES	MD TO D	M		0.4	
	1.0			RES	MD TO D	M		0.5	
	1.0			RES	VL TO L	W		0.9	
	1.8	SANDSTONE; pale grey brown; fine to medium; very low strength, with extremely weathered bands and clayey sand bands, Narrabeen Sandstone						1.0	
	2.0							1.45	
	2.5							1.9	
	2.55							2.0	
	2.9							2.5	
	3.0			XWM	XWR	NA		2.55	
	3.9							2.9	
	4.0							3.0	
	4.0							3.9	
	4.0	Borehole discontinued at 4.00m depth						4.0	

NOTES: ^(#)Soil origin is "probable" unless otherwise stated. ^(%)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Massenza (Hanjin)
METHOD: Spiral Flight Auger to 4.0m
REMARKS:

OPERATOR: Sytech Drilling
CASING: Not used

LOGGED: SI

BOREHOLE LOG

CLIENT: VDM Prime Pty Ltd
PROJECT: Proposed Development
LOCATION: 142 - 150 Narrow Neck Road, Katoomba

SURFACE LEVEL: 1010
COORDINATE E:249256.1 N: 6265434.3
DATUM/GRID: GDA2020 Zone 56
DIP/AZIMUTH: 90°/---

LOCATION ID: 13
PROJECT No: 210791.00
DATE: 12/05/22
SHEET: 1 of 1

CONDITIONS ENCOUNTERED				SAMPLE			TESTING AND REMARKS	
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN ^(#)	CONSIS. ^(*) DENSITY ^(*)	MOISTURE	REMARKS	TEST TYPE
RL (m)								
0.0	0.0	(SC) Silty SAND; grey brown; fine; trace grass roots			L	M		
0.15	0.15	(SC) Clayey SAND; pale grey and brown; fine to medium; trace ironstone gravel			MD	M		
0.8	0.8	(SC) Clayey SAND; pale grey brown; fine; trace ironstone			MD TO D	W		
1.8	1.8	SANDSTONE; pale grey and brown; fine to medium; with extremely weathered bands and clayey sand bands, Narrabeen Sandstone			XWM	XWR	NA	
2.0	2.0							
2.5	2.5							
2.6	2.6							
3.0	3.0							
3.9	3.9							
4.0	4.0	Borehole discontinued at 4.00m depth						

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Massenza (Hanjin)
METHOD: Spiral Flight Auger to 4.0m
REMARKS:

OPERATOR: Sytech Drilling
CASING: Not used

LOGGED: SI

TEST PIT LOG

CLIENT: VDM Prime Pty Ltd
PROJECT: Proposed Development
LOCATION: 142 - 150 Narrow Neck Road, Katoomba

SURFACE LEVEL: 1002.1
COORDINATE E:249311.4 N: 6265432.2
DATUM/GRID: GDA2020 Zone 56

LOCATION ID: 14
PROJECT No: 210791.00
DATE: 13/05/22
SHEET: 1 of 1

CONDITIONS ENCOUNTERED						SAMPLE			TESTING AND REMARKS			
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN ^(#)	CONSIS. ^(*) DENSITY ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
Free groundwater observed at 1.0m	0.0	FILL/ Silty SAND; grey; fine; trace roadbase (igneous gravel)		FILL	PC	M		A		0.0		
	0.2	(SC) Clayey SAND; pale grey and brown; fine to medium; trace ironstone bands		RES	MD TO D	M		A		0.1		
	0.8	SANDSTONE; pale grey brown; fine to medium; very low strength with extremely weathered bands, Narrabeen Sandstone		XWM	XWR	NA		A	0.4			
	1.0							A	0.5			
	1.5	Test pit discontinued at 1.50m depth						A		0.9		
	2.0									1.0		
	3.0									1.4		
	4.0									1.5		

NOTES: ^(#)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 5 Tonne excavator
METHOD: 600mm wide bucket attachment
REMARKS:

OPERATOR: A&A Hire

LOGGED: SI

TEST PIT LOG

CLIENT: VDM Prime Pty Ltd
PROJECT: Proposed Development
LOCATION: 142 - 150 Narrow Neck Road, Katoomba

SURFACE LEVEL: 1002.8
COORDINATE E:249288.4 N: 6265375.3
DATUM/GRID: GDA2020 Zone 56

LOCATION ID: 15
PROJECT No: 210791.00
DATE: 13/05/22
SHEET: 1 of 1

CONDITIONS ENCOUNTERED						SAMPLE			TESTING AND REMARKS			
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN ^(#)	CONSIS. ^(*) DENSITY ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
RL (m)												
No free groundwater observed	0.0	FILL/ Silty SAND; grey and pale grey; fine; trace charcoal roadbase gravel		FILL	PC	M		A		0.0		
	0.2	(SC) Clayey SAND; pale grey brown to orange brown; fine to medium		RES	MD TO D	M		A		0.1		
	0.85	SANDSTONE; pale grey brown; medium; very low strength, Narrabeen Sandstone		XWM	XWR	NA		A		0.4		
	1.0	Test pit discontinued at 1.00m depth										0.5
	1002											
	1001											
	2											
	1000											
	3											
	999											
	4											
	998											

NOTES: ^(#)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 5 Tonne excavator
METHOD: 600mm wide bucket attachment
REMARKS:

OPERATOR: A&A Hire

LOGGED: SI

TEST PIT LOG

CLIENT: VDM Prime Pty Ltd
PROJECT: Proposed Development
LOCATION: 142 - 150 Narrow Neck Road, Katoomba

SURFACE LEVEL: 997.6
COORDINATE E:249241.7 **N:** 6265358.6
DATUM/GRID: GDA2020 Zone 56

LOCATION ID: 16
PROJECT No: 210791.00
DATE: 13/05/22
SHEET: 1 of 1

CONDITIONS ENCOUNTERED						SAMPLE				TESTING AND REMARKS		
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN ^(#)	CONSIS. ^(*) DENSITY ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
No free groundwater observed	0.0	FILL/ Silty SAND; dark grey; fine; trace charcoal		FILL	VC	M		A		0.0	DCP/150	
	0.35	(SM) Clayey SAND; brown to orange brown; fine to medium						A		0.4		
	0.97			RES	MD TO D	M		E		0.5		
	1.0							A		0.9		
	1.5	SANDSTONE; pale brown; medium; very low strength, with extremely weathered bands, Narrabeen Sandstone		XWM	XWR	NA		A		1.4		
	1.96											
	2.0	Test pit discontinued at 2.00m depth								2		
	3.0									3		
	4.0									4		
	4.0											

NOTES: ^(#)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: ^(#)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 5 Tonne excavator
METHOD: 600mm wide bucket attachment
REMARKS: BD413052022 sampled at 0.0 to 0.1m depth

OPERATOR: A&A Hire

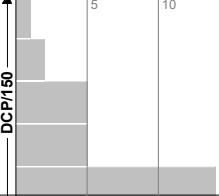
LOGGED: SI

BOREHOLE LOG

CLIENT: VDM Prime Pty Ltd
PROJECT: Proposed Development
LOCATION: 142 - 150 Narrow Neck Road, Katoomba

SURFACE LEVEL: 1007
COORDINATE E:249283.5 N: 6265418.8
DATUM/GRID: GDA2020 Zone 56
DIP/AZIMUTH: 90°/---

LOCATION ID: 17
PROJECT No: 210791.00
DATE: 07/06/22
SHEET: 1 of 1

CONDITIONS ENCOUNTERED							SAMPLE			TESTING AND REMARKS		
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN ^(#)	CONSIS. ^(*) DENSITY ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
No free groundwater observed	0.0	FILL/ Silty SAND; dark brown; with rootlets throughout (Topsoil)		FILL	L	NA		A		0.0	DCP/150	
	0.15	(CL-CI) Sandy CLAY; pale orange; low to medium plasticity; with large gravel, rock fragments larger than 10-15mm		RES	ST	<PL		E		0.1		
No free groundwater observed	0.4							A		0.4	DCP/150	
	0.5							E		0.5		
No free groundwater observed	0.7	Borehole discontinued at 0.70m depth								0.7	DCP/150	
	1.0									1.0		
No free groundwater observed	1.006									1.006	DCP/150	
	2.0									2.0		
No free groundwater observed	1005									1005	DCP/150	
	3.0									3.0		
No free groundwater observed	1004									1004	DCP/150	
	4.0									4.0		
No free groundwater observed	1003									1003	DCP/150	

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Hand Tools
METHOD: Hand Auger
REMARKS:

OPERATOR: RD
CASING:

LOGGED: RD

Appendix K

Laboratory Certificate of Analysis, Chain of Custody Documentation and
Sample Receipt Advice

CERTIFICATE OF ANALYSIS 296630

Client Details	
Client	Douglas Partners Pty Ltd
Attention	Gavin Boyd
Address	96 Hermitage Rd, West Ryde, NSW, 2114

Sample Details	
Your Reference	<u>210791.00</u>
Number of Samples	40 Soil
Date samples received	27/05/2022
Date completed instructions received	27/05/2022

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	31/05/2022
Date of Issue	22/06/2022
Reissue Details	This report replaces R01 created on 22/06/2022 due to: Sample ID Amended (Client Request)
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

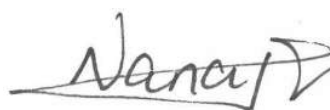
Asbestos Approved By

Analysed by Asbestos Approved Analyst: Lucy Zhu
 Authorised by Asbestos Approved Signatory: Lucy Zhu

Results Approved By

Diego Bigolin, Inorganics Supervisor
 Dragana Tomas, Senior Chemist
 Hannah Nguyen, Metals Supervisor
 Josh Williams, Organics and LC Supervisor
 Kyle Gavril, Senior Chemist
 Lucy Zhu, Asbestos Supervisor

Authorised By



Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		296630-1	296630-2	296630-3	296630-4	296630-5
Your Reference	UNITS	BD213052022	BD313052022	Trip Spike	Trip Blank	TP1
Depth		.	.	.	.	0-0.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/05/2022	13/05/2022	13/05/2022	13/05/2022	13/05/2022
Date extracted	-	30/05/2022	30/05/2022	30/05/2022	30/05/2022	30/05/2022
Date analysed	-	31/05/2022	31/05/2022	31/05/2022	31/05/2022	31/05/2022
TRH C ₆ - C ₉	mg/kg	<25	<25	[NA]	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	[NA]	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	[NA]	<25	<25
Benzene	mg/kg	<0.2	<0.2	108%	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	109%	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	113%	<1	<1
m+p-xylene	mg/kg	<2	<2	109%	<2	<2
o-Xylene	mg/kg	<1	<1	112%	<1	<1
Naphthalene	mg/kg	<1	<1	[NT]	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	[NT]	<1	<1
Surrogate aaa-Trifluorotoluene	%	79	77	82	78	77

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		296630-6	296630-7	296630-8	296630-9	296630-13
Your Reference	UNITS	TP2	TP2	TP2	BH3	TP5
Depth		0-0.1	0.4-0.5	0.9-1	0-0.1	0-0.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/05/2022	13/05/2022	13/05/2022	12/05/2022	13/05/2022
Date extracted	-	30/05/2022	30/05/2022	30/05/2022	30/05/2022	30/05/2022
Date analysed	-	31/05/2022	31/05/2022	31/05/2022	31/05/2022	31/05/2022
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	80	80	92	92	77

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		296630-14	296630-15	296630-16	296630-17	296630-18
Your Reference	UNITS	TP5	TP6	TP6	BH9	BH9
Depth		0.4-0.5	0-0.1	0.4-0.5	0-0.1	0.4-0.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/05/2022	13/05/2022	13/05/2022	12/05/2022	12/05/2022
Date extracted	-	30/05/2022	30/05/2022	30/05/2022	30/05/2022	30/05/2022
Date analysed	-	31/05/2022	31/05/2022	31/05/2022	31/05/2022	31/05/2022
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	82	85	78	70	89

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		296630-19	296630-20	296630-21	296630-25	296630-26
Your Reference	UNITS	BH11	BH11	BH11	BH13	TP14
Depth		0-0.1	0.4-0.5	1.9-2	0-0.1	0-0.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		12/05/2022	12/05/2022	12/05/2022	12/05/2022	13/05/2022
Date extracted	-	30/05/2022	30/05/2022	30/05/2022	30/05/2022	30/05/2022
Date analysed	-	31/05/2022	31/05/2022	31/05/2022	31/05/2022	31/05/2022
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	81	94	95	92	69

vTRH(C6-C10)/BTEXN in Soil					
Our Reference		296630-29	296630-30	296630-31	296630-32
Your Reference	UNITS	TP15	TP15	TP16	TP16
Depth		0-0.1	0.4-0.5	0-0.1	0.4-0.5
Type of sample		Soil	Soil	Soil	Soil
Date Sampled		13/05/2022	13/05/2022	13/05/2022	13/05/2022
Date extracted	-	30/05/2022	30/05/2022	30/05/2022	30/05/2022
Date analysed	-	31/05/2022	31/05/2022	31/05/2022	31/05/2022
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	73	72	81	98

svTRH (C10-C40) in Soil						
Our Reference		296630-1	296630-2	296630-5	296630-6	296630-7
Your Reference	UNITS	BD213052022	BD313052022	TP1	TP2	TP2
Depth		.	.	0-0.1	0-0.1	0.4-0.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/05/2022	13/05/2022	13/05/2022	13/05/2022	13/05/2022
Date extracted	-	30/05/2022	30/05/2022	30/05/2022	30/05/2022	30/05/2022
Date analysed	-	31/05/2022	31/05/2022	31/05/2022	31/05/2022	31/05/2022
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	66	77	83	102	77

svTRH (C10-C40) in Soil						
Our Reference		296630-8	296630-9	296630-13	296630-14	296630-15
Your Reference	UNITS	TP2	BH3	TP5	TP5	TP6
Depth		0.9-1	0-0.1	0-0.1	0.4-0.5	0-0.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/05/2022	12/05/2022	13/05/2022	13/05/2022	13/05/2022
Date extracted	-	30/05/2022	30/05/2022	30/05/2022	30/05/2022	30/05/2022
Date analysed	-	31/05/2022	31/05/2022	31/05/2022	31/05/2022	31/05/2022
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	82	79	91	88	86

svTRH (C10-C40) in Soil						
Our Reference		296630-16	296630-17	296630-18	296630-19	296630-20
Your Reference	UNITS	TP6	BH9	BH9	BH11	BH11
Depth		0.4-0.5	0-0.1	0.4-0.5	0-0.1	0.4-0.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/05/2022	12/05/2022	12/05/2022	12/05/2022	12/05/2022
Date extracted	-	30/05/2022	30/05/2022	30/05/2022	30/05/2022	30/05/2022
Date analysed	-	31/05/2022	31/05/2022	31/05/2022	31/05/2022	31/05/2022
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	130	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	130	<50	<50	<50
Surrogate o-Terphenyl	%	98	81	84	90	85

svTRH (C10-C40) in Soil						
Our Reference		296630-21	296630-25	296630-26	296630-29	296630-30
Your Reference	UNITS	BH11	BH13	TP14	TP15	TP15
Depth		1.9-2	0-0.1	0-0.1	0-0.1	0.4-0.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		12/05/2022	12/05/2022	13/05/2022	13/05/2022	13/05/2022
Date extracted	-	30/05/2022	30/05/2022	30/05/2022	30/05/2022	30/05/2022
Date analysed	-	31/05/2022	31/05/2022	31/05/2022	31/05/2022	31/05/2022
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	80	90	85	82	84

svTRH (C10-C40) in Soil			
Our Reference		296630-31	296630-32
Your Reference	UNITS	TP16	TP16
Depth		0-0.1	0.4-0.5
Type of sample		Soil	Soil
Date Sampled		13/05/2022	13/05/2022
Date extracted	-	30/05/2022	30/05/2022
Date analysed	-	31/05/2022	31/05/2022
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50
Surrogate o-Terphenyl	%	87	87

PAHs in Soil						
Our Reference		296630-1	296630-2	296630-5	296630-6	296630-7
Your Reference	UNITS	BD213052022	BD313052022	TP1	TP2	TP2
Depth		.	.	0-0.1	0-0.1	0.4-0.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/05/2022	13/05/2022	13/05/2022	13/05/2022	13/05/2022
Date extracted	-	30/05/2022	30/05/2022	30/05/2022	30/05/2022	30/05/2022
Date analysed	-	30/05/2022	30/05/2022	31/05/2022	31/05/2022	31/05/2022
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate <i>p</i> -Terphenyl-d14	%	95	93	84	83	75

PAHs in Soil						
Our Reference		296630-8	296630-9	296630-13	296630-14	296630-15
Your Reference	UNITS	TP2	BH3	TP5	TP5	TP6
Depth		0.9-1	0-0.1	0-0.1	0.4-0.5	0-0.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/05/2022	12/05/2022	13/05/2022	13/05/2022	13/05/2022
Date extracted	-	30/05/2022	30/05/2022	30/05/2022	30/05/2022	30/05/2022
Date analysed	-	31/05/2022	31/05/2022	31/05/2022	30/05/2022	31/05/2022
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate <i>p</i> -Terphenyl-d14	%	70	70	76	94	77

PAHs in Soil						
Our Reference		296630-16	296630-17	296630-18	296630-19	296630-20
Your Reference	UNITS	TP6	BH9	BH9	BH11	BH11
Depth		0.4-0.5	0-0.1	0.4-0.5	0-0.1	0.4-0.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/05/2022	12/05/2022	12/05/2022	12/05/2022	12/05/2022
Date extracted	-	30/05/2022	30/05/2022	30/05/2022	30/05/2022	30/05/2022
Date analysed	-	31/05/2022	30/05/2022	31/05/2022	31/05/2022	30/05/2022
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	0.8	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	1.6	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	1.4	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	0.6	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	0.5	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	1	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	0.89	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	0.5	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	0.8	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	8.6	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	1.3	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	1.3	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	1.3	<0.5	<0.5	<0.5
Surrogate <i>p</i> -Terphenyl-d14	%	73	78	72	88	82

PAHs in Soil						
Our Reference		296630-21	296630-22	296630-23	296630-24	296630-25
Your Reference	UNITS	BH11	BH12	BH12	BH12	BH13
Depth		1.9-2	0.0-0.1	0.4-0.5	0.9-1.0	0-0.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		12/05/2022	12/05/2022	12/05/2022	12/05/2022	12/05/2022
Date extracted	-	30/05/2022	30/05/2022	30/05/2022	30/05/2022	30/05/2022
Date analysed	-	30/05/2022	30/05/2022	30/05/2022	30/05/2022	31/05/2022
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate <i>p</i> -Terphenyl-d14	%	74	97	86	92	75

PAHs in Soil						
Our Reference		296630-26	296630-29	296630-30	296630-31	296630-32
Your Reference	UNITS	TP14	TP15	TP15	TP16	TP16
Depth		0-0.1	0-0.1	0.4-0.5	0-0.1	0.4-0.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/05/2022	13/05/2022	13/05/2022	13/05/2022	13/05/2022
Date extracted	-	30/05/2022	30/05/2022	30/05/2022	30/05/2022	30/05/2022
Date analysed	-	30/05/2022	30/05/2022	30/05/2022	30/05/2022	30/05/2022
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate <i>p</i> -Terphenyl-d14	%	74	81	80	83	80

PAHs in Soil		
Our Reference		296630-41
Your Reference	UNITS	TP9 - [TRIPLICATE]
Depth		0-0.1
Type of sample		Soil
Date Sampled		13/05/2022
Date extracted	-	30/05/2022
Date analysed	-	30/05/2022
Naphthalene	mg/kg	<0.1
Acenaphthylene	mg/kg	<0.1
Acenaphthene	mg/kg	<0.1
Fluorene	mg/kg	<0.1
Phenanthrene	mg/kg	0.5
Anthracene	mg/kg	0.1
Fluoranthene	mg/kg	1.3
Pyrene	mg/kg	1.2
Benzo(a)anthracene	mg/kg	0.5
Chrysene	mg/kg	0.4
Benzo(b,j+k)fluoranthene	mg/kg	1
Benzo(a)pyrene	mg/kg	0.81
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5
Dibenzo(a,h)anthracene	mg/kg	0.2
Benzo(g,h,i)perylene	mg/kg	0.7
Total +ve PAH's	mg/kg	7.3
Benzo(a)pyrene TEQ calc (zero)	mg/kg	1.2
Benzo(a)pyrene TEQ calc(half)	mg/kg	1.2
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	1.2
Surrogate <i>p</i> -Terphenyl-d14	%	80

Organochlorine Pesticides in soil						
Our Reference		296630-5	296630-6	296630-7	296630-9	296630-13
Your Reference	UNITS	TP1	TP2	TP2	BH3	TP5
Depth		0-0.1	0-0.1	0.4-0.5	0-0.1	0-0.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/05/2022	13/05/2022	13/05/2022	12/05/2022	13/05/2022
Date extracted	-	30/05/2022	30/05/2022	30/05/2022	30/05/2022	30/05/2022
Date analysed	-	31/05/2022	31/05/2022	31/05/2022	31/05/2022	31/05/2022
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	74	73	68	74	67

Organochlorine Pesticides in soil						
Our Reference		296630-15	296630-17	296630-19	296630-20	296630-25
Your Reference	UNITS	TP6	BH9	BH11	BH11	BH13
Depth		0-0.1	0-0.1	0-0.1	0.4-0.5	0-0.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/05/2022	12/05/2022	12/05/2022	12/05/2022	12/05/2022
Date extracted	-	30/05/2022	30/05/2022	30/05/2022	30/05/2022	30/05/2022
Date analysed	-	31/05/2022	30/05/2022	31/05/2022	30/05/2022	31/05/2022
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	0.6
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	79	77	76	80	74

Organochlorine Pesticides in soil			
Our Reference		296630-29	296630-31
Your Reference	UNITS	TP15	TP16
Depth		0-0.1	0-0.1
Type of sample		Soil	Soil
Date Sampled		13/05/2022	13/05/2022
Date extracted	-	30/05/2022	30/05/2022
Date analysed	-	30/05/2022	30/05/2022
alpha-BHC	mg/kg	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1
pp-DDE	mg/kg	0.3	<0.1
Dieldrin	mg/kg	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	0.3	<0.1
Surrogate TCMX	%	80	86

Organophosphorus Pesticides in Soil						
Our Reference		296630-5	296630-6	296630-7	296630-9	296630-13
Your Reference	UNITS	TP1	TP2	TP2	BH3	TP5
Depth		0-0.1	0-0.1	0.4-0.5	0-0.1	0-0.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/05/2022	13/05/2022	13/05/2022	12/05/2022	13/05/2022
Date extracted	-	30/05/2022	30/05/2022	30/05/2022	30/05/2022	30/05/2022
Date analysed	-	31/05/2022	31/05/2022	31/05/2022	31/05/2022	31/05/2022
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	74	73	68	74	67

Organophosphorus Pesticides in Soil						
Our Reference		296630-15	296630-17	296630-19	296630-20	296630-25
Your Reference	UNITS	TP6	BH9	BH11	BH11	BH13
Depth		0-0.1	0-0.1	0-0.1	0.4-0.5	0-0.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/05/2022	12/05/2022	12/05/2022	12/05/2022	12/05/2022
Date extracted	-	30/05/2022	30/05/2022	30/05/2022	30/05/2022	30/05/2022
Date analysed	-	31/05/2022	30/05/2022	31/05/2022	30/05/2022	31/05/2022
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	79	77	76	80	74

Organophosphorus Pesticides in Soil			
Our Reference		296630-29	296630-31
Your Reference	UNITS	TP15	TP16
Depth		0-0.1	0-0.1
Type of sample		Soil	Soil
Date Sampled		13/05/2022	13/05/2022
Date extracted	-	30/05/2022	30/05/2022
Date analysed	-	30/05/2022	30/05/2022
Dichlorvos	mg/kg	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1
Surrogate TCMX	%	80	86

PCBs in Soil						
Our Reference		296630-5	296630-6	296630-7	296630-9	296630-13
Your Reference	UNITS	TP1	TP2	TP2	BH3	TP5
Depth		0-0.1	0-0.1	0.4-0.5	0-0.1	0-0.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/05/2022	13/05/2022	13/05/2022	12/05/2022	13/05/2022
Date extracted	-	30/05/2022	30/05/2022	30/05/2022	30/05/2022	30/05/2022
Date analysed	-	31/05/2022	31/05/2022	31/05/2022	31/05/2022	31/05/2022
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	74	73	68	74	67

PCBs in Soil						
Our Reference		296630-15	296630-17	296630-19	296630-20	296630-25
Your Reference	UNITS	TP6	BH9	BH11	BH11	BH13
Depth		0-0.1	0-0.1	0-0.1	0.4-0.5	0-0.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/05/2022	12/05/2022	12/05/2022	12/05/2022	12/05/2022
Date extracted	-	30/05/2022	30/05/2022	30/05/2022	30/05/2022	30/05/2022
Date analysed	-	31/05/2022	30/05/2022	31/05/2022	30/05/2022	31/05/2022
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	79	77	76	80	74

PCBs in Soil			
Our Reference		296630-29	296630-31
Your Reference	UNITS	TP15	TP16
Depth		0-0.1	0-0.1
Type of sample		Soil	Soil
Date Sampled		13/05/2022	13/05/2022
Date extracted	-	30/05/2022	30/05/2022
Date analysed	-	30/05/2022	30/05/2022
Aroclor 1016	mg/kg	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1
Surrogate TCMX	%	80	86

Acid Extractable metals in soil

Our Reference		296630-5	296630-6	296630-7	296630-8	296630-9
Your Reference	UNITS	TP1	TP2	TP2	TP2	BH3
Depth		0-0.1	0-0.1	0.4-0.5	0.9-1	0-0.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/05/2022	13/05/2022	13/05/2022	13/05/2022	12/05/2022
Date prepared	-	31/05/2022	31/05/2022	31/05/2022	31/05/2022	31/05/2022
Date analysed	-	31/05/2022	31/05/2022	31/05/2022	31/05/2022	31/05/2022
Arsenic	mg/kg	5	<4	5	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	11	12	22	15	3
Copper	mg/kg	1	2	<1	<1	<1
Lead	mg/kg	8	13	5	6	4
Mercury	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	<1	1	<1	<1	<1
Zinc	mg/kg	18	17	9	9	<1

Acid Extractable metals in soil

Our Reference		296630-13	296630-14	296630-15	296630-16	296630-17
Your Reference	UNITS	TP5	TP5	TP6	TP6	BH9
Depth		0-0.1	0.4-0.5	0-0.1	0.4-0.5	0-0.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/05/2022	13/05/2022	13/05/2022	13/05/2022	12/05/2022
Date prepared	-	31/05/2022	31/05/2022	31/05/2022	31/05/2022	31/05/2022
Date analysed	-	31/05/2022	31/05/2022	31/05/2022	31/05/2022	31/05/2022
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	5	10	9	12	6
Copper	mg/kg	<1	<1	<1	<1	2
Lead	mg/kg	6	6	7	5	4
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	<1	<1	<1	<1	2
Zinc	mg/kg	4	3	9	5	6

Acid Extractable metals in soil						
Our Reference		296630-18	296630-19	296630-20	296630-21	296630-25
Your Reference	UNITS	BH9	BH11	BH11	BH11	BH13
Depth		0.4-0.5	0-0.1	0.4-0.5	1.9-2	0-0.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		12/05/2022	12/05/2022	12/05/2022	12/05/2022	12/05/2022
Date prepared	-	31/05/2022	31/05/2022	31/05/2022	31/05/2022	31/05/2022
Date analysed	-	31/05/2022	31/05/2022	31/05/2022	31/05/2022	31/05/2022
Arsenic	mg/kg	<4	<4	<4	4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	<1	11	14	13	6
Copper	mg/kg	<1	1	<1	2	2
Lead	mg/kg	1	8	5	4	5
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	<1	<1	<1	<1	<1
Zinc	mg/kg	<1	8	5	4	7

Acid Extractable metals in soil						
Our Reference		296630-26	296630-29	296630-30	296630-31	296630-32
Your Reference	UNITS	TP14	TP15	TP15	TP16	TP16
Depth		0-0.1	0-0.1	0.4-0.5	0-0.1	0.4-0.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/05/2022	13/05/2022	13/05/2022	13/05/2022	13/05/2022
Date prepared	-	31/05/2022	31/05/2022	31/05/2022	31/05/2022	31/05/2022
Date analysed	-	31/05/2022	31/05/2022	31/05/2022	31/05/2022	31/05/2022
Arsenic	mg/kg	11	<4	5	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	22	5	6	10	8
Copper	mg/kg	<1	<1	<1	10	<1
Lead	mg/kg	10	5	3	47	7
Mercury	mg/kg	1.0	0.2	<0.1	0.3	<0.1
Nickel	mg/kg	<1	<1	<1	4	<1
Zinc	mg/kg	3	2	1	36	4

Acid Extractable metals in soil		
Our Reference		296630-42
Your Reference	UNITS	TP9 - [TRIPLICATE]
Depth		0-0.1
Type of sample		Soil
Date Sampled		13/05/2022
Date prepared	-	31/05/2022
Date analysed	-	31/05/2022
Arsenic	mg/kg	<4
Cadmium	mg/kg	<0.4
Chromium	mg/kg	6
Copper	mg/kg	2
Lead	mg/kg	3
Mercury	mg/kg	<0.1
Nickel	mg/kg	3
Zinc	mg/kg	5

Misc Soil - Inorg						
Our Reference		296630-5	296630-6	296630-7	296630-9	296630-13
Your Reference	UNITS	TP1	TP2	TP2	BH3	TP5
Depth		0-0.1	0-0.1	0.4-0.5	0-0.1	0-0.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/05/2022	13/05/2022	13/05/2022	12/05/2022	13/05/2022
Date prepared	-	30/05/2022	30/05/2022	30/05/2022	30/05/2022	30/05/2022
Date analysed	-	30/05/2022	30/05/2022	30/05/2022	30/05/2022	30/05/2022
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Misc Soil - Inorg						
Our Reference		296630-15	296630-17	296630-19	296630-20	296630-25
Your Reference	UNITS	TP6	BH9	BH11	BH11	BH13
Depth		0-0.1	0-0.1	0-0.1	0.4-0.5	0-0.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/05/2022	12/05/2022	12/05/2022	12/05/2022	12/05/2022
Date prepared	-	30/05/2022	30/05/2022	30/05/2022	30/05/2022	30/05/2022
Date analysed	-	30/05/2022	30/05/2022	30/05/2022	30/05/2022	30/05/2022
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Misc Soil - Inorg			
Our Reference		296630-29	296630-31
Your Reference	UNITS	TP15	TP16
Depth		0-0.1	0-0.1
Type of sample		Soil	Soil
Date Sampled		13/05/2022	13/05/2022
Date prepared	-	30/05/2022	30/05/2022
Date analysed	-	30/05/2022	30/05/2022
Total Phenolics (as Phenol)	mg/kg	<5	<5

Client Reference: 210791.00

Moisture						
Our Reference		296630-1	296630-2	296630-5	296630-6	296630-7
Your Reference	UNITS	BD213052022	BD313052022	TP1	TP2	TP2
Depth		.	.	0-0.1	0-0.1	0.4-0.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/05/2022	13/05/2022	13/05/2022	13/05/2022	13/05/2022
Date prepared	-	30/05/2022	30/05/2022	30/05/2022	30/05/2022	30/05/2022
Date analysed	-	31/05/2022	31/05/2022	31/05/2022	31/05/2022	31/05/2022
Moisture	%	15	17	20	17	9.4

Moisture						
Our Reference		296630-8	296630-9	296630-13	296630-14	296630-15
Your Reference	UNITS	TP2	BH3	TP5	TP5	TP6
Depth		0.9-1	0-0.1	0-0.1	0.4-0.5	0-0.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/05/2022	12/05/2022	13/05/2022	13/05/2022	13/05/2022
Date prepared	-	30/05/2022	30/05/2022	30/05/2022	30/05/2022	30/05/2022
Date analysed	-	31/05/2022	31/05/2022	31/05/2022	31/05/2022	31/05/2022
Moisture	%	8.4	10	16	12	14

Moisture						
Our Reference		296630-16	296630-17	296630-18	296630-19	296630-20
Your Reference	UNITS	TP6	BH9	BH9	BH11	BH11
Depth		0.4-0.5	0-0.1	0.4-0.5	0-0.1	0.4-0.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/05/2022	12/05/2022	12/05/2022	12/05/2022	12/05/2022
Date prepared	-	30/05/2022	30/05/2022	30/05/2022	30/05/2022	30/05/2022
Date analysed	-	31/05/2022	31/05/2022	31/05/2022	31/05/2022	31/05/2022
Moisture	%	14	11	13	23	11

Moisture						
Our Reference		296630-21	296630-22	296630-23	296630-24	296630-25
Your Reference	UNITS	BH11	BH12	BH12	BH12	BH13
Depth		1.9-2	0.0-0.1	0.4-0.5	0.9-1.0	0-0.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		12/05/2022	12/05/2022	12/05/2022	12/05/2022	12/05/2022
Date prepared	-	30/05/2022	30/05/2022	30/05/2022	30/05/2022	30/05/2022
Date analysed	-	31/05/2022	31/05/2022	31/05/2022	31/05/2022	31/05/2022
Moisture	%	8.8	27	12	9.5	15

Client Reference: 210791.00

Moisture						
Our Reference		296630-26	296630-29	296630-30	296630-31	296630-32
Your Reference	UNITS	TP14	TP15	TP15	TP16	TP16
Depth		0-0.1	0-0.1	0.4-0.5	0-0.1	0.4-0.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/05/2022	13/05/2022	13/05/2022	13/05/2022	13/05/2022
Date prepared	-	30/05/2022	30/05/2022	30/05/2022	30/05/2022	30/05/2022
Date analysed	-	31/05/2022	31/05/2022	31/05/2022	31/05/2022	31/05/2022
Moisture	%	15	13	9.7	32	11

Asbestos ID - soils						
Our Reference	UNITS	296630-5	296630-6	296630-7	296630-9	296630-13
Your Reference		TP1	TP2	TP2	BH3	TP5
Depth		0-0.1	0-0.1	0.4-0.5	0-0.1	0-0.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/05/2022	13/05/2022	13/05/2022	12/05/2022	13/05/2022
Date analysed	-	31/05/2022	31/05/2022	31/05/2022	31/05/2022	31/05/2022
Sample mass tested	g	Approx. 15g	Approx. 20g	Approx. 35g	Approx. 30g	Approx. 20g
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown clayey 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	296630-15	296630-17	296630-19	296630-20	296630-25
Your Reference		TP6	BH9	BH11	BH11	BH13
Depth		0-0.1	0-0.1	0-0.1	0.4-0.5	0-0.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/05/2022	12/05/2022	12/05/2022	12/05/2022	12/05/2022
Date analysed	-	31/05/2022	31/05/2022	31/05/2022	31/05/2022	31/05/2022
Sample mass tested	g	Approx. 30g	Approx. 35g	Approx. 55g	Approx. 65g	Approx. 30g
Sample Description	-	Brown fine-grained soil & rocks	Brown clayey soil & rocks	Brown fine-grained soil & rocks	Brown fine-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		296630-29	296630-31
Your Reference	UNITS	TP15	TP16
Depth		0-0.1	0-0.1
Type of sample		Soil	Soil
Date Sampled		13/05/2022	13/05/2022
Date analysed	-	31/05/2022	31/05/2022
Sample mass tested	g	Approx. 35g	Approx. 30g
Sample Description	-	Brown coarse-grained soil & rocks	Brown fine-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
Trace Analysis	-	No asbestos detected	No asbestos detected

Texture and Salinity*						
Our Reference		296630-9	296630-10	296630-11	296630-12	296630-13
Your Reference	UNITS	BH3	BH3	BH3	BH3	TP5
Depth		0-0.1	0.4-0.5	0.9-1	2.9-3	0-0.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		12/05/2022	12/05/2022	12/05/2022	12/05/2022	13/05/2022
Date prepared	-	31/05/2022	31/05/2022	31/05/2022	31/05/2022	31/05/2022
Date analysed	-	31/05/2022	31/05/2022	31/05/2022	31/05/2022	31/05/2022
Electrical Conductivity 1:5 soil:water	µS/cm	15	12	4	4	37
Texture Value	-	7.0	14	14	14	9.0
Texture	-	MEDIUM CLAY	SANDY LOAM	SANDY LOAM	SANDY LOAM	CLAY LOAM
ECe	dS/m	<2	<2	<2	<2	<2
Class	-	NON SALINE	NON SALINE	NON SALINE	NON SALINE	NON SALINE

Texture and Salinity*						
Our Reference		296630-14	296630-17	296630-18	296630-26	296630-27
Your Reference	UNITS	TP5	BH9	BH9	TP14	BH14
Depth		0.4-0.5	0-0.1	0.4-0.5	0-0.1	0.4-0.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/05/2022	12/05/2022	12/05/2022	13/05/2022	13/05/2022
Date prepared	-	31/05/2022	31/05/2022	31/05/2022	31/05/2022	31/05/2022
Date analysed	-	31/05/2022	31/05/2022	31/05/2022	31/05/2022	31/05/2022
Electrical Conductivity 1:5 soil:water	µS/cm	11	11	6	34	23
Texture Value	-	7.0	7.0	14	9.0	7.0
Texture	-	MEDIUM CLAY	MEDIUM CLAY	SANDY LOAM	CLAY LOAM	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		296630-28
Your Reference	UNITS	BH14
Depth		0.9-1
Type of sample		Soil
Date Sampled		13/05/2022
Date prepared	-	31/05/2022
Date analysed	-	31/05/2022
Electrical Conductivity 1:5 soil:water	µS/cm	15
Texture Value	-	14
Texture	-	SANDY LOAM
ECe	dS/m	<2
Class	-	NON SALINE

Misc Inorg - Soil						
Our Reference		296630-9	296630-10	296630-11	296630-12	296630-13
Your Reference	UNITS	BH3	BH3	BH3	BH3	TP5
Depth		0-0.1	0.4-0.5	0.9-1	2.9-3	0-0.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		12/05/2022	12/05/2022	12/05/2022	12/05/2022	13/05/2022
Date prepared	-	31/05/2022	31/05/2022	31/05/2022	31/05/2022	31/05/2022
Date analysed	-	31/05/2022	31/05/2022	31/05/2022	31/05/2022	31/05/2022
pH 1:5 soil:water	pH Units	5.2	4.9	5.8	6.2	5.1
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	[NA]	<10	[NA]	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	[NA]	<10	[NA]	[NA]

Misc Inorg - Soil						
Our Reference		296630-14	296630-17	296630-18	296630-26	296630-27
Your Reference	UNITS	TP5	BH9	BH9	TP14	BH14
Depth		0.4-0.5	0-0.1	0.4-0.5	0-0.1	0.4-0.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		13/05/2022	12/05/2022	12/05/2022	13/05/2022	13/05/2022
Date prepared	-	31/05/2022	31/05/2022	31/05/2022	31/05/2022	31/05/2022
Date analysed	-	31/05/2022	31/05/2022	31/05/2022	31/05/2022	31/05/2022
pH 1:5 soil:water	pH Units	5.9	6.6	5.5	5.1	5.3
Chloride, Cl 1:5 soil:water	mg/kg	<10	[NA]	<10	[NA]	<10
Sulphate, SO4 1:5 soil:water	mg/kg	<10	[NA]	<10	[NA]	<10

Misc Inorg - Soil		
Our Reference		296630-28
Your Reference	UNITS	BH14
Depth		0.9-1
Type of sample		Soil
Date Sampled		13/05/2022
Date prepared	-	31/05/2022
Date analysed	-	31/05/2022
pH 1:5 soil:water	pH Units	4.6

ESP/CEC					
Our Reference		296630-11	296630-14	296630-18	296630-27
Your Reference	UNITS	BH3	TP5	BH9	BH14
Depth		0.9-1	0.4-0.5	0.4-0.5	0.4-0.5
Type of sample		Soil	Soil	Soil	Soil
Date Sampled		12/05/2022	13/05/2022	12/05/2022	13/05/2022
Date prepared	-	31/05/2022	31/05/2022	31/05/2022	31/05/2022
Date analysed	-	31/05/2022	31/05/2022	31/05/2022	31/05/2022
Exchangeable Ca	meq/100g	<0.1	1.1	0.1	0.5
Exchangeable K	meq/100g	<0.1	<0.1	<0.1	<0.1
Exchangeable Mg	meq/100g	<0.1	<0.1	<0.1	<0.1
Exchangeable Na	meq/100g	<0.1	<0.1	<0.1	<0.1
Cation Exchange Capacity	meq/100g	<1	1.2	<1	<1
ESP	%	[NT]	[NT]	[NT]	[NT]

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell at 25°C in accordance with APHA latest edition 2510 and Rayment & Lyons.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Inorg-031	Total Phenolics by segmented flow analyser (in line distillation with colourimetric finish). Solids are extracted in a caustic media prior to analysis.
Inorg-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B. Waters samples are filtered on receipt prior to analysis. Alternatively determined by colourimetry/turbidity using Discrete Analyser.
INORG-123	Determined using a "Texture by Feel" method.
Metals-020	Determination of various metals by ICP-AES.
Metals-020	Determination of exchangeable cations and cation exchange capacity in soils using 1M Ammonium Chloride exchange and ICP-OES analytical finish.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-021	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-021	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PCBs" is simply a sum of the positive individual PCBs.

Method ID	Methodology Summary
Org-022	Determination of VOCs sampled onto coconut shell charcoal sorbent tubes, that can be desorbed using carbon disulphide, and analysed by GC-MS.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	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. Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEx as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEx as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

Client Reference: 210791.00

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-18	296630-6
Date extracted	-			30/05/2022	5	30/05/2022	30/05/2022		30/05/2022	30/05/2022
Date analysed	-			31/05/2022	5	31/05/2022	31/05/2022		31/05/2022	31/05/2022
TRH C ₆ - C ₉	mg/kg	25	Org-023	<25	5	<25	<25	0	73	86
TRH C ₆ - C ₁₀	mg/kg	25	Org-023	<25	5	<25	<25	0	73	86
Benzene	mg/kg	0.2	Org-023	<0.2	5	<0.2	<0.2	0	74	86
Toluene	mg/kg	0.5	Org-023	<0.5	5	<0.5	<0.5	0	73	86
Ethylbenzene	mg/kg	1	Org-023	<1	5	<1	<1	0	71	84
m+p-xylene	mg/kg	2	Org-023	<2	5	<2	<2	0	74	88
o-Xylene	mg/kg	1	Org-023	<1	5	<1	<1	0	73	87
Naphthalene	mg/kg	1	Org-023	<1	5	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	98	5	77	78	1	80	92

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-19	296630-26
Date extracted	-			[NT]	17	30/05/2022	30/05/2022		30/05/2022	30/05/2022
Date analysed	-			[NT]	17	31/05/2022	31/05/2022		31/05/2022	31/05/2022
TRH C ₆ - C ₉	mg/kg	25	Org-023	[NT]	17	<25	<25	0	71	88
TRH C ₆ - C ₁₀	mg/kg	25	Org-023	[NT]	17	<25	<25	0	71	88
Benzene	mg/kg	0.2	Org-023	[NT]	17	<0.2	<0.2	0	76	88
Toluene	mg/kg	0.5	Org-023	[NT]	17	<0.5	<0.5	0	75	87
Ethylbenzene	mg/kg	1	Org-023	[NT]	17	<1	<1	0	72	84
m+p-xylene	mg/kg	2	Org-023	[NT]	17	<2	<2	0	75	90
o-Xylene	mg/kg	1	Org-023	[NT]	17	<1	<1	0	74	91
Naphthalene	mg/kg	1	Org-023	[NT]	17	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	17	70	83	17	71	77

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	30	30/05/2022	30/05/2022		[NT]	[NT]
Date analysed	-			[NT]	30	31/05/2022	31/05/2022		[NT]	[NT]
TRH C ₆ - C ₉	mg/kg	25	Org-023	[NT]	30	<25	<25	0	[NT]	[NT]
TRH C ₆ - C ₁₀	mg/kg	25	Org-023	[NT]	30	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	30	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	30	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	30	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	30	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	30	<1	<1	0	[NT]	[NT]
Naphthalene	mg/kg	1	Org-023	[NT]	30	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	30	72	68	6	[NT]	[NT]

Client Reference: 210791.00

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	32	30/05/2022	30/05/2022		[NT]	[NT]
Date analysed	-			[NT]	32	31/05/2022	31/05/2022		[NT]	[NT]
TRH C ₆ - C ₉	mg/kg	25	Org-023	[NT]	32	<25	<25	0	[NT]	[NT]
TRH C ₆ - C ₁₀	mg/kg	25	Org-023	[NT]	32	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	32	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	32	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	32	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
Naphthalene	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	32	98	74	28	[NT]	[NT]

Client Reference: 210791.00

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-18	296630-6
Date extracted	-			30/05/2022	5	30/05/2022	30/05/2022		30/05/2022	30/05/2022
Date analysed	-			31/05/2022	5	31/05/2022	31/05/2022		30/05/2022	31/05/2022
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-020	<50	5	<50	<50	0	119	123
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-020	<100	5	<100	<100	0	106	107
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-020	<100	5	<100	<100	0	133	70
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-020	<50	5	<50	<50	0	119	123
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-020	<100	5	<100	<100	0	106	107
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-020	<100	5	<100	<100	0	133	70
Surrogate o-Terphenyl	%		Org-020	96	5	83	91	9	98	102

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-19	296630-26
Date extracted	-			[NT]	17	30/05/2022	30/05/2022		30/05/2022	30/05/2022
Date analysed	-			[NT]	17	31/05/2022	31/05/2022		31/05/2022	31/05/2022
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-020	[NT]	17	<50	<50	0	111	129
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-020	[NT]	17	<100	<100	0	100	122
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-020	[NT]	17	<100	<100	0	100	86
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-020	[NT]	17	<50	<50	0	111	129
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-020	[NT]	17	<100	<100	0	100	122
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-020	[NT]	17	130	120	8	100	86
Surrogate o-Terphenyl	%		Org-020	[NT]	17	81	81	0	94	85

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	30	30/05/2022	30/05/2022		[NT]	[NT]
Date analysed	-			[NT]	30	31/05/2022	31/05/2022		[NT]	[NT]
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-020	[NT]	30	<50	<50	0	[NT]	[NT]
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-020	[NT]	30	<100	<100	0	[NT]	[NT]
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-020	[NT]	30	<100	<100	0	[NT]	[NT]
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-020	[NT]	30	<50	<50	0	[NT]	[NT]
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-020	[NT]	30	<100	<100	0	[NT]	[NT]
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-020	[NT]	30	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	30	84	79	6	[NT]	[NT]

Client Reference: 210791.00

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	32	30/05/2022	30/05/2022		[NT]	[NT]
Date analysed	-			[NT]	32	31/05/2022	31/05/2022		[NT]	[NT]
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-020	[NT]	32	<50	<50	0	[NT]	[NT]
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-020	[NT]	32	<100	<100	0	[NT]	[NT]
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-020	[NT]	32	<100	<100	0	[NT]	[NT]
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-020	[NT]	32	<50	<50	0	[NT]	[NT]
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-020	[NT]	32	<100	<100	0	[NT]	[NT]
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-020	[NT]	32	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	32	87	80	8	[NT]	[NT]

Client Reference: 210791.00

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-18	296630-6
Date extracted	-			30/05/2022	5	30/05/2022	30/05/2022		30/05/2022	30/05/2022
Date analysed	-			30/05/2022	5	31/05/2022	31/05/2022		31/05/2022	31/05/2022
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	80	82
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	83	89
Fluorene	mg/kg	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	80	84
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	92	98
Anthracene	mg/kg	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	86	92
Pyrene	mg/kg	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	87	91
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	101	97
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	5	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	5	<0.05	<0.05	0	94	92
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	94	5	84	82	2	78	77

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-19	296630-26
Date extracted	-			[NT]	17	30/05/2022	30/05/2022		30/05/2022	30/05/2022
Date analysed	-			[NT]	17	30/05/2022	30/05/2022		30/05/2022	30/05/2022
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	95	118
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	91	111
Fluorene	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	97	124
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	17	0.8	0.3	91	98	120
Anthracene	mg/kg	0.1	Org-022/025	[NT]	17	0.2	0.1	67	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	17	1.6	0.8	67	92	108
Pyrene	mg/kg	0.1	Org-022/025	[NT]	17	1.4	0.8	55	103	125
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	17	0.6	0.3	67	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	17	0.5	0.3	50	83	97
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	17	1	0.7	35	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	17	0.89	0.5	56	102	124
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	17	0.5	0.3	50	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	17	0.2	0.1	67	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	17	0.8	0.5	46	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	17	78	79	1	72	70

Client Reference: 210791.00

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	30	30/05/2022	30/05/2022		[NT]	[NT]
Date analysed	-			[NT]	30	30/05/2022	30/05/2022		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	30	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	30	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	30	80	75	6	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	32	30/05/2022	30/05/2022		[NT]	[NT]
Date analysed	-			[NT]	32	30/05/2022	30/05/2022		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	32	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	32	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	32	80	80	0	[NT]	[NT]

Client Reference: 210791.00

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-18	296630-6
Date extracted	-			30/05/2022	5	30/05/2022	30/05/2022		30/05/2022	30/05/2022
Date analysed	-			30/05/2022	5	31/05/2022	31/05/2022		31/05/2022	31/05/2022
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	78	82
HCB	mg/kg	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	75	67
gamma-BHC	mg/kg	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	77	85
delta-BHC	mg/kg	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	91	91
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	86	85
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	86	88
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	90	102
Endrin	mg/kg	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	82	96
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	86	92
Endrin Aldehyde	mg/kg	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	80	84
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	83	5	74	83	11	70	73

Client Reference: 210791.00

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	17	30/05/2022	30/05/2022		[NT]	[NT]
Date analysed	-			[NT]	17	30/05/2022	30/05/2022		[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
HCB	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	[NT]	17	77	77	0	[NT]	[NT]

Client Reference: 210791.00

QUALITY CONTROL: Organophosphorus Pesticides in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-18	296630-6
Date extracted	-			30/05/2022	5	30/05/2022	30/05/2022		30/05/2022	30/05/2022
Date analysed	-			30/05/2022	5	31/05/2022	31/05/2022		31/05/2022	31/05/2022
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	92	100
Dimethoate	mg/kg	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	73	83
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	75	85
Malathion	mg/kg	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	108	124
Chlorpyrifos	mg/kg	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	92	100
Parathion	mg/kg	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	72	78
Bromophos-ethyl	mg/kg	0.1	Org-022	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	76	86
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	83	5	74	83	11	70	73

QUALITY CONTROL: Organophosphorus Pesticides in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	17	30/05/2022	30/05/2022		[NT]	[NT]
Date analysed	-			[NT]	17	30/05/2022	30/05/2022		[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-022	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	[NT]	17	77	77	0	[NT]	[NT]

Client Reference: 210791.00

QUALITY CONTROL: PCBs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-18	296630-6
Date extracted	-			30/05/2022	5	30/05/2022	30/05/2022		30/05/2022	30/05/2022
Date analysed	-			30/05/2022	5	31/05/2022	31/05/2022		31/05/2022	31/05/2022
Aroclor 1016	mg/kg	0.1	Org-021	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021	<0.1	5	<0.1	<0.1	0	94	80
Aroclor 1260	mg/kg	0.1	Org-021	<0.1	5	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	83	5	74	83	11	70	73

QUALITY CONTROL: PCBs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	17	30/05/2022	30/05/2022		[NT]	[NT]
Date analysed	-			[NT]	17	30/05/2022	30/05/2022		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-021	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-021	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	[NT]	17	77	77	0	[NT]	[NT]

Client Reference: 210791.00

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	296630-6
Date prepared	-			31/05/2022	5	31/05/2022	31/05/2022		31/05/2022	31/05/2022
Date analysed	-			31/05/2022	5	31/05/2022	31/05/2022		31/05/2022	31/05/2022
Arsenic	mg/kg	4	Metals-020	<4	5	5	<4	22	101	102
Cadmium	mg/kg	0.4	Metals-020	<0.4	5	<0.4	<0.4	0	105	101
Chromium	mg/kg	1	Metals-020	<1	5	11	9	20	96	99
Copper	mg/kg	1	Metals-020	<1	5	1	1	0	100	109
Lead	mg/kg	1	Metals-020	<1	5	8	11	32	98	96
Mercury	mg/kg	0.1	Metals-021	<0.1	5	0.1	<0.1	0	125	124
Nickel	mg/kg	1	Metals-020	<1	5	<1	<1	0	98	98
Zinc	mg/kg	1	Metals-020	<1	5	18	21	15	100	99

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	296630-26
Date prepared	-			[NT]	17	31/05/2022	31/05/2022		[NT]	31/05/2022
Date analysed	-			[NT]	17	31/05/2022	31/05/2022		[NT]	31/05/2022
Arsenic	mg/kg	4	Metals-020	[NT]	17	<4	5	22	[NT]	86
Cadmium	mg/kg	0.4	Metals-020	[NT]	17	<0.4	<0.4	0	[NT]	93
Chromium	mg/kg	1	Metals-020	[NT]	17	6	30	133	[NT]	102
Copper	mg/kg	1	Metals-020	[NT]	17	2	<1	67	[NT]	108
Lead	mg/kg	1	Metals-020	[NT]	17	4	3	29	[NT]	93
Mercury	mg/kg	0.1	Metals-021	[NT]	17	<0.1	<0.1	0	[NT]	#
Nickel	mg/kg	1	Metals-020	[NT]	17	2	<1	67	[NT]	92
Zinc	mg/kg	1	Metals-020	[NT]	17	6	5	18	[NT]	91

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	30	31/05/2022	31/05/2022		[NT]	[NT]
Date analysed	-			[NT]	30	31/05/2022	31/05/2022		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	30	5	5	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	30	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	30	6	7	15	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	30	<1	<1	0	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	30	3	3	0	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	30	<1	<1	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	30	1	1	0	[NT]	[NT]

Client Reference: 210791.00

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	32	31/05/2022	31/05/2022		[NT]	[NT]
Date analysed	-			[NT]	32	31/05/2022	31/05/2022		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	32	<4	<4	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	32	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	32	8	8	0	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	32	<1	<1	0	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	32	7	7	0	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	32	<1	<1	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	32	4	6	40	[NT]	[NT]

Client Reference: 210791.00

QUALITY CONTROL: Misc Soil - Inorg						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	296630-6
Date prepared	-			30/05/2022	5	30/05/2022	30/05/2022		30/05/2022	30/05/2022
Date analysed	-			30/05/2022	5	30/05/2022	30/05/2022		30/05/2022	30/05/2022
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	<5	5	<5	<5	0	110	118

QUALITY CONTROL: Misc Soil - Inorg						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	17	30/05/2022	30/05/2022		[NT]	[NT]
Date analysed	-			[NT]	17	30/05/2022	30/05/2022		[NT]	[NT]
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	[NT]	17	<5	<5	0	[NT]	[NT]

Client Reference: 210791.00

QUALITY CONTROL: Texture and Salinity*				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			31/05/2022	[NT]	[NT]	[NT]	[NT]	31/05/2022	[NT]
Date analysed	-			31/05/2022	[NT]	[NT]	[NT]	[NT]	31/05/2022	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]

Client Reference: 210791.00

QUALITY CONTROL: Misc Inorg - Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			31/05/2022	11	31/05/2022	31/05/2022		31/05/2022	[NT]
Date analysed	-			31/05/2022	11	31/05/2022	31/05/2022		31/05/2022	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	11	5.8	5.7	2	100	[NT]
Chloride, Cl 1:5 soil:water	mg/kg	10	Inorg-081	<10	11	<10	[NT]		101	[NT]
Sulphate, SO4 1:5 soil:water	mg/kg	10	Inorg-081	<10	11	<10	[NT]		94	[NT]

QUALITY CONTROL: Misc Inorg - Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	28	31/05/2022	31/05/2022		[NT]	[NT]
Date analysed	-			[NT]	28	31/05/2022	31/05/2022		[NT]	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	28	4.6	4.6	0	[NT]	[NT]

Client Reference: 210791.00

QUALITY CONTROL: ESP/CEC				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	296630-27
Date prepared	-			31/05/2022	18	31/05/2022	31/05/2022		31/05/2022	31/05/2022
Date analysed	-			31/05/2022	18	31/05/2022	31/05/2022		31/05/2022	31/05/2022
Exchangeable Ca	meq/100g	0.1	Metals-020	<0.1	18	0.1	0.1	0	107	117
Exchangeable K	meq/100g	0.1	Metals-020	<0.1	18	<0.1	<0.1	0	106	109
Exchangeable Mg	meq/100g	0.1	Metals-020	<0.1	18	<0.1	<0.1	0	108	116
Exchangeable Na	meq/100g	0.1	Metals-020	<0.1	18	<0.1	<0.1	0	110	112

Result Definitions	
NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	
The recommended maximums for analytes in urine are taken from "2018 TLVs and BEIs", as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.	
Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2	

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Report Comments

PAHs in Soil - The laboratory RPD acceptance criteria has been exceeded for 296630-17 and 17d. Therefore a triplicate result has been issued as laboratory sample number 296630-41.

MISC_INORG_DRY:pH: Samples were out of the recommended holding time for this analysis.

Asbestos: A portion of the supplied sample was sub-sampled for asbestos according to ASB-001 asbestos subsampling procedure. We cannot guarantee that this sub-sample is indicative of the entire sample. Envirolab/MPL recommends supplying 40-60g or 500ml of sample in its own container.

Note: Samples 296630-5, 6, 7, 13, 15, 17, 25, 29, 31 were sub-sampled from jars provided by the client.

Note: Samples 296630-9, 19, 20 were sub-sampled from bags provided by the client.

Acid Extractable Metals in Soil:

- The laboratory RPD acceptance criteria has been exceeded for 296630-17 for Cr. Therefore a triplicate result has been issued as laboratory sample number 296630-42.

- # Percent recovery is not applicable due to the high concentration of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

ESP: Where the exchangeable Sodium is less than the PQL and CEC is less than 10meq/100g, the ESP cannot be calculated.

296630 updated COC
27/05/2022

		Top Depth	Bottom	Date			Combo 8A	Combo 3	PAH	TRH/BTEX	pH, ecE, textural Class	Chloride and Sulphate	Sodicity
1	BD213052022			13/05/2022	S	G							
2	BD313052022			13/05/2022	S	G							
NR	BD413052022			13/05/2022	S	G							
3,4	Trip Spike/Blank												
5	TP1	0	0.1	13/05/2022	S	G/P							
6	TP2	0	0.1	13/05/2022	S	G/P							
7	TP2	0.4	0.5	13/05/2022	S	G/P							
8	TP2	0.9	1	13/05/2022	S	G/P							
9	TP3	0	0.1	13/05/2022	S	G/P							
10	BH3	0.4	0.5	12/05/2022	S	P							
11	BH3	0.9	1	12/05/2022	S	P							
NR	BH3	1.9	2	12/05/2022	S	P							
12	BH3	2.9	3	12/05/2022	S	P							
13	TP5	0	0.1	13/05/2022	S	G/P							
14	TP5	0.4	0.5	13/05/2022	S	G/P							
NR	TP5	1.9	2	13/05/2022	S	G/P							
15	TP6	0	0.1	13/05/2022	S	G/P							
16	TP6	0.4	0.5	13/05/2022	S	G/P							
17	TP9	0	0.1	13/05/2022	S	G/P							
18	TP9	0.4	0.5	13/05/2022	S	G/P							
NR	BH9	0.9	1	12/05/2022	S	P							
NR	BH9	1	1.45	12/05/2022	S	P							
NR	BH9	2		12/05/2022	S	P							
NR	TP10	0	0.1	13/05/2022	S	G/P							
19	TP11	0	0.1	13/05/2022	S	G/P							
20	TP11	0.4	0.5	13/05/2022	S	G/P							
NR	BH11	0.4	0.5	13/05/2022	S	G/P							
21	BH11	1.9	2	13/05/2022	S	G/P							
21	BH11	1.9	2	13/05/2022	S	G/P							
22	BH12	0.05	0.1	13/05/2022	S	G/P							
23	BH12	0.4	0.5	13/05/2022	S	G/P							
24	BH12	0.95	1	13/05/2022	S	G/P							
24	BH12	0.45	1	13/05/2022	S	G/P							
25	TP13	0	0.1	13/05/2022	S	G/P							
26	TP14	0	0.1	13/05/2022	S	G/P							
27	BH14	0.4	0.5	12/05/2022		G							
28	BH14	0.9	1	12/05/2022		G							
29	TP15	0	0.1	13/05/2022	S	G/P							
30	TP15	0.4	0.5	13/05/2022	S	G/P							
NR	TP15	0.9	1	13/05/2022	S	G/P							
31	TP16	0	0.1	13/05/2022	S	G/P							
32	TP16	0.4	0.5	13/05/2022	S	G/P							

33 BH1 0.4-0.5 37 BH13 0.9-1.0
 34 BH11 0.9-1.0 38 BH3 3.0-3.3
 35 BH11 3.7-4.0 39 Katoomba 1
 36 BH13 0.4-0.5 40 Katoomba 2

SAMPLE RECEIPT ADVICE

Client Details	
Client	Douglas Partners Pty Ltd
Attention	Gavin Boyd

Sample Login Details	
Your reference	210791.00
Envirolab Reference	296630
Date Sample Received	27/05/2022
Date Instructions Received	27/05/2022
Date Results Expected to be Reported	31/05/2022

Sample Condition	
Samples received in appropriate condition for analysis	Holding time exceedance
No. of Samples Provided	40 Soil
Turnaround Time Requested	2 days
Temperature on Receipt (°C)	12
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments	
Please contact the laboratory within 24 hours if you wish to cancel the aforementioned testing. Otherwise testing will proceed as per the COC and hence invoiced accordingly.	

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	Phone: 02 9910 6200
Fax: 02 9910 6201	Fax: 02 9910 6201
Email: ahie@envirolab.com.au	Email: jhurst@envirolab.com.au

Analysis Underway, details on the following page:



Envirolab Services Pty Ltd

ABN 37 112 535 645

12 Ashley St Chatswood NSW 2067

ph 02 9910 6200 fax 02 9910 6201

customerservice@envirolab.com.au

www.envirolab.com.au

Sample ID	VTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBs in Soil	Acid Extractable metals in soil	Misc Soil - Inorg	Asbestos ID - soils	Texture and Salinity*	Misc Inorg - Soil	ESP/CEC	On Hold
BD213052022-.	✓	✓	✓										
BD313052022-.	✓	✓	✓										
Trip Spike -.	✓												
Trip Blank-.	✓												
TP1-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓	✓				
TP2-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓	✓				
TP2-0.4-0.5	✓	✓	✓	✓	✓	✓	✓	✓	✓				
TP2-0.9-1	✓	✓	✓				✓						
BH3-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
BH3-0.4-0.5										✓	✓		
BH3-0.9-1										✓	✓	✓	
BH3-2.9-3										✓	✓		
TP5-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
TP5-0.4-0.5	✓	✓	✓				✓			✓	✓	✓	
TP6-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓	✓				
TP6-0.4-0.5	✓	✓	✓				✓						
BH9-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
BH9-0.4-0.5	✓	✓	✓				✓			✓	✓	✓	
BH11-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓	✓				
BH11-0.4-0.5	✓	✓	✓	✓	✓	✓	✓	✓	✓				
BH11-1.9-2	✓	✓	✓				✓						
BH12-0.0-0.1			✓										
BH12-0.4-0.5			✓										
BH12-0.9-1.0			✓										
BH13-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓	✓				
TP14-0-0.1	✓	✓	✓				✓			✓	✓		
BH14-0.4-0.5										✓	✓	✓	
BH14-0.9-1										✓	✓		
TP15-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓	✓				
TP15-0.4-0.5	✓	✓	✓				✓						
TP16-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓	✓				
TP16-0.4-0.5	✓	✓	✓				✓						

Sample ID	VTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBs in Soil	Acid Extractable metals in soil	Misc Soil - Inorg	Asbestos ID - soils	Texture and Salinity*	Misc Inorg - Soil	ESP/CEC	On Hold
BH1-0.4-0.5													✓
BH11-0.9-1													✓
BH11-3.9-4													✓
BH13-0.4-0.5													✓
BH13-0.9-1													✓
BH3-3-3.3													✓
Katoomba1-													✓
Katoomba2-													✓
TP9 - [TRIPLICATE]-0-0.1			✓										
TP9 - [TRIPLICATE]-0-0.1							✓						

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

Appendix L

Quality Assurance and Quality Control

Appendix L

Quality Assurance and Quality Control

142 - 150 Narrow Neck Road, Katoomba

L1.0 Field and Laboratory Data Quality Assurance and Quality Control

The field and laboratory data quality assurance and quality control (QA/QC) procedures and results are summarised in the following Table 1. Reference should be made to the field work methodology and the laboratory results / certificates of analysis for further details. The relative percentage difference (RPD) results, along with the other field QC samples are included in at the end of this appendix in Table QA1.

Table 1: Field and Laboratory Quality Control

Item	Evaluation / Acceptance Criteria	Compliance
Analytical laboratories used	NATA accreditation	C
Holding times	Various based on type of analysis	C
Intra-laboratory replicates	10% of primary samples; <30% RPD	PC
Trip Spikes	1 per sampling event; 60-140% recovery	C
Trip Blanks	1 per sampling event; <PQL	C
Laboratory / Reagent Blanks	1 per batch; <PQL	C
Matrix Spikes	1 per lab batch; 70-130% recovery (inorganics); 60-140% recovery (organics)	C
Surrogate Spikes	All organics analysis; 70-130% recovery (inorganics); 60-140% recovery (organics)	C
Control Samples	1 per lab batch; 70-130% recovery (inorganics); 60-140% recovery (organics)	C
Standard Operating Procedures (SOP)	Adopting SOP for all aspects of the sampling field work	C

Notes:

C = compliance; PC = partial compliance; NC = non-compliance

The

The RPD results were all within the acceptable range.

In summary, the QC data is determined to be of sufficient quality to be considered acceptable for the assessment.

L2.0 Data Quality Indicators

The reliability of field procedures and analytical results was assessed against the following data quality indicators (DQIs) as outlined in NEPC *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013)* [NEPM] (NEPC, 2013):

- Completeness: a measure of the amount of usable data from a data collection activity;
- Comparability: the confidence (qualitative) that data may be considered to be equivalent for each sampling and analytical event;
- Representativeness: the confidence (qualitative) of data representativeness of media present on-site;
- Precision: a measure of variability or reproducibility of data; and
- Accuracy: a measure of closeness of the data to the 'true' value.

Table 2: Data Quality Indicators

Data Quality Indicator	Method(s) of Achievement
Completeness	Systematic and selected target locations sampled.
	Preparation of borehole and test pit logs, sample location plan and chain of custody records.
	Preparation of field sampling sheets.
	Laboratory sample receipt information received confirming receipt of samples intact and appropriateness of the chain of custody.
	Samples analysed for contaminants of potential concern (COPC) identified in the Conceptual Site Model (CSM).
	Completion of chain of custody (COC) documentation.
	NATA accredited laboratory results certificates provided by the laboratory.
	Satisfactory frequency and results for field and laboratory quality control (QC) samples as discussed in Section 1.
Comparability	Using appropriate techniques for sample recovery, storage and transportation, which were the same for the duration of the project.
	Experienced sampler(s) used.
	Use of NATA registered laboratories, with test methods the same or similar between laboratories.
	Satisfactory results for field and laboratory QC samples.
Representativeness	Target media sampled.
	Sample numbers recovered and analysed are considered to be representative of the target media and complying with DQOs.
	Samples were extracted and analysed within holding times.
	Samples were analysed in accordance with the COC.
Precision	Field staff followed standard operating procedures.
	Acceptable RPD between original samples and replicates.
	Satisfactory results for all other field and laboratory QC samples.
Accuracy	Field staff followed standard operating procedures.
	Satisfactory results for all field and laboratory QC samples.

Based on the above, it is considered that the DQIs have been generally complied with.

L3.0 Conclusion

Based on the results of the field QA and field and laboratory QC, and evaluation against the DQIs it is concluded that the field and laboratory test data obtained are reliable and useable for this assessment.

L4.0 References

NEPC. (2013). *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]*. Australian Government Publishing Services Canberra: National Environment Protection Council.

Douglas Partners Pty Ltd

Table QA1: Relative Percentage Difference Results

Lab	Sample ID	Date Sampled	Units	PAH				TRH				BTEX			
				Napthalene	Benzo(a)pyrene	Benzo(a)pyrene TEQ	Total PAH	F1 ((C6-C10)-BTE)	F2 (>C10-C16 less Naphthalene)	F3 (>C16-34)	F4 (>C34-40)	Benzene	Toluene	Ethylbenzene	Total Xylenes
ELS	BD213052022	13-05-22	mg/kg	<1	<0.05	<0.5	<0.05	<25	<50	<100	<100	<0.2	<0.5	<1	<1
ELS	TP5/0.0 - 0.1	13-05-22	mg/kg	<1	<0.05	<0.5	<0.05	<25	<50	<100	<100	<0.2	<0.5	<1	<1
Difference				mg/kg	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RPD				%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELS	BD313052022	13-05-22	mg/kg	<1	<0.05	<0.5	<0.05	<25	<50	<100	<100	<0.2	<0.5	<1	<1
ELS	TP1/0.0 - 0.1	13-05-22	mg/kg	<1	<0.05	<0.5	<0.05	<25	<50	<100	<100	<0.2	<0.5	<1	<1
Difference				mg/kg	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RPD				%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0