FOUNDATION EARTH SCIENCES

DETAILED SITE INVESTIGATION (DSI)

Property Address
921 Punchbowl Road, Punchbowl NSW

Prepared for
Westwood Pty Ltd

Date

April 2022

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ABBREVIATIONS

AIP	*Australian Institute of Petroleum Ltd*	**QA/QC**	*Quality Assurance, Quality Control*
ANZECC	*Australian and New Zealand Environment and Conservation Council*	**RAC**	*Remediation Acceptance Criteria*
AST	*Aboveground Storage Tank*	**RAP**	*Remediation Action Plan*
BGL	*Below Ground Level*	**RPD**	*Relative Percentage Difference*
BTEX	*Benzene, Toluene, Ethyl benzene and Xylene*	**SAC**	*Site Assessment Criteria*
COC	*Chain of Custody*	**SVC**	*Site Validation Criteria*
DA	*Development Approval*	**TCLP**	*Toxicity Characteristics Leaching Procedure*
DP	*Deposited Plan*	**TPH**	*Total Petroleum Hydrocarbons*
DQOs	*Data Quality Objectives*	**UCL**	*Upper Confidence Limit*
EPA	*Environment Protection Authority*	**UST**	*Underground Storage Tank*
ESA	*Environmental Site Assessment*	**VHC**	*Volatile Halogenated Compounds*
HIL	*Health-Based Soil Investigation Level*	**VOC**	*Volatile Organic Compounds*
LGA	*Local Government Area*	**DPI**	Department of Primary Industries
NEHF	*National Environmental Health Forum*		
NEPC	*National Environmental Protection Council*		
NHMRC	*National Health and Medical Research Council*		
OCP	*Organochlorine Pesticides*		
OPP	*Organophosphate Pesticides*		
PAH	*Polycyclic Aromatic Hydrocarbon*		
PCB	*Polychlorinated Biphenyl*		
PID	*Photo Ionisation Detector*		
PQL	*Practical Quantitation Limit*		

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EXECUTIVE SUMMARY

Foundation Earth Sciences was appointed by Westwood Pty Ltd to undertake an update Detailed Site Investigation for the property situated at 921 Punchbowl Road, Punchbowl NSW ("the site").

The site is currently occupied by one registered club consisting of car park area, driveways and grassed area. The site is proposed to be redeveloped into a mixed use development including new registered club in the southern portion of the site, retail tenancies on the ground floor, new internal road, pocket park, landscape areas, five blocks of residential units in the north and four levels of residential units above the ground floor registered club.

Soils sampled across the Site were assessed against the Site Acceptance Criteria (SAC) provided by the National Environment Protection (Assessment of Site Contamination) Measure (NEPM 2013) Table 1A - Residential A.

The soil laboratory results were below the adopted detection limits and/or the relevant guideline criteria. No identified asbestos was detected in the soil samples analysed. No fibro cement fragments were observed in the fill material located within the boreholes. The assessment is limited to the boreholes.

The following lines of evidence support the low-risk conclusion in relation to groundwater and site suitability:

- The groundwater monitoring undertaken by Foundation Earth Sciences has indicated levels of dissolved metals marginally above groundwater investigation levels for chromium, copper, nickel and zinc. The elevated levels are considered to be related to offsite regional contaminant concentrations

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and/or background levels & therefore of limited concern in relation to the proposed development. The levels of dissolved metals detected by FES have reduced from the Benviron Group DSI monitoring in 2016;

- Results for groundwater samples did indicate that levels were above water quality guidelines for ecosystem protection but in compliance with guidelines related to the protection of human health.
- The results for the groundwater wells are similar and indicate that the site is not contributing to the quality of groundwater in the area. It is likely that the quality of the groundwater at this site is similar to the entire area and may be a result of the geology.
- During excavation and construction of the proposed development, management of any water that seeps into the excavation will need to be considered as the quality of groundwater means it cannot be discharged directly to the stormwater system. It will need to be managed through treatment or via appropriate disposal techniques.

Based on the historical review, environmental information, proposed development and laboratory results of the investigation, the site is ***suitable*** for the proposed development, subject to the following:

- Any soil requiring removal from the site, as part of future site works, should be classified in accordance with the "Waste Classification Guidelines, Part 1: Classifying Waste" NSW EPA (2014).
- An unexpected finds protocol has been included in **Appendix M** and should be followed during the excavation phase of the development.

Thank you for the opportunity of undertaking this work. We would be pleased to provide further information on any aspects of this report.

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1.0 INTRODUCTION

Foundation Earth Sciences was appointed by Westwood Pty Ltd to undertake an update Detailed Site Investigation for the property situated at 921 Punchbowl Road, Punchbowl NSW (“the site”).

Soils sampled across the Site were assessed against the Site Acceptance Criteria (SAC) provided by the National Environment Protection (Assessment of Site Contamination) Measure (NEPM 2013) Table 1A - Residential A.

2.0 OBJECTIVE

The format of this report closely follows that recommended in the NSW EPA "*Consultants Reporting on Contaminated Land* "dated 2020. The NSW Office of Environment and Heritage (OEH) indicates that an Environmental Investigation should provide comprehensive information on:

- Any issues raised in preliminary investigations;
- The type, extent and level of contamination;
- Contaminant dispersal in the air, surface water, soil and dust;
- The potential effects of contaminants on public health and the environment;
- Where applicable, off-site impacts on soil, sediment and biota; and
- The adequacy and completeness of all information available to be used in making decisions on remediation.

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The project objectives of this additional Site Investigation are to satisfy the stated NSW EPA Detailed Site Investigation requirements in accordance with *NSW EPA, Consultants Reporting on Contaminated Land, 2020.* Specifically, this investigation will consider the potential for suspected historical activities to have caused contamination at the Site and determine land use suitability for the proposed land use.

The proposed investigation program are designed to assess the presence of any unacceptable on site or off-site risk to human health or the environment. The report will draw conclusions regarding the land use suitability of the Site for the proposed land use or provide recommendations to enable such conclusions and determine the need for a further assessment.

3.0 SCOPE OF WORKS

The scope of works for this Detailed Site Investigation (DSI) included:

- Collecting site information, review of historical information and past site practices, (site surveys, site records on waste management practices, NSW Land Titles Office records of ownership, aerial photographs obtained from the NSW Department of Lands, WorkCover NSW records and site interviews);
- A site inspection to identify areas of environmental concern, on-site waste disposal practices and location of sewers, drains, holding tanks, Underground Storage Tanks, Aboveground Storage Tanks and pits, spills and ground discolouration etc.;
- Ten (10) additional boreholes to allow for the collection of soil samples to target landscape areas, building footprint & further assessment of the soil quality based on the results from the Benviron Group DSI in 2016.

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- The sampling of three (3) existing monitoring wells to provide second round of water quality monitoring at the site.
- Laboratory analysis and results from sample analysis – findings and comparison to regulatory guidelines;
- Quality Assurance/Quality Control (QA/QC) – all QA/QC procedures were undertaken in accordance with the Foundation Earth Sciences Quality Assurance/Quality Control manual;
- Interpretation of results and findings; and
- Recommendations and final conclusions drawn from interpretation of the results.

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4.0 SITE IDENTIFICATION AND SITE HISTORY REVIEW

4.1 Site identification

The site is identified as follows:

Table 1: Site Identification Review

Site Identifier	Site Details	
Site Location	921 Punchbowl Road, Punchbowl NSW	
Lot/DP	Lot A in DP378634; Lot D in DP 382627; Lot 6 in DP5245 Lot 14&15 in DP132440; Lot 1 in DP236825	
Site Coordinates #	SW corner: Latitude: -33.922595, Longitude: 151.201726	
Parish	Botany	
County	Cumberland	
Site Area	Approximate 1.790 hectares	
Local Government Area (LGA)	Canterbury-Bankstown	
Zoning##	B1 – Neighbourhood Centre R2 - Low Density Residential SP2 - Infrastructure	
Surrounding Land Uses	*North*	Residential
	South	Road then commercial
	East	Road then Service Station
	West	Commercial Storage

Notes: # Six Maps

refer to NSW Planning Portal

https://www.planningportal.nsw.gov.au/spatialviewer/#/find-a-property/address

//www.planningportal.nsw.gov.au/find-a-property

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4.2 Review of Historical Maps

A review of the maps originally produced by Higinbotham & Robinson from late-nineteenth-century was undertaken. No relevant information was found as part of this assessment.

4.3 Underground Services

Dial Before You Dig' plans were requested and reviewed for the Site. Plans were provided by Ausgrid, Jemena Gas West, Sydney Water, NBN Co, Nextgen NCC – NSW, Optus and or Uecomm Nsw, TPG Telcom, Transport for NSW & Telstra NSW. Most of the plans did not indicate the presence of any major underground services or utility easements at the Site.

The Sydney Water plan indicates some stormwater main running along the central of the site from west to east, as well as the sewer main. Optus plan indicated a major line connected with building from the eastern boundary. It is noted that the associated underground services are considered a potential preferential pathway.

Refer to **Appendix A** – DBYD Plans.

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4.4 Review of aerial photographs

The following information regarding the aerial photographs has been obtained and the summary of this review are presented in the following table:

Table 2: Review of Aerial Photographs

Year	Site		Surrounding areas
1943	Rural residential	The site appeared to be part of a larger rural residential property. Stormwater drainage channels are open & clearly visible in the central portion of the site & run in an east west direction & in a north south direction along the western boundary of the site. The stormwater channels appeared unsealed. No distinguishable farming activities appear visible. The majority of the site is grassed covered with trees.	The surrounding area is mostly rural residential & cleared land.
1955	Residential	The site appeared to occupied by rural residential at south portion of the site, the stormwater channels appeared unsealed.	N: Vacant and residential. S: Road and then residential E: Punchbowl Road then residential/commercial W: Commercial and residential
1971	Commercial	The northern portion of the site consists of an unsealed large car park area. The stormwater drainage channels remain open and above the ground and appeared sealed. The southern portion of the site has re-developed into a large	N: Vacant and residential. S: Road and then residential E: Punchbowl Road then residential/Commercial W: Commercial and residential

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		commercial building and one small building towards punchbowl road.	
1982	Commercial	The northern portion of the site consists of an unsealed large car park area. The stormwater drainage channels remain open and above the ground and appeared sealed. The southern portion of the site consists of one large commercial building and one small building towards punchbowl road.	N: Vacant and residential. S: Road and then residential E: Punchbowl Road, seems like starting of construction of service station W: Commercial and residential
1994	Commercial	The large car park area in the northern portion of the site appeared to be sealed. The stormwater drainage channels remain open and above the ground and appeared sealed. However a portion of the channel has been covered with concrete. The southern portion of the site remains unchanged with exception of a large grassed area along the eastern boundary.	N: Residential. S: Road and then residential and commercial E: Road then residential, commercial (including service station) and large race track. W: Commercial and residential. Visible stormwater drainage channel.
2004	Commercial	There site has undergone significant redevelopment works. The surface of the entire large car park area	N: Residential. S: Road and then residential and commercial E: Road then residential, commercial (including service station) and large race track.

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		appeared new. The stormwater drainage channels have been covered and sealed underground. The buildings present in the 1991 aerial photograph in the southern portion of the site have been demolished and one large commercial building has been erected.	W: Commercial and residential. The storm water channel has been covered and sealed underground.
Current	As per inspection	The site is as inspected (section 7.2)	As per inspection

The aerial photographs indicate the site had been occupied by vacant land sometimes before 1955, and then was redeveloped into rural residential. Sometime before 1971, the site was redeveloped into one large commercial dwelling associated with open car park, renovation works has been carried between 1994 to 2004, and remain unchanged until present. The surrounding land appeared to be rural residential from 1955, sometime before 1982, east of the site has re-developed into a service station and remain until present.

Refer to **Appendix J** – Aerial Photographs.

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4.5 Title search

The land title information was obtained.

Table 3: Historical land title data

Lot A in DP 378634		
Year	**Proprietor**	**Company/Personal Occupation**
1983-Current	The Croatian Club	Cultural club
1970	The Commissioner for Roads (Part of the land)	Government
1958	Glanville Pty Ltd	-
1953	The Electricity Commissioner of NSW (Part of the land)	-
1952	Charles Henderson & Son Pty Ltd	-
1949	Robert William Arthur Richardson	-
1926	Margaret Richardson	-

Lot D in DP 382627		
Year	**Proprietor**	**Company/Personal Occupation**
1983-Current	The Croatian Club	Cultural club
1978	Tooheys Ltd	-
1978	Cragford Pty Ltd	-
1958	Glanville Pty Limited	-
1958	Charles Henderson & Son Pty Ltd	-

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1958	Charles Richard Henderson	-
1951	John Davis	-
1950	James Lever & Phoebe Lever	-
1949	James Lever	-
1949	Charles Henderson & Son Pty Ltd	-
1926	Florence Sharp	-

Lot 6 in DP 5245		
Year	**Proprietor**	**Company/Personal Occupation**
1983-Current	The Croatian Club	Cultural club
1970	The Commissioner for Roads (Part of the land)	Government
1958	Glanville Pty Ltd	-
1953	The Electricity Commissioner of NSW (Part of the land)	-
1949	Charles Henderson & Son Pty Ltd	-
1926	Florence Sharp	-

Lot 1 in DP 236825		
Year	**Proprietor**	**Company/Personal Occupation**
1983-Current	The Croatian Club	Cultural club
1976	Claneville Pty Ltd	-
1965	The Commissioner for Roads	Government

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1960	H C Sleigh Limited	Petroleum products and service stations
1948	Charles Henderson & Son Pty Ltd	-
1945	Rosewell Henderson	Electrician
1913	Harold Hawksford	Motor Engineer

Lot 14 in DP 132440		
Year	**Proprietor**	**Company/Personal Occupation**
1983-Current	The Croatian Club	Cultural club
1978	Tooheys Limited	-
1978	Cragford Pty Limited	-
1970	The Commissioner for Roads	Government
1958	Glanville Pty Limited	-
1954	Charles Henderson & Son Pty Ltd	-

Lot D in DP 382627		
Year	**Proprietor**	**Company/Personal Occupation**
1983-Current	The Croatian Club	Cultural club
1978	Tooheys Ltd	-
1978	Cragford Pty Ltd	-
1958	Glanville Pty Limited	-
1958	Charles Henderson & Son Pty Ltd	-
1958	Charles Richard Henderson	-

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1951	John Davis	-
1950	James Lever & Phoebe Lever	-
1949	James Lever	-
1949	Charles Henderson & Son Pty Ltd	-
1926	Florence Sharp	-

In summary, the site at 921 Punchbowl Road, Punchbowl NSW has been owned by private individuals from 1926 to 1948, after which it has been owned by both commercial and private individuals.

The land titles have revealed potential contaminating land uses from the company H C Sleigh Limited which is involved with petroleum-based products and the operation of service stations.

4.6 Planning Certificate

The Planning Certificate – Section 149 (2) of the Environmental Planning & Assessment Act 1979 for the site was provided by the client. A summary of the information pertaining to site is provided below:

Lot 14 in DP132440

- The land has been identified as B1 Neighbourhood Centre under the provision of the Bankstown *Local Environmental Plan 2015*.
- Bankstown Development Control Plan 2015 apply to this land.

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- The land is affected by a road widening or road realignment under section 25 of the Roads Act, 1993.
- The land is not affected by the operation of Section 38 or 39 of the *Coastal Protection Act 1979*.
- The land is not within a proclaimed mine subsidence district.
- The land is affected by a resolution of Council adopting a policy, which may restrict development of the land because of the likelihood of acid sulphate soils.
- The land is affected by a resolution of Council adopting a policy concerning the management of contaminated land.
- The land is a flood control lot. The property is affected by a policy known as Bankstown DCP 2015, Pt B12 – Flood Risk & Management & clause 6.3 – Flood Planning of the LEP 2015 by reference to the Salt Pan Creek Stormwater Catchment Study
- The land is affected by either environmental planning instrument or proposed environmental planning instrument.
- The land is affected by Bankstown City Council Section 94A Development Contributions Plan 2009 which allows council to impose a levy on development.
- The land is not affected by one of the matters prescribed by Section 59 (2) of the *Contaminated Land Management Act 1997*.
- The property is not bush fire prone land.
- The land is not biodiversity certified land or part of any bio banking arrangements.
- Complying Developments under the General Development Code, Subdivision Code, Fire Safety Code and Demolition Code may be carried out.
- A residential dwelling erected on this land has not been identified in the Loose-Fill Asbestos Insulation Register as containing loose-ceiling insulation.

Refer to **Appendix O** – Section 149 Certificate

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4.7 Anecdotal Evidence

No anecdotal evidence was available at the time of the investigation.

4.8 NSW EPA Records

The NSW EPA publishes records of contaminated sites under Section 58 of the Contaminated Land Management (CLM) Act 1997. The notices relate to investigation and/or remediation of site contamination considered to pose a significant risk of harm under the definition in the CLM Act.

A search of the database revealed that the subject site is not listed and there was no listed property in the suburb of Punchbowl. It should be noted that the NSW EPA record of Notices for Contaminated Land does not provide a record of all contaminated land in NSW.

Refer to **Appendix B** – NSW EPA Records.

4.9 NSW EPA POEO Register

A search of the POEO Register revealed the subject site is not listed on the register. However, there are over thirty registered properties within the suburb of Punchbowl. The majority of the properties were not seen as cause for concern as they are located more than 500m from the site.

Refer to **Appendix B** – NSW EPA Records.

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4.10 NSW EPA Notified Contaminated Sites

The NSW EPA publishes a list of notified contaminated sites each month. The list of notified sites contain land that has been notified to the EPA as being potentially contaminated.

A search of the list was completed on the 23rd February 2022. The subject site is not listed on the register. Three of the properties has identified, the properties were not seen as cause for concern as they are located more than 500m from the site.

Refer to **Appendix B** – NSW EPA Records.

4.11 PFAS Preliminary Screen

NSW EPA requires that PFAS is considered when investigating land contamination. The preliminary screen is based on guidelines from the PFAS National Environmental Management Plan (NEMP 2020). From this screen a decision can be made as to whether PFAS sampling of soil and groundwater is required.

Table 4: PFAS Preliminary Screen

Preliminary Screen	Risk of Occurrence
Any past or present site activity listed in NEMP 2020 as being activity associated with PFAS contamination?	L
Any past or present off-site activity up-gradient / adjacent to the site listed in NEMP 2020 as being activity associated with PFAS contamination?	L
Did fire training involving the use of suppressants occur from 1970 to 2010?	L
Have fuel fires ever occurred on site from 1970 to 2010?	L
Have PFAS been used in manufacturing or stored on site?	L

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Could PFAS have been imported to the site in fill materials from a site activity listed in NEMP 2020?	L
Could PFAS contaminated groundwater or run-off migrated to the site	No
Is the site or adjacent site listed in the NSW EPA PFAS Investigation Program	No
If the risk is medium or high in any of the above, does the inclusion of preliminary sampling / testing of PFAS in soil (including ASLP) and water need to be included?	No

- Note 1
  - Risk: L – low (all necessary documentation has been reviewed and there is no recorded instance or compelling rationale),
  - M – medium/moderate (all necessary documentation has been reviewed and there is potential evidence of a recorded instance with compelling rationale);
  - H – high (all necessary documentation has been reviewed and there is evidence of a recorded instance with compelling rationale); r
  - Risk, N/A – not applicable (or "-")].
  - No /Yes

- Note 2 Activities listed in Appendix B of the NEMP (2020).
- Note 3 Runoff from up-gradient PFAS use may impact surface water, soil, sediment and groundwater.
- Note 4 PFAS is used wide range of industrial processes and consumer products, including in the manufacture of non-stick cookware, specialised garments and textiles, ScotchguardTM and similar products (used to protect fabric, furniture, leather and carpets from oils and stains), metal plating and in some types of fire-fighting foam.
- Note 5 https://www.epa.nsw.gov.au/your-environment/contaminated-land/pfas-investigation-program

The potential for PFAS to be present on-site was low and subsequently PFAS sampling / analysis of soil and water was unwarranted.

4.12 SafeWork NSW

Previous Benviron Group submitted a request for information on the Storage of Hazardous Chemicals at the site with SAFEWORK NSW. A specific site search of the records held by SafeWork NSW has indicated no information pertaining to the site.

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4.13 Previous Investigations

Two (2) previous investigations for the property are summarised below:

- Benviron Group, "Detailed Site Investigation" for 921 Punchbowl Road, Punchbowl, Reference E881, dated September 2016
- Foundation Earth Sciences Pty Ltd "Remediation Action Plan" for 921 Punchbowl Road, Punchbowl, Reference E2232 Rev 1, dated July 2021.

4.13.1 Benviron Group Detailed Site Investigation 2016

Benviron Group was appointed by Westwood Pty Ltd to undertake a Detailed Site Investigation (DSI) for the property situated at 921 Punchbowl Road, Punchbowl NSW ("the site").

The proposed development plans have not been provided for the site and therefore the most stringent guidelines have been adopted. The Site Assessment forms part of SEPP 55 Guideline (Remediation of Land) with a proposed redevelopment to determine the end land-use suitability of the property.

The investigation revealed the following areas of environmental concern:

- The chromium concentration within BH11 (SS2) is located in the fill layer to a depth of 0.3m BGL. Analysis of the deeper soil in BH11 (SS2) has not been completed at this location.
- The chromium concentration within BH19 is located in the fill layer to a depth of 0.3m BGL. Analysis of the deeper soil in BH19 has not been completed at this location.

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- The chromium concentration within BH23 is located in the fill layer to a depth of 0.5m BGL. Analysis of the deeper soil in BH23 has not been completed at this location.
- The chromium concentration within BH24 is located in the fill layer to a depth of 0.5m BGL. Analysis of the deeper soil in BH24 has not been completed at this location.

The following data gaps were identified:

- The lateral and vertical extent of BH11, BH19, BH23 & BH24 is currently unknown and an appropriate remediation strategy should be devised as part of the remediation works to be carried out.
- The two storey Croatian Club building was in use at the time of the site investigation. No access was available to investigation the soil beneath the building. The approximate size of the building equates to 21% of the total site area or 3618m2. Sufficient samples were collected to satisfy the NSW EPA Sampling Design Guidelines for a site of 1.770 hectares. However, considering the size and age of the building further sampling beneath the building surface is recommended.
- Asbestos soil sampling (%w/w) is required to be completed once all buildings have been demolished.

Based on the results of the investigation, the abovementioned soil exceedance locations BH11, BH19, BH23 & BH24 requires remediation in order to render the site suitable for the proposed development, subject to the following:

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- It is considered that the site would be deemed suitable for the proposed development subject to the implementation of a Remediation Action Plan (RAP) to manage the abovementioned environmental concerns and data gaps.
- An acid sulphate soils assessment is required to be completed once the proposed development plans have been finalised.
- Any soil requiring removal from the site, as part of future site works, should be classified in accordance with the "Waste Classification Guidelines, Part 1: Classifying Waste" NSW EPA (2014).

4.13.2 Foundation Earth Sciences – Remediation Action Plan Rev 1

Benviron Group (Benviron) was appointed by Waldron Hill Projects Pty Ltd, to prepare a Remediation Action Plan (RAP) for the property located at 921 Punchbowl Road, Punchbowl NSW. The site is proposed to be redeveloped into a new facility for use as a registered club with; shops, retail, office & business on the ground floor; basement and at grade car parking, new residential unit towers in current car park area and residential units above the new registered club, new internal roads, landscaping & drainage works.

Assuming appropriate permits have been granted, the remediation of the site is to take place in the following stages:

- Stage One -Hazardous Materials Assessment & Site Preparation
- Stage Two – Additional Investigation
    - Ten (10) additional boreholes will be drilled at the proposed locations shown in Figure 2 to allow for the collection of soil samples to target landscape areas, building footprint & further assessment of the soil quality based on the results from Benviron Group DSI 2016.
    - The sampling of three (3) existing monitoring wells to provide second round of water quality at the site.

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- Six (6) boreholes to be drilled for an Acid Sulphate Soil Assessment.

- Stage Three – Removal of previous soil impacted Hotspots (BH6)
  - Hotspot SS2 (BH11) – contains chromium impacted fill materials to a depth of 0.3m BGL. It is intended to initially excavate the Hotspot 2m long x 2m wide x 1m vertically deep. The material is to be classified in accordance with the NSW EPA Waste Classification Guidelines and can be disposed of at EPA licenced landfill facility that can accept the waste. The approximate volume to be disposed of is 4m^3. The floors and walls of BH11 will be validated by taking 1 floor sample and 4 walls samples. Recovery of appropriate QA/QC samples.
  - Hotspot BH19 – contains chromium impacted fill materials to a depth of 0.3m BGL. It is intended to initially excavate the Hotspot 2m long x 2m wide x 1m vertically deep. The material is to be classified in accordance with the NSW EPA Waste Classification Guidelines and can be disposed of at EPA licenced landfill facility that can accept the waste. The approximate volume to be disposed of is 4m^3. The floors and walls of BH19 will be validated by taking 1 floor sample and 4 walls samples. Recovery of appropriate QA/QC samples.
  - Hotspot BH23 – contains chromium impacted fill materials to a depth of 0.5m BGL. It is intended to initially excavate the Hotspot 2m long x 2m wide x 1m vertically deep. The material is to be classified in accordance with the NSW EPA Waste Classification Guidelines and can be disposed of at EPA licenced landfill facility that can accept the waste. The approximate volume to be disposed of is 4m^3. The floors and walls of BH23 will be validated by taking 1 floor sample and 4 walls samples. Recovery of appropriate QA/QC samples.
  - Hotspot BH24 – contains chromium impacted fill materials to a depth of 0.5m BGL. It is intended to initially excavate the Hotspot 2m long x 2m wide

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x 1m vertically deep. The material is to be classified in accordance with the NSW EPA Waste Classification Guidelines and can be disposed of at EPA licenced landfill facility that can accept the waste. The approximate volume to be disposed of is $4m^3$. The floors and walls of BH24 will be validated by taking 1 floor sample and 4 walls samples. Recovery of appropriate QA/QC samples.

- Stage Four – Validation of Basement & Ground Floor
    - After removal of all fill soil material from the proposed basement area in accordance with the NSW EPA Waste Classification guidelines, the floors of exposed basement floor area & remaining ground floor areas will be sampled by taking thirty (30) floor samples plus QA/QC samples to validate the basement & ground floor area.
- Stage Five – Validation Report Preparation

4.14 Site History Summary

In summary:

- In summary, the site at 921 Punchbowl Road, Punchbowl NSW has been owned by private individuals from 1926 to 1948, after which it has been owned by both commercial and private individuals. The land titles have revealed potential contaminating land uses from the company H C Sleigh Limited which is involved with petroleum-based products and the operation of service stations.
- The aerial photographs indicate the site had been occupied by vacant land sometimes before 1955, and then was redeveloped into rural residential. Sometime before 1971, the site was redeveloped into one large commercial dwelling associated with open car park, renovation works has been carried between 1994 to 2004, and remain unchanged until present. The surrounding land

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appeared to be rural residential from 1955, sometime before 1982, east of the site has re-developed into a service station and remain until present.

- The NSW EPA contaminated land database, POEO Register and List of Notified Sites indicate subject site is not listed.
- Previous Benviron Group submitted a request for information on the Storage of Hazardous Chemicals at the site with SAFEWORK NSW. A specific site search of the records held by SafeWork NSW has indicated no information pertaining to the site.

4.15 Integrity Assessment

The information found in the historical sources has been found to be in general concurrence. It is therefore considered that accuracy of this data is acceptable for this investigation.

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5.0 REVIEW OF ENVIRONMENTAL INFORMATION

Table 5: Site Condition and Surrounding Environment Review

Site Information	Descriptions
Sensitive Receivers	The nearest sensitive human receptors are the current and future users of the site, construction workers during the site redevelopment and the general public. The nearest downgradient watercourse is a stormwater channel that is located beneath the site running through the central portion of the site in east west direction and along the western boundary in a north south direction. The stormwater channels appear to drain into Salt Pan Creek located approximately 531m south west of the site, which eventually discharges into the Georges River. The nearest watercourse is tributary of Salt Pan Creek located within the western of the site.
Soil Landscape *Review of NSW Soil and Land Information website ESPADE.*	The Soil Landscape Map viewed on NSW ESPADE indicates that the site is located within the Birrong landscape area and typically consists of fluvial soils with high soil erosion hazard, very low soil fertility, saline subsoils and seasonal water logging.
Topography	The topography viewed on NSW ESPADE indicated the following for the Birrong Fluvial Landscape. Level to gently undulating alluvial floodplains with local relief <5m and slope gradients <3%. Broad concave valleys. Most drainage lines have been converted

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	to lined concrete and brick channels. Based on the site inspection It was determined that the site area had a slight slope of 2^{o} to the north west.
Geological Profile	The borders the following two geological profiles: 1.The Geological Map of Sydney (Geological Series Sheet 9130, Scale 1:100,000, 1983), published by the Department of Mineral Resources indicates the residual soils within the site to be underlain by Quaternary Age soils consisting of silty to peaty quartz sand, silt and clay. Ferruginous and humic cementation in places with common shell layers. 2. The Geological Map of Sydney (Geological Series Sheet 9130, Scale 1:100,000, 1983), published by the Department of Mineral Resources indicates the residual soils within the site to be underlain by Triassic Age Shale of the Wianamatta Group, comprising black to dark grey shale and laminite. The soil profile encountered during the intrusive investigation is consistence with both geological profiles.
Presence of Acid Sulphate Soils *Review of NSW Department of Land & Water Conservation (DLWC) Acid Sulphate Soil Risk Maps (Edition Two, December 1997, Scale 1:250,000)***.**	A review of the Botany Bay map indicated that the site is located in "Disturbed Terrain". Disturbed terrain may include filled areas, which often occur during reclamation of low-lying swamps for urban development. The Bankstown Local Environmental Plan 2015 - Acid Sulfate Soils Risk Class Map _Sheet ASS _ 005 indicated that the site lies within a Class 3 ASS area.

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Localised Hydrogeology Review of DPI (Office of Water) Database. **Appendix D** – DPI (Office of Water) Database Records.	**Number**	**Location from Site**	**Depth (m BGL)**	**SWL (m BGL)**	**Use**	**Water Bearing Zones**
	GW107854	1.4km north	234.00	36	Domestic	Sandstone
	GW103667	1km south west	4.5	-	Monitoring	Clay
	GW103674	1km south west	5.9	-	Monitoring	Clay / Shale
Nearest Surface Water Body	The nearest watercourse is tributary of Salt Pan Creek located within the western of the site.					
Local Meteorology (Bureau of Meteorology BOM website) **Appendix E** – BOM Data.	The monthly rainfall of the local surrounding area is represented by the data collected from the BOM rainfall gauge located in Canterbury Racecourse, which is located approximately 5.1km from Punchbowl. The records indicate that the highest daily rainfall recorded in February (date of fieldwork) was 189.2mm.					
Nearest Active Service Station (Google Maps Search)	25m east of the site.					

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6.0 REVIEW OF CONSTRUCTION AND SERVICE INFORMATION

6.1 Proposed Development

The site is currently occupied by one registered club consisting of car park area, driveways and grassed area. The site is proposed to be redeveloped into a mixed use development including new registered club in the southern portion of the site, retail tenancies on the ground floor, new internal road, pocket park, landscape areas, five blocks of residential units in the north and four levels of residential units above the ground floor registered club.

Refer to **Appendix F** - Proposed Development Plans.

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7.0 SITE VISIT

7.1 General

The site was visited on the 17th February 2022 by Foundation Earth Sciences Environmental Scientists to inspect the site for any potential sources of contamination.

The following items were considered as part of the site visit:

- Description of the building structures;
- Site surroundings;
- Present and past industrial processes and operations at the site;
- Surface water, groundwater, stormwater and sewer;
- Present and past storage of chemicals and wastes associated with site use and their on-site location;
- Waste management practices and management of hazardous materials;
- Presence of Underground Storage Tanks or Above Ground Storage Tanks;
- Odour; and
- Occupational health and safety.

7.2 Site observations

At the time of the site visit the following observations were made as per the following table:

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Table 6: Site Inspection Review

Factors Considered	Description of Sites
Buildings & Structures on Site	The site is currently occupied by one large multi storey commercial building, irregular in shape and surrounded by bitumen car park, concrete loading bay, and landscaping area. A major stormwater channel running in the centre of the site from west to east. The commercial property was utilised by Croatian Club (RSL type venue).
Percentage Hard-standing surface	Approximately 90%
Hard standing surface condition	Average – poor
Chemical Storage	Chemical storage areas were not noted at the time of the site inspection in accessible areas.
Above and Underground Storage Tanks	No above or underground storage tanks areas were noted at the time of the site inspection in accessible areas.
Trade Waste Pits	No trade waste pits were identified at the site.
Nearby Electrical Transformers	No electricity sub-station was observed within the property. However, a power transmission tower observed in the north-west portion of the site.
Asbestos	No fibro cement sheeting was identified within the boreholes locations. No fibro cement sheeting was identified on the surface of accessible area.
Site Vegetation	Appeared healthy.
Soil Staining and Odours	No odours were identified within the property. No significant soil staining was noted during the inspection.
Stormwater and Sewer	Stormwater was connected to the local utilities.

Refer to **Figure 2** - Site Features, Borehole Locations & Exceedance Plan and **Appendix C** – Site Photographs.

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8.0 PRELIMINARY CONCEPTUAL SITE MODEL (CSM)

Based on the above information, site history and site walkover, the areas of potential concern and associated contaminants for the site CSM were identified. These are summarised in the following table.

Table 7: Areas and Contaminants of Concern

Known and potential contamination source	Associated Contaminants
Historical Site Uses (Commercial/Car Park)	Heavy Metals, TRH, BTEX, PAH, OCP, PCB & Asbestos
Potential Pesticides Use	OCP, OPP
Imported Fill	Heavy Metals, TRH, BTEX, PAH, OCP, PCB & Asbestos
Car parking Areas	TRH, BTEX, PAH
Building degradation/ Demolition	Heavy Metals and Asbestos

Table 8: Potentially Contaminated Media

Known and potential contamination source	Associated Contaminants
Fill Material	There is the potential for contamination to be present in the upper fill material.
Groundwater	There is the potential for the leaching of contaminants into groundwater onsite and also migration of the contaminants.

Potential for Migration

Contaminants generally migrate from site via a combination of windblown dusts, rainwater infiltration, groundwater migration and surface water runoff. The potential for contaminants to migrate is a combination of:

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- The nature of the contaminants (solid/liquid and mobility characteristics);
- The extent of the contaminants (isolated or widespread);
- The location of the contaminants (surface soils or at depth); and
- The site topography, geology, hydrology and hydrogeology.

The potential contaminants identified as part of the site history review & site inspection are present in solid (e.g. impacted fill, asbestos) & liquid (e.g. dissolved in water).

Aerial photography has indicated that there were significant unsealed ground surfaces and therefore, there is the potential for migration of contaminants via wind-blown dust.

Rainfall infiltration at the site is expected to occur in unsealed areas. There is therefore the potential that soil contamination could result in impacts to groundwater.

Potential Exposure Pathways

Potential exposure pathways include:

- Dermal;
- Ingestion; and
- Inhalation.

Due to the presence of exposed potentially impacted soil/fill on ground surfaces, dermal and inhalation exposure is considered a potential exposure pathway.

The potential for ingestion of soil is considered as a potential exposure pathway. Although groundwater is not used at the site, there is the potential, for ingestion of contaminants via groundwater removed from monitoring wells.

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A basement is not proposed for the development. Because of this dermal and inhalation exposure pathway by potentially contaminated groundwater is considered a limited / low risk potential.

Receptors

Potential receptors of environmental impact present within the site which will be required to be addressed with respect to the suitability of the site for the proposed use include:

- Excavation/construction/maintenance workers conducting activities at the site, who may potentially be exposed to COPCs through direct contact with impacted soils, Vapour Intrusion and/or groundwater present within excavations and/or inhalation of dusts/fibres associated with impacted soils;
- Future occupants/users of the site may potentially be exposed to COPCs through direct contact with impacted soils and/or ingestion of impacted soils and/or inhalation of dusts/fibres associated with impacted soils and/or exposure to vapour; and/or
- Offsite sensitive receptors of groundwater; and/or
- Flora species to be established on vegetated areas of the site.
- Salt Pan Creek/ Tributary of Salt Pan Creek

Preferential Pathways

For the purpose of this assessment, preferential pathways have been identified as natural and/or man-made pathways that result in the preferential migration of COPCs as either liquids or gases.

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Man-made preferential pathways are present throughout the site, generally associated with fill materials and services present beneath existing ground surface. Fill materials and service lines are anticipated to have a higher permeability than the underlying natural soil and/or bedrock.

The Sydney Water plan indicates some stormwater main running along the central of the site from west to east, as well as the sewer main. Optus plan indicated a major line connected with building from the eastern boundary. It is noted that the associated underground services are considered a potential preferential pathway.

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9.0 REVIEW OF DATA QUALITY OBJECTIVES

The DQOs were also prepared using Appendix IV of the Site Auditor Guidelines. These require 7 steps. The steps being

a. State the problem
b. Identify the decisions
c. Identify inputs to decision
d. Define the study boundaries
e. Develop a decision rule
f. Specify limits on decision errors
g. Optimise the design for obtaining data

9.1 State the Problem

The site requires to be confirmed suitable for the proposed development. The site is proposed to be redeveloped and has had some areas of potential concern, those being historical & current land uses, surrounding land use, possible areas of imported fill of unknown origin, degradation of the building materials and leakages from vehicles on site.

Technically defensible evidence needs to be provided so that the identified Site does not present an unacceptable risk to human health or the environment and is suitable for the intended land use.

9.2 Identify the Decisions

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The decisions to be made on the contamination and the new environmental data required includes considering relevant site contamination criteria for each medium (fill, soil and sediment). A proposed use of the 95% UCL on the mean concentrations for all soil chemicals of potential concern must be less than the site criteria identified for the relevant land use suitability.

The decisions made in completing this assessment are as follows:

- Does the site or is the site likely to present a risk of harm to humans or the environment
- Is the site currently suitable for the proposed land use including residential with access to soil?
- Is there a potential for soil and groundwater contamination?
- Is there a potential for offsite migration issues?
- Do the sampling results meet the site criteria proposed?
- If not, does the site require remediation works

9.3 Identify Inputs to Decision

This step requires the identification of the environmental variables/characteristics that need measuring, identification of which media (fill, soil etc.) need to be collected, identification of the site criteria for each medium of concern and appropriate analytical testing. Inputs include:

- Existing site information
- Site history
- Regional geology, topography and hydrogeology
- Potential contaminants

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- Proposed Land Use
- Site assessment criteria
- Results as measured against criteria

9.4 Define the Study Boundaries

Specific spatial and temporal aspects must be provided to identify the boundaries of the investigation and to identify any restrictions that may hinder the assessment process. The site is located at 921 Punchbowl Road, Punchbowl NSW. The site is approximately 1.770 hectares in area.

9.5 Develop a Decision Rule

The information obtained through this assessment will be used to characterise the soils and the groundwater on the site in terms of contamination issues and risks to human health and the environment. The decision rule in characterising the site will be as follows:

- Laboratory test results will be measured against the criteria provided within this report
- The site will be deemed suitable for the proposed use if the following criteria are fulfilled:
    - Soil and groundwater concentrations are within background levels
    - QA/QC shows data can be relied upon
    - Results generally meet regulatory criteria
    - Results are from NATA accredited laboratories
    - Detection limits are below assessment criteria
    - Results can be shown to be of minimal concern

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9.6 Specify Limits on Decision Errors

The limits on decision errors for this assessment are as follows:

- The assessment criteria adopted from the guidelines within this report have risk probabilities already incorporated.
- The acceptable limits for inter/intra laboratory duplicate sample comparisons are laid out within our protocols.
- The acceptable limits for laboratory QA/QC parameters are based upon the laboratory reported acceptable limits and those stated within the NEPM 2013 Guidelines.

9.7 Optimise the Design for Obtaining Data

A resource-effective sampling and analysis design was undertaken for data collection that satisfies the DQO's. The sampling and analytical plan is designed to avoid Type 1 and Type 2 errors and includes defining minimum sample numbers required to detect contamination as determined with procedures provided in the NSW EPA 1995 Sampling Design Guidelines and AS 4482.1 - 2005 and appropriate quality control procedures.

Furthermore, only laboratories accredited by NATA for the analysis undertaken were used. The laboratory data was assessed from quality data calculated during this assessment. Field QA/QC protocols adopted and incorporate traceable documentation of procedures used in the sampling and analytical program and in data verification procedures.

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10.0 INTRUSIVE SOIL INVESTIGATION

The intrusive soil investigation took place on the 17th February 2022 and was designed to meet the Data Quality Objectives.

10.1 Soil Assessment

Sixty-three (63) primary soil sample were recovered from forty-one (41) borehole locations spread across the site and were labelled BH1 to BH31 and BH101 to BH110. These locations were selected to detect any contamination that may have originated from past and present activities, and due to potential excavation and future development in these areas.

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Table 9: Sampling Information - Soil

Analyte / Analyte Group / Sample	Depth (m)	SAMPLING DATE	DUPLICATE & SPLIT	HEAVY METALS (8)	TRH	BTEX	PAH	OCP	PCB	TRH C6-C10 & BTEXN	PH / CEC / %CLAY	Asbestos
Previous BG DSI 2016												
BH1	0.3	1.6.2016		✔	✔	✔	✔					
BH2	0.2	1.6.2016		✔	✔	✔	✔					
BH3	0.3	1.6.2016		✔	✔	✔	✔					
BH4	0.2	1.6.2016		✔	✔	✔	✔					
BH5	0.2	1.6.2016		✔	✔	✔	✔					
BH5	0.5	1.6.2016		✔	✔	✔	✔	✔	✔			
BH6	0.3	1.6.2016		✔	✔	✔	✔	✔	✔			
BH7	0.2	1.6.2016		✔	✔	✔	✔					
BH8	0.2	1.6.2016		✔	✔	✔	✔					
BH9	0.2	1.6.2016		✔	✔	✔	✔					
BH10	0.2	1.6.2016		✔	✔	✔	✔					
BH10	0.5	1.6.2016		✔	✔	✔	✔	✔	✔			
BH11	0.2	1.6.2016	D2/SS2	✔	✔	✔	✔	✔	✔			
BH12	0.2	1.6.2016		✔	✔	✔	✔	✔	✔			
BH13	0.2	1.6.2016		✔	✔	✔	✔					
BH14	0.3	1.6.2016	D3/SS3	✔	✔	✔	✔					
BH15	0.2	1.6.2016		✔	✔	✔	✔	✔	✔			
BH15	0.8	1.6.2016		✔	✔	✔	✔	✔	✔			
BH16	0.2	1.6.2016		✔	✔	✔	✔	✔	✔			
BH17	0.3	1.6.2016		✔	✔	✔	✔					
BH18	0.2	1.6.2016		✔	✔	✔	✔					
BH19	0.2	1.6.2016		✔	✔	✔	✔					
BH20	0.3	1.6.2016		✔	✔	✔	✔					
BH20	1	1.6.2016	D1/SS1	✔	✔	✔	✔	✔	✔			
BH21	0.3	1.6.2016		✔	✔	✔	✔	✔	✔			
BH22	0.2	1.6.2016		✔	✔	✔	✔					
BH23	0.2	1.6.2016		✔	✔	✔	✔					
BH24	0.3	1.6.2016		✔	✔	✔	✔					
BH25	0.2	1.6.2016		✔	✔	✔	✔					
BH25	0.6	1.6.2016		✔	✔	✔	✔	✔	✔			
BH26	0.3	1.6.2016		✔	✔	✔	✔	✔	✔			
BH27	0.3	1.6.2016		✔	✔	✔	✔					
BH28	0.2	1.6.2016		✔	✔	✔	✔					
BH29	0.3	1.6.2016		✔	✔	✔	✔					
BH30	0.2	1.6.2016		✔	✔	✔	✔					
BH31	0.1-0.2	1.6.2016									✔	
BH31	0.4-0.5	1.6.2016									✔	
FES DSI 2022												
BH101	0.3-0.4	17.2.2022		x	x	x	x	x	x			x
BH101	0.9-1.0	17.2.2022		x	x	x	x					
BH102	0.2-0.3	17.2.2022		x	x	x	x	x	x			
BH103	0.2-0.3	17.2.2022		x	x	x	x	x	x			x
BH103	0.6-0.7	17.2.2022		x	x	x	x					
BH104	0.2-0.3	17.2.2022		x	x	x	x	x	x			x
BH104	0.7-0.8	17.2.2022		x	x	x	x					
BH105	0.4-0.5	17.2.2022		x	x	x	x	x	x			
BH105	0.9-1.0	17.2.2022		x	x	x	x	x	x			
BH106	0.3-0.4	17.2.2022		x	x	x	x	x	x			x
BH106	0.7-0.8	17.2.2022		x	x	x	x					
BH107	0.2-0.3	17.2.2022		x	x	x	x	x	x			x
BH107	0.8-0.9	17.2.2022		x	x	x	x	x	x			
BH108	0.4-0.5	17.2.2022		x	x	x	x	x	x			x
BH108	0.9-1.0	17.2.2022		x	x	x	x					
BH109	0.3-0.4	17.2.2022	D101/SS101	x	x	x	x	x	x			
BH110	0.3-0.4	17.2.2022		x	x	x	x	x	x			x
BH110	0.8-0.9	17.2.2022		x	x	x	x					
TS101	-	17.2.2022								x		
TB101	-	17.2.2022								x		

The locations of the boreholes and samples are shown in **Figure 2** and details of the boreholes are presented in **Appendix G** – Borehole Logs.

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Based on information from all boreholes, the surface and sub-surface profile across the site is generalised as follows:

- Fill: Silty Clay, Gravelly Silt, Gravel, Gravelly Sandy Silt, Silt
- Natural: Silty CLAY, Clayey SILT;
- Bedrock: SHALE, weathered.

10.2 Sampling Density and Rationale

The NSW EPA "Sampling Design Guidelines" (September 1995) requires a minimum sampling density of thirty (30) sampling points for a site approximately area of 1.790 hectares.

Sixty-three (63) primary soil sample were recovered from forty-one (41) borehole locations spread across the site and were labelled BH1 to BH31 and BH101 to BH110. The locations were drilled by adopting a systematic grid-based sampling pattern across the site and to provide general site coverage with consideration given to accessibility and limitations in relation to underground services & access.

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10.3 Sampling Methodology

In summary:

- Soil samples were collected directly from the push tube / split spoon sampler and/or directly from the excavator bucket.
- Soil samples were collected using a hand auger, DCP and U50 to collect undisturbed samples.
- Samples were transferred directly into appropriately labelled clean laboratory supplied containers;
- Samples were transferred into chilled eskies for sample preservation;
- A Chain of Custody was completed and forwarded to the laboratory. Sampling analysis was based on field observations and were in accordance to the schedule outlined in Section 12.
- Soil samples were submitted to their respective laboratories as specified in Section 12.4.

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11.0 GROUNDWATER INVESTIGATION

11.1 Groundwater Assessment

Benviron Group installed three groundwater monitoring wells on the 1st June 2016 as part of the Detailed Site Investigation. Samples were recovered from three (3) existed groundwater well labelled as GW1 to GW3. The schedule of analysis is provided below:

Table 10: Sampling Information – Groundwater

SAMPLE ID	SAMPLING DATE	HEAVY METALS	TRH	BTEX	PAH	VOC	OCP&PCB	TRH C6-C10 & BTEXN
BG DSI 2016								
BH1 / GW1	3.6.2016	X	X	X	X		x	
BH7 / GW2	3.6.2016	X	X	X	X		x	
BH14 / GW3	3.6.2016	X	X	X	X		x	
D1	3.6.2016	X	X	X	X		x	
SS1	3.6.2016	X	X	X	X		x	
FES DSI 2022								
BH1 / GW1	24.2.2022	X	X	X	X	X		
BH7 / GW2	24.2.2022	X	X	X	X	X		
BH14 / GW3	24.2.2022	X	X	X	X	X		
GWD101	24.2.2022	X	X	X	X	X		
GWSS101	24.2.2022	X	X	X	X	X		
TS1	-					X		X
TB1	-					X		X

The location of the groundwater well is shown in **Figure 2** – Site Features, Borehole Locations and Exceedance Plan and details of the boreholes are presented in **Appendix G** – Borehole Logs.

Refer to **Appendix I** – Field Record Forms & **Appendix L** – Calibration Certificate.

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11.2 Groundwater Methodology

Groundwater monitoring wells were constructed on the 1st June 2016 by adopting the following methodology:

- 50mm diameter, Class 18PVC threaded and flush joined casing and 0.45 machine-slotted screens were used;
- Coarse, washed sand and gravel was placed in the annulus surrounding the piping to a height of the screen;
- Bentonite pellets were placed in the annulus to form an impermeable plug near the top of the well to prevent surface runoff from entering directly into the well;
- Bentonite pellets were placed in the annulus to form an impermeable plug near the top encountered bedrock;
- A PVC cap was placed on the casing;
- 100mm diameter stainless steel flushed covers were used for all well finishes and concreted onto the ground surface.

Table 11: Summary of Well Construction Details

Well ID	Total Depth	Screening (m)	Surface Level (RL)	Water Bearing	Comment
BH1/GW1	5.5	2.5-5.5	-	CLAY	Current
BH7/GW2	4.0	1-4.0	-	CLAY	Current
BH14/GW3	5.5	2.5-5.5	-	CLAY	Current

The following works were carried out upon completion of the well installations:

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- The wells were developed by removing at least three well volumes until groundwater parameters reached equilibrium and no further turbidity improvements were observed.

Drilling and installation of the monitoring wells was carried out on the during Benviron Group DSI in 2016, using a combination of solid stem , hollow flight auguring and/or NMLC coring under supervision of Foundation Earth Sciences.

11.3 Groundwater Sample Collection

Second round of groundwater sampling completed by FES was undertaken on the 24th February 2022. Prior to sampling, the resting water level was recorded within the well while checking for the presence of phase separated hydrocarbon.

Sampling was completed using a low flow peristaltic pump – a low flow/minimum drawdown sampling technique used to minimise any disturbance to the aquifer.

Field measured parameters were collected using a certified and calibrated In-situ YSI water quality meter. Samples were collected when field measured parameters (pH, electrical conductivity, redox potential, dissolved oxygen and temperature) had stabilised. The samples were placed into appropriate laboratory supplied bottles and preserved on ice. The peri pump and other sampling equipment were decontaminated before and after use to avoid possible cross contamination. All samples collected were preserved on ice and couriered directly to the laboratory under COC documentation.

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11.4 Groundwater Observations

Table 12: Groundwater Elevations & Observations

Well ID	Well Depth	Surface Level RL	Groundwater Depth Measured (m BGL)	Groundwater Level (RL)	PSH Depth
BH1 /GW1	5.5	-	1.55	-	None
BH7 /GW2	4.0	-	0.2	-	None
BH14 /GW3	5.5	-	1.2	-	None

The field measured parameters (pH), electrical conductivity (EC), redox potential, dissolved oxygen (DO) and temperature recorded during purging, were allowed to stabilise prior sampling. Final stabilised groundwater field parameters are summarised in below.

Table 13: Groundwater Field Results

Well ID	Date	pH	Electrical Conductivity (EC us/cm)	Redox Potential (ORP mV)	Dissolved Oxygen (mg/L)	Temperature (*C)
BH1 /GW1	24.2.2022	6.62	20966	-149.7	33.3	25.9
BH7 /GW2	24.2.2022	6.86	862	16.2	862	28.9
BH14 /GW3	24.2.2022	6.71	13786	58.6	21.7	26.7

The results of the field parameters measured are summarised as follows:

- pH reading indicated the groundwater is generally neutral;
- The EC reading indicated generally brackish water; and
- Redox reading indicated increasing conditions.

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11.5 Catchment Location

It is noted that the groundwater at the site is likely to flow into the George River Catchment area. Interim environmental objective is not provided here for those catchments, for which an inquiry was well under way before the commencement of a wider inquiry into the whole Georges River–Botany Bay system.

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12.0 QUALITY ASSURANCE / QUALITY CONTROL

12.1 General QA/QC

The frequency required for each field quality assurance / quality control (QA/QC) sample is presented in the table below.

Table 14: QA/QCs Frequencies

	Intra Lab	Inter Lab	Rinsate	Spikes	Blanks
Sampling Frequency	1 in 20	1 in 20	1/day	1/day	1/day

During the contamination assessment the integrity of data collected is considered vital. With the assessment of the site, a number of measures were taken to ensure the quality of the data. These are as follows:

12.2 Sample Containers

Soil samples collected during the investigation were placed immediately into laboratory prepared glass jars with Teflon lid inserts. Standard identification labels were adhered to each individual container and labelled according to depth, date, sampling team and media collected.

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12.3 Decontamination

All equipment used in the sampling program was decontaminated prior to use and between samples to prevent cross contamination. Decontamination of equipment involved the following procedures:

- Cleaning equipment in potable water to remove gross contamination;
- Cleaning in a solution of Decon 90;
- Rinsing in clean demineralised water then wiping with clean lint free cloths;

Foundation Earth Sciences also adopted a sampling gradient of lowest to highest potential contamination to minimise the impact of cross contamination. This gradient was determined from the historical review and the on-site inspection that was carried out prior to sampling.

Although Foundation Earth Sciences maintains consistent sampling procedures, a rinsate sample is obtained to ensure false positive samples are not generated and that decontamination procedures are effective in preventing cross contamination. The Rinsate water is collected after being in contact generally with the trowel used for sampling. Analytical results that target the contaminants of concern are compared to a blank sample, which is taken directly from the rinsate water container supplied by the laboratory.

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A rinsate sample was not collected as the samples were taken either directly from the excavator bucket, push tube / split spoon sampler or U50 tube and therefore the chance for cross-contamination was minimal.

12.4 Sample Tracking, Identification and Holding Times

All samples were forwarded to Envirolab and Eurofins under recognised chain of custodies with clear identification outlining the date, location, sampler and sample ID. All samples were recorded by the laboratory as meeting their respective holding times. The sample tracking system is considered adequate for the purposes of sample collection.

12.5 Sample Transport

All samples were packed into an esky with ice from the time of collection. A trip blank and trip spike are collected where appropriate. These were transported under chain of custody from the site to Envirolab Pty Ltd and Eurofins, both NATA registered laboratories. During the project, the laboratory reported that all the samples arrived intact and were analysed within holding times for the respective analytes.

Samples were kept below 4°C at all times, soil samples submitted for asbestos analysis are not required to be kept below 4°C.

12.6 Trip Spike

Trip Spike samples were obtained from the laboratory prior to conducting field sampling where volatile substances are suspected. Foundation Earth Sciences QA/QC procedures

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for the collection of environmental samples involves the collection of trip blanks, trip spikes and duplicate samples both intra and inter laboratory.

12.7 Trip Blank

A trip blank accompanied the sampling for the sampling process and is not separated from the sample collection and transportation process. The purpose of the trip blank is to identify whether cross-contamination is occurring during the sample collection and transport process.

12.8 Field Duplicate Samples

The tables below list the duplicate soil samples collected with their corresponding primary samples.

Table 15: Soil Field Duplicate Samples

Primary Sample	Sample Depth (m BGL)	Intra Duplicate	Inter Duplicate	Date Sampled
BH109	0.3-0.4	D101	SS101	17.2.2022

Table 16: Groundwater Field Duplicate Samples

Primary Sample	Screen Zone (m bgl)	Intra Duplicate	Inter Duplicate	Date Sampled
BH1/GW1	2.5-5.5	GWD101	GWSS101	24.2.2022

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Field duplicate samples for soil were prepared in the field through the following process:

- A larger than normal quantity of soil is recovered from the sample location selected for duplication.
- Two Portions of the sub-sample are immediately transferred, one for an intra-laboratory duplicate and another as a sample.
- Samples are placed into a labelled, laboratory supplied 250ml glass jar and sealed with an airtight, Teflon screw top lid. The fully filled jars are labelled as the sample and duplicate and immediately placed in a chilled esky.

Soil Intra-Laboratory duplicate samples were sent to Envirolab while Inter-Laboratory duplicate samples were sent to Eurofins.

A summary of the test results with the Relative Percentage Difference (RPD) is presented in the following tables.

The comparisons between the duplicates and original samples indicate acceptable RPDs when they comply with criteria which are commonly set at:

- less than 30% for inorganics and 50% for organics
- greater than five (5) times the laboratory limit of recording (LOR)
- greater than 50% of the relevant health investigation level (HIL) concentration.

The tables, below, give details of intra laboratory and inter laboratory duplicates.

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Table 17: Intra-lab Soil Sample D101 RPDs

ANALYTE	BH109 0.3-0.4 mg/kg	Envirolab D101 mg/kg	RELATIVE PERCENTAGE DIFFERENCE %
HEAVY METALS			
Arsenic	<4	<4	-
Cadmium	<0.4	<0.4	-
Chromium	22	9	84
Copper	20	43	73
Lead	15	3	133
Mercury	<0.1	<0.1	-
Nickel	35	95	92
Zinc	30	30	0
TRH			
F2 C10-C16	<25	<25	-
F3 C16C34	<50	<50	-
F4 C34-C40	<50	<50	-
BTEX			
Benzene	<0.2	<0.2	-
Toulene	<0.5	<0.5	-
Ethylbenzene	<1	<1	-
Xylenes - Total	<1	<1	-
POLYCYCLIC HYDROCARBONS (PAH)			
Benzo(a)pyrene	<0.05	<0.05	-
Total PAH	<0.05	<0.05	-
ORGANOCHLORINE PESTICIDES			
Heptachlor	<0.1	<0.1	-
Aldrin+Dieldrin	<0.1	<0.1	-
DDD	<0.1	<0.1	-
DDE	<0.1	<0.1	-
DDT	<0.1	<0.1	-
Chlordane (trans & cis)	<0.1	<0.1	-
POLYCHLORINATED BIPHENYLS			
Total PCB	<0.1	<0.1	-

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Table 18: Intra-lab Groundwater Sample GWD101 RPDs

ANALYTE	Envirolab GW101 ug/l	Envirolab GWD101 ug/l	RELATIVE PERCENTAGE DIFFERENCE %
HEAVY METALS			
Arsenic	1	1	0
Cadmium	<0.1	<0.1	-
Chromium	<1	<1	-
Copper	<1	<1	-
Lead	<1	<1	-
Mercury	<0.05	<0.05	-
Nickel	3	3	0
Zinc	3	3	0
TRH			
C6-C10 (F1)	<10	<10	-
C10-C16 (F2)	<50	<50	-
BTEX			
Benzene	<1	<1	-
Toulene	<1	<1	-
Ethylbenzene	<1	<1	-
Xylenes - Total	<3	<3	-
POLYCYCLIC HYDROCARBONS (PAH)			
Benzo(a)pyrene	<0.1	<0.1	-
Naphthalene	<0.2	<0.2	-
VOC			
Chloroform	<1	<1	-

The comparisons between the intra-laboratory duplicates and corresponding original samples for soil and groundwater indicated generally acceptable RPD with the exception of chromium, copper, lead & nickel in soil sample D101 which exceeded the DQOs for this project, however, these exceedances are not considered significant because they are most likely due to the heterogeneity of the sample or low concentrations within the sample.

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Table 19: Inter-lab Soil Sample SS101 RPDs

ANALYTE	BH109 0.3-0.4 mg/kg	Eurofins SS101 mg/kg	RELATIVE PERCENTAGE DIFFERENCE %
HEAVY METALS			
Arsenic	<4	<2	-
Cadmium	<0.4	<0.4	-
Chromium	22	46	71
Copper	20	45	77
Lead	15	<5	-
Mercury	<0.1	<0.1	-
Nickel	35	150	124
Zinc	30	64	72
TRH			
F2 C10-C16	<25	<50	-
F3 C16C34	<50	<100	-
F4 C34-C40	<50	<100	-
BTEX			
Benzene	<0.2	<0.1	-
Toulene	<0.5	<0.1	-
Ethylbenzene	<1	<0.1	-
Xylenes - Total	<1	<0.3	-
POLYCYCLIC HYDROCARBONS (PAH)			
Benzo(a)pyrene	<0.05	<0.5	-
Total PAH	<0.05	<0.5	-
ORGANOCHLORINE PESTICIDES			
Heptachlor	<0.1	<0.05	-
Aldrin+ Dieldrin	<0.1	<0.05	-
DDD	<0.1	<0.05	-
DDE	<0.1	<0.05	-
DDT	<0.1	<0.05	-
Chlordane (trans & cis)	<0.1	<0.05	-
POLYCHLORINATED BIPHENYLS			
Total PCB	<0.1	<0.1	-

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Table 20: Inter-lab Groundwater Sample GWSS101 RPDs

ANALYTE	Envirolab GW101 ug/l	Eurofins GWSS101 ug/l	RELATIVE PERCENTAGE DIFFERENCE %
HEAVY METALS			
Arsenic	1	5	133
Cadmium	<0.1	<0.2	-
Chromium	<1	3	-
Copper	<1	4	-
Lead	<1	2	-
Mercury	<0.05	<0.1	-
Nickel	3	7	80
Zinc	3	11	114
TRH			
C6-C10 (F1)	<10	<20	-
C10-C16 (F2)	<50	<50	-
BTEX			
Benzene	<1	<1	-
Toulene	<1	<1	-
Ethylbenzene	<1	<1	-
Xylenes - Total	<3	<3	-
POLYCYCLIC HYDROCARBONS (PAH)			
Benzo(a)pyrene	<0.1	<1	-
Naphthalene	<0.2	<1	-
VOC			
Chloroform	<1	<5	-

The comparisons between the inter-laboratory duplicates and corresponding original samples for soil and groundwater indicated generally acceptable RPD with the exception of chromium, copper, nickel & zinc in soil sample of SS101; and arsenic, nickel &zinc in water sample GWSS101 which exceeded the DQOs for this project, however, these exceedances are not considered significant because they are most likely due to the heterogeneity of the sample or low concentrations within the sample.

Field duplicates provide an indication of the whole investigation process, including the sampling process, sample preparation and analysis. The accuracy of the data is considered to be adequate due to the effect on confidence intervals with low concentrations in the samples and their duplicates.

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12.9 Trip Spike and Trip Blank Results

Trip Spike samples were obtained from the laboratory prior to conducting field sampling where volatile substances are suspected. Trip spike and trip blank samples were collected to assess the effect of sample handling on volatile concentrations in the samples collected and the results are listed in the tables below:

Table 21: Trip Spike

ANALYTE	TS1 Trip Spike % Soil (mg/kg) 17.2.2022	ANALYTE	TS1 Trip Spike % water (ug/L) 24.2.2022
BTEX		**BTEX**	
Benzene	110%	Benzene	100%
Toluene	111%	Toluene	99%
Ethyl Benzene	116%	Ethyl Benzene	98%
O-Xylenes	119%	O-Xylenes	103%
M & P Xylenes	116%	M & P Xylenes	94%

Results discussed in Section 12.11

Table 22: Trip Blank

ANALYTE	Trip Blank Soil (TB1) mg/kg 17.2.2022	ANALYTE	Trip Blank water (TB2) mg/kg 29/08/1900
TRH		**TRH**	
C6-C10	<25	C6-C10	<10
BTEX		**BTEX**	
Naphthalene	<1	Naphthalene	<1
Benzene	<0.2	Benzene	<1
Toluene	<0.5	Toluene	<1
Ethyl Benzene	<1	Ethyl Benzene	<1
Total Xylenes	<3	Total Xylenes	<3

Results discussed in Section 12.11

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12.10 Laboratory QA/QC

The integrity of analytical data provides the second step in the QA/QC process for total data compliance. The data validation techniques adopted by Foundation Earth Sciences are based upon techniques published by the US EPA and in line with methods and guidelines adopted by the NSW EPA and outlined in the NEPM, 2013.

Descriptions are provided of the specific mechanisms used in the assessment of accuracy, precision and useability of analytical data within the project.

Refer to **Appendix H**- NATA Accredited Laboratory Certificates.

12.11 QA/QC Results

The QA/QC results for soil collected at the site are summarised in the table below:

Table 23: QA/QC Results Summary

Data Quality Indicator	Results	DQI Met
Completeness		
Soil & Groundwater		
Data from critical samples is considered valid	Data is considered valid	Yes
Satisfactory frequency / result for QC samples	The QC results are considered adequate for the purpose of the investigation.	Yes

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Field documentation completed	Field records are complete	Yes
Boreholes logs & COCs completed and holding times complied with	Logs, COCs and holding times have been completed and complied with	Yes
Comparability		
Soil & Groundwater		
Standard operating procedures used	Yes	Yes
Consistent field conditions, sampling staff and laboratory analysis	Sampling was conducted by Foundation Earth Sciences scientists operating under the SOPs. The laboratories remained consistent throughout the investigation	Yes
Same analytical methods used	All analytical methods used between laboratories were based on the USEPA/APHA methods	Yes
Limit of reporting appropriate and consistent	The LORs were the same within each laboratory but differed between the primary and secondary laboratories. The LORs were considered appropriate based on the results.	Yes
Representativeness		
Soil & Groundwater		
Sampling appropriate for media and analytes	All sampling was conducted in accordance with Foundation Earth Sciences SOPs.	Yes
Samples adequately preserved	The majority of samples collected were received by laboratories at the correct temperature. Where relevant, samples were stored in acid-preserved containers supplied by laboratories.	Yes
Precision		
Soil & Groundwater		

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SOPs appropriate and complied with in relation to field duplicates	The recovery of field duplicates was conducted in accordance with Foundation Earth Sciences SOPs s to allow for the assessment of field precision.	Yes
RPDs of the field duplicates within control limits	The RPDs were <50%, the data set was considered to be adequately precise with the exceptions of • Chromium, Copper, Lead & Nickel in soil sample D101 which exceeded the DQOs for this project • Chromium, Copper, Nickel & Zinc in soil sample SS101 and zinc & arsenic, nickel & Zinc in sample GWSS101 which exceeded the DQOs for this project, • However, these exceedances are not considered significant because they are most likely due to the heterogeneity of the sample or low concentrations within the sample.	Partial
RPDs of the laboratory duplicates within control limits	RPDs of the laboratory duplicates were within control limits with the exception of • In envirolab laboratory certificate 289229, the laboratory RPD acceptance as been exceed for Cr in sample 289229-12 for Cu & Ni. Therefore, a triplicate result has been issued.	Partial

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	• laboratory certificate 864760-S, lab sample S22-Fe38590 for zinc. The RPDs reported passes Eurofins Environment Testing QC Metals.	
Accuracy		
Soil & Groundwater		
SOPs appropriate and complied with in relation to field blanks	Yes	Yes
Rinsate Blanks, trip blanks & laboratory blanks free of contaminants	Laboratory blanks & trip blanks were free of contaminants.	Yes
Surrogate spikes within control limits	Surrogate spikes were within control limits	Yes
Laboratory control spikes within control limits	Laboratory Control Spike recoveries were within control limits with the exception of - In envirolab laboratory certificate 289229, percent recovery is not possible to report due to the inhomogeneous nature of the element/s in the sample/s. However, an acceptable recovery was obtained for the LCS.	Partial
Matrix Spike recoveries within control limits	Yes	Yes
Trip spike recoveries within control limits	Yes	Yes

12.12 QA/QC Evaluation / Conclusion

In summary, the findings of the QA/QC evaluation indicated the following:

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- Data Completeness – The data is considered completed.
- Data Comparability – The data set is considered comparable.
- Data Representativeness – The data set is considered representable with the exception of the following:
    - The RPDs were <50%, the data set was considered to be adequately precise with the exceptions of Chromium, Copper, Lead & Nickel in soil sample D101 which exceeded the DQOs for this project; Chromium, Copper, Nickel & Zinc in soil sample SS101 and zinc & arsenic, nickel & Zinc in sample GWSS101 which exceeded the DQOs for this project. However, these exceedances are not considered significant because they are most likely due to the heterogeneity of the sample or low concentrations within the sample.
- Data Precision – The data set is considered precise with the exception of the following:
    - RPDs of the laboratory duplicates were within control limits with the exception of In envirolab laboratory certificate 289229, the laboratory RPD acceptance as been exceed for Cr in sample 289229-12 for Cu & Ni. Therefore, a triplicate result has been issued. laboratory certificate 864760-S, lab sample S22-Fe38590 for zinc. The RPDs reported passes Eurofins Environment Testing QC Metals.
- Data Accuracy – The data set is considered accurate with the exception of the following:
    - In envirolab laboratory certificate 289229, percent recovery is not possible to report due to the inhomogeneous nature of the element/s in the sample/s. However, an acceptable recovery was obtained for the LCS.

It is therefore considered that the data is sufficiently reliable and that the results can be used for the purpose of this project.

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13.0 SITE ASSESSMENT CRITERIA

13.1 SOILS

13.1.1 Health Investigation Levels (HILs)

To assess the contamination status of soils at a site, the NSW EPA refers to the document entitled National Environmental Protection (Assessment of Site Contamination) Measure (NEPM) (Amendment 2013).

During any future soil investigations, the site will be assessed against the NEPM exposure scenario 'Residential A' Health Investigation Levels of the above-mentioned guidelines and specifically refers to the following:

HIL 'A' Residential with garden / accessible soil (home grown produce <10% fruit and vegetable intake (no poultry), also includes childcare centres, preschools and primary schools.

The soil regulatory guidelines are presented in the table below.

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Table 24: Health Investigation Levels (HIL) Criteria for Soil Contaminants

FOUNDATION EARTH SCIENCES	Residential A	Reference
Heavy Metals		
Arsenic	100	NEPM 2013 - Table 1(A)1 HILs
Beryllium	60	NEPM 2013 - Table 1(A)1 HILs
Boron	4500	NEPM 2013 - Table 1(A)1 HILs
Cadmium	20	NEPM 2013 - Table 1(A)1 HILs
Chromium (VI)	100	NEPM 2013 - Table 1(A)1 HILs
Cobalt	100	NEPM 2013 - Table 1(A)1 HILs
Copper	6000	NEPM 2013 - Table 1(A)1 HILs
Lead	300	NEPM 2013 - Table 1(A)1 HILs
Manganese	3800	NEPM 2013 - Table 1(A)1 HILs
Mercury (Inorganic)	40	NEPM 2013 - Table 1(A)1 HILs
Methyl Mercury	10	NEPM 2013 - Table 1(A)1 HILs
Nickel	400	NEPM 2013 - Table 1(A)1 HILs
Selenium	200	NEPM 2013 - Table 1(A)1 HILs
Zinc	7400	NEPM 2013 - Table 1(A)1 HILs
Cyanide (Free)	250	NEPM 2013 - Table 1(A)1 HILs
Polycyclic Aromatic Hydrocarbons (PAHs)		
Carcinogenic PAHs (as Bap TE Q)	3	NEPM 2013 - Table 1(A)1 HILs
Total PAHs	300	NEPM 2013 - Table 1(A)1 HILs
Organochlorine Pesticides		
DDT + DDE + DDD	240	NEPM 2013 - Table 1(A)1 HILs
Aldrin + Dieldrin	6	NEPM 2013 - Table 1(A)1 HILs
Chlordane	50	NEPM 2013 - Table 1(A)1 HILs
Endosulfan	270	NEPM 2013 - Table 1(A)1 HILs
Heptachlor	6	NEPM 2013 - Table 1(A)1 HILs
HCB	10	NEPM 2013 - Table 1(A)1 HILs
Phenols		
Phenols	3000	NEPM 2013 - Table 1(A)1 HILs
Pentachlorophenol	100	NEPM 2013 - Table 1(A)1 HILs
Cresols	400	NEPM 2013 - Table 1(A)1 HILs
Polychlorinated Biphenyls (PCBs)		
PCBs	1	NEPM 2013 - Table 1(A)1 HILs
Other Pesticides		
Atrazine	320	NEPM 2013 - Table 1(A)1 HILs
Chlorpyrifos	160	NEPM 2013 - Table 1(A)1 HILs
Bifenthrin	600	NEPM 2013 - Table 1(A)1 HILs
Herbicides		
2,4,5-T	600	NEPM 2013 - Table 1(A)1 HILs
2,4-D	900	NEPM 2013 - Table 1(A)1 HILs
MCPA	600	NEPM 2013 - Table 1(A)1 HILs
MCPB	600	NEPM 2013 - Table 1(A)1 HILs
Mecoprop	600	NEPM 2013 - Table 1(A)1 HILs
Picloram	4500	NEPM 2013 - Table 1(A)1 HILs
Other Organics		
PDBE (Br1-Br9)	1	NEPM 2013 - Table 1(A)1 HILs

Note - All values are in mg/kg

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13.1.2 Health Screening Levels (HSLs)

The HSLs are applicable to generic land uses such as residential, commercial/industrial or recreational/public open space and different soil types between the ground surface and soils >4 metres below ground level. The HILs have been applied to assess human health risks via the inhalation and direct contact pathways of exposure. For selection of the health screening criteria an assessment of the in-situ soil profile should be undertaken. The soil profile consisted of predominantly ***Clay, Silt***

Table 25: Health Screening Levels (HSL) Criteria

FOUNDATION EARTH SCIENCES	HSL A & HSL B	HSL A & HSL B	HSL A & HSL B	HSL A & HSL B	Soil Saturation Concentration (Csat)	Reference
	0m to <1m	1m to <2m	2m to <4m	4m+		
SAND						
Toluene	160	220	310	540	560	NEPM 2013 - Table 1(A) 3 HSLs
Ethylbenzene	55	NL	NL	NL	64	NEPM 2013 - Table 1(A) 3 HSLs
Xylenes	40	60	95	170	300	NEPM 2013 - Table 1(A) 3 HSLs
Naphthalene	3	NL	NL	NL	9	NEPM 2013 - Table 1(A) 3 HSLs
Benzene	0.5	0.5	0.5	0.5	360	NEPM 2013 - Table 1(A) 3 HSLs
F1	45	70	110	200	950	NEPM 2013 - Table 1(A) 3 HSLs
F2	110	240	440	NL	560	NEPM 2013 - Table 1(A) 3 HSLs
SILT						
Toluene	480	NL	NL	NL	640	NEPM 2013 - Table 1(A) 3 HSLs
Ethylbenzene	NL	NL	NL	NL	69	NEPM 2013 - Table 1(A) 3 HSLs
Xylenes	110	310	NL	NL	330	NEPM 2013 - Table 1(A) 3 HSLs
Naphthalene	5	NL	NL	NL	10	NEPM 2013 - Table 1(A) 3 HSLs
Benzene	0.7	1	2	3	440	NEPM 2013 - Table 1(A) 3 HSLs
F1	50	90	150	290	910	NEPM 2013 - Table 1(A) 3 HSLs
F2	280	NL	NL	NL	570	NEPM 2013 - Table 1(A) 3 HSLs
CLAY						
Toluene	480	NL	NL	NL	630	NEPM 2013 - Table 1(A) 3 HSLs
Ethylbenzene	NL	NL	NL	NL	68	NEPM 2013 - Table 1(A) 3 HSLs
Xylenes	110	310	NL	NL	330	NEPM 2013 - Table 1(A) 3 HSLs
Naphthalene	5	NL	NL	NL	10	NEPM 2013 - Table 1(A) 3 HSLs
Benzene	0.7	1	2	3	430	NEPM 2013 - Table 1(A) 3 HSLs
F1	50	90	150	290	850	NEPM 2013 - Table 1(A) 3 HSLs
F2	280	NL	NL	NL	560	NEPM 2013 - Table 1(A) 3 HSLs

Note - All values are in mg/kg

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13.1.3 (EILs) and (ESLs)

Ecological Investigation Levels (EILs) -

The NEPM 2013 states that "Ecological investigation levels" (EILs) for the protection of terrestrial ecosystems have been derived for common contaminants in soil based on a species sensitivity distribution (SSD) model developed for Australian conditions. EILs have been derived for As, Cu, CrIII, DDT, naphthalene, Ni, Pb and Zn

Insufficient data was available to derive ACLs for arsenic (As), DDT, lead (Pb) and naphthalene. As a result, the derived EILs are generic to all soils and are presented as total soil contaminant concentrations in Tables 1B (4) and 1B (5) within the NEPM 2013.

For the purposes of EIL derivation, a contaminant incorporated in soil for at least two years is considered to be aged for the purpose of EIL derivation. The majority of contaminated sites are likely to be affected by aged contamination. Fresh contamination is usually associated with current industrial activity and chemical spills.

The following process describes the method for calculation of site specific EILs.

A. EILs for Ni, Cr III, Cu, Zn and Pb aged contamination (>2 years)

Steps 1–4 below describe the process for deriving site-specific EILs for the above elements using Tables 1B (1) – 1B (4), which can be found at the end of the NEPM 2013.

1. Measure or analyse the soil properties relevant to the potential contaminant of concern (pH, CEC, organic carbon, clay content). Sufficient samples need to be taken for these determinations to obtain representative values for each soil type in which the contaminant occurs.

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2. Establish the sample ACL for the appropriate land use and with consideration of the soil-specific pH, clay content or CEC. The ACL for Cu may be determined by pH or CEC and the lower of the determined values should be selected for EIL calculation. Note that the ACL for Pb is taken directly from Table 1(B) 4.

3. Calculate the contaminant ABC in soil for the particular contaminant and location from a suitable reference site measurement or other appropriate method.

4. Calculate the EIL by summing the ACL and ABC:

$$EIL = ABC + ACL$$

B. EILs for As, DDT and naphthalene

EILs for aged contamination for DDT and naphthalene are not available and the adopted EIL is based on fresh contamination taken directly from Table 1B (5). The EILs for As, DDT and naphthalene are generic i.e. they are not dependent on soil type and are taken directly from Table 1B (5). Only EILs for fresh contamination are available for As, DDT and naphthalene due to the absence of suitable data for aged contaminants.

Ecological Screening Levels (ESLs) -

Ecological screening levels (ESLs) are presented based on a review of Canadian guidance for petroleum hydrocarbons in soil and application of the Australian methodology (Schedule B5b) to derive Tier 1 ESLs for BTEX, benzo(a)pyrene and F1 and F2 (Warne 2010a, 2010b)

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The Canadian Council of the Ministers of the Environment (CCME) has adopted risk-based TPH standards for human health and ecological aspects for various land uses in the *Canada-wide standard for petroleum hydrocarbons (PHC) in soil* (CCME 2008) (CWS PHC). The standards established soil values including ecologically based criteria for sites affected by TPH contamination for coarse- and fine-grained soil types.

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Table 26: Ecological Investigation Levels (EIL) and Ecological Screening Levels (ESL) Criteria

FOUNDATION EARTH SCIENCES	Contaminant Age/Soil Texture	National parks and areas of high conservation value	Urban residential and open public spaces	Commercial and industrial	Reference
Ecological Investigation Levels (EILs)					
Heavy Metals					
Arsenic	**Fresh**	20	50	80	NEPM 2013 - Table 1(B) 1-5 EILs
	Aged	40	100	160	NEPM 2013 - Table 1(B) 1-5 EILs
Chromium (III)	**Fresh**	Site Specific Calculation Required			NEPM 2013 - Table 1(B) 1-5 EILs
	Aged				NEPM 2013 - Table 1(B) 1-5 EILs
Copper	**Fresh**	Site Specific Calculation Required			NEPM 2013 - Table 1(B) 1-5 EILs
	Aged				NEPM 2013 - Table 1(B) 1-5 EILs
Lead	**Fresh**	110	270	440	NEPM 2013 - Table 1(B) 1-5 EILs
	Aged	470	1100	1800	NEPM 2013 - Table 1(B) 1-5 EILs
Nickel	**Fresh**	Site Specific Calculation Required			NEPM 2013 - Table 1(B) 1-5 EILs
	Aged				NEPM 2013 - Table 1(B) 1-5 EILs
Zinc	**Fresh**	Site Specific Calculation Required			NEPM 2013 - Table 1(B) 1-5 EILs
	Aged				NEPM 2013 - Table 1(B) 1-5 EILs
Polycyclic Aromatic Hydrocarbons (PAHs)					
Naphthalene	**Fresh**	10	170	370	NEPM 2013 - Table 1(B) 1-5 EILs
	Aged	10	170	370	NEPM 2013 - Table 1(B) 1-5 EILs
Organochlorine Pesticides					
Ecological Screening Levels (ESLs) and Management Limits					
F1 (C_6-C_{10})	**Coarse**				NEPM 2013 - Table 1(B) 6-7 EILs
	Fine	125*	180*	215*	NEPM 2013 - Table 1(B) 6-7 EILs
F1 (C_6-C_{10})	**Coarse**		700	700	NEPM 2013 - Table 1(B) 6-7 EILs
(Management Limits)	**Fine**	-	800	800	NEPM 2013 - Table 1(B) 6-7 EILs
F2 (>C_{10}-C_{16})	**Coarse**				NEPM 2013 - Table 1(B) 6-7 EILs
	Fine	25*	120*	170*	NEPM 2013 - Table 1(B) 6-7 EILs
F2 (>C_{10}-C_{16})	**Coarse**		1000	1000	NEPM 2013 - Table 1(B) 6-7 EILs
(Management Limits)	**Fine**	-	1000	1000	NEPM 2013 - Table 1(B) 6-7 EILs
F3 (>C_{16}-C_{34})	**Coarse**	-	300	1700	NEPM 2013 - Table 1(B) 6-7 EILs
	Fine	-	1300	2500	NEPM 2013 - Table 1(B) 6-7 EILs
F3 (>C_{16}-C_{34})	**Coarse**		2500	3500	NEPM 2013 - Table 1(B) 6-7 EILs
(Management Limits)	**Fine**	-	3500	5000	NEPM 2013 - Table 1(B) 6-7 EILs
F4 (>C_{34}-C_{40})	**Coarse**	-	2800	3300	NEPM 2013 - Table 1(B) 6-7 EILs
	Fine	-	5600	6600	NEPM 2013 - Table 1(B) 6-7 EILs
F4 (>C_{34}-C_{40})	**Coarse**		10000	10000	NEPM 2013 - Table 1(B) 6-7 EILs
(Management Limits)	**Fine**	-	10000	10000	NEPM 2013 - Table 1(B) 6-7 EILs
Benzene	**Coarse**	10	50	75	NEPM 2013 - Table 1(B) 6-7 EILs
	Fine	10	65	95	NEPM 2013 - Table 1(B) 6-7 EILs
Toluene	**Coarse**	10	85	135	NEPM 2013 - Table 1(B) 6-7 EILs
	Fine	65	105	135	NEPM 2013 - Table 1(B) 6-7 EILs
Ethylbenzene	**Coarse**	1.5	70	165	NEPM 2013 - Table 1(B) 6-7 EILs
	Fine	40	125	185	NEPM 2013 - Table 1(B) 6-7 EILs
Xylenes	**Coarse**	10	105	180	NEPM 2013 - Table 1(B) 6-7 EILs
	Fine	1.6	45	95	NEPM 2013 - Table 1(B) 6-7 EILs
Benzo(a)pyrene	**Coarse**	0.7	0.7	1.4	NEPM 2013 - Table 1(B) 6-7 EILs
	Fine	0.7	0.7	1.4	NEPM 2013 - Table 1(B) 6-7 EILs

Notes

1 Urban residential/public open space is broadly equivalent to the HIL-A, HIL-B and HIL-C land use scenarios in Table 1A(1) Footnote 1 and as described in Schedule B7.

2 Aged values are applicable to arsenic contamination present in soil for at least two years. For fresh contamination refer to Schedule B5c.

3 Insufficient data was available to calculate aged values for DDT and naphthalene, consequently the values for fresh contamination should be used.

4 Insufficient data was available to calculate ACLs for As, DDT and naphthalene. The EIL should be taken directly from Table 1B(5).

5 ESLs are of low reliability except where indicated by * which indicates that the ESL is of moderate reliability.

6 '-' indicates that insufficient data was available to derive a value.

7 To obtain F1, subtract the sum of BTEX concentrations from C6-C10 fraction and subtract naphthalene from >C10-C16 to obtain F2.

8 Management limits are applied after consideration of relevant ESLs and HSLs

9 Separate management limits for BTEX and naphthalene are not available hence these should not be subtracted from the relevant fractions to obtain F1 and F2.

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13.2 Asbestos

Health screening for asbestos in soil, which are based on scenario-specific likely exposure levels, are adopted from the WA DoH guidelines and are referred in Table 7 in Schedule B1. The following health screening levels for asbestos can be seen below:

Table 27: Health Screening Levels for Asbestos

	Health Screening Levels (w/w)			
Form of Asbestos	**Residential A**	**Residential B**	**Recreational C**	**Commercial/Industrial D**
Bonded ACM	0.01%	0.04%	0.02%	0.05%
FA and AF (Friable Asbestos)	0.001%			
All forms of asbestos	No visible asbestos for surface soil			

13.3 Aesthetic Considerations

Schedule B1 in NEPC (2013) requires the consideration of aesthetic issues arising from soils and groundwater within the site. The following assessment criteria were adopted when considering aesthetics:

- no persistently malodourous soils or extracted groundwater;
- no persistent hydrocarbon sheen on surface water;
- no staining or discolouration in soils, taking into consideration the natural state of the soil; and
- no large or frequently occurring anthropogenic materials present (to the extent practicable).

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13.4 Groundwater

The NSW DECC has endorsed the use of the Groundwater Investigation Levels (GILs) given in the 1999 NEPM '*Schedule B(1) Guideline on the Investigation Levels for Soil and Groundwater'* (Amendment 2013) and the water quality trigger levels given in the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZECC & ARMCANZ, 2000) and recently updated to ANZG (2018). These Guidelines provide criteria for:

- Aquatic ecosystems – both marine and fresh waters

The NEPM advises that 'when assessing groundwater contamination, the GILs are to be applied at the point of extraction and as response levels at the point of use, or where there is a likelihood of an adverse environmental effect at the point of discharge'.

For assessing groundwater quality, it is first necessary to assess the potential uses of groundwater downgradient of the site being assessed.

Potential uses of groundwater downgradient of the site include:

- Discharge to water bodies sustaining aquatic ecosystems particularly Fresh Water.
- Extraction of groundwater by local users.

The threshold concentrations presented in the ANZG (2018) Fresh and Marine Waters Quality Guidelines are considered applicable for the protection of aquatic ecosystems of the receiving waters. As these guidelines apply to receiving waters, it is generally conservative to apply these to groundwater discharging to receiving waters. It is important to note that these are not threshold values at which an environmental problem is likely to occur if exceeded, rather, if the trigger values are exceeded, then further action

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is required which may include either further site-specific investigations to assess whether or not there is an actual problem or management / remedial action should be undertaken.

It is considered that ***Fresh Water trigger*** values are applicable for investigating chemical concentrations in groundwater at the site. The nearest downgradient watercourse is a stormwater channel that is located beneath the site running through the central portion of the site in east west direction and along the western boundary in a north south direction. The stormwater channels appear to drain into Salt Pan Creek located approximately 531m south west of the site, which eventually discharges into the Georges River. It is understood that the NSW EPA policy is that the trigger values for the protection of 95% of aquatic ecosystems should be used as groundwater assessment criteria when considering moderately or highly disturbed receiving environments. The receiving waters for groundwater at the site are considered to be moderately disturbed ecosystems and the ANZG (2018) 95% protection values are therefore considered appropriate groundwater assessment criteria for the site.

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14.0 SOIL RESULTS

The laboratory certificates are presented in **Appendix H** – NATA Accredited Laboratory Certificates.

A summary of the results together with the assessment criteria adopted are provided in **Appendix K** – Summary Tables.

14.1 HEAVY METALS

14.1.1 Heath Investigation Levels

As indicated in Table K1&K2 all the heavy metals were below the respective LOR and/or the Health Investigation Level (HIL) for a residential development, that being the HIL 'A' with the exception of

- Previous Benviron Group BH23 (0.2m) has Chromium at 110mg/kg which exceed the criteria of 100mg/kg
- Previous Benviron Group BH24 (0.3m) has Chromium at 120mg/kg which exceed the criteria of 100mg/kg
- Previous Benviron Group SS2 (Split of BH11) has Chromium at 110mg/kg which exceed the criteria of 100mg/kg

The Chromium data from has been assessed statistically against the relevant assessment criteria. As shown in Table K1. The 95% UCL of the mean concentrations of chromium from the fill soil material, ***was below the HIL A criteria*** and the ***standard deviation was***

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less than 50% of the HIL A criteria and no single concentration exceeded the HIL A criteria by more than 250%.

14.1.2 Ecological Investigation Levels

The EILs for Copper, Zinc, Lead, Nickel and Chromium III were derived by adding the Ambient Background Concentration (ABC) to the Added Contaminant Limits (ACL), as per the following formula:

EIL = ABC + ACL

The ABC for the site has been determined by recovering a sample from an appropriate reference point, that being:

- Previous Benviron Group EIL BH31/BH5 (0.2m)
- Previous Benviron Group EIL BH31/BH5 (0.5m)

The soil samples collected from BH31/BH5 were analysed for pH, CEC & %CLAY to provide the background parameters for the soil on the site.

As shown in Table K1&K2 all of the locations were below the site derived EILs for a urban residential and public open space development.

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14.2 TRH, BTEX, NAPHTHALENE &/OR BENZO (A) PYRENE

14.2.1 Heath Screening Levels & Management Limits

As indicated in Table K1&K2, the F1 (C_6-C_{10}), F2 (>C_{10}-C_{16}), benzene, toluene, ethyl benzene, xylenes and naphthalene concentrations were below the HSL 'A' for a Clay and Silt soil profile with a source depth of "0m to <1m" .

As shown in Table K1&K2, the F1 (C_6-C_{10}), F2 (>C_{10}-C_{16}), F3 (C_{16}-C_{34}), F4 (C_{34}-C_{40}), concentrations were below the Management Limits for fine-grained soil in an urban residential and public open space development.

14.2.2 Ecological Screening Levels

As indicated in Table K1, the F1 (C_6-C_{10}), F2 (>C_{10}-C_{16}), F3 (C_{16}-C_{34}), F4 (C_{34}-C_{40}), benzene, toluene, ethyl benzene, xylenes and benzo(a)pyrene concentrations were below the ESLs for fine soil in a residential development.

14.3 PAH, OCP & PCB

14.3.1 Heath Investigation Levels

As indicated in Table K1&K2, the concentrations of the benzo(a)pyrene (as TEQ), PAH, OCP & PCB were below the Health Investigation Level (HIL) for a residential, parkland and public open space development, that being the HIL 'A' and/or the limit of reporting (LOR).

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14.3.2 EILs & ESLs

As indicated in Table K1&K2, the concentrations of arsenic, naphthalene and DDT were below the EILs & ESLs for a residential, parkland and public open space development.

14.4 Asbestos

As shown in Table K1&K2, no asbestos was detected in the soil samples tested

15.0 GROUNDWATER RESULTS

The laboratory certificates are presented in **Appendix H** – NATA Accredited Laboratory Certificates.

A summary of the results together with the assessment criteria adopted are provided in **Appendix K** – Summary Tables.

15.1 HEAVY METALS

As indicated in Table K3, dissolved chromium, copper, nickel & zinc was marginally detected at concentrations above/ or equal the respective groundwater investigation level for the 95% protection of fresh water aquatic ecosystems in GW1, GW2 & GW3 and/or the associated field duplicate samples.

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The remaining metals concentrations were either below the laboratory limits of reporting (LOR) or their respective assessment criteria.

15.2 TRH & BTEXN

As shown In Table K3, the BTEXN concentrations were either less than the laboratory limit of reporting (LOR) and/or below the assessment criteria.

As indicated in Table K3, the TRH F1 (C_6-C_{10}), F2 (>C_{10}-C_{16}), benzene, toluene, ethyl benzene, xylenes and naphthalene concentrations were below the HSL 'A' for a Clay and Silt profile with a source depth of "2m to <4m".

15.3 PAH, OCP & PCB

As indicated in Table K3, the PAH, OCP & PCB concentrations were either less than the laboratory limit of reporting (LOR) and/or below the assessment criteria.

15.4 VOCs in Groundwater

As indicated in Table K4, the VOC concentrations were either less than the laboratory limit of reporting (LOR) and/or below the adopted assessment.

Refer to **Appendix K** – Summary Tables.

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16.0 PRELIMINARY SOIL CLASSIFICATION

A preliminary soil classification on the sampling completed during the DSI has been completed Previous Benviron Group DSI and FES update DSI. This preliminary soil classification refers to forty (40) borehole locations spread across the site and were labelled BH1 to BH30 and BH101 to BH110.

Based on the previous & current site uses the samples were analysed for a selection of Heavy Metals, Total Petroleum Hydrocarbons (TRH), Benzene, Toluene, Ethylbenzene, Xylene (BTEX), Polycyclic Aromatic Hydrocarbons (PAH), Organochlorine Pesticides (OC), Polychlorinated Biphenyls (PCB) & Asbestos.

With reference to the site figures, laboratory analysis, table K5 and with reference to NSW EPA guidelines, the insitu fill soil materials found within the site have been classified as follows;

- Soil fill material located within the vicinity of Benviron Group borehole locations BH1, BH2, BH6, BH16, BH18, BH26 to BH30 (Benviron Group) and BH101 to BH105, BH107 & BH110 (FES) & are classified as **General Solid Waste (non-putrescible).**
- Soil fill material located within the vicinity of Benviron Group borehole locations BH5, BH7 to BH15, BH17, BH19 to BH25 (Benviron Group) and BH106, BH108, BH109 are classified as **Restricted Solid Waste.**
- This soil classification is preliminary in nature and is recommended that further works (TCLP analysis) are undertaken during the excavation phase of the building to further classify soils for offsite disposal.

Refer to **Appendix K** – Summary Tables.

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17.0 DISCUSSION

17.1 SOILS

The soil laboratory results were below the adopted detection limits and/or the relevant guideline criteria.

No identified asbestos was detected in the soil samples analysed. No fibro cement fragments were observed in the fill material located within the boreholes. The assessment is limited to the boreholes.

Reference should be made to Figure 2 for a copy of the site plans.

17.2 GROUNDWATER QUALITY

The following lines of evidence support the low-risk conclusion in relation to groundwater and site suitability:

- The groundwater monitoring undertaken by Foundation Earth Sciences has indicated levels of dissolved metals marginally above groundwater investigation levels for chromium, copper, nickel and zinc. The elevated levels are considered to be related to offsite regional contaminant concentrations and/or background levels & therefore of limited concern in relation to the proposed development. The levels of dissolved metals detected by FES have reduced from the Benviron Group DSI monitoring in 2016;

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- Results for groundwater samples did indicate that levels were above water quality guidelines for ecosystem protection but in compliance with guidelines related to the protection of human health.
- The results for the groundwater wells are similar and indicate that the site is not contributing to the quality of groundwater in the area. It is likely that the quality of the groundwater at this site is similar to the entire area and may be a result of the geology.
- During construction of the proposed development, management of any water that seeps into the excavation will need to be considered as the quality of groundwater means it cannot be discharged directly to the stormwater system. It will need to be managed through treatment or via appropriate disposal techniques.

17.3 DUTY TO REPORT

Under Section 60 of the Contaminated Land Management Act 1997, the owner of the land is required to notify contamination in circumstances as indicated in the NSW EPA (2015) *Guidelines on Duty to Report Contamination under the Contaminated Land Management Act 1997*.

Sites that are significantly impacted by soil, groundwater and ground gases are likely to require notification to the NSW EPA under section 60 of the CLM Act. A decision process for use by site owners or responsible persons considering reporting contamination under section 60 is provided in Appendix 1 (Figure 1) of the aforementioned guidelines.

No notification to NSW EPA is recommended based on the sampling and investigation to date.

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18.0 CONCLUSION

Based on the historical review, environmental information, proposed development and laboratory results of the investigation, the site is ***suitable*** for the proposed development, subject to the following:

- Any soil requiring removal from the site, as part of future site works, should be classified in accordance with the "Waste Classification Guidelines, Part 1: Classifying Waste" NSW EPA (2014).
- An unexpected finds protocol has been included in **Appendix M** and should be followed during the construction phase of the development.

Thank you for the opportunity of undertaking this work. We would be pleased to provide further information on any aspects of this report.

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19.0 LIMITATIONS

To the best of our knowledge information contained in this report is accurate at the date of issue, however, subsurface conditions, including groundwater levels and contaminant concentrations, can change in a limited time. This should be borne in mind if the report is used after a protracted delay.

There is always some disparity in subsurface conditions across a site that cannot be fully defined by investigation. Hence it is unlikely that measurements and values obtained from sampling and testing during environmental works carried out at a site will characterise the extremes of conditions that exist within the site.

There is no investigation that is thorough enough to preclude the presence of material that presently or in the future, may be considered hazardous at the site. Since regulatory criteria are constantly changing, concentrations of contaminants presently considered low may, in the future, fall under different regulatory standards that require remediation.

Opinions expressed herein are judgements and are based on our understanding and interpretation of current regulatory standards and should not be construed as legal opinions.

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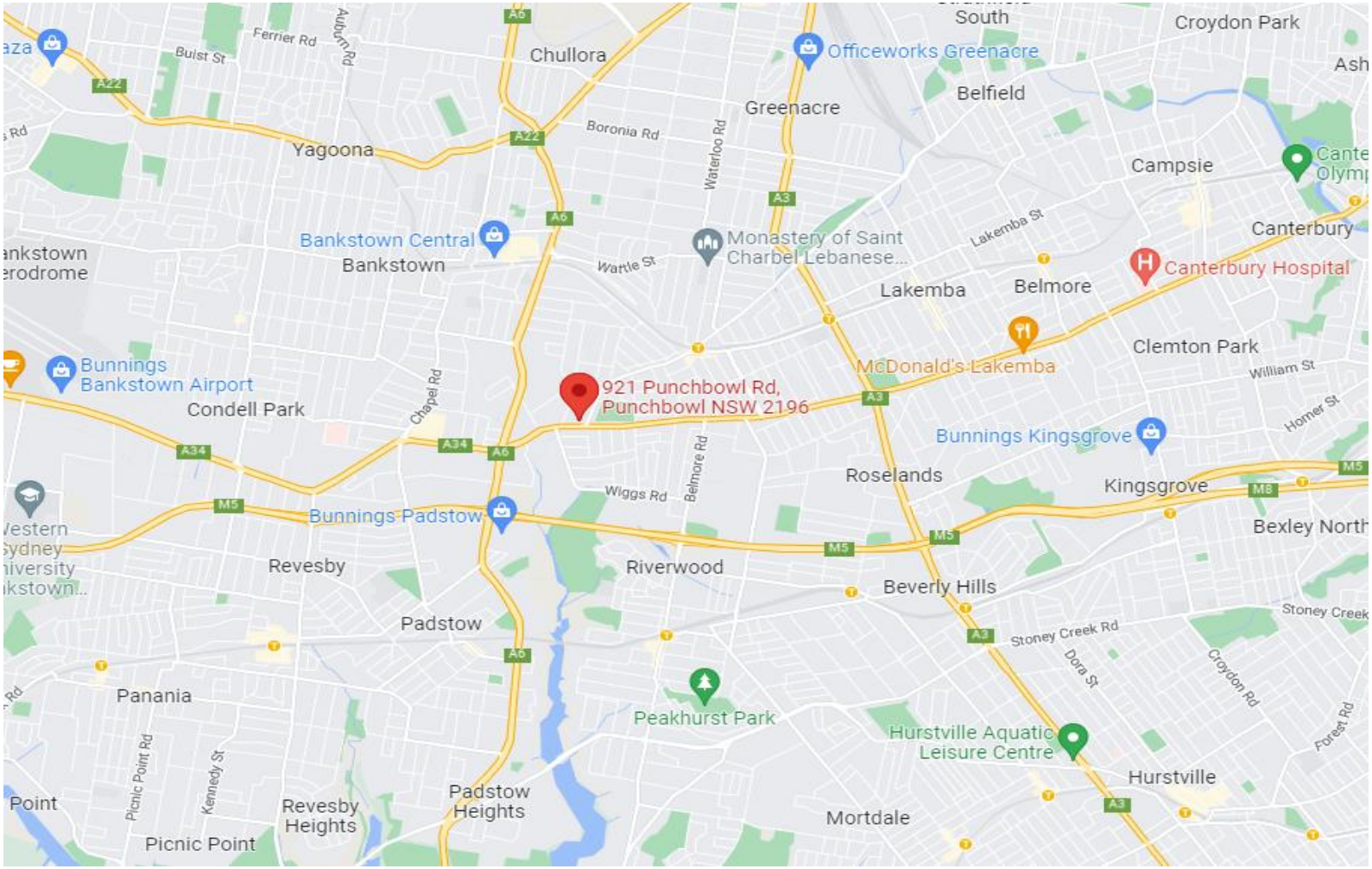
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FIGURE 1: SITE LOCATION

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Key

Site Location

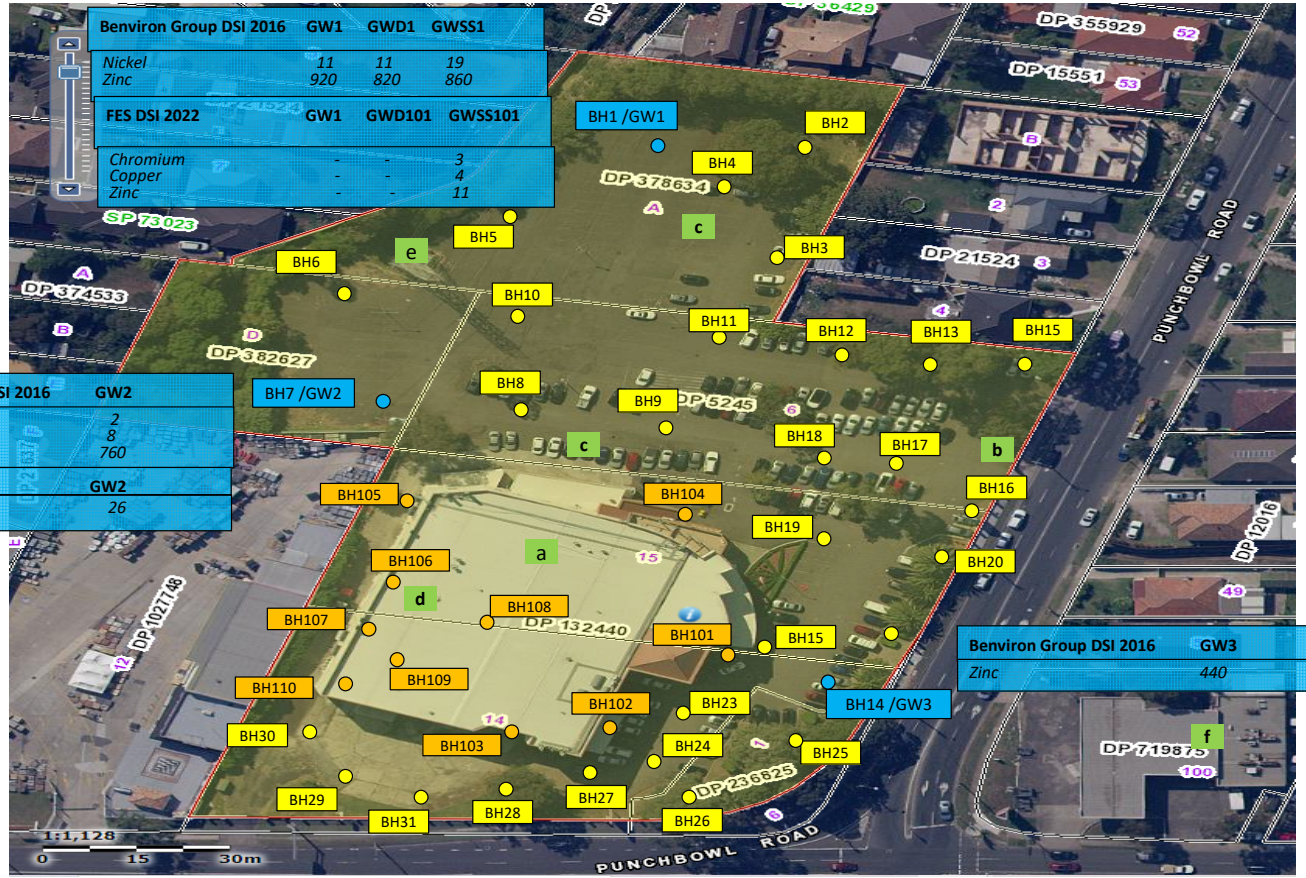
FOUNDATION EARTH SCIENCES

DRAWN EY	**SITE LOCATION**
FIGURE 1	Westwood Pty Ltd
Job # E2232-2	921 Punchbowl Road, Punchbowl NSW

FIGURE 2: SITE FEATURES, BOREHOLE LOCATIONS & EXCEEDANCE PLAN

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Feature No	Details
a	Club/Commercial
b	Driveway
c	Car park
d	Loading Dock
e	Transmission Tower
f	Service Station



Groundwater Exceedance (ug/L)

Key			
Site Location	FOUNDATION EARTH SCIENCES	DRAWN EY	Site Features, Borehole Locations & Exceedance Plan
Previous Benviron Group DSI 2016		Figure 2	Westwood Pty Ltd
Previous BG DSI Soil & Water 2016		Job # E2232-2	921 Punchbowl Road, Punchbowl NSW
FES DSI BHs 2022			

APPENDIX A: DBYD PLANS

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TPG Corporation Limited
ABN 46 093 058 069
PO Box 1844 Macquarie Centre
North Ryde NSW 2113
Phone: **1800 786 306** (24hrs)

Date: 15/02/2022

Enquirer Name: Emerson You
Enquirer Address: 119/14 Loyalty Road
Email: emerson@foundationes.com.au
Phone: +61409784783

Dear Emerson You

The following is our response on behalf of each of the TPG carriers (listed below) to your Dial Before You Dig enquiry – Sequence 208140808 .
It is provided to you on a confidential basis under the following conditions and must be shredded or securely disposed of after use.

Assets Affected:

Carriers (each a "TPG carrier") and assets affected:

PIPE Networks

Location: 921 Punchbowl Road

According to our records, the underground assets in the vicinity of the location stated in your enquiry are **AFFECTED**. Please read the below information and disclaimers in addition to the any attached plans provided prior to any construction activities.

IMPORTANT INFORMATION

- The information provided is valid for 30 days from the date of this response. If your work site area changes or your construction activity is beyond 30 days please contact Dial Before You Dig on 1100 or www.1100.com.au to re-submit a new enquiry.
- Due to the nature of underground assets and the age of some assets and records, our plans are indicative of the general location only and may not show all assets in the location. You should not solely rely on these plans when undertaking construction works. It is also inaccurate to assume depth or that underground network conduit and cables follow straight lines, and careful on-site investigations are essential to locate an asset's exact position prior to excavation. It is your responsibility to locate and confirm the exact location of our infrastructure using non-destructive techniques. We make no warranty or guarantee that our plans are complete, current or error free, and to the maximum extent permitted by law we exclude all liability to you, your employees, agents and contractors for any loss, damage or claim arising out of or in connection with using our plans.
- Please note that some of our conduits carry electrical cables and gas pipes. Please exercise extreme care when working within the vicinity of these conduit and take into account the minimum clearance distances under Duty Of Care below.
- You (and your employee and contractors) must not open, move, interfere, alter or relocate any of our assets without our prior approval.
- **Note** It is a criminal offence under the *Criminal Code Act 1995 (Cth)* to tamper or interfere with communication facilities owned by a carrier. Heavy penalties may apply for breach of this prohibition, and any damages suffered, or costs incurred by us as a result of such unauthorised works may be claimed against you.

DAMAGE

- You must report immediately any damage to our network on **1800 786 306** (24hrs). We will hold you liable and seek compensation for any loss or damage to our network, our property and our customers that is caused by or arises out of your activities.

DUTY OF CARE

You have a duty of care to carefully locate, validate and protect our assets when carrying out works near our infrastructure. For construction activities that may impact on or interfere with our network, you will need to call us on **1800 786 306** to discuss a suitable engineering solution, lead time and cost involved. The below precautions must be taken when working in the vicinity of our network:

- Contact us on **1800 786 306** to discuss and obtain relevant information and plans on our infrastructure in a particular location if the information provided in this response is insufficient.
- Physically locate and mark on-site our network infrastructure using non-destructive techniques i.e. pot holing or hand digging every 5 metres prior to commencing any construction activities. Assets located must be marked to AS5488 standard. **NO CONSTRUCTION WORK IS ALLOWED UNTIL THIS STEP IS COMPLETED**. You must use an approved telecommunications accredited locator, or we can provide a locator for you at your expense. If we provide you with a locator, and this locator attended the site and is proven to be grossly negligent in physically locating and marking our infrastructure, then to the extent any TPG carrier is liable for this locator's negligence, acts and omissions, the total liability aggregated for all TPG carriers is limited, at our option, to attend the site and re-mark the infrastructure or to pay for a third party to re-mark the infrastructure.
- If you require us to locate or monitor our infrastructure, please allow five business days' notice for us to respond.
- Ensure all information, including our network requirements and any associated plans provided by us are kept confidential and remain on-site throughout your construction works.

- Use suitably qualified and supervised professionals, particularly if you are working near assets that contain electricity cables or gas pipes.

- Ensure the below minimum clearance distances between the construction activities and the actual location of our assets are met. If you need clearance distances for our above ground assets, or if the below distances cannot be met, call **1800 786 306** to discuss.

  Minimum assets clearance distances.

  - 300mm when laying asset inline, horizontal or vertical.
  - 1000mm when operating vibrating equipment. Eg: vibrating plates. No vibrating equipment on top of asset.
  - 1000mm when operating mechanical excavators or jackhammers/pneumatic breakers.
  - 2000mm when performing directional bore in-line, horizontal and vertical.
  - No heavy vehicle over 3 tonnes to be driven over asset with less than 600mm of cover.

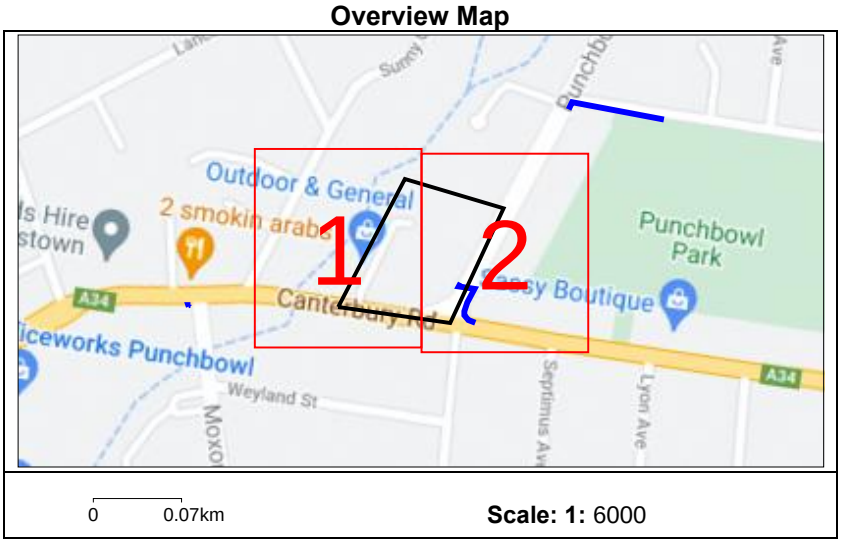
- Reinstate exposed TPG network infrastructure back to original state.

PRIVACY & CONFIDENTIALITY

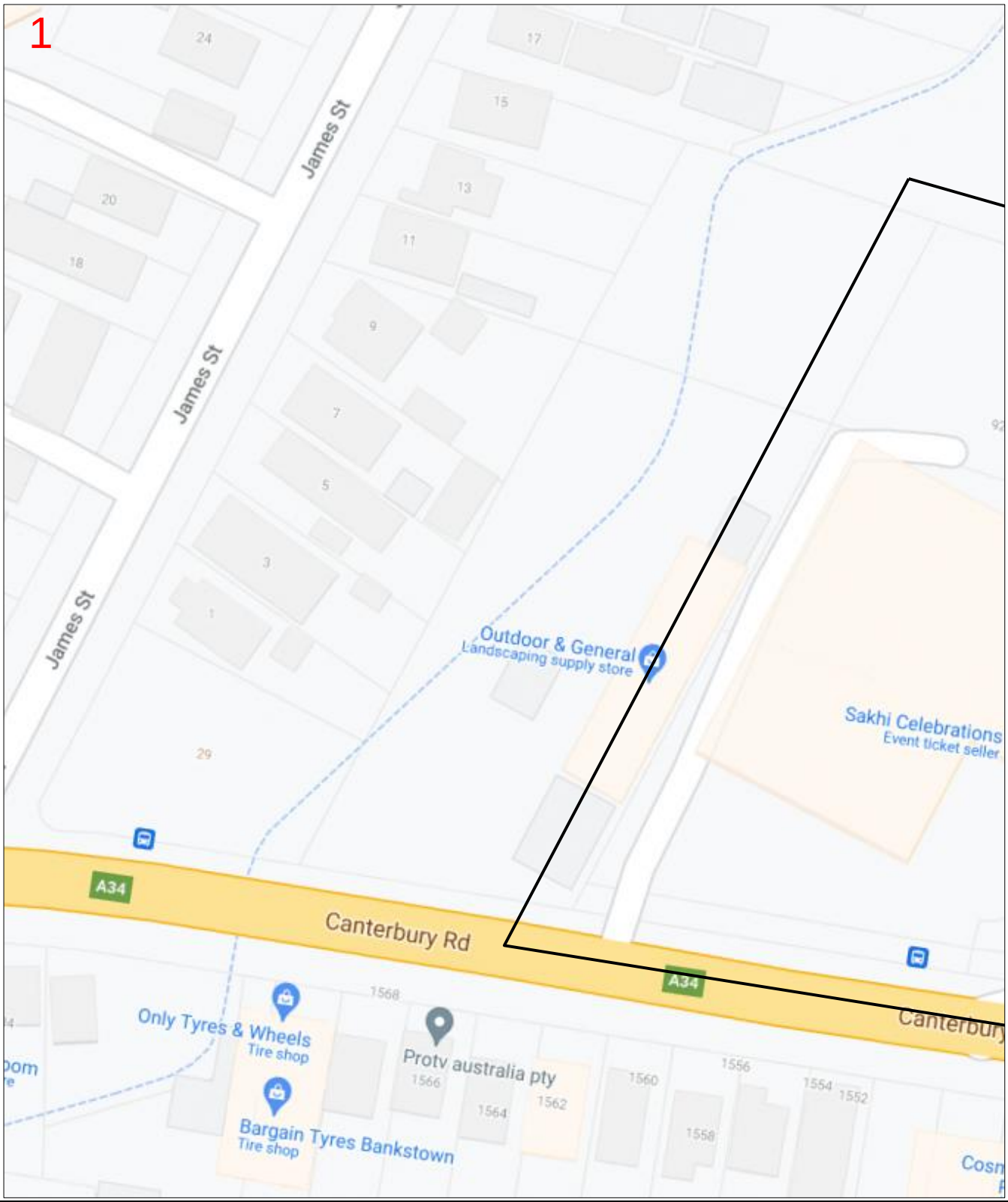
- Privacy Notice – Your information has been provided to us by Dial Before You Dig to respond to your Dial Before You Dig enquiry. We will keep your personal information in accordance with TPG's privacy policy, see www.tpg.com.au/about/privacy.

- Confidentiality – The information we have provided to you is confidential and is to be used only for planning and designing purposes in connection with your Dial Before You Dig enquiry. Please dispose of the information by shredding or other secure disposal method after use. We retain all intellectual property rights (including copyrights) in all our documents and plans.

Overview Map



TPG Corporation Limited



Enquiry Number: 208140808

Map Sheet: 1

Scale: 1: 750

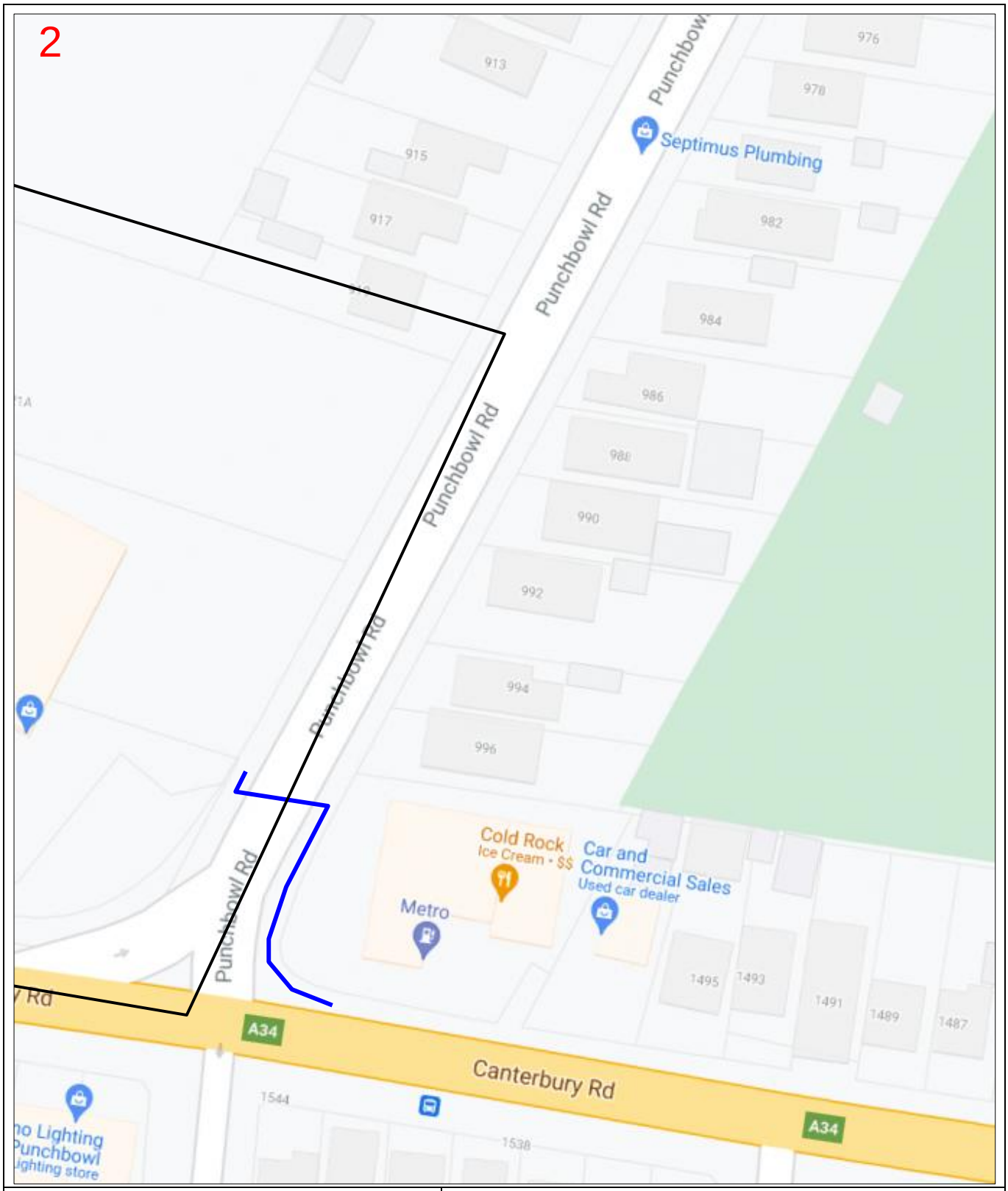
0 0.008km

N

LEGEND

DBYD Work Area			
AAPT/PowerTel Pit		TransACT Pit	
AAPT/PowerTel Duct		TransACT Duct	
DDA Pit		SOUL Pattinson Telecoms Pit	
DDA Duct		SOUL Pattinson Telecoms Duct	
Agile/Adam Pit		PIPE Networks Pit	
Agile/Adam Duct		PIPE Networks Duct	

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Enquiry Number: 208140808

Map Sheet: 2

Scale: 1: 750

0 0.008km

N

LEGEND

DBYD Work Area

AAPT/PowerTel Pit	TransACT Pit
AAPT/PowerTel Duct	TransACT Duct
DDA Pit	SOUL Pattinson Telecoms Pit
DDA Duct	SOUL Pattinson Telecoms Duct
Agile/Adam Pit	PIPE Networks Pit
Agile/Adam Duct	PIPE Networks Duct

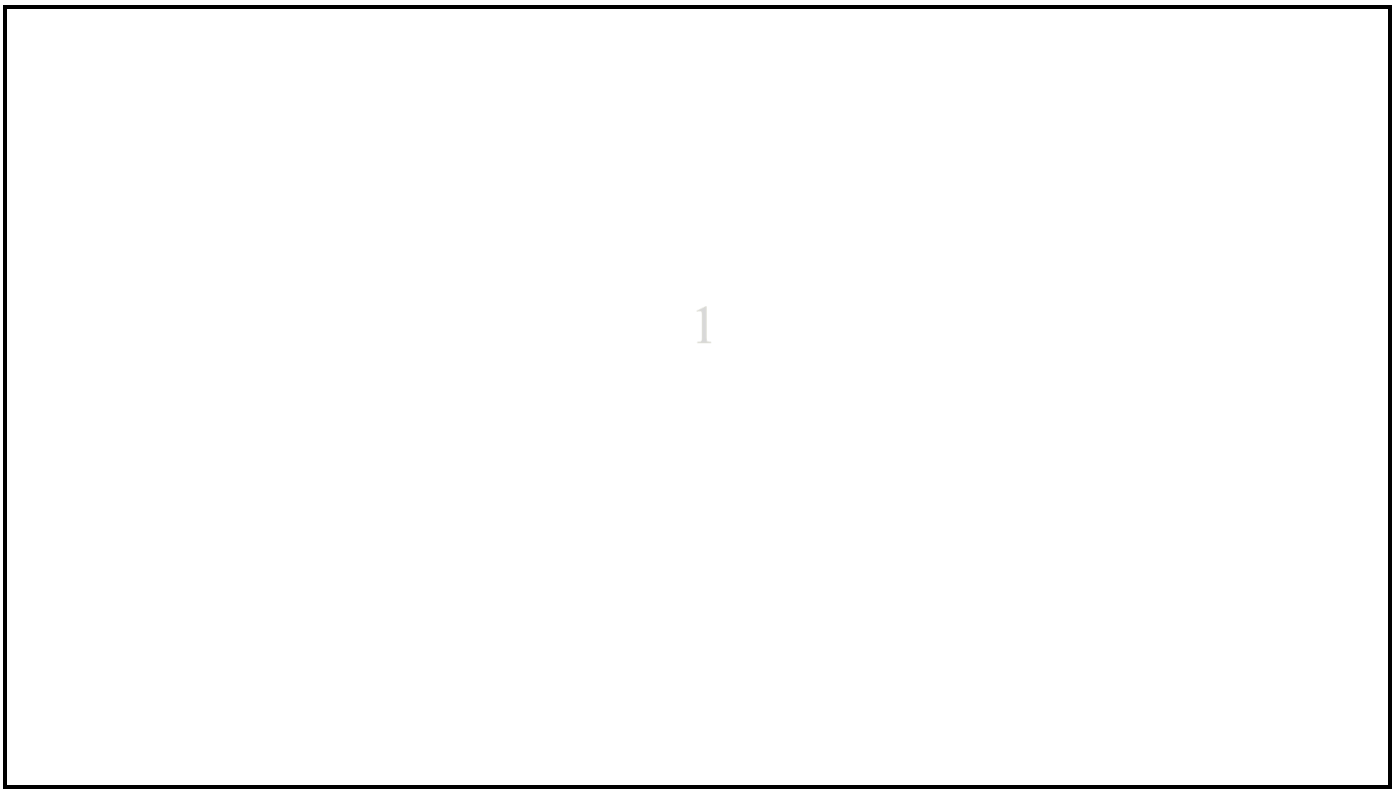
DISCLAIMER: *No responsibility/liability is taken by TPG Corporation Limited for any inaccuracy, error, omission or action based on the information supplied in this correspondence. © 2020 TPG Corporation Limited.*

To:	Emerson You
Phone:	Not Supplied
Fax:	Not Supplied
Email:	emerson@foundationes.com.au

Dial before you dig Job #:	31394406
Sequence #	208140809
Issue Date:	15/02/2022
Location:	921 Punchbowl Road , Punchbowl , NSW , 2196

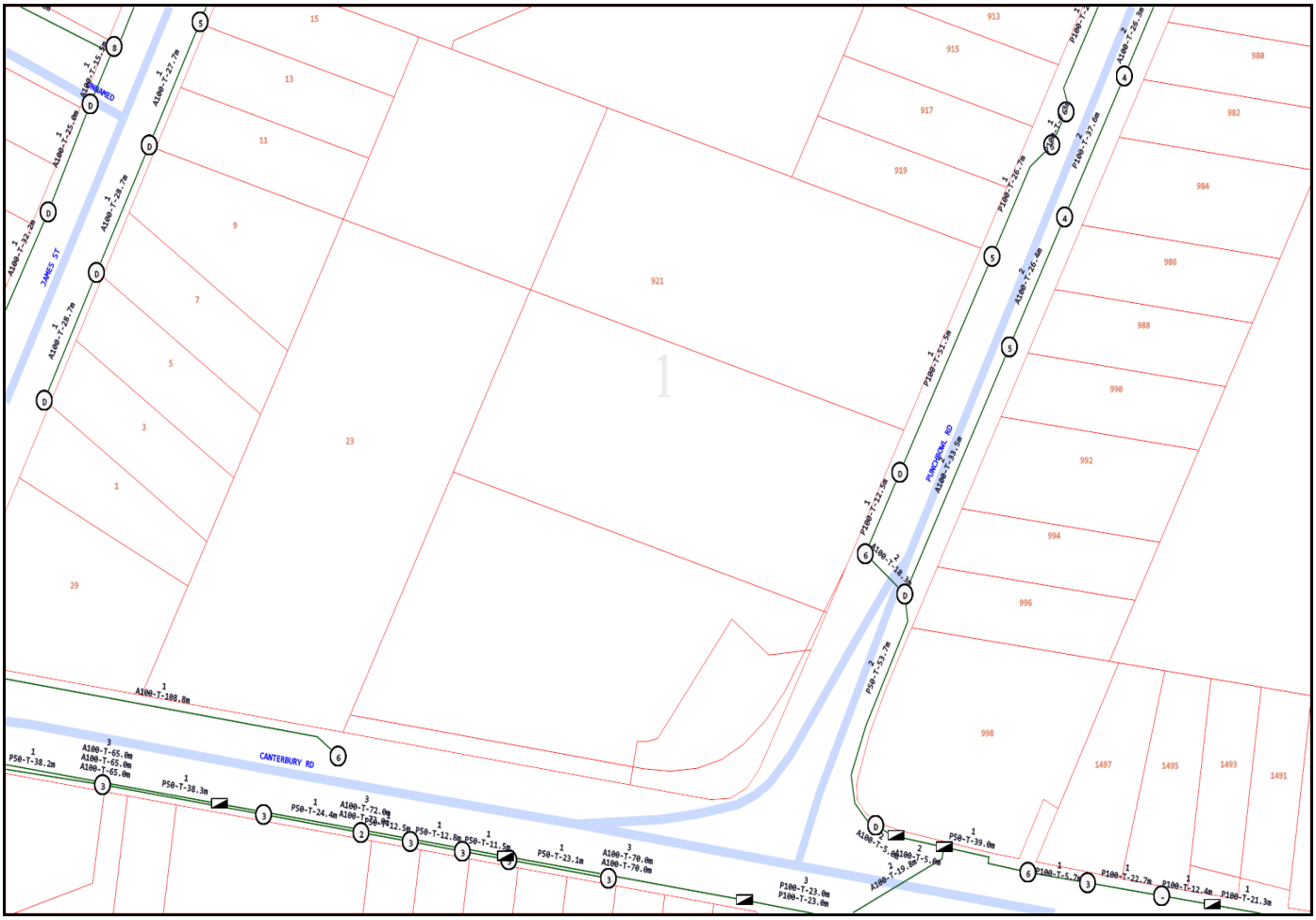
DIAL BEFORE YOU DIG www.1100.com.au

Indicative Plans



LEGEND

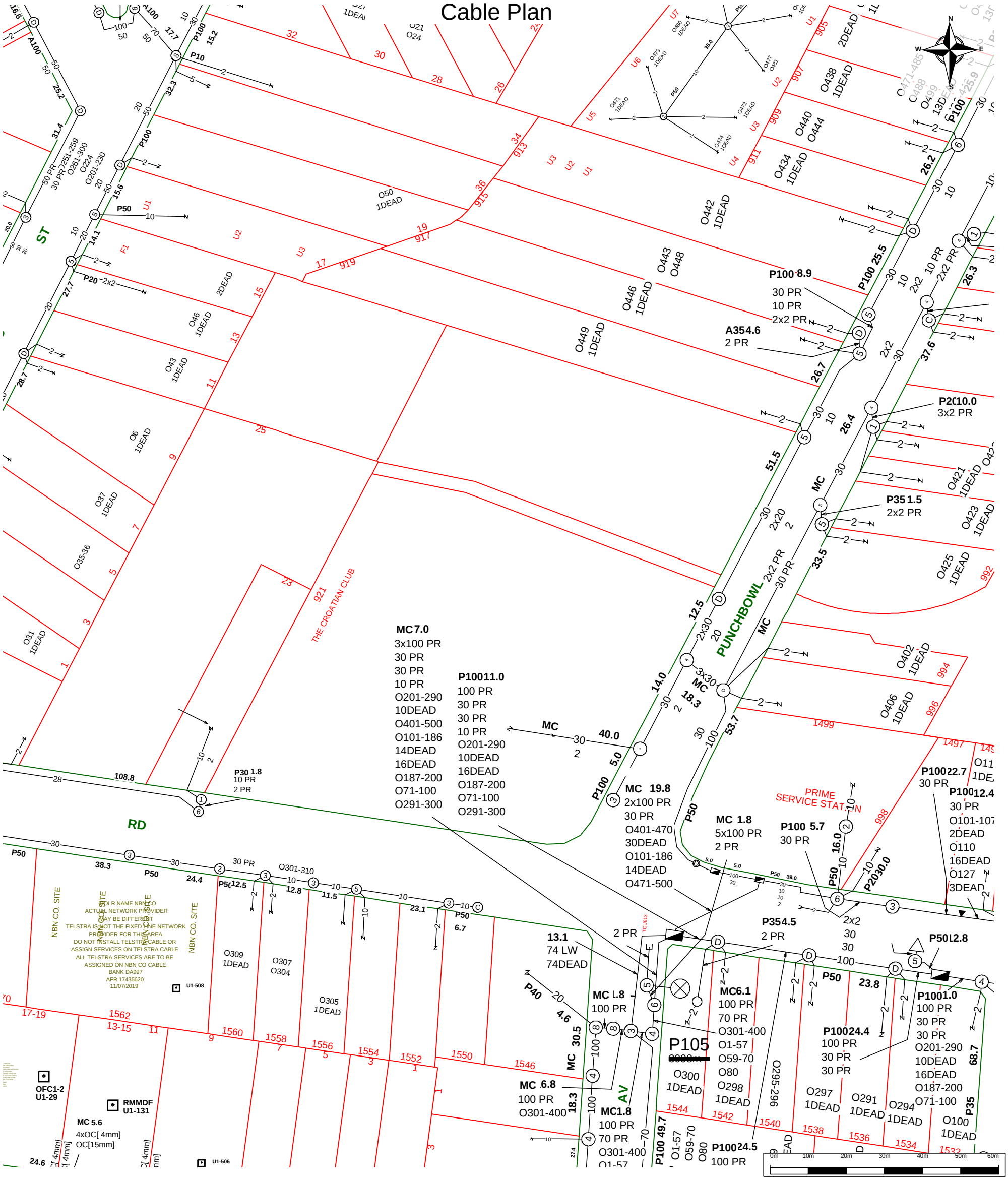
34	Parcel and the location
5	Pit with size "5"
2E	Power Pit with size "2E". Valid PIT Size: e.g. 2E, 5E, 6E, 8E, 9E, E, null.
	Manhole
	Pillar
2 PO – T- 25.0m P40 – 20.0m 5 9	Cable count of trench is 2. One "Other size" PVC conduit (PO) owned by Telstra (-T-), between pits of sizes, "5" and "9" are 25.0m apart. One 40mm PVC conduit (P40) owned by NBN, between pits of sizes, "5" and "9" are 20.0m apart.
2 10.0m 5 9	2 Direct buried cables between pits of sizes ,"5" and "9" are 10.0m apart.
5 9	Trench containing any INSERVICE/CONSTRUCTED (Copper/RF/Fibre) cables.
5 9	Trench containing only DESIGNED/PLANNED (Copper/RF/Fibre/Power) cables.
5 9	Trench containing any INSERVICE/CONSTRUCTED (Power) cables.
BROADWAY ST	Road and the street name "Broadway ST"
Scale	0 20 40 60 Meters 1:2000 1 cm equals 20 m



Emergency Contacts

You must immediately report any damage to the **nbn™** network that you are/become aware of. Notification may be by telephone - 1800 626 329.

Cable Plan



For all Telstra DBYD plan enquiries -
email - Telstra.Plans@team.telstra.com
For urgent onsite contact only - ph 1800 653 935 (bus hrs)

TELSTRA CORPORATION LIMITED A.C.N. 051 775 556

Generated On 15/02/2022 10:13:38

Sequence Number: 208140810

CAUTION: Fibre optic and/ or major network present in plot area. Please read the Duty of Care and contact Telstra Plan Services should you require any assistance.

The above plan must be viewed in conjunction with the Mains Cable Plan on the following page

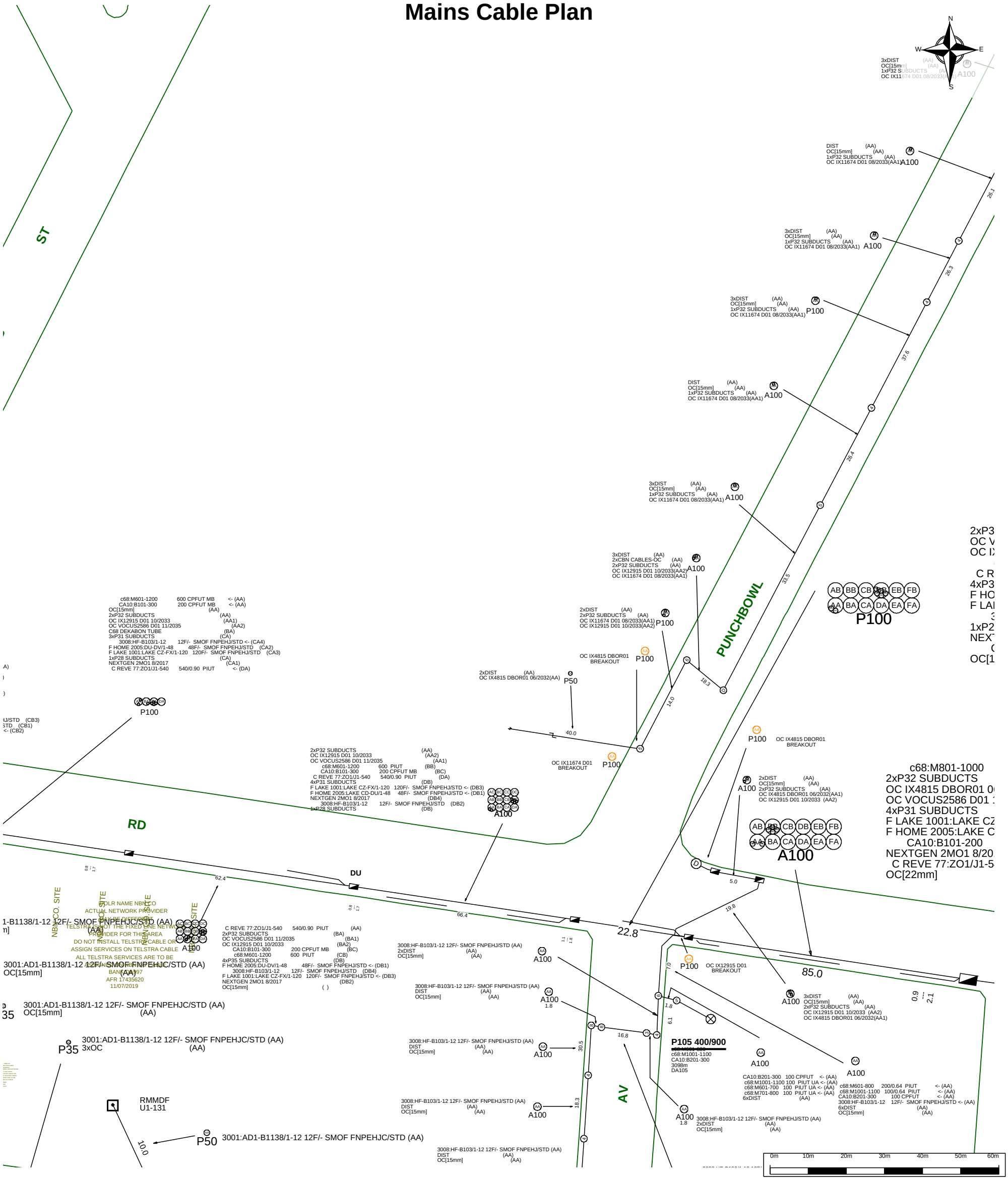
WARNING - Due to the nature of Telstra underground plant and the age of some cables and records, it is impossible to ascertain the precise location of all Telstra plant from Telstra's plans. The accuracy and/or completeness of the information supplied can not be guaranteed as property boundaries, depths and other natural landscape features may change over time, and accordingly the plans are indicative only. Telstra does not warrant or hold out that its plans are accurate and accepts no responsibility for any inaccuracy shown on the plans.

It is your responsibility to locate Telstra's underground plant by careful hand pot-holing prior to any excavation in the vicinity and to exercise due care during that excavation.

Please read and understand the information supplied in the duty of care statement attached with the Telstra plans. TELSTRA WILL SEEK COMPENSATION FOR LOSS CAUSED BY DAMAGE TO ITS PLANT.

Telstra plans and information supplied are valid for 60 days from the date of issue. If this timeframe has elapsed, please reapply for plans.

Mains Cable Plan



For all Telstra DBYD plan enquiries -
email - Telstra.Plans@team.telstra.com
For urgent onsite contact only - ph 1800 653 935 (bus hrs)

TELSTRA CORPORATION LIMITED A.C.N. 051 775 556

Generated On 15/02/2022 10:13:40

Sequence Number: 208140810

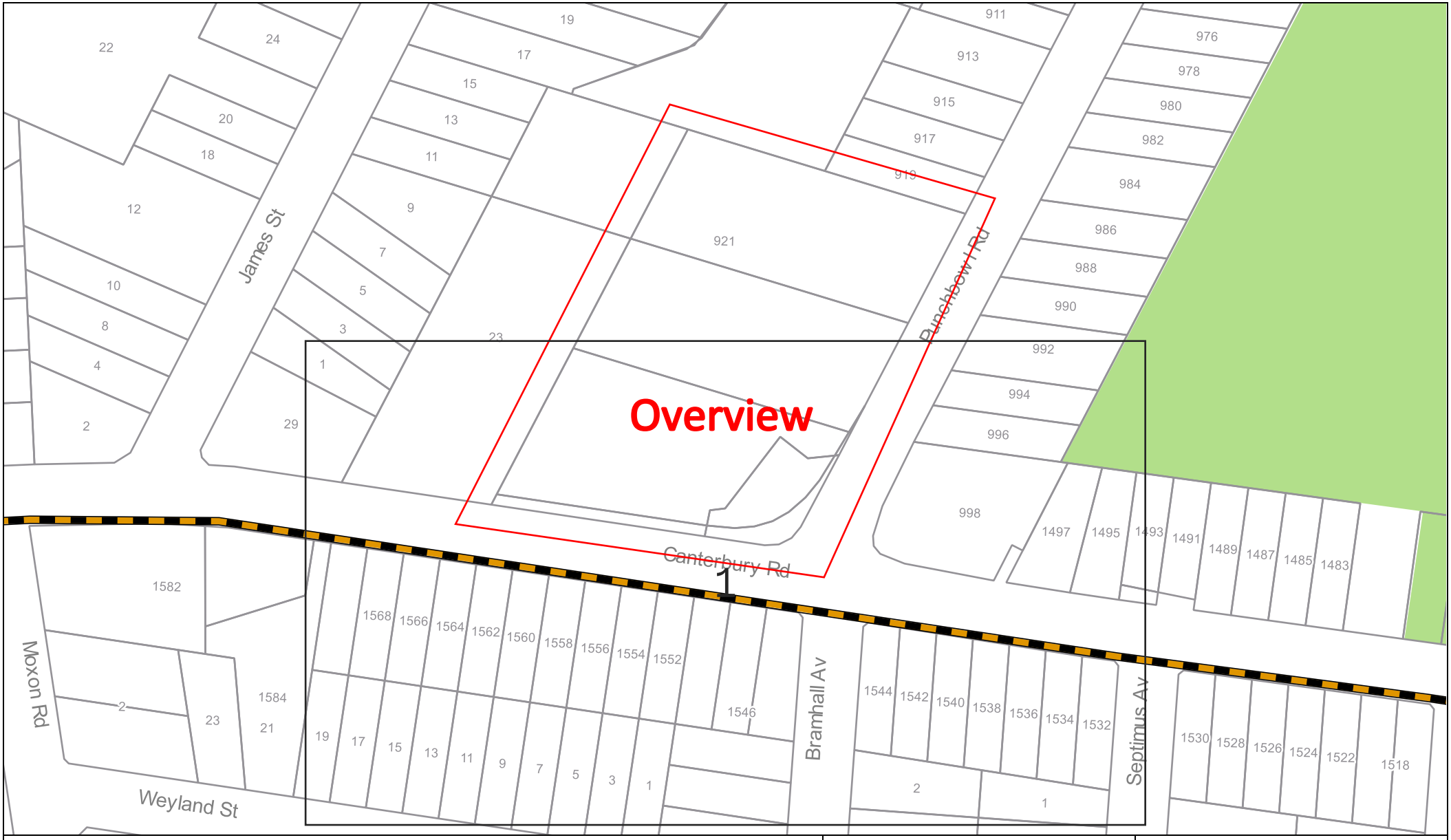
CAUTION: Fibre optic and/ or major network present in plot area. Please read the Duty of Care and contact Telstra Plan Services should you require any assistance.

WARNING - Due to the nature of Telstra underground plant and the age of some cables and records, it is impossible to ascertain the precise location of all Telstra plant from Telstra's plans. The accuracy and/or completeness of the information supplied can not be guaranteed as property boundaries, depths and other natural landscape features may change over time, and accordingly the plans are indicative only. Telstra does not warrant or hold out that its plans are accurate and accepts no responsibility for any inaccuracy shown on the plans.

It is your responsibility to locate Telstra's underground plant by careful hand pot-holing prior to any excavation in the vicinity and to exercise due care during that excavation.

Please read and understand the information supplied in the duty of care statement attached with the Telstra plans. TELSTRA WILL SEEK COMPENSATION FOR LOSS CAUSED BY DAMAGE TO ITS PLANT.

Telstra plans and information supplied are valid for 60 days from the date of issue. If this timeframe has elapsed, please reapply for plans.



Sequence Number: 208140811

Date: 15/02/2022

DISCLAIMER: THIS DRAWING SHOULD NOT BE SCALED TO LOCATE CABLES. NO WARRANTY IS GIVEN THAT THE INFORMATION IS ACCURATE OR COMPLETE. IF YOU REQUIRE INFORMATION REGARDING LOCATING THE CABLE PLEASE CALL NEXTGEN. THIS DOCUMENT HAS BEEN PREPARED SOLELY FOR DIAL BEFORE YOU DIG USE. THIS PLAN CONTAINS COMMERCIALLY SENSITIVE INFORMATION AND IS TO BE TREATED ACCORDINGLY. NO SUCH INFORMATION IS TO BE PASSED ONTO OTHER PARTIES WITHOUT WRITTEN CONSENT FROM NEXTGEN PTY LTD.

nextgen GROUP

LEGEND

Digsite	Assets
Area	Cable
	3rd Party Duct
	Marker Post



Sequence Number: 208140811

Date: 15/02/2022

DISCLAIMER: THIS DRAWING SHOULD NOT BE SCALED TO LOCATE CABLES. NO WARRANTY IS GIVEN THAT THE INFORMATION IS ACCURATE OR COMPLETE. IF YOU REQUIRE INFORMATION REGARDING LOCATING THE CABLE PLEASE CALL NEXTGEN. THIS DOCUMENT HAS BEEN PREPARED SOLELY FOR DIAL BEFORE YOU DIG USE. THIS PLAN CONTAINS COMMERCIALLY SENSITIVE INFORMATION AND IS TO BE TREATED ACCORDINGLY. NO SUCH INFORMATION IS TO BE PASSED ONTO OTHER PARTIES WITHOUT WRITTEN CONSENT FROM NEXTGEN PTY LTD.

nextgen GROUP

LEGEND

Digsite

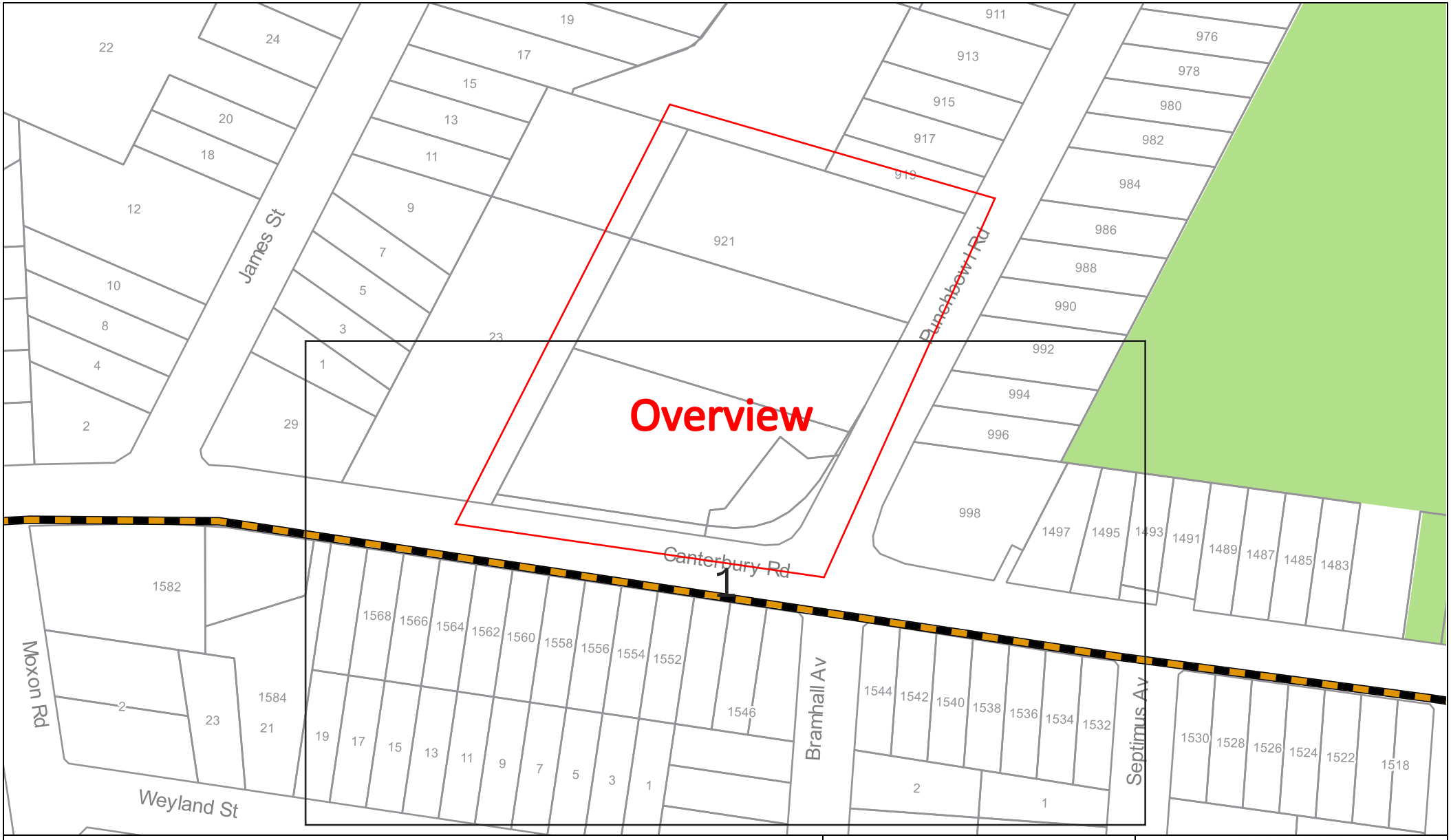
Area

Assets

Cable

3rd Party Duct

Marker Post



Sequence Number: 208140811

Date: 15/02/2022

DISCLAIMER: THIS DRAWING SHOULD NOT BE SCALED TO LOCATE CABLES. NO WARRANTY IS GIVEN THAT THE INFORMATION IS ACCURATE OR COMPLETE. IF YOU REQUIRE INFORMATION REGARDING LOCATING THE CABLE PLEASE CALL NEXTGEN. THIS DOCUMENT HAS BEEN PREPARED SOLELY FOR DIAL BEFORE YOU DIG USE. THIS PLAN CONTAINS COMMERCIALLY SENSITIVE INFORMATION AND IS TO BE TREATED ACCORDINGLY. NO SUCH INFORMATION IS TO BE PASSED ONTO OTHER PARTIES WITHOUT WRITTEN CONSENT FROM NEXTGEN PTY LTD.

nextgen GROUP

LEGEND

Digsite	Assets
Area	Cable
	3rd Party Duct
	Marker Post



Sequence Number: 208140811

Date: 15/02/2022

DISCLAIMER: THIS DRAWING SHOULD NOT BE SCALED TO LOCATE CABLES. NO WARRANTY IS GIVEN THAT THE INFORMATION IS ACCURATE OR COMPLETE. IF YOU REQUIRE INFORMATION REGARDING LOCATING THE CABLE PLEASE CALL NEXTGEN. THIS DOCUMENT HAS BEEN PREPARED SOLELY FOR DIAL BEFORE YOU DIG USE. THIS PLAN CONTAINS COMMERCIALLY SENSITIVE INFORMATION AND IS TO BE TREATED ACCORDINGLY. NO SUCH INFORMATION IS TO BE PASSED ONTO OTHER PARTIES WITHOUT WRITTEN CONSENT FROM NEXTGEN PTY LTD.

nextgen GROUP

LEGEND

Digsite

Area

Assets

Cable

3rd Party Duct

Marker Post

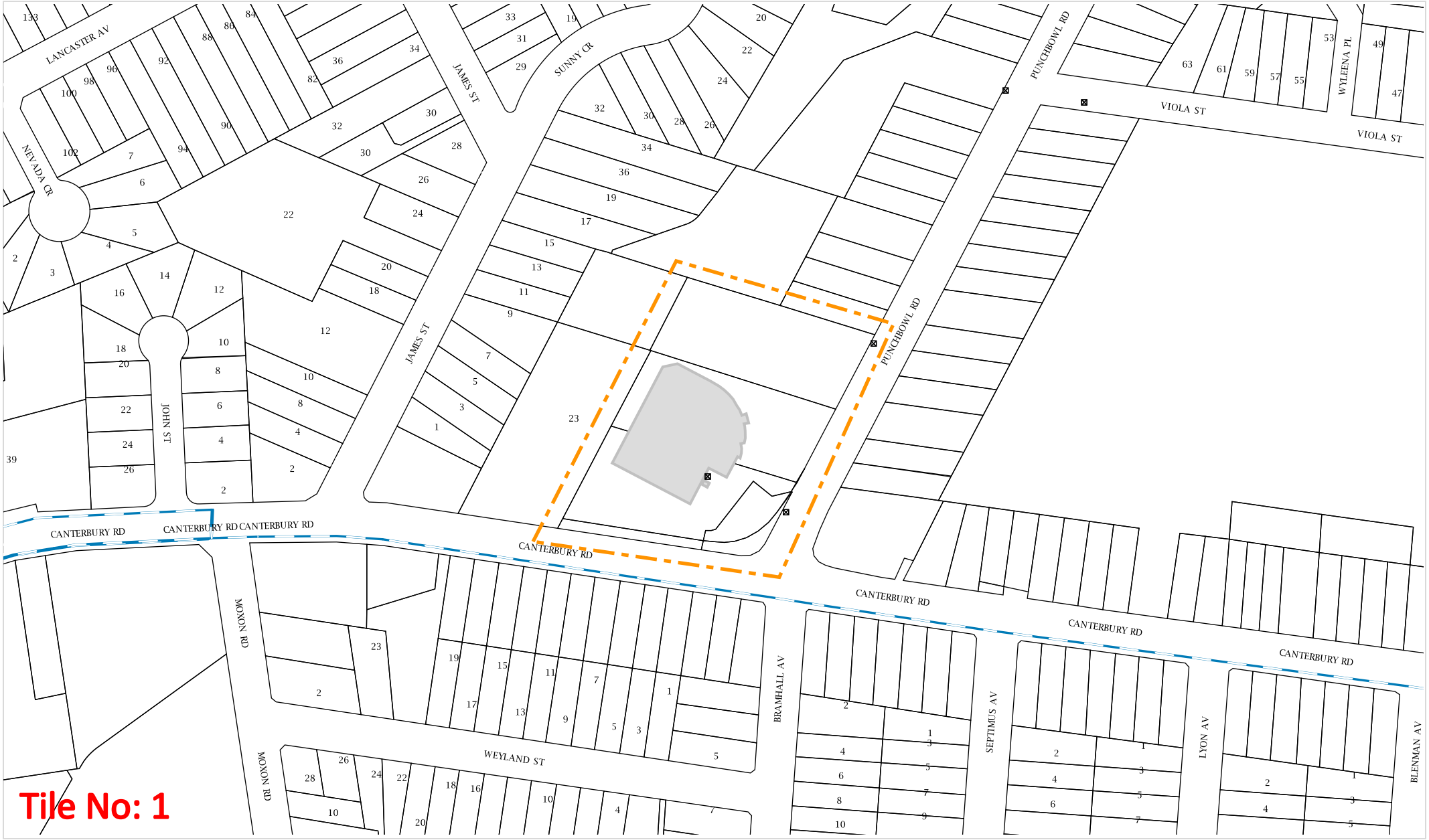


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Sequence Number: 208140813

Date Generated: 15 Feb 2022

For all Optus DBYD plan enquiries –
Email: Fibre.Locations@optus.net.au
For urgent onsite assistance contact 1800 505 777
Optus Limited ACN 052 833 208



Uecomm Underground Cable

Scale: 1:2500 Printed on: 15 Feb 2022

Sequence Number: 208140813

Location: 921 Punchbowl Road, Punchbowl, NSW 2196

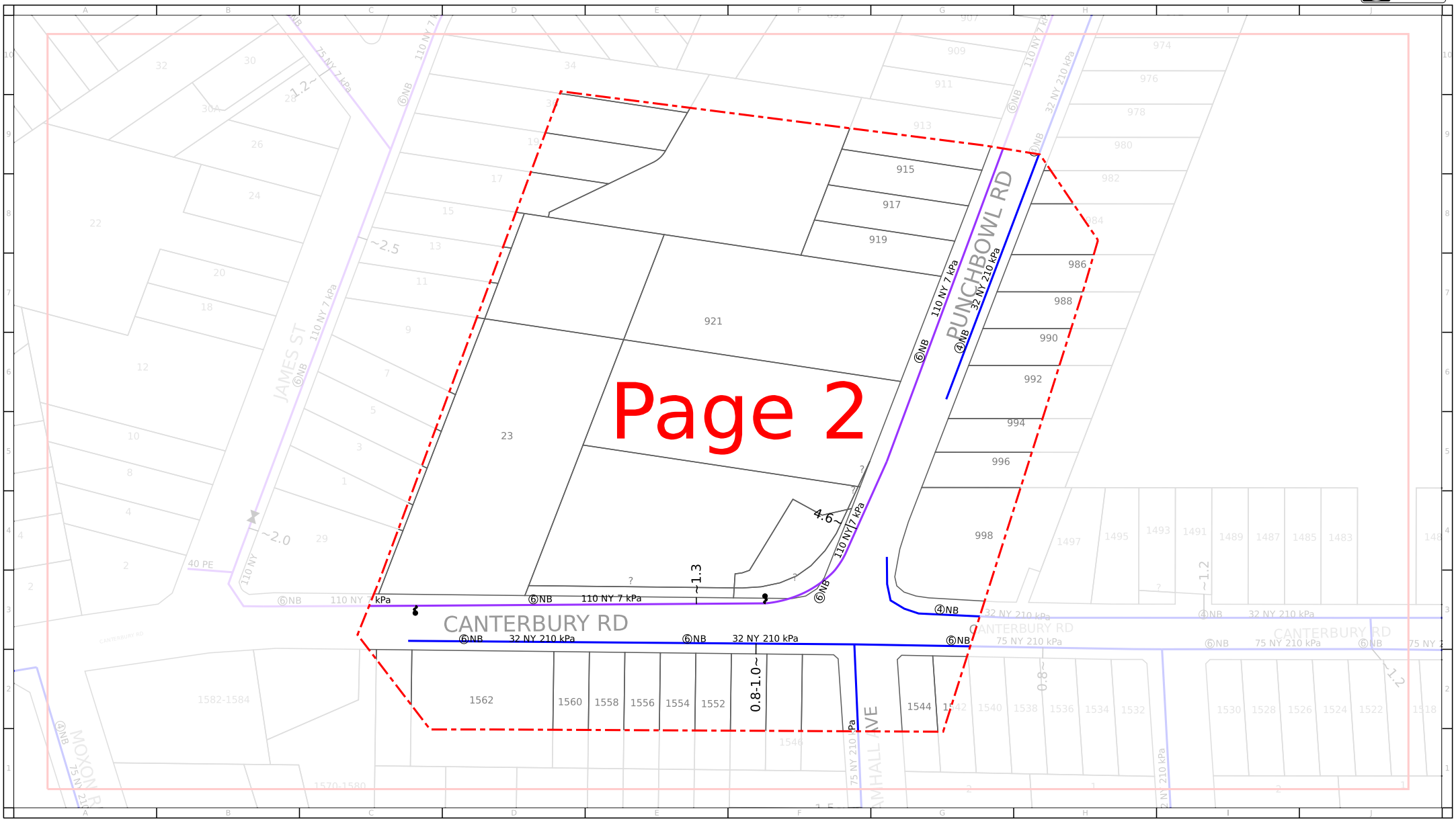
Job Location: Line, Point, Area

Undergound Asset: Uecomm

This document is confidential and may also be privileged, and neither confidentiality nor privilege is waived lost or destroyed by virtue of it being transmitted to an incorrect addressee. Unauthorised use of the contents is therefore strictly prohibited. Any information contained in this document that has been extracted from our records is believed to be accurate, but no responsibility is assumed for any error or omission.

DBYD Authority: Jemena Gas Networks (NSW)

DBYD Location: 921 Punchbowl Road Punchbowl NSW, 2196



Jemena
ABN 87 003 004 322

For legend details, please refer to the Coversheet attachment provided as part of this DBYD response.

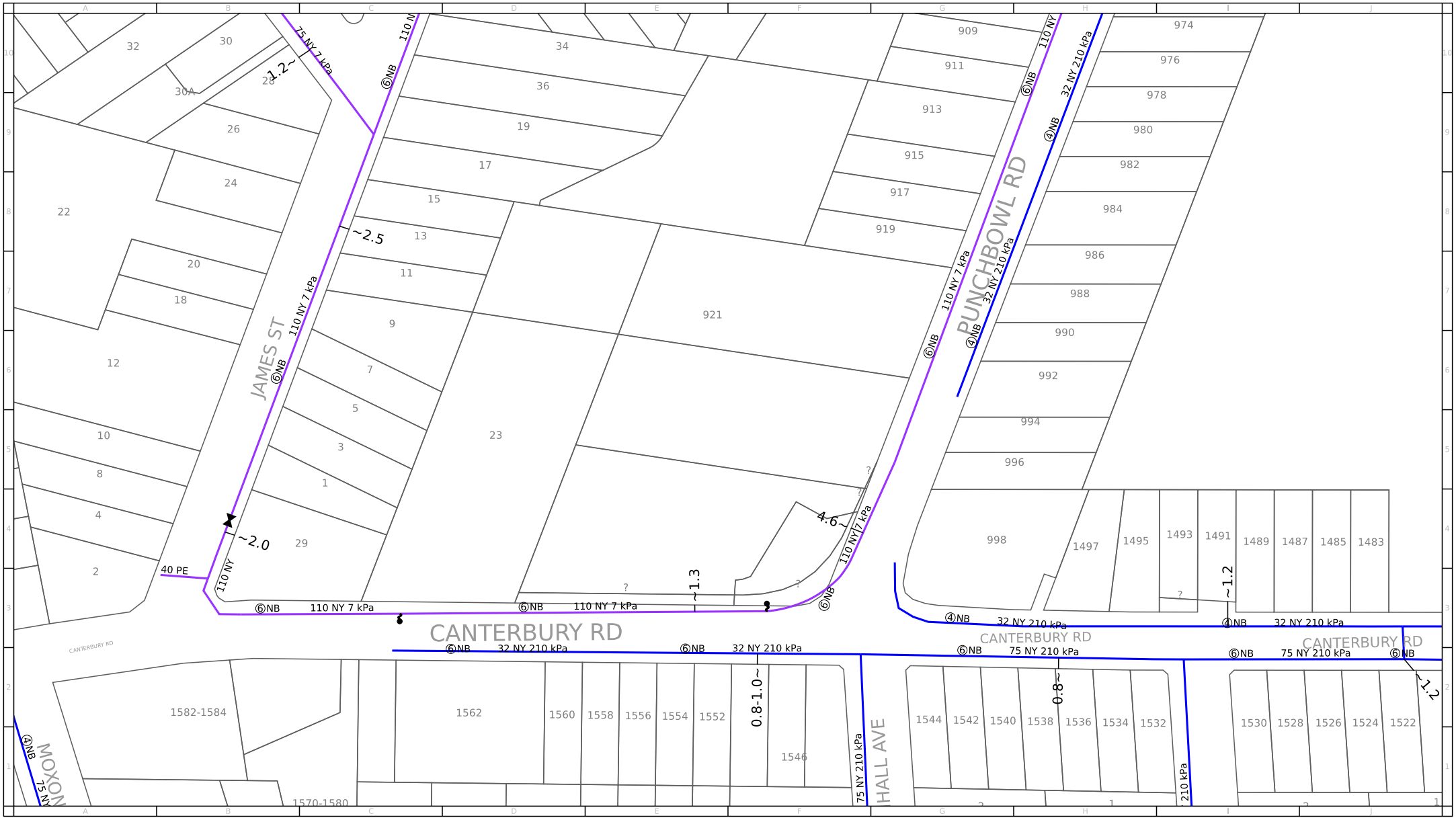
Scale: 1:2101

Issue Date: 14/02/2022
DBYD Seq No: 208140814
DBYD Job No: 31394406
Overview Page:

WARNING: This is a representation of Jemena Gas Networks underground assets only and may not indicate all assets in the area. It must not be used for the purpose of exact asset location in order to undertake any type of excavation. Please read all conditions and information on the attached information sheet. This extract is subject to those conditions.
The information contained on this plan is only valid for 28 days from the date of issue.

DBYD Authority: Jemena Gas Networks (NSW)

DBYD Location: 921 Punchbowl Road Punchbowl NSW, 2196



Jemena
ABN 87 003 004 322

For legend details, please refer to the Coversheet attachment provided as part of this DBYD response.

Scale: 1:2000

Issue Date: 14/02/2022
DBYD Seq No: 208140814
DBYD Job No: 31394406

0m 10m 20m 30m 40m 50m 60m 70m 80m

WARNING: This is a representation of Jemena Gas Networks underground assets only and may not indicate all assets in the area. It must not be used for the purpose of exact asset location in order to undertake any type of excavation. This plan is diagramatic only, and distances scaled from this plan may not be accurate. Please read all conditions and information on the attached information sheet. This extract is subject to those conditions. The information contained on this plan is only valid for 28 days from the date of issue.

A3

SUNNY ST

JOHN ST

JAMES ST

CANTERBURY RD

MOXON ST

WEYLAND ST

PUNCHBOWL

BRAMHALL

VIOLA

SEPTIMUS

LYON

DBYD Address:
921 Punchbowl Road
Punchbowl NSW 2196

DBYD Job No: 31394406

DBYD Sequence No: 208140815

Copyright Reserved Sydney Water 2022
No warranty is given that the information shown is complete or accurate.
SYDNEY WATER CORPORATION

Scale: 1:1500

Date of Production: 15/02/2022

Plan 1 of 1

N

0m 9m 18m 27m 36m

PE214 - IK1

2x125 PVC

0.5-2.0

0.6

Ref: F4

PE214 - IO1

2x125 PVC

0.5-2.0

0.6

Ref: F4

PE21431

PE21432

PE21433

PE21434

PUNCHBOWL

CANTERBURY RD

SUB RDY 13.3

SUB RDY 11.9

(2.0BDY EACH) EOP 12.3

FLSL 4.2L

6.0EOP

13.9m RDY

(2.0BDY EACH)

70.0BDY

55.8BDY

11.6L

(1.0DP EACH)

11.3R

(1.0DP EACH)

2.5T

6.8 FCL & EOP (6.3R% - 1.0DP)

6.8 RDY

(1.0DP EACH)

7.1 EOP (6.8R% - 1.0DP)

(1.0DP EACH)

Pt. 0.0m

98.0

150.0

102.0

IK1

IO1

IG1

178

177

180

23

917

919

921

921

992

994

998

SEE SURVEY PLAN 58554 (RB 1653/2)

13.6

12.9

9.2

0.0

0.0

3.3

4.8

19.1

28.1 EOP

30.5

29

28

4

27

CP1

CP2

JOINT DETAIL REPORT

No....	Blk Pa	PSCn/.....	Joint Location.....
Map: PE214			
3	2301-45+...	1.000:90	1.0 E of PL fence
177	BT18-0129	0.806:70	4.1 W OF 23 CANTERBURY RD E PL
178	BT18-0129	0.700:90	1.9 W OF 23 CANTERBURY RD E PL
180	BT18-0129		NO DATA

WARNING

Ausgrid's plans show the position of assets at the time of installation and may not account for subsequent changes to road alignments, fences or buildings. The plans show no more than the presence or absence of Ausgrid assets in the street.
Persons working near electricity networks must exercise care and will be held responsible for any damage caused.
You must excavate by hand or use vacuum excavation to establish the location of Ausgrid underground cables and associated assets.
Underground: Working near a cable may result in electric shock even if no contact is made. Any work in the vicinity of any cable should only be performed using methods which are safe and in accordance with the recommendations included in Safework NSW Code of Practice for Excavation and Safework NSW Guide for Work Near Underground Assets,
as well as recommendations of Ausgrid's Network Standard NS156.
Overhead: Do not excavate near poles or towers until the stability of the foundation has been assessed by Ausgrid. Cables or earth conductors may be present close to substations, poles or towers.
Workers must maintain safe approach distances and follow applicable Safework NSW Codes of Practice.
NOTE: 1. You must keep Ausgrid plans on site during excavation works. If the people actually performing the excavation works do not know how to read and interpret Ausgrid's plans, then the work must be directed by a person who knows how to read and interpret the plans. 2. This information includes data from the NSW Digital Cadastral Database by Land and Property Information (c) 2016, used under Creative Commons Bend 3 version 4.0

N

PE21413	PE21414	PE21423
PE21431	PE21432	PE21441
PE21433	PE21434	PE21443

GRIDSEL

GMLA0

Distribution - 208140812

INFORMATION ON THIS PLAN ONLY VALID FOR 30 DAYS FROM ISSUE DATE

Page 1 of 1

15 Feb 2022

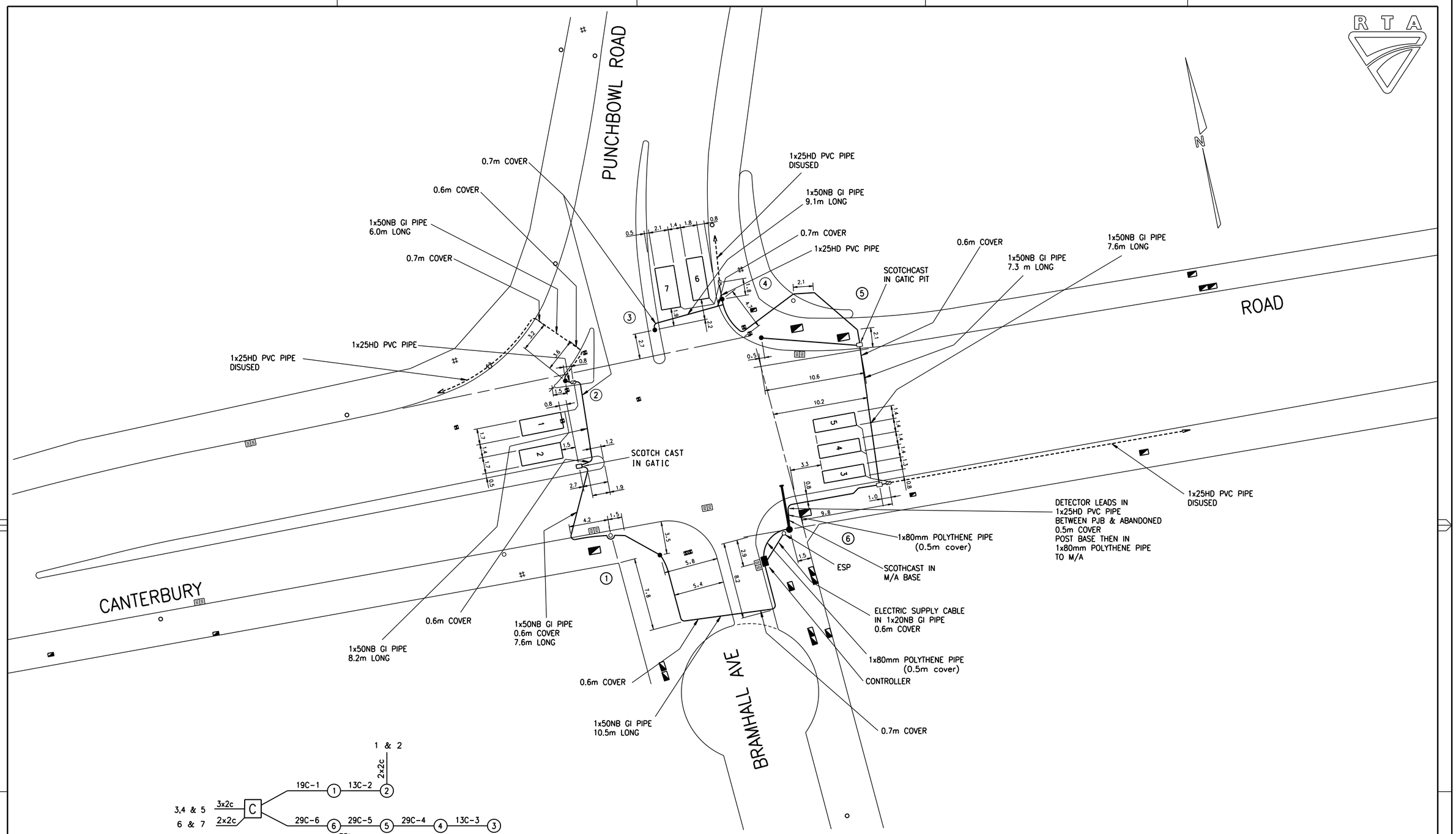
1:242

0 15 metres

Ausgrid

A0 MOCS_std_plot

S_208140812_GMLA0_V.mpd



CABLE LAYOUT

NOTES:

1. CABLE COVER: IN ROADWAYS: 0.6m ABOVE GI PIPES;
   IN FOOTPATHS & MEDIANS: 0.45m ABOVE ELECTRIC BRICKS,
   UNLESS OTHERWISE STATED.

A ORIGINAL ISSUE — R.C.M. 12.12.94

REDRAWN AS PER MAINTENANCE COPY — T.U.P.A. 12.12.94

B ISSUE 17/11/97 — AMENDED TO SUIT M.A.E. DET'S NEW HOUSING MOUNTED — R.C.M. C.L.12.2

'C' ISSUE — W.A.E. COMPLETED — M.M 30/07/01 L.C

'D' ISSUE 18-11-2008 — WAE CABLES 56E CHANGED TO 29C REGEN 0167.078.VV.0813 — J.L. 7 1M 1&2 RUN ALTERED.

'E' ISSUE — WAE COMPLETED — S.T 30/07/01 M.M

'F' ISSUE WAE — CABLE LAYOUT ALTERED — S.T 30/07/01 M.M

PUBLIC UTILITY LEGEND		REFERENCE PLANS	
HYDRANT	□	SYMBOLS/ABBS.	VD003-6
STOP VALVE	▲	STD POSIT	VD001-5
GAS VALVE	#	DET SCHED EXP	VD018-10
SEWER MANHOLE	Ⓢ	PRES. DETECT	VC005-17
TELECOM PIT	◪	SSG DIS. SEQ.	VD018-8
ELECT LIGHT POLE	○	DESIGN LAYOUT	VV0813-6
POWER POLE	○	CABLE CHART	VV0813-8
STAY POLE	⊘		
TELEPHONE BOX	T	SURVEYOR :	
TELECOM PILLAR	◪	DATE :	

U.B.D. Ref.

I.S.C. E: CO-ORDS N:

DRAWN: T.U.P.A. 12.12.94

CHECKED C.AYO 01/95

SITE CHECKED

M.MAHINTHAN
ELECTRICAL DESIGN ENGINEER
RECOMMENDED

APPROVED

R.C. BIRD
ELECTRICAL DESIGN MANAGER
10/02/95
DATE

Roads and Traffic Authority,N.S.W

CANTERBURY ROAD
AND PUNCHBOWL ROAD
PUNCHBOWL

CABLE INSTALLATION — TCS No 813

DESIGN OFFICE PARRAMATTA SYDNEY TECHNICAL SERVICES.

LOGIN: ELECT — CADD DRAWING FILE: VV0813_7E_INS.dgn

SCALE 5 0 (1:200) 5 10 — ISSUE E

FILE 78TS174 — SUPERSEDES SHEET/ISSUE 2C

REGN. 0167.078.VV.0813 — SHEET 7

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APPENDIX B: NSW EPA RECORDS

© Foundation Earth Sciences 2022

Suburb	SiteName	Address	ContaminationActivityType	ManagementClass	Latitude	Longitude
PROSPECT	Cottage 3, William Lawson Drive	William Lawson DRIVE	Unclassified	Regulation under CLM Act not required	-33.81490331	150.9149885
PUNCHBOWL	Former BP Service Station	1375 Canterbury Road, corner Victoria ROAD	Service Station	Regulation under CLM Act not required	-33.93170424	151.0537302
PUNCHBOWL	Punchbowl Laundry	42-44 Belmore ROAD	Chemical Industry	Contamination currently regulated under CLM Act	-33.93582701	151.0562638
PUNCHBOWL	Caltex Service Station Punchbowl	1285-1289 Canterbury ROAD	Service Station	Regulation under CLM Act not required	-33.93146308	151.0596348
PUTNEY	Putney Marina	20 Waterview STREET	Other Industry	Regulation under CLM Act not required	-33.82608091	151.1003966

Public registers

+ POEO Public Register
− Contaminated land record of notices
  - About the record of notices
  - List of notified sites
  - Tips for searching
  - Disclaimer
- Dangerous goods licences
- Pesticide licences
- Radiation licences

Home Public registers Contaminated land record of notices

Search results

Your search for: Suburb: PUNCHBOWL

Matched 3 notices relating to 1 site.

Search Again Refine Search

Suburb	Address	Site Name	Notices related to this site
PUNCHBOWL	42-44 Belmore ROAD	Punchbowl Laundry	3 current

Page 1 of 1

23 February 2022

Number	Name	Location	Type	Status	Issued date
2240	A.C.N. 000 012 340 PTY LTD	62 BELMORE ROAD, PUNCHBOWL, NSW 2196	POEO licence	Issued	26-Nov-99
1015590	A.C.N. 000 012 340 PTY LTD	62 BELMORE ROAD, PUNCHBOWL, NSW 2196	s.58 Licence Variation	Issued	8-May-02
1021601	A.C.N. 000 012 340 PTY LTD	62 BELMORE ROAD, PUNCHBOWL, NSW 2196	s.58 Licence Variation	Issued	19-Dec-02
1026935	A.C.N. 000 012 340 PTY LTD	62 BELMORE ROAD, PUNCHBOWL, NSW 2196	s.58 Licence Variation	Issued	4-Jul-03
1035688	A.C.N. 000 012 340 PTY LTD	62 BELMORE ROAD, PUNCHBOWL, NSW 2196	s.58 Licence Variation	Issued	1-Jun-04
1040330	A.C.N. 000 012 340 PTY LTD	62 BELMORE ROAD, PUNCHBOWL, NSW 2196	s.58 Licence Variation	Issued	22-Sep-04
1042309	A.C.N. 000 012 340 PTY LTD	62 BELMORE ROAD, PUNCHBOWL, NSW 2196	s.58 Licence Variation	Issued	17-Dec-04
1044737	A.C.N. 000 012 340 PTY LTD	62 BELMORE ROAD, PUNCHBOWL, NSW 2196	s.58 Licence Variation	Issued	22-Mar-05
1050032	A.C.N. 000 012 340 PTY LTD	62 BELMORE ROAD, PUNCHBOWL, NSW 2196	s.58 Licence Variation	Issued	15-Aug-05
1051916	A.C.N. 000 012 340 PTY LTD	62 BELMORE ROAD, PUNCHBOWL, NSW 2196	s.58 Licence Variation	Issued	21-Sep-05
1054742	A.C.N. 000 012 340 PTY LTD	62 BELMORE ROAD, PUNCHBOWL, NSW 2196	s.58 Licence Variation	Issued	22-Dec-05
1061530	A.C.N. 000 012 340 PTY LTD	62 BELMORE ROAD, PUNCHBOWL, NSW 2196	s.58 Licence Variation	Issued	20-Jul-06
1072492	A.C.N. 000 012 340 PTY LTD	62 BELMORE ROAD, PUNCHBOWL, NSW 2196	s.58 Licence Variation	Issued	10-Jul-07
1095346	A.C.N. 000 012 340 PTY LTD	62 BELMORE ROAD, PUNCHBOWL, NSW 2196	s.58 Licence Variation	Issued	23-Jan-09
1106741	A.C.N. 000 012 340 PTY LTD	62 BELMORE ROAD, PUNCHBOWL, NSW 2196	s.58 Licence Variation	Issued	16-Jul-10
1121069	A.C.N. 000 012 340 PTY LTD	62 BELMORE ROAD, PUNCHBOWL, NSW 2196	s.58 Licence Variation	Issued	22-Mar-11
1529802	A.C.N. 000 012 340 PTY LTD	62 BELMORE ROAD, PUNCHBOWL, NSW 2196	s.58 Licence Variation	Issued	19-Apr-16

1564114	A.C.N. 000 012 340 PTY LTD	62 BELMORE ROAD, PUNCHBOWL, NSW 2196	s.58 Licence Variation	Issued	30-May-18
1608741	A.C.N. 000 012 340 PTY LTD	62 BELMORE ROAD, PUNCHBOWL, NSW 2196	s.58 Licence Variation	Issued	19-May-21
2805	AVERY DENNISON HOLDINGS LIMITED	95 BONDS ROAD, PUNCHBOWL, NSW 2196	POEO licence	Surrendered	30-Mar-00
1008419	AVERY DENNISON HOLDINGS LIMITED	95 BONDS ROAD, PUNCHBOWL, NSW 2196	s.58 Licence Variation	Issued	19-Oct-01
1016363	AVERY DENNISON HOLDINGS LIMITED	95 BONDS ROAD, PUNCHBOWL, NSW 2196	s.58 Licence Variation	Issued	27-May-02
1042974	AVERY DENNISON HOLDINGS LIMITED	95 BONDS ROAD, PUNCHBOWL, NSW 2196	s.80 Surrender of a Licence	Issued	8-Dec-04
7060	DONAGHYS SARLON PTY. LTD.	51 MOXON ROAD, PUNCHBOWL, NSW 2196	POEO licence	Surrendered	11-Aug-00
1017826	DONAGHYS SARLON PTY. LTD.	51 MOXON ROAD, PUNCHBOWL, NSW 2196	s.80 Surrender of a Licence	Issued	30-May-02
12572	FINISHED PRODUCTS PTY LTD	31 Moxon Road, PUNCHBOWL, NSW 2196	POEO licence	No longer in force	15-Dec-06
1542066	KIM, PAN	283 the Boulevarde, PUNCHBOWL, NSW 2196	s.91 Clean Up Notice	Issued	29-Jun-16
3085781079	M.S PETROLEUM PTY LTD	998 Punchbowl Road, PUNCHBOWL, NSW 2196	Penalty Notice	Issued	23-Dec-16
6471	RESOURCE RECYCLING TECHNOLOGIES PTY. LTD.	3/57 MOXON ROAD, PUNCHBOWL, NSW 2196	POEO licence	Surrendered	28-Apr-00
1012133	RESOURCE RECYCLING TECHNOLOGIES PTY. LTD.	3/57 MOXON ROAD, PUNCHBOWL, NSW 2196	s.80 Surrender of a Licence	Issued	1-Nov-01
1005634	THE AUSTRAL BRICK CO PTY LTD	62 BELMORE ROAD, PUNCHBOWL, NSW 2196	s.58 Licence Variation	Issued	28-Aug-01
11737	TRIVAC METALS PTY LTD	11 - 15 MOXON ROAD, PUNCHBOWL, NSW 2196	POEO licence	Surrendered	16-Sep-02
1048532	TRIVAC METALS PTY LTD	11 - 15 MOXON ROAD, PUNCHBOWL, NSW 2196	s.58 Licence Variation	Issued	6-Jun-05
1052973	TRIVAC METALS PTY LTD	11 - 15 MOXON ROAD, PUNCHBOWL, NSW 2196	s.80 Surrender of a Licence	Issued	26-Oct-05

The NSW Government PFAS Investigation Program

View a map of the sites in NSW that may be contaminated with PFAS, learn how to reduce your exposure to these dangerous chemicals, and read about our investigation of the issue.

The EPA is leading an investigation program to assess the legacy of PFAS use across NSW. With the assistance of the NSW PFAS Technical Advisory Group, which includes NSW Health, Department of Primary Industries and the Office of Environment and Heritage, we provide impacted residents with tailored, precautionary dietary advice to help them reduce any exposure to PFAS.

Current investigations are focused on sites where it is likely that large quantities of PFAS have been used. The EPA is currently investigating PFAS at these sites:

Map view | List view

List view

Clear filters ☐ Only show sites within current map view

Showing 0 of 49 sites

	Organisation	Address	Status
	**filter by organisation	PUNCHBOWL	☑ PFAS investigation site

Sampling and analysis

The EPA is collecting samples of soils and/or waters for analysis for PFAS. The EPA is also looking for exposure pathways that may increase people's contact with the chemicals, such as bore and surface water usage.

If significant levels are detected and human or ecological exposure is likely, a more detailed assessment will be undertaken.

APPENDIX C: SITE PHOTOGRAPHS

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SITE PHOTOGRAPHS

Client:	Westwood Pty Ltd
Project:	DSI
Site Location:	921 Punchbowl Road, Punchbowl NSW
Job No.:	E2232-2

FOUNDATION EARTH SCIENCES

Photo 1



View of the drilling of in vicinity of the building footrprint
Inspected 17.2.2022

Photo 2



View of the concrete in side of the building
Inspected 17.2.2022

Photo 3



View of the concrete core in bar area, located in the centre of the building
Inspected17.2.2022

Photo 4



View of the concrete core at loading dock
Inspected 17.2.2022

Photo 5



View of the drilling of the site
Inspected 17.2.2022

Photo 6



View of the drilling of loading dock
Inspected 17.2.2022

APPENDIX D: DPI (OFFICE OF WATER) DATABASE RECORDS

© Foundation Earth Sciences 2022

WaterNSW
Work Summary

GW103677

Licence:
Licence Status:

Authorised Purpose(s):
Intended Purpose(s): MONITORING BORE

Work Type: Bore
Work Status: Equipped
Construct.Method:
Owner Type: Private

Commenced Date:
Completion Date: 27/11/2000
Final Depth: 4.50 m
Drilled Depth: 4.50 m

Contractor Name: HANDEX
Driller:
Assistant Driller:

Property:
GWMA:
GW Zone:
Standing Water Level (m):
Salinity Description:
Yield (L/s):

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CUMBERLAND	BANKSTOWN	100//1011185
Licensed:			

Region: 10 - Sydney South Coast
River Basin: - Unknown
Area/District:
CMA Map:
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown
Northing: 6242870.000
Easting: 318687.000
Latitude: 33°56'20.5"S
Longitude: 151°02'17.4"E

GS Map: -
MGA Zone: 56
Coordinate Source: Unknown

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	4.50	54			Unknown
1	1	Casing	P.V.C.	0.00	0.00	54			

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	1.00	1.00	FILL,DARK GREY,LOOSE,GRAVEL,SAND	Fill	
1.00	1.70	0.70	FILL,DARK GREY,GRAVEL,SAND,MOIST	Fill	
1.70	3.10	1.40	CLAY,LIGHT GREY,PLASTIC, DRY	Clay	
3.10	4.50	1.40	SATURATED WATER,NO H/C ODOUR	(Unknown)	

Remarks

04/04/2013: Nat Carling, 4-Apr-2013; Added rock type codes to driller's log & added missing information (based on existing data).

WaterNSW
Work Summary

GW103689

Licence:
Licence Status:

Authorised Purpose(s):
Intended Purpose(s): MONITORING BORE

Work Type: Bore
Work Status:
Construct.Method:
Owner Type:

Commenced Date:
Completion Date: 27/11/2000
Final Depth: 3.50 m
Drilled Depth: 3.50 m

Contractor Name: HANDEX
Driller:
Assistant Driller:

Property:
GWMA:
GW Zone:
Standing Water Level (m):
Salinity Description:
Yield (L/s):

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CUMBERLAND	BANKSTOWN	100//1011185
Licensed:			

Region: 10 - Sydney South Coast
River Basin: - Unknown
Area/District:
CMA Map:
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown
Northing: 6242870.000
Easting: 318687.000
Latitude: 33°56'20.5"S
Longitude: 151°02'17.4"E

GS Map: -
MGA Zone: 56
Coordinate Source: Unknown

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	3.50	54			Unknown
1	1	Casing	P.V.C.	0.00	0.00	54			

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	0.50	0.50	FILL,MOIST GREY CLAY	Fill	
0.50	1.60	1.10	CLAY,SOFT-FIRM	Clay	
1.60	2.60	1.00	CLAY SILT,STICKY,RED	Clay	
2.60	3.00	0.40	SAND,QUARTZ SAND	Sand	
3.00	3.40	0.40	CLAY, VERY STIFF	Clay	
3.40	3.50	0.10	SHALE AT BASE,WEATHERED BEDROCK	Shale	

APPENDIX E: BUREAU OF METEOROLOGY

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Daily Rainfall (millimetres)

CANTERBURY RACECOURSE AWS

Station Number: 066194 · State: NSW · Opened: 1995 · Status: Open · Latitude: 33.91°S · Longitude: 151.11°E · Elevation: 3 m

2022	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1st	*0*	*0*	*23.0*	*8.8*								
2nd	*0*	*9.6*	*30.8*									
3rd	*0*	*3.0*	*70.8*									
4th	*0*	*0*	*32.2*									
5th	*2.8*	*9.6*	*8.2*									
6th	*18.6*	*1.2*	*27.0*									
7th	*0.2*	*8.0*	*50.8*									
8th	*15.8*	*10.2*	*125.2*									
9th	*0.8*	*1.8*	*52.2*									
10th	*0.2*	*0*	*0*									
11th	*0.6*	*6.2*	*0*									
12th	*0*	*1.2*	*0.4*									
13th	*13.8*	*18.0*	*0*									
14th	*7.8*	*0*	*7.6*									
15th	*0.4*	*0*	*0.6*									
16th	*0.2*	*0*	*13.4*									
17th	*0*	*0*	*6.6*									
18th	*0*	*1.2*	*0*									
19th	*7.2*	*1.6*	*33.8*									
20th	*2.0*	*0.2*	*1.2*									
21st	*0.6*	*0*	*0*									
22nd	*3.0*	*5.0*	*0*									
23rd	*4.8*	*119.4*	*0*									
24th	*1.6*	34.4	*2.6*									
25th	*0.2*	*14.2*	*11.6*									
26th	*0*	*49.8*	*25.8*									
27th	*0*	*36.2*	*21.2*									
28th	*0*	*4.6*	*12.6*									
29th	*0*		*22.4*									
30th	*0*		*29.2*									
31st	*0*		*17.4*									
Highest daily	*18.6*	*119.4*	*125.2*	*8.8*								
Monthly Total	*80.6*	335.4	*626.6*									

↓ This day is part of an accumulated total
Quality control: 12.3 Done & acceptable, *12.3* Not completed or unknown

Product code: IDCJAC0009 reference: 84312073

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http://www.bom.gov.au/other/copyright.shtml

Australian Government
Bureau of Meteorology

Daily Rainfall (millimetres)

CANTERBURY RACECOURSE AWS

Station Number: 066194 · State: NSW · Opened: 1995 · Status: Open · Latitude: 33.91°S · Longitude: 151.11°E · Elevation: 3 m

Statistics for this station calculated over all years of data

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean	78.1	123.6	117.3	94.8	74.1	105.5	56.4	62.9	48.5	63.9	73.8	65.1
Median	59.8	108.6	75.2	65.0	43.4	77.0	49.4	40.9	46.8	37.0	56.6	66.4
Highest daily	*128.0*	*189.2*	*125.2*	*123.0*	*84.8*	*110.0*	*88.6*	*121.0*	*70.2*	*121.2*	*64.6*	*67.0*
Date of highest daily	31st 2001	10th 2020	8th 2022	21st 2015	14th 2003	5th 2016	22nd 2011	31st 1996	7th 2006	15th 2014	5th 2010	11th 2002

1) Calculation of statistics

Summary statistics, other than the Highest and Lowest values, are only calculated if there are at least 20 years of data available.

2) Gaps and missing data

Gaps may be caused by a damaged instrument, a temporary change to the site operation, or due to the absence or illness of an observer.

3) Further information

http://www.bom.gov.au/climate/cdo/about/about-rain-data.shtml.

Product code: IDCJAC0009 reference: 84312073 Created on Fri 01 Apr 2022 10:54:52 AM AEDT

Australian Government
Bureau of Meteorology

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APPENDIX F: PROPOSED DEVELPOMENT PLANS

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AUSTRALIA PTY LTD

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Web: www.cmtarchitects.com

ACN: 161 791 715

Client

TBA

Project

Residential Development
No. 921 Puncbowl Rd,
Punchbowl NSW 2196

Drawing Title

Ground Floor Plan

Scale	Date	Drawn	Checked
1:500@ A1 1:1000@ A3	21.07.16	AS	CT
Job No.	Drawing No.		Issue
00 00 00	DA 1.02		A

Design File Ref: Arch/Active/921 Punchbowl Rd/DA

Issue	Date	Description	By

Notes

Drawings in this set are not for construction.
Do not scale from drawings.
All dimensions to be checked on site prior to commencement of work.
All discrepancies to be brought to the attention of the Architect.
Larger scale drawings and written dimensions take preference.
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Design Architect: Chris Tsioulos - Reg. No. 5143

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Web: www.cmtarchitects.com

ACN: 161 791 715

Client
TBA

Project
Residential Development
No. 921 Puncbowl Rd,
Punchbowl NSW 2196

Drawing Title
Ground: North

Scale	Date	Drawn	Checked
1:250@ A1 1:500 @ A3	21.07.16	AS	CT
Job No.	Drawing No.		Issue
00 00 00	DA 1.01		A
Design File Ref: Arch/Active/921 Punchbowl Rd/DA			

Issue	Date	Description	By

Notes

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Client

TBA

Project

Residential Development
No. 921 Puncbowl Rd,
Punchbowl NSW 2196

Drawing Title

Ground: South

Scale	Date	Drawn	Checked
1:250@ A1 1:500 @ A3	21.07.16	AS	CT
Job No.	Drawing No.		Issue
00 00 00	DA 1.00		A

Design File Ref: Arch/Active/921 Punchbowl Rd/DA

Issue	Date	Description	By

Notes

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Design Architect: Chris Tsioulos - Reg. No. 5143

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Project

Residential Development
No. 921 Puncbowl Rd,
Punchbowl NSW 2196

Drawing Title

First Floor Plan

Scale	Date	Drawn	Checked
1:500@ A1 1:1000@ A3	21.07.16	AS	CT
Job No.	Drawing No.		Issue
00 00 00	DA 1.08		A

Design File Ref: Arch/Active/921 Punchbowl Rd/DA

Issue	Date	Description	By

Notes

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Project
Residential Development
No. 921 Puncbowl Rd,
Punchbowl NSW 2196

Drawing Title
First: North

Scale	Date	Drawn	Checked
1:250@ A1 1:500@ A3	21.07.16	AS	CT
Job No.	Drawing No.		Issue
00 00 00	DA 1.07		A

Design File Ref: Arch/Active/921 Punchbowl Rd/DA

Issue	Date	Description	By

Notes

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Client

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Project

Residential Development
No. 921 Puncbowl Rd,
Punchbowl NSW 2196

Drawing Title

First: South

Scale	Date	Drawn	Checked
1:250@ A1 1:500@ A3	21.07.16	AS	CT
Job No.	Drawing No.		Issue
00 00 00	DA 1.06		A

Design File Ref: Arch/Active/921 Punchbowl Rd/DA

Issue	Date	Description	By

Notes

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Design Architect: Chris Tsioulos - Reg. No. 5143

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ACN: 161 791 715

Client

TBA

Project

Residential Development
No. 921 Puncbowl Rd,
Punchbowl NSW 2196

Drawing Title

Second Floor Plan

Scale	Date	Drawn	Checked
1:500 @ A1 1:1000 @ A3	21.07.16	AS	CT
Job No.	**Drawing No.**		**Issue**
00 00 00	DA 1.05		A

Design File Ref: Arch/Active/921 Punchbowl Rd/DA

Issue	Date	Description	By

Notes

Drawings in this set are not for construction.
Do not scale from drawings.
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All discrepancies to be brought to the attention of the Architect.
Larger scale drawings and written dimensions take preference.
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Design Architect: Chris Tsioulos - Reg. No. 5143

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Web: www.cmtarchitects.com

ACN: 161 791 715

Client
TBA

Project
Residential Development
No. 921 Puncbowl Rd,
Punchbowl NSW 2196

Drawing Title
Second: North

Scale	Date	Drawn	Checked
1:250 @ A1 1:500 @ A3	21.07.16	AS	CT
Job No.	Drawing No.		Issue
00 00 00	DA 1.04		A

Design File Ref: Arch/Active/921 Punchbowl Rd/DA

Issue	Date	Description	By

Notes

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Design Architect: Chris Tsioulos - Reg. No. 5143

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CMT ARCHITECTS
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Fax: + 61 2 9587 4332
E: info@cmtarchitects.com
Web: www.cmtarchitects.com

ACN: 161 791 715

Client

TBA

Project

Residential Development
No. 921 Puncbowl Rd,
Punchbowl NSW 2196

Drawing Title

Second: South

Scale	Date	Drawn	Checked
1:250 @ A1 1:500 @ A3	21.07.16	AS	CT
Job No.	**Drawing No.**		**Issue**
00 00 00	DA 1.03		A

Design File Ref: Arch/Active/921 Punchbowl Rd/DA

Issue	Date	Description	By

Notes

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ACN: 161 791 715

Client
TBA

Project
Residential Development
No. 921 Puncbowl Rd,
Punchbowl NSW 2196

Drawing Title
Third Floor Plan

Scale	Date	Drawn	Checked
1:500@ A1 1:1000@ A3	21.07.16	AS	CT
Job No.	Drawing No.		Issue
00 00 00	DA 1.11		A

Design File Ref: Arch/Active/921 Punchbowl Rd/DA

Issue	Date	Description	By

Notes

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ACN: 161 791 715

Client
TBA

Project
Residential Development
No. 921 Puncbowl Rd,
Punchbowl NSW 2196

Drawing Title
Third: North

Scale	Date	Drawn	Checked
1:250@ A1 1:500@ A3	21.07.16	AS	CT
Job No.	Drawing No.		Issue
00 00 00	DA 1.10		A

Design File Ref: Arch/Active/921 Punchbowl Rd/DA

Issue	Date	Description	By

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Client

TBA

Project

Residential Development
No. 921 Puncbowl Rd,
Punchbowl NSW 2196

Drawing Title

Third: South

Scale	Date	Drawn	Checked
1:250@ A1 1:500@ A3	21.07.16	AS	CT
Job No.	**Drawing No.**		**Issue**
00 00 00	DA 1.09		A

Design File Ref: Arch/Active/921 Punchbowl Rd/DA

Issue	Date	Description	By

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Client

TBA

Project

Residential Development
No. 921 Puncbowl Rd,
Punchbowl NSW 2196

Drawing Title

Fourth Floor Plan

Scale	Date	Drawn	Checked
1:250@ A1 1:500@ A3	21.07.16	AS	CT
Job No.	Drawing No.		Issue
00 00 00	DA 1.14		A

Design File Ref: Arch/Active/921 Punchbowl Rd/DA

Issue	Date	Description	By

Notes

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ACN: 161 791 715

Client
TBA

Project
Residential Development
No. 921 Puncbowl Rd,
Punchbowl NSW 2196

Drawing Title
Fourth: North

Scale	Date	Drawn	Checked
1:250@ A1 1:500@ A3	21.07.16	AS	CT
Job No.	Drawing No.		Issue
00 00 00	DA 1.13		A

Design File Ref: Arch/Active/921 Punchbowl Rd/DA

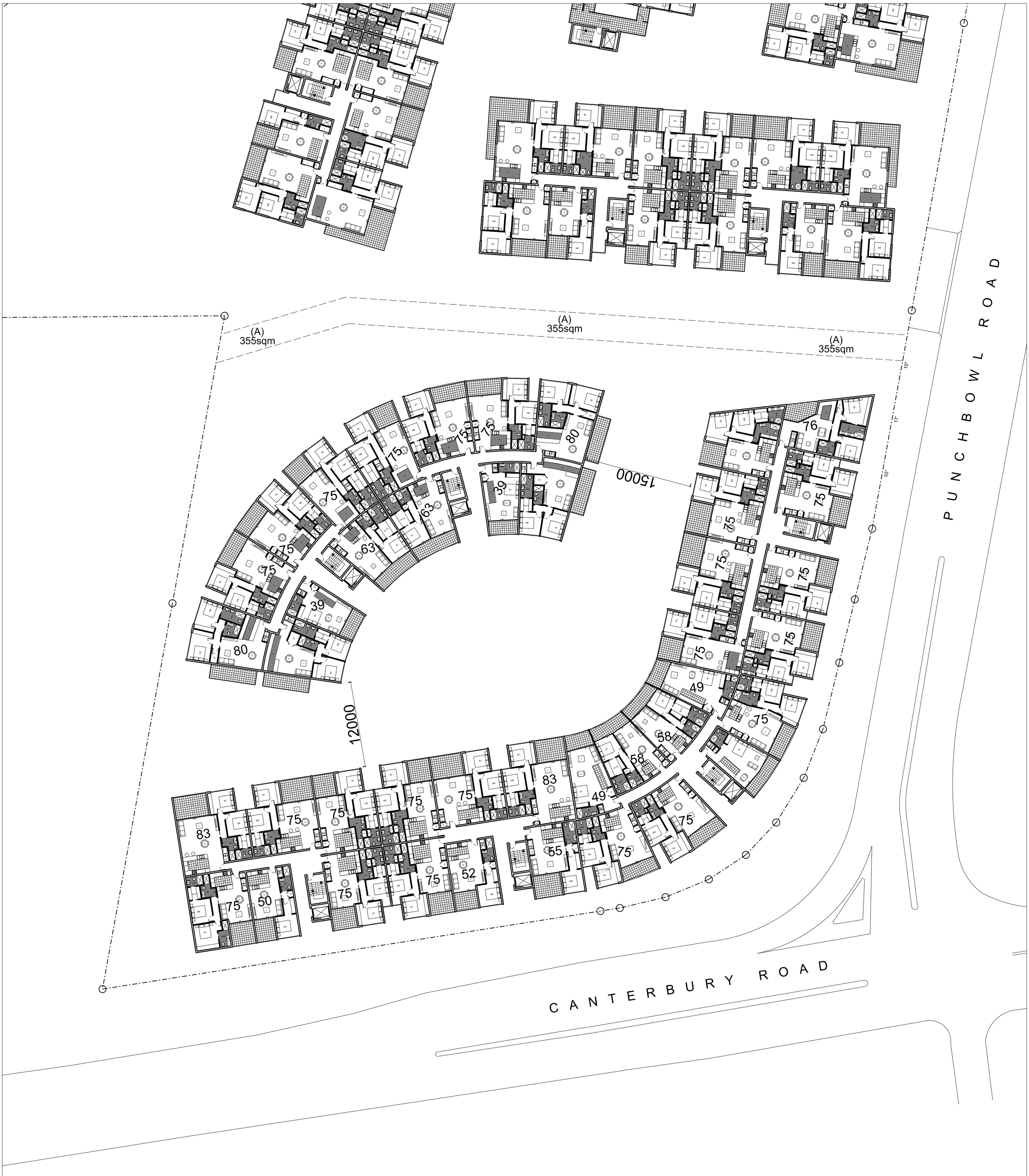
Issue	Date	Description	By

Notes

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ACN: 161 791 715

Client

TBA

Project

Residential Development
No. 921 Puncbowl Rd,
Punchbowl NSW 2196

Drawing Title

Fourth: South

Scale	Date	Drawn	Checked
1:250@ A1 1:500@ A3	21.07.16	AS	CT
Job No.	Drawing No.		Issue
00 00 00	DA 1.12		A

Design File Ref: Arch/Active/921 Punchbowl Rd/DA

Issue	Date	Description	By

Notes

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MIXED USE DEVELOPMENT

21 Canterbury Road, Punchbowl

DWG NO.	DRAWING TITLE	SCALE	ISSUE	DATE
000	COVER SHEET & LOCATION PLAN	N.T.S.	E	01.06.2017
100	LANDSCAPE MASTERPLAN	1:400	E	01.06.2017
C100	LANDSCAPE MASTERPLAN RENDER	1:400	E	01.06.2017
101	LANDSCAPE PLAN - CIVIC PLAZA	1:200	E	01.06.2017
102	LANDSCAPE PLAN - RESIDENTIAL	1:200	E	01.06.2017
103	LANDSCAPE PLAN - RESIDENTIAL	1:200	E	01.06.2017
104	LANDSCAPE PLAN - LEVEL 3 TERRACE	1:50	E	01.06.2017
501	LANDSCAPE DETAILS	AS SHOWN	E	01.06.2017
502	LANDSCAPE SPECIFICATION & INDICATIVE PLANT SCHEDULE		E	01.06.2017

01
000

LOCATION PLAN

N.T.S.

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A1

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The contractor shall check and verify all work on site (including work by others) before commencing the landscape installation. Any discrepancies are to be reported to the Project Manager or Landscape Architect prior to commencing work. Do not scale this drawing. Any required dimensions not shown shall be referred to the Landscape Architect for confirmation.

Issue	Revision Description	Drawn	Check	Date
E	For DA	PH	RS	01.06.2017
D	For DA	NP	RS	23.01.2017
C	For Approval	PH	RS	13.12.2016
B	For Review	PH	RS	21.11.2016
A	For Review	NH	RS	28.07.2016

LEGEND

Key Plan:

Client:
Waldron Hill Developments

Architect:
CMT Architects

Project:
21 Canterbury Road
Punchbowl

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Redfern NSW 2016
Australia

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DEVELOPMENT APPLICATION

Drawing Name:
COVER SHEET

Sheet _ of _

Scale: 1:1000 @ A1

0 5 10 25 50m

Job Number: SS16-3349

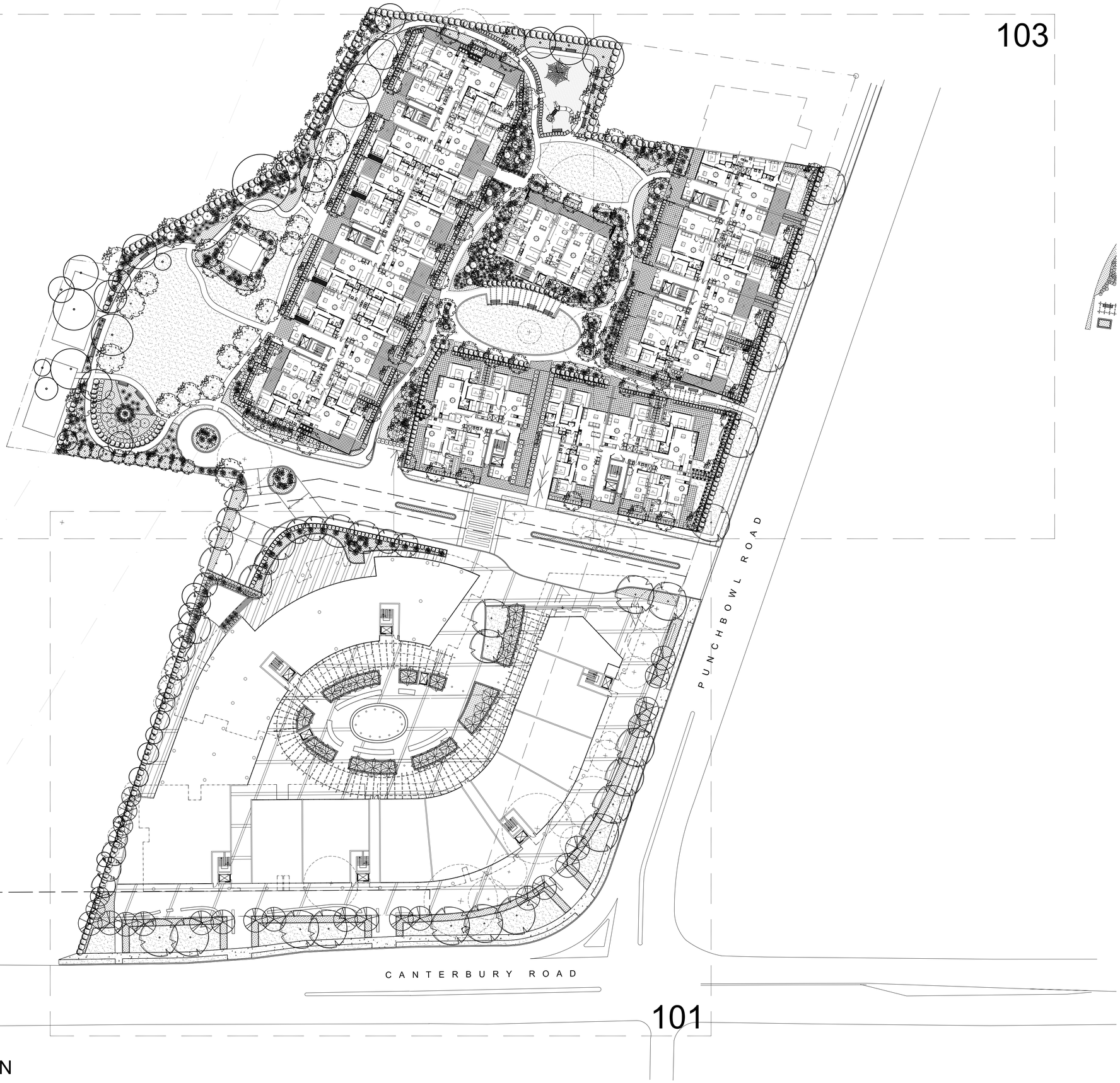
Drawing Number: 000

Issue: E

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A	For Review	NH	RS	28.07.2016



LEGEND

- Proposed Tree Planting
- Proposed Palm Trees
- Proposed Shrub Planting
- Proposed Accent Planting
- Proposed Groundcover
- Turf
- Proposed Paving Type 1
- Proposed Paving Type 2
- Proposed Bench Seating
- Proposed Pergola Structure

Key Plan:

Client:
Waldron Hill Developlments

Architect:
CMT Architects

Project:
21 Canterbury Road
Punchbowl

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DEVELOPMENT APPLICATION

Drawing Name:
LANDSCAPE MASTERPLAN

Scale: 1:400 @ A1
Sheet _ of _
0 2 4 8 12 20m

Job Number: SS16-3349
Drawing Number: 100
Issue: E

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A	For Review	NH	RS	28.07.2016

LEGEND

- Proposed Tree Planting
- Proposed Palm Trees
- Proposed Shrub Planting
- Proposed Accent Planting
- Proposed Groundcover
- Turf
- Proposed Paving Type 1
- Proposed Paving Type 2
- Proposed Bench Seating
- Proposed Pergola Structure

Key Plan:

Client:
Waldron Hill Developlments

Architect:
CMT Architects

Project:
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DEVELOPMENT APPLICATION

Drawing Name:
LANDSCAPE MASTERPLAN

Scale: 1:400 @ A1
Sheet _ of _
0 2 4 8 12 20m

Job Number: SS16-3349
Drawing Number: C100
Issue: E

NOT FOR CONSTRUCTION

A1

CONTINUES ON 102

CONTINUES ON 103

PUNCH

CANTERBURY ROAD

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A1

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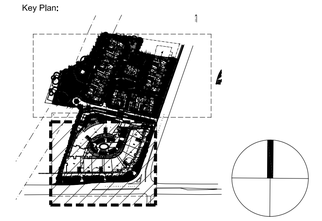
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A	For Review	NH	RS	28.07.2016

LEGEND

- Proposed Tree Planting
- Proposed Palm Trees
- Proposed Shrub Planting
- Proposed Accent Planting
- Proposed Groundcover
- Turf
- Proposed Paving Type 1
- Proposed Paving Type 2
- Proposed Bench Seating
- Proposed Pergola Structure

Key Plan:



Client:
Waldron Hill Developlments

Architect:
CMT Architects

Project:
21 Canterbury Road
Punchbowl

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DEVELOPMENT APPLICATION

Drawing Name:
LANDSCAPE PLAN
CIVIC PLAZA

Scale: 1:200 @ A1

Sheet _ of _

0 1 2 4 6 10m

Job Number: SS16-3349

Drawing Number: 101

Issue: E

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C	For Approval	PH	RS	13.12.2016
B	For Review	PH	RS	21.11.2016
A	For Review	NH	RS	28.07.2016

LEGEND

- Proposed Tree Planting
- Proposed Palm Trees
- Proposed Shrub Planting
- Proposed Accent Planting
- Proposed Groundcover
- Turf
- Proposed Paving Type 1
- Proposed Paving Type 2
- Proposed Bench Seating
- Proposed Pergola Structure

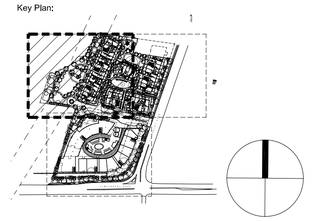
CONTINUES ON 101

CONTINUES ON 103

NOT FOR CONSTRUCTION

A1

Key Plan:



Client:
Waldron Hill Developlments

Architect:
CMT Architects

Project:
21 Canterbury Road
Punchbowl

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DEVELOPMENT APPLICATION

Drawing Name:
LANDSCAPE PLAN
RESIDENTIAL

Scale: 1:200 @ A1

Sheet _ of _

0 1 2 4 6 10m

Job Number: SS16-3349

Drawing Number: 102

Issue: E

CONTINUES ON 102

CONTINUES ON 101

A D

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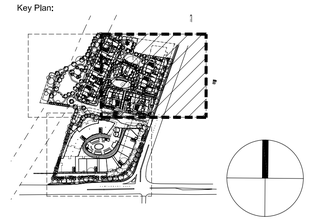
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A	For Review	NH	RS	28.07.2016

LEGEND

- Proposed Tree Planting
- Proposed Palm Trees
- Proposed Shrub Planting
- Proposed Accent Planting
- Proposed Groundcover
- Turf
- Proposed Paving Type 1
- Proposed Paving Type 2
- Proposed Bench Seating
- Proposed Pergola Structure

Key Plan:



Client:
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Architect:
CMT Architects

Project:
21 Canterbury Road
Punchbowl

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DEVELOPMENT APPLICATION

Drawing Name:
LANDSCAPE PLAN
RESIDENTIAL

Scale: 1:200 @ A1

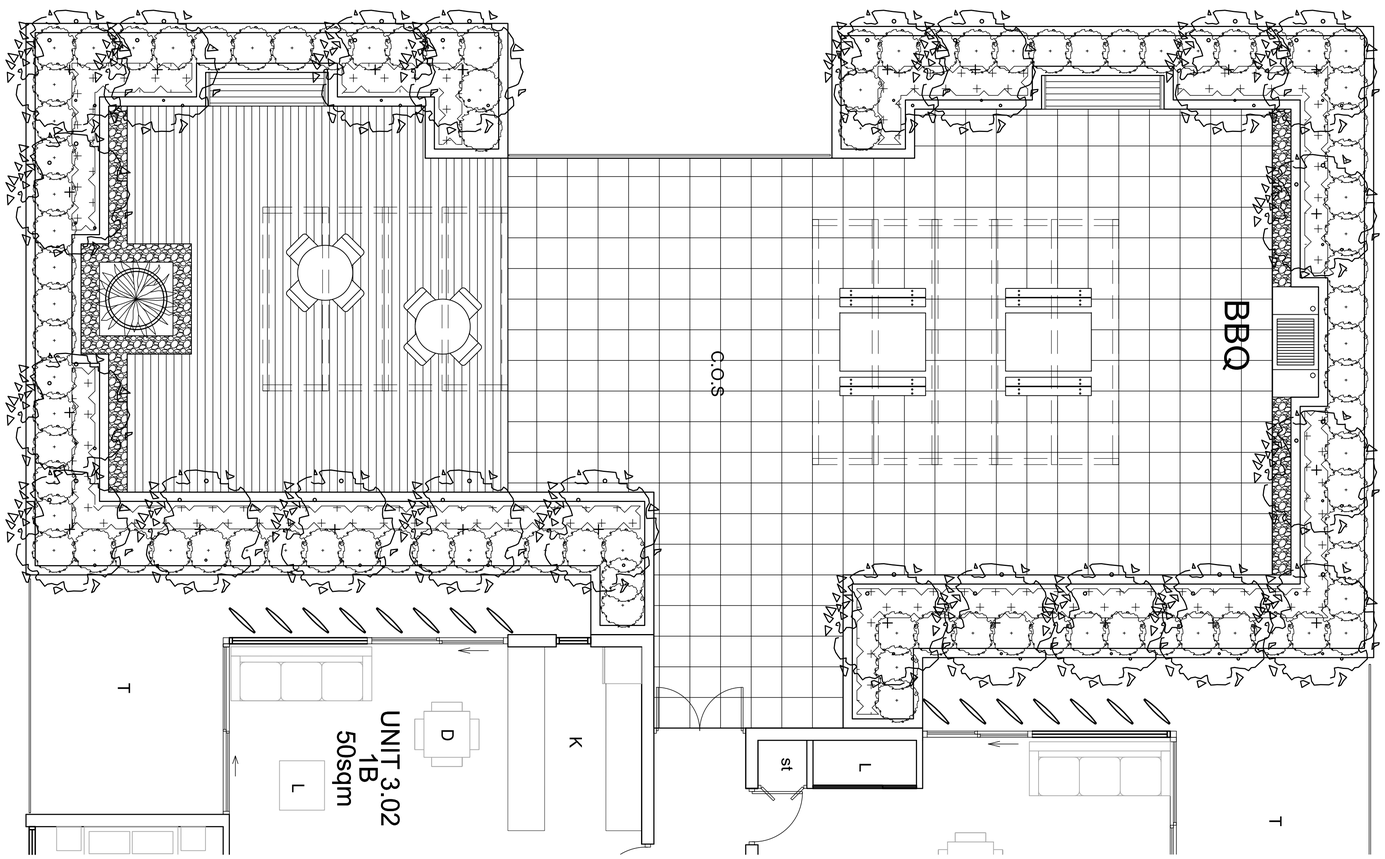
Sheet _ of _

0 1 2 4 6 10m

Job Number: SS16-3349

Drawing Number: 103

Issue: E



01
104

LANDSCAPE PLAN - LEVEL 3 TERRACE

SCALE 1:50

NOT FOR CONSTRUCTION

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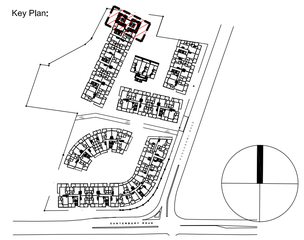
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C	For Approval	PH	RS	13.12.2016
B	For Review	PH	RS	21.11.2016
A	For Review	NH	RS	28.07.2016

LEGEND

- Proposed Tree Planting
- Proposed Shrub Planting
- Proposed Groundcover
- Proposed Pot Planting
- Proposed Pebble Paving
- Proposed Timber Decking
- Proposed Paving
- Proposed Table & Chairs
- Proposed Pergola Structure
- BBQ facilities (BBQ)

Key Plan:



Client:
Waldron Hill Developments

Architect:
CMT Architects

Project:
21 Canterbury Road
Punchbowl

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Landscape Architects

DEVELOPMENT APPLICATION

Drawing Name:
LANDSCAPE PLAN
LEVEL 3 TERRACE

Scale: 1:50 @ A1

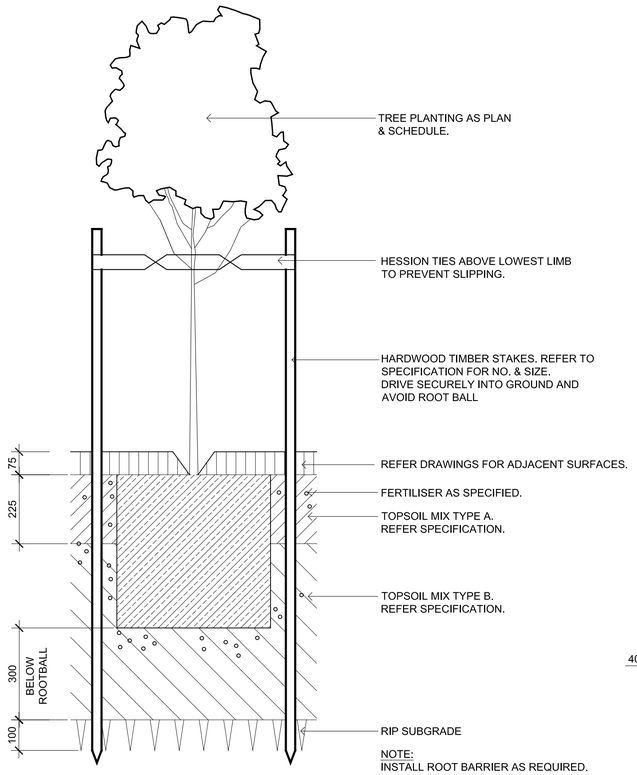
Sheet _ of _

0 0,5 1 1,5 2 2,5m

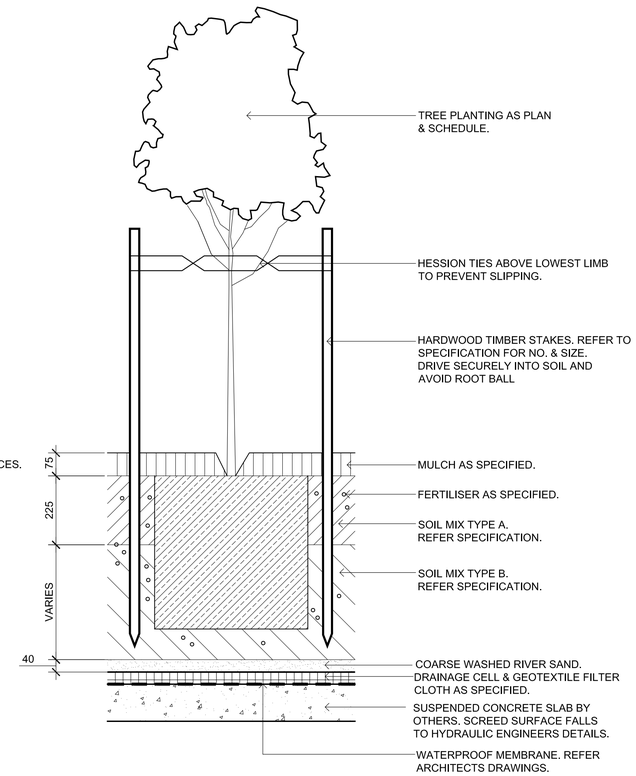
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Drawing Number: 104

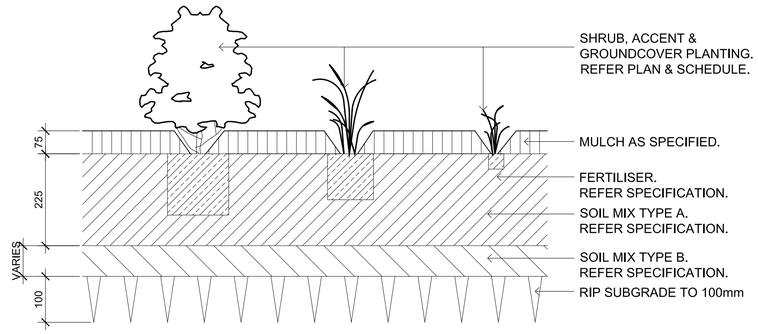
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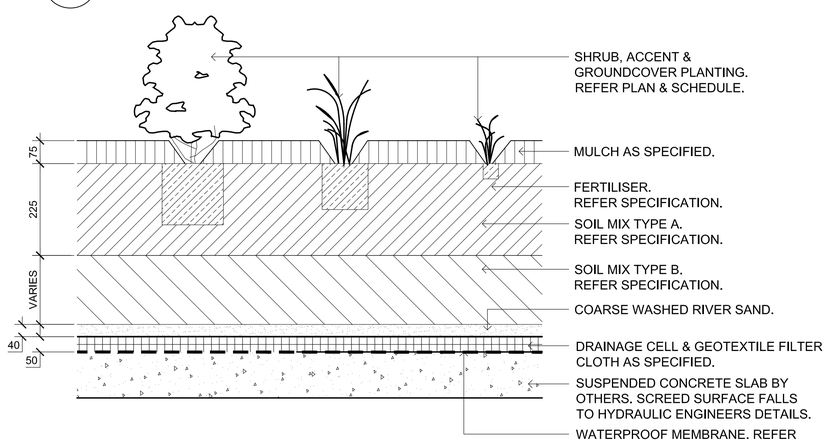
01 / 501 75-200L TREE PLANTING ON GRADE
SCALE 1:10



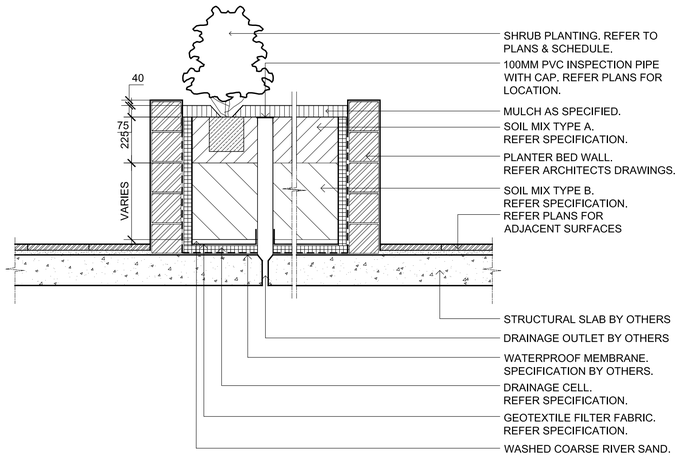
02 / 501 75-200L TREE PLANTING ON SLAB
SCALE 1:10



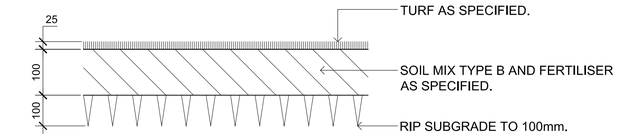
05 / 501 SHRUB, ACCENT & GROUNDCOVER PLANTING ON GRADE
SCALE 1:10



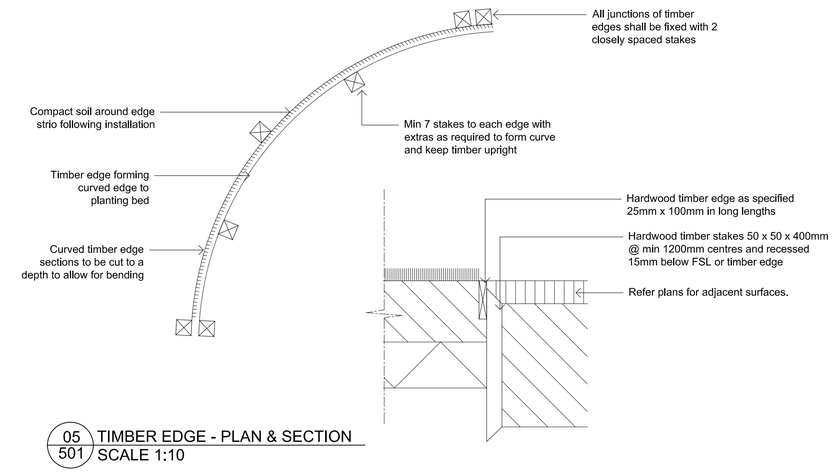
03 / 501 SHRUB, ACCENT & GROUNDCOVER PLANTING ON SLAB
SCALE 1:10



06 TYP. RAISED PLANTER BED ON SUSPENDED SLAB - SECTION
SCALE 1:20



04 / 501 TURF ON EVEN GRADE
SCALE 1:10



05 / 501 TIMBER EDGE - PLAN & SECTION
SCALE 1:10

NOT FOR CONSTRUCTION

A1

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Issue	Revision Description	Drawn	Check	Date
E	For DA	PH	RS	01.06.2017
D	For DA	NP	RS	23.01.2017
C	For Approval	PH	RS	13.12.2016
B	For Review	PH	RS	21.11.2016
A	For Review	NH	RS	28.07.2016

LEGEND

Key Plan:

Client:
Waldron Hill Developlments

Architect:
CMT Architects

Project:
21 Canterbury Road
Punchbowl

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DEVELOPMENT APPLICATION

Drawing Name:
LANDSCAPE DETAILS

Sheet _ of _

Scale: AS SHOWN

Job Number: SS16-3349

Drawing Number: 501

Issue: E

21 Canterbury Road, Punchbowl
INDICATIVE PLANT SCHEDULE

BOTANIC NAME	COMMON NAME	HEIGHT	WIDTH	POT SIZE	WATER USE	INDIGENOUS/ EXOTIC
TREES						
Acer negundo	Box Alder	15m	8m	100Lt	L	Exotic
Brachychiton acerifolius	Illawarra Flame Tree	25m	5m	100Lt	L	Indigenous
Corymbia maculata	Spotted Gum	30m	8m	100Lt	L	Indigenous
Elaeocarpus reticulatus	Blueberry Ash	12m	5m	100Lt	L	Indigenous
Eucalyptus molucanna	Grey Box	14m	8m	100Lt	L	Indigenous
Eucalyptus robusta	Swamp Mahogany	15m	6m	100Lt	L	Indigenous
Fraxinus 'Raywood'	Claret Ash	10m	7m	100Lt	M	Exotic
Lagestroemia indica	Crepe Myrtle	6m	3m	75Lt	L	Exotic
Magnolia grandiflora 'Exmouth'	Southern Magnolia	12m	8m	100L	M	Exotic
Magnolia 'Little Gem'	Dwarf Magnolia	5m	3m	75Lt	H	Exotic
Melalauca quinqenervia	Broad Leaf Paperbark	15m	7m	100Lt	L	Indigenous
Pistacia chinensis	Pistachio	8m	4m	75L	M	Exotic
Tristaniopsis laurina	Water Gum	10m	8m	100Lt	L	Indigenous
Waterhousia floribunda	Weeping Lillypilly	15m	8m	100Lt	M	Indigenous
SHRUBS						
Abelia grandiflora	Abelia	2m	2m	300mm	L	Exotic
Acmena smithii 'Allyn Magic'	Dwarf Acmena	0.5m	0.5m	300mm	L	Indigenous
Acmena smithii 'Cherry Surprise'	Cherry Surprise	3m	2m	300mm	L	Indigenous
Banksia ericifolia	Heath Banksia	4m	3m	300mm	L	Indigenous
Buxus microphylla	Japanese Box	1.5m	1.5m	300mm	M	Exotic
Breynia oblongifolia	Coffee Bush	3m	1.5m	300mm	L	Indigenous
Callistemon citrinus 'White Anzac'	Lemon Scented Bottlebrush	1m	2m	300mm	L	Exotic
Callistemon viminalis Little John	Little John Bottlebrush	0.8m	0.8m	300mm	L	Exotic
Ceratopetalum gummiferum	NSW Christmas Bush	6m	01.5m	300mm	L	Indigenous
Convolvulus cenorum	Silver Bush	0.6m	0.8m	300mm	L	Exotic
Elaeocarpus reticulatus	Blueberry Ash	3m	3m	300mm	L	Indigenous
Eriostemon myoporoides	Wax Flower	1.5m	1.5m	300mm	L	Indigenous
Gardenia augusta Florida	Gardenia	1.5m	1.5m	300mm	H	Exotic
Leucophyta brownii	Cushion Bush	1m	1m	300mm	L	Exotic
Murraya panniculata	Mock Orange	3m	2m	300mm	M	Exotic
Persoonia levis	Broad-leaf Geebung	4m	2m	300mm	L	Indigenous
Pittosporum tobira 'Miss Muffet'	Dwarf Pittosporum	0.8m	1.5m	300mm	L	Exotic
Photinia glabra 'Rubens'	Dwarf Photinia	3m	2m	300mm	L	Exotic
Rhaphiolepis Oriental Pearl	Indian Hawthorne	1.5m	2m	300mm	L	Exotic
Syzygium australe 'Tiny Trev'	Dwarf Lilly Pilly	0.8m	0.8m	300mm	M	Exotic
Syzygium 'Cascde'	Pink Flowering Lilly Pilly	2.5m	1.5m	300mm	M	Exotic
Viburnum tinus	Laurestinus	3m	2m	300mm	L	Exotic
Westringia fruticosa	Native Rosemary	2m	2m	300mm	L	Indigenous
ACCENT						
Asplenium australasicum	Birds Nest Fern	1m	1m	300mm	L	Indigenous
Cycas revoluta	Japanese Sago	1.5m	1.5m		M	Exotic
Doryanthes excelsa	Gymea Lily	2m	2m	200mm	L	Indigenous
Phormium tenax 'Bronze Baby'	Dwarf Flax	0.75m	0.8m		L	Exotic
Strelitzia reginiae	Bird of Paradise	1.5m	1.5m	300mm	M	Exotic
Yucca Sp.	Yucca	1.5m	1m	200mm	L	Exotic
GROUNDCOVERS AND GRASSES						
Carpobrotus glaucescens	Pigface	1m	1m	150mm	L	Exotic
Carex appressa	Tall Sedge	0.8m	0.6	150mm	M	Indigenous
Convolvulus mauritanicus	Ground Morning Gloy	0.1m	0.9m	150mm	L	Exotic
Clivia miniata	Kaffir Lily	0.45m	0.5m	150mm	H	Exotic
Dianella 'Breeze'	Breeze Flax Lily	0.7m	0.6m	150mm	L	Indigenous
Dianella caerulea	Paroo Lily	0.6m	0.6m	150mm	L	Indigenous
Dianella 'Cassa Blue'	Cassa Blue Flax Lily	0.40	0.40	150mm	L	Indigenous
Dianella 'Silver Streak'	Silver Streak Flax Lily	0.5m	0.4m	150mm	L	Indigenous
Hardenbergia violaecea	False Sarsaparilla	0.3m	2m	150mm	L	Exotic
Hibbertia scandens	Climbing Guinea Flower	0.3m	4m	150mm	L	Indigenous
Imperata cylindrica	Blady Grass/Cogon Grass	0.6m	0.3m	150mm	M	Exotic
Microlaena stipoides	Weeping Grass	0.7m	0.3m	150mm	L	Indigenous
Liriope muscari 'Evergreen Giant'	Lily Turf	0.6m	0.5m	150mm	M	Exotic
Lomandra longifolia	Matt Rush	1m	0.5m	150mm	L	Indigenous
Lomandra longifolia 'Tanika'	Mat Rush	0.3m	0.7m	150mm	L	Indigenous
Poa poiformis 'Courtney'	Poa	0.5m	0.2m	150mm	L	Indigenous
Scaevola aemula 'Mauve Clusters'	Purple Fan Flower	0.3m	0.6m	150mm	M	Exotic
Themeda australis	Kangaroo Grass	0.6m	0.3m	150mm	L	Indigenous
Trachelospermum jasminoides	Star Jasmine	.75m	6m	150mm	M	Exotic
Viola hederacea	Native Violet	0.1m	0.3m	150mm	L	Indigenous

LANDSCAPE SPECIFICATION NOTES

GENERALLY
THE CONTRACTOR SHALL PLACE ORDERS FOR THE DELIVERY OF ALL MATERIALS, SUPPLIES, ETC., IMMEDIATELY AFTER SIGNING THE CONTRACT AND ENSURE THE SUPPLIERS GUARANTEE DELIVERY AT ALL TIMES TO ACCORD WITH THE CONSTRUCTION PROGRAM.

SITE PREPARATION
ENSURE ALL PROVISIONS FOR LANDSCAPE TO BE PROVIDED BY THE BUILDER ARE COMPLETE AND ALL CONTRACTORS RUBBISH AND DEBRIS IS REMOVED;

DRAINAGE CELL AND FILTER FABRIC
FOR ON-SLAB AREAS INSTALL AN APPROVED 'DRAINAGE CELL' PRODUCT TO COMPREHENSIVELY COVER THE BOTTOM OF ALL PLANTERS.

OVER DRAINAGE CELL TO ON-SLAB AREAS, A POLYFELT GEOTEXTILE LINING (AS SUPPLIED BY 'POLYFELT TS' OR APPROVED EQUIVALENT) IS TO BE INSTALLED TO COVER THE BOTTOM OF ALL PLANTERS, TURNED UP 300MM AND TAPED TO THE PLANTER SIDES TO ENSURE SOIL MIX DOES NOT ESCAPE INTO DRAINAGE OUTLETS/HOLES.

INSTALL MIN. 50MM COARSE RIVER SAND OVER ALL GEOTEXTILE LINING PRIOR TO INSTALLATION OF SOIL MIX.

ABORIST MANAGEMENT OF TREE PROTECTION
A QUALIFIED AND APPROVED ABORIST IS TO BE CONTRACTED TO UNDERTAKE OR MANAGE THE INSTALLATION OF PROTECTIVE FENCING, AND TO UNDERTAKE SUCH MEASURES AS HE DEEMS APPROPRIATE TO PRESERVE THE SUBJECT TREES TO BE RETAINED. THE ARBORIST IS TO BE RETAINED FOR THE ENTIRE CONTRACT PERIOD TO UNDERTAKE ONGOING MANAGEMENT AND REVIEW OF THE TREES.

IMPORTED SOIL MIX
IMPORTED LIGHTWEIGHT SOIL MIX FOR ON-SLAB AREAS AND POTS:
LIGHTWEIGHT SOIL MIX SHALL BE COMPOSED OF THE FOLLOWING MATERIALS AND MIXED IN THE GIVEN PROPORTIONS TO PRODUCE A MATERIAL WITH A PH 6.0-6.5

SOIL MIX PER CUBIC METRE SHALL CONSIST OF:
- 30% KENTHURST BLACK LOAM
- 30% DOUBLE WASHED COARSE SAND
- 20% AUSTRALIAN PEAT
- 10% COMPOSTED BARK FINES
- 10% COMPOSTED HARDWOOD DUST

FERTILISER PER CUBIC METRE SHALL CONSIST OF
- 500GMS CALCIUM NITRATE
- 500GMS POTASSIUM SULPHATE
- 750GMS SUPERPHOSHATE MICRO FINE
- 1 KG IBDU (NITROGEN SLOW RELEASE)
- 1 KG SLOW RELEASE NUTRICOTE

PLANT MATERIAL
ALL PLANTS SHALL BE WELL GROWN, DISEASE FREE NURSERY STOCK, AND TRUE TO SPECIES TYPE. NO SPECIES SHALL BE SUBSTITUTED WITHOUT THE APPROVAL OF THE SUPERINTENDENT. NO VARIEGATED STRAIN SHALL BE USED UNLESS NOMINATED.

ALL PLANTS SHALL BE OF THE SIZE AND QUALITY CONSISTENT WITH THE NORMAL INDUSTRY EXPECTATION FOR THE NOMINATED CONTAINER SIZE. PLANTS NOT CONSISTENT WITH THE ABOVE MAY BE REJECTED WITH REPLACEMENT STOCK SUBJECT TO THE APPROVAL OF THE SUPERINTENDENT.

ALLOW TWO AGRIFORM SLOW RELEASE PELLETS PER 5-25 LITRE PLANT AND ONE PER 150MM PLANT. ALL FERTILISER IS TO BE APPLIED IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS.

MULCH
TO MASS PLANTING AREAS AND STREET TREES INSTALL 75MM THICKNESS OF GRADED PINE BARK AS SUPPLIED BY AUSTRALIAN NATIVE LANDSCAPES P/L OR APPROVED EQUIVALENT. ALL MULCH SHALL BE FREE OF VEGETATIVE REPRODUCTIVE PARTS OF WEEDS

IRRIGATION SYSTEM
SUPPLY AN AUTOMATIC WATERING SYSTEM USING 'TORO IRRIGATION SYSTEM' OR SIMILAR APPROVED, WITH MICRO-JET SPRINKLER HEADS AND LOW DENSITY, RUBBER MODIFIED POLYPROPYLENE RETICULATION, TO INCLUDE FILTERS, BENDS JUNCTIONS, ENDS AND OTHER ANCILLARY EQUIPMENT. THE LANDSCAPER SHALL NOMINATE HIS SOURCE OF SUPPLY FOR THE WATERING SYSTEM AND OBTAIN APPROVAL FROM THE SUPERINTENDENT BEFORE PLACING ORDERS FOR EQUIPMENT OR SUPPLY.

A SCHEMATIC PLAN OF THE PROPOSED IRRIGATION SYSTEM IS TO BE PREPARED BY THE CONTRACTOR, SHOWING SOLENOIDS, PIPE DIAMETERS, AND ALL NOZZLE AND TRICKLE ATTACHMENT TYPES (INCLUDING SPRAY/HEAD ANGLE), FOR REVIEW BY THE SUPERINTENDENT PRIOR TO INSTALLATION

THE CONTRACTOR IS TO LIASE WITH THE HYDRAULIC ENGINEER AND COUNCIL AS NECESSARY, TO ENSURE THE THE IRRIGATION SYSTEM CONFORMS WITH ALL THE COUNCIL AND WATER BOARD CODES AND REQUIREMENTS.

PROVIDE AN AUTOMATIC CONTROLLER THAT PROVIDES FOR TWO WEEK SCHEDULING AND HOURLY MULTI-CYCLE OPERATION. THE CONTROLLER SHALL MANUAL OVERRIDE. PROGRAMMING SHALL BE UNDERTAKEN BY THE CONTRACTOR WHO SHALL ADVISE ON THE OPERATION OF THE SYSTEM.

PROVISION OF SECURE HOUSING FOR THE AUTOMATIC IRRIGATION CONTROLLER TO BE LOCATED IN ASSOCIATION WITH THE LANDSCAPE CONTRACTOR AND LOCATION CONFIRMED BY THE SUPERINTENDENT. WIRING TO CONNECT REMOTE SOLENOID LOCATIONS IS TO BE PROVIDED. THE CONTROLLER SHALL BE LOCATED IN A DRY PLACE, PROTECTED FROM THE WEATHER, AND ALL CABLE CONNECTIONS SHALL BE MADE WITH WATERPROOF CONNECTORS.

WATER SUPPLY POINTS TO BE SUPPLIED BY BUILDER.

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE AND GUARANTEE SATISFACTORY OPERATION OF THE IRRIGATION SYSTEM.

AFTER THE SYSTEM HAS BEEN INSTALLED TO THE SATISFACTION OF THE SUPERINTENDENT, THE INSTALLATION SHALL BE TESTED UNDER KNOWN WORKING CONDITIONS. ACCEPTANCE OF THE INSTALLED PLANT AND EQUIPMENT SHALL BE SUBJECT TO THESE BEING SATISFACTORY.

TREATED PINE TIMBER EDGING
TIMBER EDGE: 100 X 25mm CCA TREATED RADIATA PINE
TIMBER STAKES: 50 X 50 X 500mm CCA TREATED RADIATA PINE-SHARPENED AT ONE END.
INSTALL IN LOCATIONS SHOWN ON THE DRAWINGS FLUSH TO FINISHED SURFACE LEVELS.

TURF
TURF ALL LANDSCAPE AREAS AS SHOWN ON THE LANDSCAPE DRAWINGS. TURF IS TO HAVE AN EVEN THICKNESS OF NOT LESS THAN 25mm. OBTAIN TURF FROM AN APPROVED GROWER. FURNISH A WARRANTY FROM THE GROWER THAT THE TURF IS FREE FROM WEEDS AND OTHER FOREIGN MATTER. DELIVER TURF TO THE SITE WITHIN 24 HOURS OF BEING CUT, AND LAY IT WITHIN 24 HOURS OF BEING DELIVERED.

TO PREPARE GRADED AREAS TO RECEIVE TURF, EXCAVATE THE AREA AND CULTIVATE SO AS TO ALLOW FOR IMPORTING OF 100mm OF TURF UNDERLAY SOIL. REMOVE ALL STONES OVER 50mm ø AND REMOVE ALL WEEDS AND FOREIGN MATTER. SPREAD SOIL MIX A.B.S TO A DEPTH OF 100mm AND GRADE TO APPROPRIATE LEVELS TO ACHIEVE GENERAL EVEN GRADES TO DRAINAGE OUTLETS INSTALLED BY OTHERS.

LAY THE TURF ALONG THE LAND CONTOURS WITH STAGGERED, CLOSE BUTTED JOINTS, SO THAT THE FINISHED TURF SURFACE IS FLUSH WITH ADJACENT FINISHED SURFACES OF PAVING AND THE LIKE. AS SOON AS PRACTICABLE AFTER LAYING, ROLL THE TURF WITH A ROLLER WEIGHING NOT MORE THAN 90kg PER METRE OF WIDTH FOR SANDY OR LIGHT SOILS.

WATER AS NECESSARY TO KEEP THE SOIL MOIST TO A DEPTH OF 100MM. PROTECT NEWLY TURFED AREAS AGAINST TRAFFIC UNTIL GRASS IS ESTABLISHED. FERTILISE TWO WEEKS AFTER LAYING FERTILISE A.B.S

'TOP DRESS' THE TURF WHEN IT IS ESTABLISHED TO A DEPTH OF 10MM WITH COARSE WASHED RIVER SAND. RUB THE DRESSING WELL INTO THE JOINTS AND CORRECT ANY UNEVENNESS IN THE TURF SURFACES.

MAINTENANCE
THE CONTRACTOR SHALL MAINTAIN THE CONTRACT AREAS BY THE IMPLEMENTATION OF INDUSTRY ACCEPTED HORTICULTURAL PRACTICES, AS WELL AS RECTIFYING ANY DEFECTS THAT BECOME APPARENT IN THE WORKS UNDER NORMAL USE.

THE CONTRACTOR SHALL MAINTAIN THE WORKS AND MAKE GOOD ALL THE DEFECTS.

LANDSCAPE MAINTENANCE SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING: WATERING, ADJUSTMENT OF THE IRRIGATION SYSTEM, RUBBISH REMOVAL, REPLACING FAILED PLANTS, MAINTAINING MULCH, PRUNING, INSECT AND DISEASE CONTROL, AND CLEANING OF THE SURROUNDING AREA.

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E	For DA	PH	RS	01.06.2017
D	For DA	NP	RS	23.01.2017
C	For Approval	PH	RS	13.12.2016
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A	For Review	NH	RS	28.07.2016

LEGEND

Key Plan:

Client:
Waldron Hill Developlments

Architect:
CMT Architects

Project:
21 Canterbury Road
Punchbowl

SITE IMAGE
Level 1, 3-5 Baptist Street
Redfern NSW 2016
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Landscape Architects

DEVELOPMENT APPLICATION

Drawing Name:
LANDSCAPE SPECIFICATIONS & INDICATIVE PLANT SCHEDULE

Sheet _ of _

Scale: AS SHOWN

Job Number: SS16-3349

Drawing Number: 502

Issue: E

NOT FOR CONSTRUCTION

A1

TABLE OF EASEMENTS

(A) EASEMENT FOR DRAINAGE IN C767645
(A1) LEASE TO OPTUS MOBILE IN 7570102
(C) RIGHT OF WAY AND EASEMENT FOR ELECTRICITY PURPOSES 3,07 WIDE IN 8166752
(S) EASEMENT FOR TRANSMISSION LINE IN G14288
(T) EASEMENT FOR TRANSMISSION LINE IN PG28154

NOTE: DIMENSIONS SHOWN HAVE BEEN COMPILED FROM VARIOUS LAND AND PROPERTY INFORMATION 1 LPI PLANS, ARE APPROXIMATE AND WILL REQUIRE A FULL BOUNDARY SURVEY FOR PROPER DETERMINATION.

MGA 1 (TRUE)

SSM 868926

No 34
No 36
No 19
No 17
No 15
No 13
No 11
No 9
No 7
No 5
No 3
No 1

SPLIT LEVEL BRICK RESIDENCE TILE ROOF

TWO STOREY BRICK & CLAD RESIDENCE TILE ROOF

PERGOLA

APPROX POSITION OF ELECTRICITY STANCHION EASEMENT

BLOCK BUILDING CLUB PUNCHBOWL No 21 CANTERBURY ROAD

BLOCK BUILDING FLAT ROOF No 23

CLAD RESIDENCE TILE ROOF No 915

FC RESIDENCE TILE ROOF No 917

BRICK RESIDENCE TILE ROOF No 919

BM 03 NAIL IN KERB RL 7.48 (AHD)

PUNCHBOWL ROAD

FC RESIDENCE TILE ROOF No 980

FC RESIDENCE TILE ROOF No 984

CLAD RESIDENCE TILE ROOF No 986

CLAD & BRICK RESIDENCE TILE ROOF No 988

BRICK RESIDENCE TILE ROOF No 990

CLAD & BRICK RESIDENCE TILE ROOF No 992

FC RESIDENCE TILE ROOF No 994

TWO STOREY BRICK RESIDENCE TILE ROOF No 996

PETROL STATION AWNING

PETROL STATION AWNING

PROPOSED ROAD WIDENING

BM 01 ON DH&W RL 6.36 (AHD)

BM 02 NAIL IN KERB RL 7.09 (AHD)

SSM 031699

CANTERBURY ROAD

BRAMHALL AVENUE

TWO STOREY BRICK RESIDENCE TILE ROOF No 1562

BRICK/CLAD RESIDENCE TILE ROOF No 1560

BRICK RESIDENCE TILE ROOF No 1558

CLAD RESIDENCE TILE ROOF No 1556

CEMENT RENDERED BRICK RESIDENCE TILE ROOF No 1554

BRICK/CLAD RESIDENCE TILE ROOF No 1552

BLOCK BUILDING FLAT ROOF No 1546

DETUM OF LEVELS AUSTRALIAN HEIGHT DATUM
DRAWN BY LEVELS SSM 868926
DRAWN BY DETAIL Survey
SOURCE OF LEVELS Scale

APPENDIX G: BOREHOLE LOGS

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BOREHOLE & GROUNDWATER WELL LOG

CLIENT	Bill Gertos	**BOREHOLE NO.**	**BH1/GW1**
PROJECT	Detailed Site Investigation	**DATE.**	**1.6.2016**
LOCATION	921 Punchbowl Road, Punchbowl NSW	**JOB NO.**	**E899**
METHOD	Drill Rig	**SURFACE ELEV.**	**N/A**
LOGGED BY	DT	**CHECKED BY**	**BB**

Depth (m)	Sample	Graphic	Ground Water	Classification	Soil Description (Plasticity, particle characteristics, colour, moisture, etc)	Moisture	Consis / Density	Observations	Well Construction	Design
					Bitumen					Collar
				F	Fill: Gravelly Silt, brown, traces of sand	D-M	L			
0.5				CL	Silty CLAY, low plasticity, brown, orange and grey	D-M	S-F			Bentonite/ Cement Slurry
1										Casing
1.5										
2				CL-CI	Gravelly CLAY, low to medium plasticity, orange, brown with ironstone fragments	M-W	S			
2.5								Seepage @ 2.2m BGL		Sand
3										
3.5										Screen
4				CL-CI	Silty CLAY, low to medium plasticity, brown and grey	M	S			
4.5										
5					SHALE, weathered, brown, dark grey					
5.5										
6					End of borehole @ 5.5m BGL					

Log Symbols

Standing groundwater level in borehole
Water seepage in borehole (wet)

Samples

BH1.0.5 - Soil sample taken at indicated depth
S - Surface water sample
- Groundwater sample/water sample

Moisture Condition

D Dry - Runs freely through fingers
M Moist - Does not run freely but no free water visible on soil surface
W Wet

Soil Classification

Clay - Particle size less than 0.002mm
Silt - Particle size between 0.002 and 0.06mm
Sand - Particle size between 0.06 and 2.0mm
- Particle size between 2.0 and 60mm

Strength

VS Very Soft - Unconfined compressive strength less than 25kPa
S Soft - Unconfined compressive strength 25-50kPa
F Firm - Unconfined compressive strength 50-100kPa
St Stiff - Unconfined compressive strength 100-200kPa
VSt Very Stiff - Unconfined compressive strength 200-400kPa
H Hard - Unconfined compressive strength greater than 400kPa

Job No:	E881
Hole No:	BH2
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Bill Gertos	Test Location: Refer to Figure 2	
Project:	Detailed Site Investigation	Test Method: Auger	
Project Location:	921 Punchbowl Road, Punchbowl NSW	Date: 1.6.2016	Logged by: DT
		Surface Level: N/A	

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1			Bitumen				0.1
	■	0.2		F	Fill- Gravelly Silt, brown, traces of Sand	D-M	L		0.2
		0.3							0.3
		0.4							0.4
		0.5		CL	Silty CLAY, low plasticity, brown/ orange/ grey	D-M	L		0.5
		0.6							0.6
		0.7							0.7
		0.8							0.8
		0.9							0.9
		1.0							1.0
		1.1							1.1
		1.2			*END BH2 @ 1.1m				1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5

Explanatory Notes:

Consistency		Density Index		Samples		Moisture	
VS	Very Soft	**VL**	Very Loose	**B**	Bulk Sample	**D**	Dry
S	Soft	**L**	Loose	**D**	Disturbed Sample	**M**	Moist
F	Firm	**MD**	Medium Dense	**U50**	Undisturbed Sample	**W**	Wet
St	Stiff	**D**	Dense		(50mm diam.)	**Wp**	Plastic Limit
VSt	Very Stiff	**VD**	Very Dense	**N**	S.P.T. Value	**Wl**	Liquid Limit
H	Hard						

Job No:	E881
Hole No:	BH3
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Bill Gertos	Test Location: Refer to Figure 2	
Project:	Detailed Site Investigation	Test Method: Auger	
Project Location:	921 Punchbowl Road, Punchbowl NSW	Date: 1.6.2016	Logged by: DT
		Surface Level: N/A	

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1			Bitumen				0.1
		0.2		F	Fill- Gravelly Sandy Silt, brown	D-M	L		0.2
		0.3		CL	Silty CLAY, low plasticity, brown/ orange/ grey	D-M	L		0.3
		0.4							0.4
		0.5			Clayey SILT, fine grain, grey/ orange/ brown	D-M			0.5
		0.6							0.6
		0.7							0.7
		0.8							0.8
		0.9							0.9
		1.0			*END BH3 @0.9m				1.0
		1.1							1.1
		1.2							1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5

Explanatory Notes:

Consistency		Density Index		Samples		Moisture	
VS	Very Soft	**VL**	Very Loose	**B**	Bulk Sample	**D**	Dry
S	Soft	**L**	Loose	**D**	Disturbed Sample	**M**	Moist
F	Firm	**MD**	Medium Dense	**U50**	Undisturbed Sample	**W**	Wet
St	Stiff	**D**	Dense		(50mm diam.)	**Wp**	Plastic Limit
VSt	Very Stiff	**VD**	Very Dense	**N**	S.P.T. Value	**Wl**	Liquid Limit
H	Hard						

Job No:	E881
Hole No:	BH4
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Bill Gertos	Test Location: Refer to Figure 2	
Project:	Detailed Site Investigation	Test Method: Auger	
Project Location:	921 Punchbowl Road, Punchbowl NSW	Date: 1.6.2016	Logged by: DT
		Surface Level: N/A	

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1			Bitumen				0.1
		0.2		F	Fill- Gravelly Sandy Silt, brown	D-M	L		0.2
		0.3							0.3
	■	0.4			Clayey SILT, fine grain, brown/ orange/ grey	D-M	L		0.4
		0.5							0.5
		0.6							0.6
		0.7							0.7
		0.8							0.8
		0.9			*END BH4 @0.9m				0.9
		1.0							1.0
		1.1							1.1
		1.2							1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5

Explanatory Notes:

Consistency		Density Index		Samples		Moisture	
VS	Very Soft	**VL**	Very Loose	**B**	Bulk Sample	**D**	Dry
S	Soft	**L**	Loose	**D**	Disturbed Sample	**M**	Moist
F	Firm	**MD**	Medium Dense	**U50**	Undisturbed Sample	**W**	Wet
St	Stiff	**D**	Dense		(50mm diam.)	**Wp**	Plastic Limit
VSt	Very Stiff	**VD**	Very Dense	**N**	S.P.T. Value	**Wl**	Liquid Limit
H	Hard						

Job No:	E881
Hole No:	BH5
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Bill Gertos	Test Location: Refer to Figure 2	
Project:	Detailed Site Investigation	Test Method: Auger	
Project Location:	921 Punchbowl Road, Punchbowl NSW	Date: 1.6.2016	Logged by: DT
		Surface Level: N/A	

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1			Bitumen				0.1
	■	0.2		F	Fill- Gravelly Sandy Silt, brown with traces of Clay	D-M	L		0.2
		0.3							0.3
		0.4			Clayey SILT, fine grain, ironstone traces, brown/	M	L		0.4
	■	0.5			orange/ grey with red mottle				0.5
		0.6			*END BH5 @0.5m				0.6
		0.7							0.7
		0.8							0.8
		0.9							0.9
		1.0							1.0
		1.1							1.1
		1.2							1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5

Explanatory Notes:

Consistency		Density Index		Samples		Moisture	
VS	Very Soft	**VL**	Very Loose	**B**	Bulk Sample	**D**	Dry
S	Soft	**L**	Loose	**D**	Disturbed Sample	**M**	Moist
F	Firm	**MD**	Medium Dense	**U50**	Undisturbed Sample	**W**	Wet
St	Stiff	**D**	Dense		(50mm diam.)	**Wp**	Plastic Limit
VSt	Very Stiff	**VD**	Very Dense	**N**	S.P.T. Value	**Wl**	Liquid Limit
H	Hard						

Job No:	E881
Hole No:	BH6
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Bill Gertos	Test Location: Refer to Figure 2	
Project:	Detailed Site Investigation	Test Method: Auger	
Project Location:	921 Punchbowl Road, Punchbowl NSW	Date: 1.6.2016	Logged by: DT
		Surface Level: N/A	

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1			Bitumen				0.1
		0.2		F	Fill- Gravelly Silt, brown	D-M	L		0.2
		0.3							0.3
		0.4			Clayey SILT, fine grain, brown/ orange/ grey	D-M	L		0.4
		0.5							0.5
		0.6							0.6
		0.7							0.7
		0.8							0.8
		0.9							0.9
		1.0			*END BH6 @ 1.0m				1.0
		1.1							1.1
		1.2							1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5

Explanatory Notes:

Consistency		Density Index		Samples		Moisture	
VS	Very Soft	**VL**	Very Loose	**B**	Bulk Sample	**D**	Dry
S	Soft	**L**	Loose	**D**	Disturbed Sample	**M**	Moist
F	Firm	**MD**	Medium Dense	**U50**	Undisturbed Sample	**W**	Wet
St	Stiff	**D**	Dense		(50mm diam.)	**Wp**	Plastic Limit
VSt	Very Stiff	**VD**	Very Dense	**N**	S.P.T. Value	**Wl**	Liquid Limit
H	Hard						

BOREHOLE & GROUNDWATER WELL LOG

CLIENT	Bill Gertos	**BOREHOLE NO.**	**BH7/GW2**
PROJECT	Detailed Site Investigation	**DATE.**	**1.6.2016**
LOCATION	921 Punchbowl Road, Punchbowl NSW	**JOB NO.**	**E899**
METHOD	Drill Rig	**SURFACE ELEV.**	**N/A**
LOGGED BY	DT	**CHECKED BY**	**BB**

Depth (m)	Sample	Graphic	Ground Water	Classification	Soil Description (Plasticity, particle characteristics, colour, moisture, etc)	Moisture	Consis / Density	Observations	Well Construction	Design
					Bitumen					Collar
				F	Fill: Gravelly Sandy Silt, brown	D-M	L			
0.5					Clayey SILT, fine grained, brown, orange, grey	D-M	L			Bentonite/ Cement Slurry
1										Casing
1.5										
2										
				CL-CI	Silty CLAY, low to medium plasticity, brown and grey with ironstone fragments	M	S-F			Sand
2.5			▶					Seeepage @ 2.4m BGL		
3										Screen
3.5			▼							
4					SHALE, weathered, dark brown					
					End of borehole @ 4.0m BGL			TC Bit Refusal		
4.5										
5										
5.5					End of borehole @ 5.5m BGL					
6										

Log Symbols

Standing groundwater level in borehole
Water seepage in borehole (wet)

Samples

BH1.0.5 - Soil sample taken at indicated depth
S - Surface water sample
- Groundwater sample/water sample

Moisture Condition

D Dry - Runs freely through fingers
M Moist - Does not run freely but no free water visible on soil surface
W Wet

Soil Classification

Clay - Particle size less than 0.002mm
Silt - Particle size between 0.002 and 0.06mm
Sand - Particle size between 0.06 and 2.0mm
- Particle size between 2.0 and 60mm

Strength

VS Very Soft - Unconfined compressive strength less than 25kPa
S Soft - Unconfined compressive strength 25-50kPa
F Firm - Unconfined compressive strength 50-100kPa
St Stiff - Unconfined compressive strength 100-200kPa
VSt Very Stiff - Unconfined compressive strength 200-400kPa
H Hard - Unconfined compressive strength greater than 400kPa

Job No:	E881
Hole No:	BH8
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Bill Gertos	Test Location: Refer to Figure 2	
Project:	Detailed Site Investigation	Test Method: Auger	
Project Location:	921 Punchbowl Road, Punchbowl NSW	Date: 1.6.2016	Logged by: DT
		Surface Level: N/A	

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1			Bitumen				0.1
	■	0.2		F	Fill- Gravelly Sandy Silt, brown	D-M	L		0.2
		0.3							0.3
		0.4			Clayey SILT, fine grain, brown/ orange/ grey	D-M	L		0.4
		0.5							0.5
		0.6							0.6
		0.7							0.7
		0.8							0.8
		0.9							0.9
		1.0							1.0
		1.1			*END BH8 @1.0m				1.1
		1.2							1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5

Explanatory Notes:

Consistency		Density Index		Samples		Moisture	
VS	Very Soft	**VL**	Very Loose	**B**	Bulk Sample	**D**	Dry
S	Soft	**L**	Loose	**D**	Disturbed Sample	**M**	Moist
F	Firm	**MD**	Medium Dense	**U50**	Undisturbed Sample	**W**	Wet
St	Stiff	**D**	Dense		(50mm diam.)	**Wp**	Plastic Limit
VSt	Very Stiff	**VD**	Very Dense	**N**	S.P.T. Value	**Wl**	Liquid Limit
H	Hard						

Job No:	E881
Hole No:	BH9
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Bill Gertos	Test Location: Refer to Figure 2	
Project:	Detailed Site Investigation	Test Method: Auger	
Project Location:	921 Punchbowl Road, Punchbowl NSW	Date: 1.6.2016	Logged by: DT
		Surface Level: N/A	

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1			Bitumen				0.1
	■	0.2		F	Fill- Gravelly Sandy Silt, brown, traces of clay	D-M	L		0.2
		0.3							0.3
		0.4			Clayey SILT, fine grain, brown/ orange	D-M	L		0.4
		0.5							0.5
		0.6							0.6
		0.7			*END BH9 @0.6m				0.7
		0.8							0.8
		0.9							0.9
		1.0							1.0
		1.1							1.1
		1.2							1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5

Explanatory Notes:

Consistency		Density Index		Samples		Moisture	
VS	Very Soft	**VL**	Very Loose	**B**	Bulk Sample	**D**	Dry
S	Soft	**L**	Loose	**D**	Disturbed Sample	**M**	Moist
F	Firm	**MD**	Medium Dense	**U50**	Undisturbed Sample	**W**	Wet
St	Stiff	**D**	Dense		(50mm diam.)	**Wp**	Plastic Limit
VSt	Very Stiff	**VD**	Very Dense	**N**	S.P.T. Value	**Wl**	Liquid Limit
H	Hard						

Job No:	E881
Hole No:	BH10
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Bill Gertos	Test Location: Refer to Figure 2	
Project:	Detailed Site Investigation	Test Method: Auger	
Project Location:	921 Punchbowl Road, Punchbowl NSW	Date: 1.6.2016	Logged by: DT
		Surface Level: N/A	

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1			Bitumen				0.1
	■	0.2		F	Fill- Gravelly Silt, brown, traces of clay	D-M	L		0.2
		0.3							0.3
		0.4			Clayey SILT, fine grain, brown/ orange	D-M	L		0.4
	■	0.5							0.5
		0.6			*END BH10 @0.5m				0.6
		0.7							0.7
		0.8							0.8
		0.9							0.9
		1.0							1.0
		1.1							1.1
		1.2							1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5

Explanatory Notes:

Consistency		Density Index		Samples		Moisture	
VS	Very Soft	**VL**	Very Loose	**B**	Bulk Sample	**D**	Dry
S	Soft	**L**	Loose	**D**	Disturbed Sample	**M**	Moist
F	Firm	**MD**	Medium Dense	**U50**	Undisturbed Sample	**W**	Wet
St	Stiff	**D**	Dense		(50mm diam.)	**Wp**	Plastic Limit
VSt	Very Stiff	**VD**	Very Dense	**N**	S.P.T. Value	**Wl**	Liquid Limit
H	Hard						

Job No:	E881
Hole No:	BH11
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Bill Gertos	Test Location: Refer to Figure 2	
Project:	Detailed Site Investigation	Test Method: Auger	
Project Location:	921 Punchbowl Road, Punchbowl NSW	Date: 1.6.2016	Logged by: DT
		Surface Level: N/A	

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1			Bitumen				0.1
	■	0.2		F	Fill- Gravelly Sandy Silt, brown	D-M	L	D2/SS2	0.2
		0.3							0.3
		0.4			Clayey SILT, fine grain, brown/ orange	D-M	L		0.4
		0.5							0.5
		0.6							0.6
		0.7							0.7
		0.8							0.8
		0.9							0.9
		1.0							1.0
		1.1							1.1
		1.2			*END BH11 @1.1m				1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5

Explanatory Notes:

Consistency		Density Index		Samples		Moisture	
VS	Very Soft	**VL**	Very Loose	**B**	Bulk Sample	**D**	Dry
S	Soft	**L**	Loose	**D**	Disturbed Sample	**M**	Moist
F	Firm	**MD**	Medium Dense	**U50**	Undisturbed Sample	**W**	Wet
St	Stiff	**D**	Dense		(50mm diam.)	**Wp**	Plastic Limit
VSt	Very Stiff	**VD**	Very Dense	**N**	S.P.T. Value	**Wl**	Liquid Limit
H	Hard						

Job No:	E881
Hole No:	BH12
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Bill Gertos	Test Location: Refer to Figure 2	
Project:	Detailed Site Investigation	Test Method: Auger	
Project Location:	921 Punchbowl Road, Punchbowl NSW	Date: 1.6.2016	Logged by: DT
		Surface Level: N/A	

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1			Bitumen				0.1
	■	0.2		F	Fill- Gravelly Silt, brown/ orange	D-M	L		0.2
		0.3							0.3
		0.4			Clayey SILT, fine grain, brown/ orange	D-M	L		0.4
		0.5							0.5
		0.6							0.6
		0.7							0.7
		0.8							0.8
		0.9							0.9
		1.0							1.0
		1.1							1.1
		1.2							1.2
		1.3							1.3
		1.4			*END BH12 @1.3m				1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5

Explanatory Notes:

Consistency		Density Index		Samples		Moisture	
VS	Very Soft	**VL**	Very Loose	**B**	Bulk Sample	**D**	Dry
S	Soft	**L**	Loose	**D**	Disturbed Sample	**M**	Moist
F	Firm	**MD**	Medium Dense	**U50**	Undisturbed Sample	**W**	Wet
St	Stiff	**D**	Dense		(50mm diam.)	**Wp**	Plastic Limit
VSt	Very Stiff	**VD**	Very Dense	**N**	S.P.T. Value	**Wl**	Liquid Limit
H	Hard						

Job No:	E881
Hole No:	BH13
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Bill Gertos	Test Location: Refer to Figure 2	
Project:	Detailed Site Investigation	Test Method: Auger	
Project Location:	921 Punchbowl Road, Punchbowl NSW	Date: 1.6.2016	Logged by: DT
		Surface Level: N/A	

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1			Bitumen				0.1
	■	0.2		F	Fill- Gravelly Silt, brown	D-M	L		0.2
		0.3							0.3
		0.4			Clayey SILT, fine grained, brown/ orange/ red	D-M	L		0.4
		0.5							0.5
		0.6							0.6
		0.7							0.7
		0.8							0.8
		0.9							0.9
		1.0							1.0
		1.1							1.1
		1.2			*END BH13 @1.1m				1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5

Explanatory Notes:

Consistency		Density Index		Samples		Moisture	
VS	Very Soft	**VL**	Very Loose	**B**	Bulk Sample	**D**	Dry
S	Soft	**L**	Loose	**D**	Disturbed Sample	**M**	Moist
F	Firm	**MD**	Medium Dense	**U50**	Undisturbed Sample	**W**	Wet
St	Stiff	**D**	Dense		(50mm diam.)	**Wp**	Plastic Limit
VSt	Very Stiff	**VD**	Very Dense	**N**	S.P.T. Value	**Wl**	Liquid Limit
H	Hard						

BOREHOLE & GROUNDWATER WELL LOG

CLIENT	Bill Gertos	**BOREHOLE NO.**	**BH14/GW3**
PROJECT	Detailed Site Investigation	**DATE.**	**1.6.2016**
LOCATION	921 Punchbowl Road, Punchbowl NSW	**JOB NO.**	**E899**
METHOD	Drill Rig	**SURFACE ELEV.**	**N/A**
LOGGED BY	DT	**CHECKED BY**	**BB**

Depth (m)	Sample	Graphic	Ground Water	Classification	Soil Description (Plasticity, particle characteristics, colour, moisture, etc)	Moisture	Consis / Density	Observations	Well Construction	Design
					Bitumen					Collar
				F	Fill: Gravelly Sandy Silt, brown	D-M	L	D3/SS3		
0.5					Clayey SILT, fine grained, brown, orange, grey	D-M	L			Bentonite/ Cement Slurry
1										Casing
1.5				CI	Silty CLAY, medium plasticity, brown with pale brown mottling	M	S-F			
2										Sand
2.5										
3			▶					Seeepage @ 3.0m BGL		Screen
3.5										
4										
4.5										
5			▼							
					SHALE, weathered, grey , brown					
5.5										
					End of borehole @ 5.5m BGL					
6										

Log Symbols

Standing groundwater level in borehole
Water seepage in borehole (wet)

Samples

BH1.0.5 - Soil sample taken at indicated depth
S - Surface water sample
- Groundwater sample/water sample

Moisture Condition

D Dry - Runs freely through fingers
M Moist - Does not run freely but no free water visible on soil surface
W Wet

Soil Classification

Clay - Particle size less than 0.002mm
Silt - Particle size between 0.002 and 0.06mm
Sand - Particle size between 0.06 and 2.0mm
- Particle size between 2.0 and 60mm

Strength

VS Very Soft - Unconfined compressive strength less than 25kPa
S Soft - Unconfined compressive strength 25-50kPa
F Firm - Unconfined compressive strength 50-100kPa
St Stiff - Unconfined compressive strength 100-200kPa
VSt Very Stiff - Unconfined compressive strength 200-400kPa
H Hard - Unconfined compressive strength greater than 400kPa

Job No:	E881
Hole No:	BH15
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Bill Gertos	Test Location: Refer to Figure 2	
Project:	Detailed Site Investigation	Test Method: Auger	
Project Location:	921 Punchbowl Road, Punchbowl NSW	Date: 1.6.2016	Logged by: DT
		Surface Level: N/A	

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1			Bitumen				0.1
	■	0.2		F	Fill- Gravel, Silt, brown	D-M	L		0.2
		0.3							0.3
		0.4			Clayey SILT, fine grain, brown/ orange/ yellow	D-M	L		0.4
		0.5							0.5
		0.6							0.6
		0.7							0.7
	■	0.8							0.8
		0.9							0.9
		1.0							1.0
		1.1							1.1
		1.2			*END BH 15 @1.1m				1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5

Explanatory Notes:

Consistency		Density Index		Samples		Moisture	
VS	Very Soft	**VL**	Very Loose	**B**	Bulk Sample	**D**	Dry
S	Soft	**L**	Loose	**D**	Disturbed Sample	**M**	Moist
F	Firm	**MD**	Medium Dense	**U50**	Undisturbed Sample	**W**	Wet
St	Stiff	**D**	Dense		(50mm diam.)	**Wp**	Plastic Limit
VSt	Very Stiff	**VD**	Very Dense	**N**	S.P.T. Value	**Wl**	Liquid Limit
H	Hard						

Job No:	E881
Hole No:	BH16
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Bill Gertos	Test Location: Refer to Figure 2	
Project:	Detailed Site Investigation	Test Method: Auger	
Project Location:	921 Punchbowl Road, Punchbowl NSW	Date: 1.6.2016	Logged by: DT
		Surface Level: N/A	

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1			Bitumen				0.1
	■	0.2		F	Fill- Gravel, Silt, brown	D-M	L		0.2
		0.3							0.3
		0.4			Clayey SILT, fine grain, brown/ orange	D-M	L		0.4
		0.5							0.5
		0.6							0.6
		0.7							0.7
		0.8			*END BH16 @0.7m				0.8
		0.9							0.9
		1.0							1.0
		1.1							1.1
		1.2							1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5

Explanatory Notes:

Consistency		Density Index		Samples		Moisture	
VS	Very Soft	**VL**	Very Loose	**B**	Bulk Sample	**D**	Dry
S	Soft	**L**	Loose	**D**	Disturbed Sample	**M**	Moist
F	Firm	**MD**	Medium Dense	**U50**	Undisturbed Sample	**W**	Wet
St	Stiff	**D**	Dense		(50mm diam.)	**Wp**	Plastic Limit
VSt	Very Stiff	**VD**	Very Dense	**N**	S.P.T. Value	**Wl**	Liquid Limit
H	Hard						

Job No:	E881
Hole No:	BH17
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Bill Gertos	Test Location: Refer to Figure 2	
Project:	Detailed Site Investigation	Test Method: Auger	
Project Location:	921 Punchbowl Road, Punchbowl NSW	Date: 1.6.2016	Logged by: DT
		Surface Level: N/A	

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1			Bitumen				0.1
		0.2		F	Fill- Gravelly Sandy Silt, brown	D-M	L		0.2
		0.3							0.3
		0.4			Clayey SILT, fine grain, brown/ grey	D-M	L		0.4
		0.5							0.5
		0.6			*END BH17 @0.5m				0.6
		0.7							0.7
		0.8							0.8
		0.9							0.9
		1.0							1.0
		1.1							1.1
		1.2							1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5

Explanatory Notes:

Consistency		Density Index		Samples		Moisture	
VS	Very Soft	**VL**	Very Loose	**B**	Bulk Sample	**D**	Dry
S	Soft	**L**	Loose	**D**	Disturbed Sample	**M**	Moist
F	Firm	**MD**	Medium Dense	**U50**	Undisturbed Sample	**W**	Wet
St	Stiff	**D**	Dense		(50mm diam.)	**Wp**	Plastic Limit
VSt	Very Stiff	**VD**	Very Dense	**N**	S.P.T. Value	**Wl**	Liquid Limit
H	Hard						

Job No:	E881
Hole No:	BH18
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Bill Gertos	Test Location: Refer to Figure 2	
Project:	Detailed Site Investigation	Test Method: Auger	
Project Location:	921 Punchbowl Road, Punchbowl NSW	Date: 1.6.2016	Logged by: DT
		Surface Level: N/A	

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1			Bitumen				0.1
	■	0.2		F	Fill- Gravelly Sandy Silt, brown	D-M	L		0.2
		0.3							0.3
		0.4			Clayey SILT, fine grain, brown, with ironstone fragments	D-M	L		0.4
		0.5							0.5
		0.6							0.6
		0.7							0.7
		0.8							0.8
		0.9							0.9
		1.0							1.0
		1.1			*END BH18 @1.0m				1.1
		1.2							1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5

Explanatory Notes:

Consistency		Density Index		Samples		Moisture	
VS	Very Soft	**VL**	Very Loose	**B**	Bulk Sample	**D**	Dry
S	Soft	**L**	Loose	**D**	Disturbed Sample	**M**	Moist
F	Firm	**MD**	Medium Dense	**U50**	Undisturbed Sample	**W**	Wet
St	Stiff	**D**	Dense		(50mm diam.)	**Wp**	Plastic Limit
VSt	Very Stiff	**VD**	Very Dense	**N**	S.P.T. Value	**Wl**	Liquid Limit
H	Hard						

Job No:	E881
Hole No:	BH19
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Bill Gertos	Test Location: Refer to Figure 2	
Project:	Detailed Site Investigation	Test Method: Auger	
Project Location:	921 Punchbowl Road, Punchbowl NSW	Date: 1.6.2016	Logged by: DT
		Surface Level: N/A	

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1			Bitumen				0.1
	■	0.2		F	Fill- Gravel	D-M	L		0.2
		0.3							0.3
		0.4		CI	CLAY, medium plasticity, greenish grey	M	S		0.4
		0.5							0.5
		0.6							0.6
		0.7							0.7
		0.8							0.8
		0.9							0.9
		1.0							1.0
		1.1			*END BH19 @1.0m				1.1
		1.2							1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5

Explanatory Notes:

Consistency		Density Index		Samples		Moisture	
VS	Very Soft	**VL**	Very Loose	**B**	Bulk Sample	**D**	Dry
S	Soft	**L**	Loose	**D**	Disturbed Sample	**M**	Moist
F	Firm	**MD**	Medium Dense	**U50**	Undisturbed Sample	**W**	Wet
St	Stiff	**D**	Dense		(50mm diam.)	**Wp**	Plastic Limit
VSt	Very Stiff	**VD**	Very Dense	**N**	S.P.T. Value	**Wl**	Liquid Limit
H	Hard						

Job No:	E881
Hole No:	BH20
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Bill Gertos	Test Location: Refer to Figure 2	
Project:	Detailed Site Investigation	Test Method: Auger	
Project Location:	921 Punchbowl Road, Punchbowl NSW	Date: 1.6.2016	Logged by: DT
		Surface Level: N/A	

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1			Bitumen				0.1
		0.2		F	Fill- Gravelly Sandy Silt, brown	D-M	L		0.2
	■	0.3						D1/SS1	0.3
		0.4							0.4
		0.5			Clayey SILT, fine grain, brown	D-M	L		0.5
		0.6							0.6
		0.7							0.7
		0.8							0.8
		0.9							0.9
	■	1.0							1.0
		1.1			*END BH20 @1.0m				1.1
		1.2							1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5

Explanatory Notes:

Consistency		Density Index		Samples		Moisture	
VS	Very Soft	**VL**	Very Loose	**B**	Bulk Sample	**D**	Dry
S	Soft	**L**	Loose	**D**	Disturbed Sample	**M**	Moist
F	Firm	**MD**	Medium Dense	**U50**	Undisturbed Sample	**W**	Wet
St	Stiff	**D**	Dense		(50mm diam.)	**Wp**	Plastic Limit
VSt	Very Stiff	**VD**	Very Dense	**N**	S.P.T. Value	**Wl**	Liquid Limit
H	Hard						

Job No:	E881
Hole No:	BH21
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Bill Gertos	Test Location: Refer to Figure 2	
Project:	Detailed Site Investigation	Test Method: Auger	
Project Location:	921 Punchbowl Road, Punchbowl NSW	Date: 1.6.2016	Logged by: DT
		Surface Level: N/A	

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1			Bitumen				0.1
		0.2		F	Fill- Gravel	D-M	L		0.2
		0.3							0.3
		0.4			Clayey SILT, fine grain, brown	D-M	L		0.4
		0.5							0.5
		0.6							0.6
		0.7							0.7
		0.8			*END BH21 @0.7m				0.8
		0.9							0.9
		1.0							1.0
		1.1							1.1
		1.2							1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5

Explanatory Notes:

Consistency		Density Index		Samples		Moisture	
VS	Very Soft	**VL**	Very Loose	**B**	Bulk Sample	**D**	Dry
S	Soft	**L**	Loose	**D**	Disturbed Sample	**M**	Moist
F	Firm	**MD**	Medium Dense	**U50**	Undisturbed Sample	**W**	Wet
St	Stiff	**D**	Dense		(50mm diam.)	**Wp**	Plastic Limit
VSt	Very Stiff	**VD**	Very Dense	**N**	S.P.T. Value	**Wl**	Liquid Limit
H	Hard						

Job No:	E881
Hole No:	BH22
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Bill Gertos	Test Location: Refer to Figure 2	
Project:	Detailed Site Investigation	Test Method: Auger	
Project Location:	921 Punchbowl Road, Punchbowl NSW	Date: 1.6.2016	Logged by: DT
		Surface Level: N/A	

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1			Bitumen				0.1
	■	0.2		F	Fill- Sand, medium grain, pale brown	D-M	L		0.2
		0.3							0.3
		0.4							0.4
		0.5							0.5
		0.6							0.6
		0.7			brown	D-M	L		0.7
		0.8							0.8
		0.9							0.9
		1.0							1.0
		1.1							1.1
		1.2							1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9			Clayey SILT, fine grain, brown/ orange/ grey	M	L		1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6			*END BH22 @2.5m				2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5

Explanatory Notes:

Consistency		Density Index		Samples		Moisture	
VS	Very Soft	**VL**	Very Loose	**B**	Bulk Sample	**D**	Dry
S	Soft	**L**	Loose	**D**	Disturbed Sample	**M**	Moist
F	Firm	**MD**	Medium Dense	**U50**	Undisturbed Sample	**W**	Wet
St	Stiff	**D**	Dense		(50mm diam.)	**Wp**	Plastic Limit
VSt	Very Stiff	**VD**	Very Dense	**N**	S.P.T. Value	**Wl**	Liquid Limit
H	Hard						

Job No:	E881
Hole No:	BH23
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Bill Gertos	Test Location: Refer to Figure 2	
Project:	Detailed Site Investigation	Test Method: Auger	
Project Location:	921 Punchbowl Road, Punchbowl NSW	Date: 1.6.2016	Logged by: DT
		Surface Level: N/A	

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1			Bitumen				0.1
	■	0.2		F	Fill- Gravelly Silt, brown	D-M	L		0.2
		0.3							0.3
		0.4							0.4
		0.5							0.5
		0.6			Clayey SILT, fine grain, grey with orange mottle	M	L		0.6
		0.7							0.7
		0.8							0.8
		0.9							0.9
		1.0							1.0
		1.1			*END BH23 @1.0m				1.1
		1.2							1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5

Explanatory Notes:

Consistency		Density Index		Samples		Moisture	
VS	Very Soft	**VL**	Very Loose	**B**	Bulk Sample	**D**	Dry
S	Soft	**L**	Loose	**D**	Disturbed Sample	**M**	Moist
F	Firm	**MD**	Medium Dense	**U50**	Undisturbed Sample	**W**	Wet
St	Stiff	**D**	Dense		(50mm diam.)	**Wp**	Plastic Limit
VSt	Very Stiff	**VD**	Very Dense	**N**	S.P.T. Value	**Wl**	Liquid Limit
H	Hard						

Job No:	E881
Hole No:	BH24
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Bill Gertos	Test Location: Refer to Figure 2	
Project:	Detailed Site Investigation	Test Method: Auger	
Project Location:	921 Punchbowl Road, Punchbowl NSW	Date: 1.6.2016	Logged by: DT
		Surface Level: N/A	

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1			Bitumen				0.1
		0.2		F	Fill- Gravelly Silt, brown	D-M	L		0.2
		0.3							0.3
	■	0.4							0.4
		0.5							0.5
		0.6			Clayey SILT, fine grain, grey with orange mottle	M	L		0.6
		0.7							0.7
		0.8							0.8
		0.9							0.9
		1.0							1.0
		1.1			*END BH24 @1.0m				1.1
		1.2							1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5

Explanatory Notes:

Consistency		Density Index		Samples		Moisture	
VS	Very Soft	**VL**	Very Loose	**B**	Bulk Sample	**D**	Dry
S	Soft	**L**	Loose	**D**	Disturbed Sample	**M**	Moist
F	Firm	**MD**	Medium Dense	**U50**	Undisturbed Sample	**W**	Wet
St	Stiff	**D**	Dense		(50mm diam.)	**Wp**	Plastic Limit
VSt	Very Stiff	**VD**	Very Dense	**N**	S.P.T. Value	**Wl**	Liquid Limit
H	Hard						

Job No:	E881
Hole No:	BH25
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Bill Gertos	Test Location: Refer to Figure 2	
Project:	Detailed Site Investigation	Test Method: Auger	
Project Location:	921 Punchbowl Road, Punchbowl NSW	Date: 1.6.2016	Logged by: DT
		Surface Level: N/A	

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1			Bitumen				0.1
	■	0.2		F	Fill- Gravelly Clayey Silt, brown	D-M	L		0.2
		0.3							0.3
		0.4			Clayey SILT, fine grain, grey with orange mottle	D-M	L		0.4
		0.5							0.5
	■	0.6							0.6
		0.7							0.7
		0.8							0.8
		0.9			*END BH25 @0.8m				0.9
		1.0							1.0
		1.1							1.1
		1.2							1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5

Explanatory Notes:

Consistency		Density Index		Samples		Moisture	
VS	Very Soft	**VL**	Very Loose	**B**	Bulk Sample	**D**	Dry
S	Soft	**L**	Loose	**D**	Disturbed Sample	**M**	Moist
F	Firm	**MD**	Medium Dense	**U50**	Undisturbed Sample	**W**	Wet
St	Stiff	**D**	Dense		(50mm diam.)	**Wp**	Plastic Limit
VSt	Very Stiff	**VD**	Very Dense	**N**	S.P.T. Value	**Wl**	Liquid Limit
H	Hard						

Job No:	E881
Hole No:	BH26
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Bill Gertos	Test Location: Refer to Figure 2	
Project:	Detailed Site Investigation	Test Method: Auger	
Project Location:	921 Punchbowl Road, Punchbowl NSW	Date: 1.6.2016	Logged by: DT
		Surface Level: N/A	

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1			Bitumen				0.1
		0.2		F	Fill- Gravelly Silt, brown	D-M	L		0.2
		0.3							0.3
		0.4			Clayey SILT, fine grain, grey with orange mottle	D-M	L		0.4
		0.5							0.5
		0.6							0.6
		0.7							0.7
		0.8							0.8
		0.9							0.9
		1.0							1.0
		1.1			*END BH26 @1.0m				1.1
		1.2							1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5

Explanatory Notes:

Consistency		Density Index		Samples		Moisture	
VS	Very Soft	**VL**	Very Loose	**B**	Bulk Sample	**D**	Dry
S	Soft	**L**	Loose	**D**	Disturbed Sample	**M**	Moist
F	Firm	**MD**	Medium Dense	**U50**	Undisturbed Sample	**W**	Wet
St	Stiff	**D**	Dense		(50mm diam.)	**Wp**	Plastic Limit
VSt	Very Stiff	**VD**	Very Dense	**N**	S.P.T. Value	**Wl**	Liquid Limit
H	Hard						

Job No:	E881
Hole No:	BH27
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Bill Gertos	Test Location: Refer to Figure 2	
Project:	Detailed Site Investigation	Test Method: Auger	
Project Location:	921 Punchbowl Road, Punchbowl NSW	Date: 1.6.2016	Logged by: DT
		Surface Level: N/A	

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1			Bitumen				0.1
		0.2			Fill- Gravelly Clayey Silt, brown	D-M	L		0.2
	■	0.3							0.3
		0.4			Clayey SILT, fine grain, grey with pale brown mottle	D-M	L		0.4
		0.5							0.5
		0.6							0.6
		0.7							0.7
		0.8							0.8
		0.9							0.9
		1.0							1.0
		1.1			*END BH27 @1.0m				1.1
		1.2							1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5

Explanatory Notes:

Consistency		Density Index		Samples		Moisture	
VS	Very Soft	**VL**	Very Loose	**B**	Bulk Sample	**D**	Dry
S	Soft	**L**	Loose	**D**	Disturbed Sample	**M**	Moist
F	Firm	**MD**	Medium Dense	**U50**	Undisturbed Sample	**W**	Wet
St	Stiff	**D**	Dense		(50mm diam.)	**Wp**	Plastic Limit
VSt	Very Stiff	**VD**	Very Dense	**N**	S.P.T. Value	**Wl**	Liquid Limit
H	Hard						

Job No:	E881
Hole No:	BH28
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Bill Gertos	Test Location: Refer to Figure 2	
Project:	Detailed Site Investigation	Test Method: Auger	
Project Location:	921 Punchbowl Road, Punchbowl NSW	Date: 1.6.2016	Logged by: DT
		Surface Level: N/A	

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1			Top Soil/ Grass				0.1
	■	0.2		F	Fill- Gravel with concrete & bricks	D-M	L		0.2
		0.3							0.3
		0.4			Clayey SILT, fine grain, grey with pale brown mottle	D-M	L		0.4
		0.5							0.5
		0.6							0.6
		0.7			*END BH28 @0.6m				0.7
		0.8							0.8
		0.9							0.9
		1.0							1.0
		1.1							1.1
		1.2							1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5

Explanatory Notes:

Consistency		Density Index		Samples		Moisture	
VS	Very Soft	**VL**	Very Loose	**B**	Bulk Sample	**D**	Dry
S	Soft	**L**	Loose	**D**	Disturbed Sample	**M**	Moist
F	Firm	**MD**	Medium Dense	**U50**	Undisturbed Sample	**W**	Wet
St	Stiff	**D**	Dense		(50mm diam.)	**Wp**	Plastic Limit
VSt	Very Stiff	**VD**	Very Dense	**N**	S.P.T. Value	**Wl**	Liquid Limit
H	Hard						

Job No:	E881
Hole No:	BH29
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Bill Gertos	Test Location: Refer to Figure 2	
Project:	Detailed Site Investigation	Test Method: Auger	
Project Location:	921 Punchbowl Road, Punchbowl NSW	Date: 1.6.2016	Logged by: DT
		Surface Level: N/A	

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1			Top Soil/ Grass				0.1
		0.2		F	Fill- Silt, brown with ash	M	L		0.2
	■	0.3							0.3
		0.4			Clayey SILT, fine grain, grey with brown mottle	M	L		0.4
		0.5							0.5
		0.6							0.6
		0.7							0.7
		0.8							0.8
		0.9							0.9
		1.0							1.0
		1.1			*END BH29@1.0m				1.1
		1.2							1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5

Explanatory Notes:

Consistency		Density Index		Samples		Moisture	
VS	Very Soft	**VL**	Very Loose	**B**	Bulk Sample	**D**	Dry
S	Soft	**L**	Loose	**D**	Disturbed Sample	**M**	Moist
F	Firm	**MD**	Medium Dense	**U50**	Undisturbed Sample	**W**	Wet
St	Stiff	**D**	Dense		(50mm diam.)	**Wp**	Plastic Limit
VSt	Very Stiff	**VD**	Very Dense	**N**	S.P.T. Value	**Wl**	Liquid Limit
H	Hard						

Job No:	E881
Hole No:	BH30
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Bill Gertos	Test Location: Refer to Figure 2	
Project:	Detailed Site Investigation	Test Method: Auger	
Project Location:	921 Punchbowl Road, Punchbowl NSW	Date: 1.6.2016	Logged by: DT
		Surface Level: N/A	

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1			Top Soil/ Grass				0.1
	■	0.2		F	Fill- Gravel, with ash	D-M	L		0.2
		0.3							0.3
		0.4			Clayey SILT, fine grain, grey with brown mottle	D-M	L		0.4
		0.5							0.5
		0.6							0.6
		0.7							0.7
		0.8							0.8
		0.9							0.9
		1.0							1.0
		1.1			*END BH30 @1.0m				1.1
		1.2							1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5

Explanatory Notes:

Consistency		Density Index		Samples		Moisture	
VS	Very Soft	**VL**	Very Loose	**B**	Bulk Sample	**D**	Dry
S	Soft	**L**	Loose	**D**	Disturbed Sample	**M**	Moist
F	Firm	**MD**	Medium Dense	**U50**	Undisturbed Sample	**W**	Wet
St	Stiff	**D**	Dense		(50mm diam.)	**Wp**	Plastic Limit
VSt	Very Stiff	**VD**	Very Dense	**N**	S.P.T. Value	**Wl**	Liquid Limit
H	Hard						

Job No:	E881
Hole No:	BH31
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Bill Gertos	Test Location: Refer to Figure 2	
Project:	Detailed Site Investigation	Test Method: Auger	
Project Location:	921 Punchbowl Road, Punchbowl NSW	Date: 1.6.2016	Logged by: MS
		Surface Level: N/A	

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1		F	Fill: Gravelly Clayey Silt, grey & brown & organic matter	D-M	L		0.1
		0.2							0.2
		0.3							0.3
		0.4		CI	Silty CLAY, low to medium plasticity, orange, brown	D-M	F		0.4
		0.5							0.5
		0.6							0.6
		0.7			*END BH31 @ 0.6m				0.7
		0.8							0.8
		0.9							0.9
		1.0							1.0
		1.1							1.1
		1.2							1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5

Explanatory Notes:

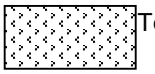
Consistency		Density Index		Samples		Moisture	
VS	Very Soft	**VL**	Very Loose	**B**	Bulk Sample	**D**	Dry
S	Soft	**L**	Loose	**D**	Disturbed Sample	**M**	Moist
F	Firm	**MD**	Medium Dense	**U50**	Undisturbed Sample	**W**	Wet
St	Stiff	**D**	Dense		(50mm diam.)	**Wp**	Plastic Limit
VSt	Very Stiff	**VD**	Very Dense	**N**	S.P.T. Value	**Wl**	Liquid Limit
H	Hard						

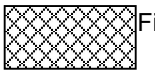
GRAPHIC SYMBOLS FOR SOIL AND ROCK

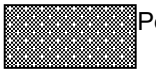
Soil

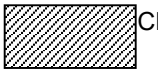

Bituminous Concrete

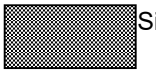

Concrete

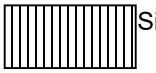

Topsoil


Fill


Peat

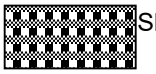

Clay

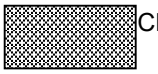

Silty Clay

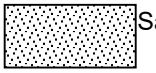

Silt

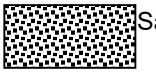

Sandy Clay

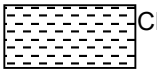

Gravelly Clay


Shaly Clay

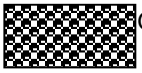

Clayey Silt

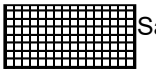

Sandy Silt


Sand

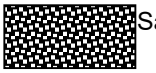

Clayey Sand

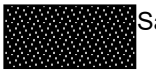

Silty Sand

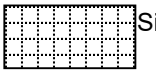

Gravel

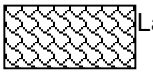

Sandy Gravel

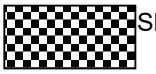
Sedimentary Rock

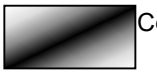

Sandstone Coarse Grained

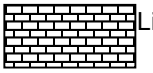

Sandstone Fine Grained


Siltstone


Laminite


Shale


Coal


Limestone

FOUNDATION EARTH SCIENCES

BOREHOLE : BH101

CLIENT NAME: Westwood Pty Ltd **JOB NUMBER:** E2232-2

SITE ADDRESS: 921 Punchbowl Road, Punchbowl NSW 2196 **PROJECT:** Detailed Site Investigation

Date Started : 17/02/2022 **Completed :** 17/02/2022 **Logged By :** RL **Checked By :** MS

Borehole Location : Refer to site plan **Surface RL :** --- **Datum :** m AHD

Equipment : Drill Rig **Borehole Size :** 100mm **Slope :** -90°

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Moisture	Consistence	Samples Tests Remarks	Additional Observations	Depth (m)
ADT					FILL	FILL, silty clay, low to medium plasticity, dark brown, with a few gravels	M	S-F			
									0.3-0.4	No HC Smell, No staining or No fibro fragment observed	
			0.5								0.5
			0.50		CH	Silty CLAY, medium to high plasticity, brown-orange	M	F-St			
									0.9-1.0	No HC Smell, No staining or No fibro fragment observed	
			1.0								1.0
			1.5								1.5
			1.50			Borehole BH101 terminated at 1.50m					
			2.0								2.0

Comments:

D - Dry, M - Moist, W - Wet

VS - Very Soft, S - Soft, F - Firm, St - Stiff, VSt - Very Stiff, H - Hard

VL - Very Loose, L - Loose, MD - Medium Dense, D - Dense, VD - Very Dense

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BOREHOLE : BH102

FOUNDATION EARTH SCIENCES

CLIENT NAME: Westwood Pty Ltd **JOB NUMBER:** E2232-2

SITE ADDRESS: 921 Punchbowl Road, Punchbowl NSW 2196 **PROJECT:** Detailed Site Investigation

Date Started : 17/02/2022 **Completed :** 17/02/2022 **Logged By :** EY **Checked By :** MS

Borehole Location : Refer to site plan **Surface RL :** --- **Datum :** m AHD

Equipment : Hand Auger **Borehole Size :** 50mm **Slope :** -90°

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Moisture	Consistence	Samples Tests Remarks	Additional Observations	Depth (m)
DT						Concrete					
HA			*0.10*		FILL	FILL, silty clay, low to medium plasticity, brown-dark brown	D-M	S-F	0.2-0.3	No HC Smell, No staining or No fibro fragment observed	
			0.5								0.5
			0.50			Borehole BH102 terminated at 0.50m					
			1.0								1.0

Comments:

D - Dry, M - Moist, W - Wet

VS - Very Soft, S - Soft, F - Firm, St - Stiff, VSt - Very Stiff, H - Hard

VL - Very Loose, L - Loose, MD - Medium Dense, D - Dense, VD - Very Dense

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FOUNDATION EARTH SCIENCES

BOREHOLE : BH103

CLIENT NAME: Westwood Pty Ltd **JOB NUMBER:** E2232-2

SITE ADDRESS: 921 Punchbowl Road, Punchbowl NSW 2196 **PROJECT:** Detailed Site Investigation

Date Started : 17/02/2022 **Completed :** 17/02/2022 **Logged By :** RL **Checked By :** MS

Borehole Location : Refer to site plan **Surface RL :** --- **Datum :** m AHD

Equipment : Drill Rig **Borehole Size :** 100mm **Slope :** -90°

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Moisture	Consistence	Samples Tests Remarks	Additional Observations	Depth (m)
DT						Concrete					
			0.10		FILL	FILL, clayey silt, low to medium plasticity, brown-dark grey, with sand and gravel	M	L-MD	0.2-0.3	No HC Smell, No staining or No fibro fragment observed	
			0.30		ML	Clayey SILT, low to medium plasticity, grey	M	S-F			
			0.5								0.5
ADT			*0.50*		CH	Silty CLAY, medium to high plasticity, brown-red	M	F-St	0.6-0.7	No HC Smell, No staining or No fibro fragment observed	
			1.0								1.0
			1.5								1.5
			1.50			Borehole BH103 terminated at 1.50m					
			2.0								2.0

Comments:

D - Dry, M - Moist, W - Wet

VS - Very Soft, S - Soft, F - Firm, St - Stiff, VSt - Very Stiff, H - Hard

VL - Very Loose, L - Loose, MD - Medium Dense, D - Dense, VD - Very Dense

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FOUNDATION EARTH SCIENCES

BOREHOLE : BH104

CLIENT NAME: Westwood Pty Ltd **JOB NUMBER:** E2232-2

SITE ADDRESS: 921 Punchbowl Road, Punchbowl NSW 2196 **PROJECT:** Detailed Site Investigation

Date Started : 17/02/2022 **Completed :** 17/02/2022 **Logged By :** EY **Checked By :** MS

Borehole Location : Refer to site plan **Surface RL :** --- **Datum :** m AHD

Equipment : Drill Rig **Borehole Size :** 100mm **Slope :** -90°

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Moisture	Consistence	Samples Tests Remarks	Additional Observations	Depth (m)
						Asphalt Concrete					
			0.05		FILL	FILL, silty clay, low to medium plasticity, dark brown, trace of gravel	M	S-F			
									0.2-0.3	No HC Smell, No staining or No fibro fragment observed	
			0.30		ML	Clayey SILT, low to medium plasticity, brown-yellow, with grey mottling	M	F-St			
ADT			0.5								0.5
									0.7-0.8	No HC Smell, No staining or No fibro fragment observed	
			1.0								1.0
			1.5								1.5
			1.50			Borehole BH104 terminated at 1.50m					
			2.0								2.0

Comments:

D - Dry, M - Moist, W - Wet

VS - Very Soft, S - Soft, F - Firm, St - Stiff, VSt - Very Stiff, H - Hard

VL - Very Loose, L - Loose, MD - Medium Dense, D - Dense, VD - Very Dense

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FOUNDATION EARTH SCIENCES

BOREHOLE : BH105

CLIENT NAME: Westwood Pty Ltd **JOB NUMBER:** E2232-2

SITE ADDRESS: 921 Punchbowl Road, Punchbowl NSW 2196 **PROJECT:** Detailed Site Investigation

Date Started : 17/02/2022 **Completed :** 17/02/2022 **Logged By :** EY **Checked By :** MS

Borehole Location : Refer to site plan **Surface RL :** --- **Datum :** m AHD

Equipment : Drill Rig **Borehole Size :** 100mm **Slope :** -90°

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Moisture	Consistence	Samples Tests Remarks	Additional Observations	Depth (m)
DT						Concrete					
			0.18		FILL	FILL, silty clay, low to medium plasticity, dark brown, trace of gravel	M	S-F			
			0.5						0.4-0.5	No HC Smell, No staining or No fibro fragment observed	0.5
ADT			*0.50*		ML	Clayey SILT, low to medium plasticity, brown-yellow, with grey mottling	M	S-F			
			1.0						0.9-1.0	No HC Smell, No staining or No fibro fragment observed	1.0
			1.5								1.5
			1.50			Borehole BH105 terminated at 1.50m					
			2.0								2.0

Comments:

D - Dry, M - Moist, W - Wet

VS - Very Soft, S - Soft, F - Firm, St - Stiff, VSt - Very Stiff, H - Hard

VL - Very Loose, L - Loose, MD - Medium Dense, D - Dense, VD - Very Dense

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FOUNDATION EARTH SCIENCES

BOREHOLE : BH106

CLIENT NAME: Westwood Pty Ltd **JOB NUMBER:** E2232-2

SITE ADDRESS: 921 Punchbowl Road, Punchbowl NSW 2196 **PROJECT:** Detailed Site Investigation

Date Started : 17/02/2022 **Completed :** 17/02/2022 **Logged By :** EY **Checked By :** MS

Borehole Location : Refer to site plan **Surface RL :** --- **Datum :** m AHD

Equipment : Drill Rig **Borehole Size :** 100mm **Slope :** -90°

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Moisture	Consistence	Samples Tests Remarks	Additional Observations	Depth (m)
DT						Concrete					
			0.15		FILL	FILL, silty clay, low to medium plasticity, dark grey, trace of gravel	M	S-F			
									0.3-0.4	No HC Smell, No staining or No fibro fragment observed	
ADT			*0.40*		ML	Clayey SILT, low to medium plasticity, brown-yellow, with grey mottling	M	F-St			
			0.5								0.5
									0.7-0.8	No HC Smell, No staining or No fibro fragment observed	
			1.0								1.0
			1.5								1.5
			1.50			Borehole BH106 terminated at 1.50m					
			2.0								2.0

Comments:

D - Dry, M - Moist, W - Wet

VS - Very Soft, S - Soft, F - Firm, St - Stiff, VSt - Very Stiff, H - Hard

VL - Very Loose, L - Loose, MD - Medium Dense, D - Dense, VD - Very Dense

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BOREHOLE : BH107

FOUNDATION EARTH SCIENCES

CLIENT NAME: Westwood Pty Ltd **JOB NUMBER:** E2232-2

SITE ADDRESS: 921 Punchbowl Road, Punchbowl NSW 2196 **PROJECT:** Detailed Site Investigation

Date Started : 17/02/2022 **Completed :** 17/02/2022 **Logged By :** RL **Checked By :** MS

Borehole Location : Refer to site plan **Surface RL :** --- **Datum :** m AHD

Equipment : Hand Auger **Borehole Size :** 50mm **Slope :** -90°

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Moisture	Consistence	Samples Tests Remarks	Additional Observations	Depth (m)
DT						Concrete	M				
HA			*0.15*		FILL	FILL, silty clay, low to medium plasticity, brown-grey, with gravels	M	S-F	0.2-0.3	No HC Smell, No staining or No fibro fragment observed	
			0.5								0.5
									0.8-0.9	No HC Smell, No staining or No fibro fragment observed	
			1.0								1.0
			1.00			Borehole BH107 terminated at 1.00m					
			1.5								1.5

Comments:

D - Dry, M - Moist, W - Wet

VS - Very Soft, S - Soft, F - Firm, St - Stiff, VSt - Very Stiff, H - Hard

VL - Very Loose, L - Loose, MD - Medium Dense, D - Dense, VD - Very Dense

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BOREHOLE : BH108

FOUNDATION EARTH SCIENCES

CLIENT NAME: Westwood Pty Ltd **JOB NUMBER:** E2232-2

SITE ADDRESS: 921 Punchbowl Road, Punchbowl NSW 2196 **PROJECT:** Detailed Site Investigation

Date Started : 17/02/2022 **Completed :** 17/02/2022 **Logged By :** EY **Checked By :** MS

Borehole Location : Refer to site plan **Surface RL :** --- **Datum :** m AHD

Equipment : Hand Auger **Borehole Size :** 50mm **Slope :** -90°

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Moisture	Consistence	Samples Tests Remarks	Additional Observations	Depth (m)
DT						Concrete					
			0.15		FILL	FILLI, clayey sand, fine to medium grained, dark brown-dark grey, with gravel	M	L-MD			
HA			0.5						0.4-0.5	No HC Smell, No staining or No fibro fragment observed	0.5
			0.90		CH	Silty CLAY, medium to high plasticity, brown, trace of gravel	M	F-St	0.9-1.0	No HC Smell, No staining or No fibro fragment observed	1.0
			1.00			Borehole BH108 terminated at 1.00m					
			1.5								1.5

Comments:

D - Dry, M - Moist, W - Wet

VS - Very Soft, S - Soft, F - Firm, St - Stiff, VSt - Very Stiff, H - Hard

VL - Very Loose, L - Loose, MD - Medium Dense, D - Dense, VD - Very Dense

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FOUNDATION EARTH SCIENCES

BOREHOLE : BH109

CLIENT NAME: Westwood Pty Ltd **JOB NUMBER:** E2232-2

SITE ADDRESS: 921 Punchbowl Road, Punchbowl NSW 2196 **PROJECT:** Detailed Site Investigation

Date Started : 17/02/2022 **Completed :** 17/02/2022 **Logged By :** RL **Checked By :** MS

Borehole Location : Refer to site plan **Surface RL :** --- **Datum :** m AHD

Equipment : Hand Auger **Borehole Size :** 50mm **Slope :** -90°

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Moisture	Consistence	Samples Tests Remarks	Additional Observations	Depth (m)
DT						Concrete					
HA			*0.20*		FILL	FILL, silty gravelly clay, low to medium plasticity, brown-dark grey	M	S-F	0.3-0.4	D1/SS1, No HC Smell, No staining or No fibro fragment observed	0.5
			0.70			Borehole BH109 terminated at 0.70m					1.0
			1.5								1.5

Comments:

D - Dry, M - Moist, W - Wet

VS - Very Soft, S - Soft, F - Firm, St - Stiff, VSt - Very Stiff, H - Hard

VL - Very Loose, L - Loose, MD - Medium Dense, D - Dense, VD - Very Dense

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BOREHOLE : BH110

FOUNDATION EARTH SCIENCES

CLIENT NAME: Westwood Pty Ltd **JOB NUMBER:** E2232-2

SITE ADDRESS: 921 Punchbowl Road, Punchbowl NSW 2196 **PROJECT:** Detailed Site Investigation

Date Started : 17/02/2022 **Completed :** 17/02/2022 **Logged By :** EY **Checked By :** MS

Borehole Location : Refer to site plan **Surface RL :** --- **Datum :** m AHD

Equipment : Hand Auger **Borehole Size :** 50mm **Slope :** -90°

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Moisture	Consistence	Samples Tests Remarks	Additional Observations	Depth (m)
DT						Concrete					
			0.20		FILL	FILL, silty clay, low to medium plasticity, dark brown-brown, with gravel	M	S-F			
									0.3-0.4	No HC Smell, No staining or No fibro fragment observed	
			0.5								0.5
HA			*0.60*		ML	Clayey SILT, low to medium plasticity, brown-grey	M	S-F			
									0.8-0.9	No HC Smell, No staining or No fibro fragment observed	
			1.0								1.0
			1.00			Borehole BH110 terminated at 1.00m					
			1.5								1.5

Comments:

D - Dry, M - Moist, W - Wet

VS - Very Soft, S - Soft, F - Firm, St - Stiff, VSt - Very Stiff, H - Hard

VL - Very Loose, L - Loose, MD - Medium Dense, D - Dense, VD - Very Dense

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APPENDIX H: NATA ACCREDITED LABORATORY CERTIFICATES

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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

CERTIFICATE OF ANALYSIS 289229

Client Details

Client	Foundation Earth Sciences Pty Ltd
Attention	Ben Buckley
Address	PO Box 4405, East Gosford, NSW, 2250

Sample Details

Your Reference	**E2232-2, Punchbowl**
Number of Samples	21 Soil
Date samples received	18/02/2022
Date completed instructions received	18/02/2022

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	25/02/2022
Date of Issue	25/02/2022

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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
Dragana Tomas, Senior Chemist
Loren Bardwell, Development Chemist
Lucy Zhu, Asbestos Supervisor

Authorised By



Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		289229-1	289229-2	289229-3	289229-4	289229-5
Your Reference	UNITS	BH101	BH101	BH102	BH103	BH103
Depth		0.3-0.4	0.9-1.0	0.2-0.3	0.2-0.3	0.6-0.7
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/02/2022	22/02/2022	22/02/2022	22/02/2022	22/02/2022
Date analysed	-	23/02/2022	23/02/2022	23/02/2022	23/02/2022	23/02/2022
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	%	87	89	85	86	84

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		289229-6	289229-7	289229-8	289229-9	289229-10
Your Reference	UNITS	BH104	BH104	BH105	BH105	BH106
Depth		0.2-0.3	0.7-0.8	0.4-0.5	0.9-1.0	0.3-0.4
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/02/2022	22/02/2022	22/02/2022	22/02/2022	22/02/2022
Date analysed	-	23/02/2022	23/02/2022	23/02/2022	23/02/2022	23/02/2022
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	%	84	84	86	83	107

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		289229-11	289229-12	289229-13	289229-14	289229-15
Your Reference	UNITS	BH106	BH107	BH107	BH108	BH108
Depth		0.7-0.8	0.2-0.3	0.8-0.9	0.4-0.5	0.9-1.0
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/02/2022	22/02/2022	22/02/2022	22/02/2022	22/02/2022
Date analysed	-	23/02/2022	23/02/2022	23/02/2022	23/02/2022	23/02/2022
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	%	87	86	91	87	88

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		289229-16	289229-17	289229-18	289229-19	289229-20
Your Reference	UNITS	BH109	BH110	BH110	D101	TS1
Depth		0.3-0.4	0.3-0.4	0.8-0.9	-	-
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/02/2022	22/02/2022	22/02/2022	22/02/2022	22/02/2022
Date analysed	-	23/02/2022	23/02/2022	23/02/2022	23/02/2022	23/02/2022
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	[NA]
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	[NA]
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	[NA]
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	110%
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	111%
Ethylbenzene	mg/kg	<1	<1	<1	<1	116%
m+p-xylene	mg/kg	<2	<2	<2	<2	116%
o-Xylene	mg/kg	<1	<1	<1	<1	119%
Naphthalene	mg/kg	<1	<1	<1	<1	[NA]
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	[NA]
Surrogate aaa-Trifluorotoluene	%	88	89	88	88	87

vTRH(C6-C10)/BTEXN in Soil		
Our Reference		289229-21
Your Reference	UNITS	TB1
Depth		-
Date Sampled		17/02/2022
Type of sample		Soil
Date extracted	-	22/02/2022
Date analysed	-	23/02/2022
TRH C_6 - C_9	mg/kg	<25
TRH C_6 - C_{10}	mg/kg	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
Naphthalene	mg/kg	<1
Total +ve Xylenes	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	92

svTRH (C10-C40) in Soil						
Our Reference		289229-1	289229-2	289229-3	289229-4	289229-5
Your Reference	UNITS	BH101	BH101	BH102	BH103	BH103
Depth		0.3-0.4	0.9-1.0	0.2-0.3	0.2-0.3	0.6-0.7
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/02/2022	22/02/2022	22/02/2022	22/02/2022	22/02/2022
Date analysed	-	23/02/2022	23/02/2022	23/02/2022	23/02/2022	23/02/2022
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	%	74	74	74	75	75

svTRH (C10-C40) in Soil						
Our Reference		289229-6	289229-7	289229-8	289229-9	289229-10
Your Reference	UNITS	BH104	BH104	BH105	BH105	BH106
Depth		0.2-0.3	0.7-0.8	0.4-0.5	0.9-1.0	0.3-0.4
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/02/2022	22/02/2022	22/02/2022	22/02/2022	22/02/2022
Date analysed	-	23/02/2022	23/02/2022	23/02/2022	23/02/2022	23/02/2022
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	%	75	75	78	73	74

svTRH (C10-C40) in Soil						
Our Reference		289229-11	289229-12	289229-13	289229-14	289229-15
Your Reference	UNITS	BH106	BH107	BH107	BH108	BH108
Depth		0.7-0.8	0.2-0.3	0.8-0.9	0.4-0.5	0.9-1.0
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/02/2022	22/02/2022	22/02/2022	22/02/2022	22/02/2022
Date analysed	-	23/02/2022	23/02/2022	23/02/2022	23/02/2022	24/02/2022
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	%	73	75	73	73	75

svTRH (C10-C40) in Soil					
Our Reference		289229-16	289229-17	289229-18	289229-19
Your Reference	UNITS	BH109	BH110	BH110	D101
Depth		0.3-0.4	0.3-0.4	0.8-0.9	-
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	22/02/2022	22/02/2022	22/02/2022	22/02/2022
Date analysed	-	24/02/2022	24/02/2022	24/02/2022	24/02/2022
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50
Surrogate o-Terphenyl	%	74	83	79	77

PAHs in Soil						
Our Reference		289229-1	289229-2	289229-3	289229-4	289229-5
Your Reference	UNITS	BH101	BH101	BH102	BH103	BH103
Depth		0.3-0.4	0.9-1.0	0.2-0.3	0.2-0.3	0.6-0.7
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/02/2022	22/02/2022	22/02/2022	22/02/2022	22/02/2022
Date analysed	-	24/02/2022	24/02/2022	24/02/2022	24/02/2022	24/02/2022
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 p-Terphenyl-d14	%	110	97	93	100	102

PAHs in Soil						
Our Reference		289229-6	289229-7	289229-8	289229-9	289229-10
Your Reference	UNITS	BH104	BH104	BH105	BH105	BH106
Depth		0.2-0.3	0.7-0.8	0.4-0.5	0.9-1.0	0.3-0.4
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/02/2022	22/02/2022	22/02/2022	22/02/2022	22/02/2022
Date analysed	-	24/02/2022	24/02/2022	24/02/2022	24/02/2022	24/02/2022
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	0.2	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	0.7	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	0.6	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	0.2	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	0.3	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	0.4	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	0.3	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	0.2	<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	0.2	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	2.9	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	93	98	109	109	96

PAHs in Soil						
Our Reference		289229-11	289229-12	289229-13	289229-14	289229-15
Your Reference	UNITS	BH106	BH107	BH107	BH108	BH108
Depth		0.7-0.8	0.2-0.3	0.8-0.9	0.4-0.5	0.9-1.0
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/02/2022	22/02/2022	22/02/2022	22/02/2022	22/02/2022
Date analysed	-	24/02/2022	24/02/2022	24/02/2022	24/02/2022	24/02/2022
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 p-Terphenyl-d14	%	87	112	90	94	99

PAHs in Soil					
Our Reference		289229-16	289229-17	289229-18	289229-19
Your Reference	UNITS	BH109	BH110	BH110	D101
Depth		0.3-0.4	0.3-0.4	0.8-0.9	-
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	22/02/2022	22/02/2022	22/02/2022	22/02/2022
Date analysed	-	24/02/2022	24/02/2022	24/02/2022	24/02/2022
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	102	85	105	93

Organochlorine Pesticides in soil						
Our Reference		289229-1	289229-3	289229-4	289229-6	289229-8
Your Reference	UNITS	BH101	BH102	BH103	BH104	BH105
Depth		0.3-0.4	0.2-0.3	0.2-0.3	0.2-0.3	0.4-0.5
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/02/2022	22/02/2022	22/02/2022	22/02/2022	22/02/2022
Date analysed	-	24/02/2022	24/02/2022	24/02/2022	24/02/2022	24/02/2022
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	%	91	84	90	85	93

Organochlorine Pesticides in soil						
Our Reference		289229-9	289229-10	289229-12	289229-13	289229-14
Your Reference	UNITS	BH105	BH106	BH107	BH107	BH108
Depth		0.9-1.0	0.3-0.4	0.2-0.3	0.8-0.9	0.4-0.5
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/02/2022	22/02/2022	22/02/2022	22/02/2022	22/02/2022
Date analysed	-	24/02/2022	24/02/2022	24/02/2022	24/02/2022	24/02/2022
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	%	94	86	94	81	84

Organochlorine Pesticides in soil				
Our Reference		289229-16	289229-17	289229-19
Your Reference	UNITS	BH109	BH110	D101
Depth		0.3-0.4	0.3-0.4	-
Date Sampled		17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil
Date extracted	-	22/02/2022	22/02/2022	22/02/2022
Date analysed	-	24/02/2022	24/02/2022	24/02/2022
alpha-BHC	mg/kg	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	90	82	83

PCBs in Soil						
Our Reference		289229-1	289229-3	289229-4	289229-6	289229-8
Your Reference	UNITS	BH101	BH102	BH103	BH104	BH105
Depth		0.3-0.4	0.2-0.3	0.2-0.3	0.2-0.3	0.4-0.5
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/02/2022	22/02/2022	22/02/2022	22/02/2022	22/02/2022
Date analysed	-	24/02/2022	24/02/2022	24/02/2022	24/02/2022	24/02/2022
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	%	91	84	90	85	93

PCBs in Soil						
Our Reference		289229-9	289229-10	289229-12	289229-13	289229-14
Your Reference	UNITS	BH105	BH106	BH107	BH107	BH108
Depth		0.9-1.0	0.3-0.4	0.2-0.3	0.8-0.9	0.4-0.5
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/02/2022	22/02/2022	22/02/2022	22/02/2022	22/02/2022
Date analysed	-	24/02/2022	24/02/2022	24/02/2022	24/02/2022	24/02/2022
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	%	94	86	94	81	84

PCBs in Soil				
Our Reference		289229-16	289229-17	289229-19
Your Reference	UNITS	BH109	BH110	D101
Depth		0.3-0.4	0.3-0.4	-
Date Sampled		17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil
Date extracted	-	22/02/2022	22/02/2022	22/02/2022
Date analysed	-	24/02/2022	24/02/2022	24/02/2022
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	90	82	83

Acid Extractable metals in soil						
Our Reference		289229-1	289229-2	289229-3	289229-4	289229-5
Your Reference	UNITS	BH101	BH101	BH102	BH103	BH103
Depth		0.3-0.4	0.9-1.0	0.2-0.3	0.2-0.3	0.6-0.7
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/02/2022	23/02/2022	23/02/2022	23/02/2022	23/02/2022
Date analysed	-	23/02/2022	23/02/2022	23/02/2022	23/02/2022	23/02/2022
Arsenic	mg/kg	<4	6	4	<4	10
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	30	17	12	2	12
Copper	mg/kg	20	17	13	4	16
Lead	mg/kg	19	16	26	6	30
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	27	19	8	3	9
Zinc	mg/kg	34	38	42	9	23

Acid Extractable metals in soil						
Our Reference		289229-6	289229-7	289229-8	289229-9	289229-10
Your Reference	UNITS	BH104	BH104	BH105	BH105	BH106
Depth		0.2-0.3	0.7-0.8	0.4-0.5	0.9-1.0	0.3-0.4
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/02/2022	23/02/2022	23/02/2022	23/02/2022	23/02/2022
Date analysed	-	23/02/2022	23/02/2022	23/02/2022	23/02/2022	23/02/2022
Arsenic	mg/kg	4	<4	7	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	48	6	13	6	13
Copper	mg/kg	20	5	19	7	23
Lead	mg/kg	9	7	33	8	6
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	37	4	13	3	47
Zinc	mg/kg	26	5	51	7	20

Acid Extractable metals in soil						
Our Reference		289229-11	289229-12	289229-13	289229-14	289229-15
Your Reference	UNITS	BH106	BH107	BH107	BH108	BH108
Depth		0.7-0.8	0.2-0.3	0.8-0.9	0.4-0.5	0.9-1.0
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/02/2022	23/02/2022	23/02/2022	23/02/2022	23/02/2022
Date analysed	-	23/02/2022	23/02/2022	23/02/2022	23/02/2022	23/02/2022
Arsenic	mg/kg	5	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	6	11	11	10	12
Copper	mg/kg	8	17	17	42	6
Lead	mg/kg	15	12	16	4	6
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	7	11	14	100	3
Zinc	mg/kg	5	14	23	31	5

Acid Extractable metals in soil						
Our Reference		289229-16	289229-17	289229-18	289229-19	289229-22
Your Reference	UNITS	BH109	BH110	BH110	D101	BH107 - [TRIPLICATE]
Depth		0.3-0.4	0.3-0.4	0.8-0.9	-	0.2-0.3
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/02/2022	23/02/2022	23/02/2022	23/02/2022	23/02/2022
Date analysed	-	23/02/2022	23/02/2022	23/02/2022	23/02/2022	23/02/2022
Arsenic	mg/kg	<4	<4	6	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	22	11	16	9	15
Copper	mg/kg	20	12	19	43	59
Lead	mg/kg	15	17	19	3	14
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	35	8	13	95	43
Zinc	mg/kg	30	16	24	30	28

Moisture						
Our Reference		289229-1	289229-2	289229-3	289229-4	289229-5
Your Reference	UNITS	BH101	BH101	BH102	BH103	BH103
Depth		0.3-0.4	0.9-1.0	0.2-0.3	0.2-0.3	0.6-0.7
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	22/02/2022	22/02/2022	22/02/2022	22/02/2022	22/02/2022
Date analysed	-	23/02/2022	23/02/2022	23/02/2022	23/02/2022	23/02/2022
Moisture	%	12	16	20	16	22

Moisture						
Our Reference		289229-6	289229-7	289229-8	289229-9	289229-10
Your Reference	UNITS	BH104	BH104	BH105	BH105	BH106
Depth		0.2-0.3	0.7-0.8	0.4-0.5	0.9-1.0	0.3-0.4
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	22/02/2022	22/02/2022	22/02/2022	22/02/2022	22/02/2022
Date analysed	-	23/02/2022	23/02/2022	23/02/2022	23/02/2022	23/02/2022
Moisture	%	18	17	19	17	18

Moisture						
Our Reference		289229-11	289229-12	289229-13	289229-14	289229-15
Your Reference	UNITS	BH106	BH107	BH107	BH108	BH108
Depth		0.7-0.8	0.2-0.3	0.8-0.9	0.4-0.5	0.9-1.0
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	22/02/2022	22/02/2022	22/02/2022	22/02/2022	22/02/2022
Date analysed	-	23/02/2022	23/02/2022	23/02/2022	23/02/2022	23/02/2022
Moisture	%	17	19	14	11	17

Moisture					
Our Reference		289229-16	289229-17	289229-18	289229-19
Your Reference	UNITS	BH109	BH110	BH110	D101
Depth		0.3-0.4	0.3-0.4	0.8-0.9	-
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	22/02/2022	22/02/2022	22/02/2022	22/02/2022
Date analysed	-	23/02/2022	23/02/2022	23/02/2022	23/02/2022
Moisture	%	16	16	15	9.2

Asbestos ID - soils						
Our Reference		289229-1	289229-4	289229-6	289229-10	289229-12
Your Reference	UNITS	BH101	BH103	BH104	BH106	BH107
Depth		0.3-0.4	0.2-0.3	0.2-0.3	0.3-0.4	0.2-0.3
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	24/02/2022	24/02/2022	24/02/2022	24/02/2022	24/02/2022
Sample mass tested	g	Approx. 30g	Approx. 25g	Approx. 20g	Approx. 35g	Approx. 35g
Sample Description	-	Brown coarse-grained soil & rocks	Beige coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils			
Our Reference		289229-14	289229-17
Your Reference	UNITS	BH108	BH110
Depth		0.4-0.5	0.3-0.4
Date Sampled		17/02/2022	17/02/2022
Type of sample		Soil	Soil
Date analysed	-	24/02/2022	24/02/2022
Sample mass tested	g	Approx. 25g	Approx. 20g
Sample Description	-	Grey 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
Trace Analysis	-	No asbestos detected	No asbestos detected

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-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-021	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-021	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS/GC-MSMS. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.

Method ID	Methodology Summary
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <PQL 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.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	289229-3
Date extracted	-			22/02/2022	1	22/02/2022	22/02/2022		22/02/2022	22/02/2022
Date analysed	-			23/02/2022	1	23/02/2022	23/02/2022		23/02/2022	23/02/2022
TRH C_6 - C_9	mg/kg	25	Org-023	<25	1	<25	<25	0	108	92
TRH C_6 - C_{10}	mg/kg	25	Org-023	<25	1	<25	<25	0	108	92
Benzene	mg/kg	0.2	Org-023	<0.2	1	<0.2	<0.2	0	100	92
Toluene	mg/kg	0.5	Org-023	<0.5	1	<0.5	<0.5	0	101	93
Ethylbenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	107	88
m+p-xylene	mg/kg	2	Org-023	<2	1	<2	<2	0	115	94
o-Xylene	mg/kg	1	Org-023	<1	1	<1	<1	0	109	88
Naphthalene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	93	1	87	90	3	94	103

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]	12	22/02/2022	22/02/2022		[NT]	[NT]
Date analysed	-			[NT]	12	23/02/2022	23/02/2022		[NT]	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	12	<25	<25	0	[NT]	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	12	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	12	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	12	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	12	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	12	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	12	<1	<1	0	[NT]	[NT]
Naphthalene	mg/kg	1	Org-023	[NT]	12	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	12	86	87	1	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	289229-3
Date extracted	-			22/02/2022	1	22/02/2022	22/02/2022		22/02/2022	22/02/2022
Date analysed	-			23/02/2022	1	23/02/2022	23/02/2022		23/02/2022	23/02/2022
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	1	<50	<50	0	86	89
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	1	<100	<100	0	79	78
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	1	<100	<100	0	127	105
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	1	<50	<50	0	86	89
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	1	<100	<100	0	79	78
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	1	<100	<100	0	127	105
Surrogate o-Terphenyl	%		Org-020	75	1	74	76	3	83	101

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	12	22/02/2022	22/02/2022		[NT]	[NT]
Date analysed	-			[NT]	12	23/02/2022	23/02/2022		[NT]	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	12	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	12	<100	<100	0	[NT]	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	12	<100	<100	0	[NT]	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	12	<50	<50	0	[NT]	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	12	<100	<100	0	[NT]	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	12	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	12	75	75	0	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	289229-3
Date extracted	-			22/02/2022	1	22/02/2022	22/02/2022		22/02/2022	22/02/2022
Date analysed	-			24/02/2022	1	24/02/2022	24/02/2022		24/02/2022	24/02/2022
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	107	111
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	103	109
Fluorene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	107	113
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	112	116
Anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	112	120
Pyrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	109	117
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	73	77
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	1	<0.05	<0.05	0	108	114
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	120	1	110	112	2	91	80

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	12	22/02/2022	22/02/2022		[NT]	[NT]
Date analysed	-			[NT]	12	24/02/2022	24/02/2022		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	12	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	12	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	12	112	107	5	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	289229-3
Date extracted	-			22/02/2022	1	22/02/2022	22/02/2022		22/02/2022	22/02/2022
Date analysed	-			24/02/2022	1	24/02/2022	24/02/2022		24/02/2022	24/02/2022
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	96	104
HCB	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	99	110
gamma-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	97	103
delta-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	85	89
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	100	108
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	103	109
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	112	120
Endrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	100	105
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	96	104
Endrin Aldehyde	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	78	76
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	101	1	91	95	4	84	72

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	12	22/02/2022	22/02/2022		[NT]	[NT]
Date analysed	-			[NT]	12	24/02/2022	24/02/2022		[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
HCB	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	[NT]	12	94	94	0	[NT]	[NT]

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	289229-3
Date extracted	-			22/02/2022	1	22/02/2022	22/02/2022		22/02/2022	22/02/2022
Date analysed	-			24/02/2022	1	24/02/2022	24/02/2022		24/02/2022	24/02/2022
Aroclor 1016	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	92	100
Aroclor 1260	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	101	1	91	95	4	84	72

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	12	22/02/2022	22/02/2022		[NT]	[NT]
Date analysed	-			[NT]	12	24/02/2022	24/02/2022		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-021	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-021	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	[NT]	12	94	94	0	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	289229-3
Date prepared	-			23/02/2022	1	23/02/2022	23/02/2022		23/02/2022	23/02/2022
Date analysed	-			23/02/2022	1	23/02/2022	23/02/2022		23/02/2022	23/02/2022
Arsenic	mg/kg	4	Metals-020	<4	1	<4	<4	0	102	84
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	<0.4	<0.4	0	100	82
Chromium	mg/kg	1	Metals-020	<1	1	30	28	7	102	85
Copper	mg/kg	1	Metals-020	<1	1	20	17	16	100	97
Lead	mg/kg	1	Metals-020	<1	1	19	16	17	102	84
Mercury	mg/kg	0.1	Metals-021	<0.1	1	<0.1	<0.1	0	111	110
Nickel	mg/kg	1	Metals-020	<1	1	27	26	4	98	79
Zinc	mg/kg	1	Metals-020	<1	1	34	35	3	97	#

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	12	23/02/2022	23/02/2022		[NT]	[NT]
Date analysed	-			[NT]	12	23/02/2022	23/02/2022		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	12	<4	5	22	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	12	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	12	11	13	17	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	12	17	27	45	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	12	12	17	34	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	12	11	18	48	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	12	14	17	19	[NT]	[NT]

Result Definitions

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

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

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

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

Report Comments

Acid Extractable Metals in Soil:
- The laboratory RPD acceptance criteria has been exceeded for 289229-12 for Cu & Ni. Therefore a triplicate result has been issued as laboratory sample number 289229-22.
- # Percent recovery is not possible to report due to the inhomogeneous nature of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

FOUNDATION EARTH SCIENCES

Chain of Custody Record

Client Details:	Foundation Earth Sciences PO Box 4405, East Gosford NSW 2250 email: ben@foundationes.com.au michael@foundationes.com.au; ray@foundationes.com.au ph: +61466 385 221	Project Manager: Michael Silk Sampled By: RL/EY Purchase Order #: N/A Page #: 1 of 1	Project #:E2232-2 Project Name: Punchbowl Quote #: Turnaround: Standard
Delivery Details:	Envirolab Pty Ltd 12 Ashley Street, Chatswood NSW 2067 email: ahle@envirolab.com.au ph: +612 9910 6200		

#	Sample ID	Depth	Date Sampled	Matrix	Analytes														Sample Comments
					ph	CEC	%CLAY	Heavy Metals (8)	TRH	BTEXN	PAH	Phenol	VOC	Asbestos ID	Asbestos %w/w (NEPM /WA)	TRH C6-C10 & BTEXN	OCP PCB	Envirolab Suites	
1	BH101	0.3-0.4	17.2.2022	Soil				X	X	X	X			x			x	Combo5a	Keep
2	BH101	0.9-1.0	17.2.2022	Soil				X	X	X	X							Combo 3	Keep
3	BH102	0.2-0.3	17.2.2022	Soil				X	X	X	X						x	Combo5	Keep
4	BH103	0.2-0.3	17.2.2022	Soil				X	X	X	X			x			x	Combo5a	Keep
5	BH103	0.6-0.7	17.2.2022	Soil				X	X	X	X							Combo3	Keep
6	BH104	0.2-0.3	17.2.2022	Soil				X	X	X	X			x			x	Combo5a	Keep
7	BH104	0.7-0.8	17.2.2022	Soil				X	X	X	X							Combo3	Keep
8	BH105	0.4-0.5	17.2.2022	Soil				X	X	X	X						x	Combo5	Keep
9	BH105	0.9-1.0	17.2.2022	Soil				X	X	X	X						x	Combo5	Keep
10	BH106	0.3-0.4	17.2.2022	Soil				X	X	X	X			x			x	Combo5a	Keep
11	BH106	0.7-0.8	17.2.2022	Soil				X	X	X	X							Combo3	Keep
12	BH107	0.2-0.3	17.2.2022	Soil				X	X	X	X			x			x	Combo5a	Keep
13	BH107	0.8-0.9	17.2.2022	Soil				X	X	X	X						x	Combo5	Keep
14	BH108	0.4-0.5	17.2.2022	Soil				X	X	X	X			x			x	Combo5a	Keep
15	BH108	0.9-1.0	17.2.2022	Soil				X	X	X	X							Combo3	Keep
16	BH109	0.3-0.4	17.2.2022	Soil				X	X	X	X						x	Combo5	Keep
17	BH110	0.3-0.4	17.2.2022	Soil				X	X	X	X			x			x	Combo5a	Keep
18	BH110	0.8-0.9	17.2.2022	Soil				X	X	X	X							Combo3	Keep
19	D101	-	17.2.2022	Soil				X	X	X	X						x	Combo5	Keep
20	TS1	-	17.2.2022	Soil												X			Keep
21	TB1	-	17.2.2022	Soil												X			Keep
22																			
23																			
24																			
25																			
26																			

Special Directions and Coments:

Relinquished by	Emerson You	Received By	
Signature		Signature	
Date	18.2.2022	Date	18/2/22

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 285229
Date Received: 18/2/22
Time Received: 2:45
Received By:
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details

Client	Foundation Earth Sciences Pty Ltd
Attention	Ben Buckley

Sample Login Details

Your reference	E2232-2, Punchbowl
Envirolab Reference	289229
Date Sample Received	18/02/2022
Date Instructions Received	18/02/2022
Date Results Expected to be Reported	25/02/2022

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	21 Soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	15
Cooling Method	Ice
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

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

Analysis Underway, details on the following page:

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	PCBs in Soil	Acid Extractable metalsin soil	Asbestos ID - soils
BH101-0.3-0.4	✓	✓	✓	✓	✓	✓	✓
BH101-0.9-1.0	✓	✓	✓			✓	
BH102-0.2-0.3	✓	✓	✓	✓	✓	✓	
BH103-0.2-0.3	✓	✓	✓	✓	✓	✓	✓
BH103-0.6-0.7	✓	✓	✓			✓	
BH104-0.2-0.3	✓	✓	✓	✓	✓	✓	✓
BH104-0.7-0.8	✓	✓	✓			✓	
BH105-0.4-0.5	✓	✓	✓	✓	✓	✓	
BH105-0.9-1.0	✓	✓	✓	✓	✓	✓	
BH106-0.3-0.4	✓	✓	✓	✓	✓	✓	✓
BH106-0.7-0.8	✓	✓	✓			✓	
BH107-0.2-0.3	✓	✓	✓	✓	✓	✓	✓
BH107-0.8-0.9	✓	✓	✓	✓	✓	✓	
BH108-0.4-0.5	✓	✓	✓	✓	✓	✓	✓
BH108-0.9-1.0	✓	✓	✓			✓	
BH109-0.3-0.4	✓	✓	✓	✓	✓	✓	
BH110-0.3-0.4	✓	✓	✓	✓	✓	✓	✓
BH110-0.8-0.9	✓	✓	✓			✓	
D101	✓	✓	✓	✓	✓	✓	
TS1	✓						
TB1	✓						

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.

FOUNDATION EARTH SCIENCES

Chain of Custody Record

Client Details:	Foundation Earth Sciences PO Box 4405, East Gosford NSW 2250 email: ben@foundationes.com.au michael@foundationes.com.au; ray@foundationes.com.au ph: +61466 385 221	**Project Manager:**	Michael Silk
		Sampled By:	RL/EY
Delivery Details:	Eurofins MGT - Sydney Office Unit F3-6 Building F, 16 Mars Road, Lane Cove 2066 email: EnviroSampleNSW@eurofins.com.au ph: +612 9900 8400	**Purchase Order #:**	N/A
		Page #:	1

Project: E2232-2

Project Name: Punchbowl

Quote #:

Turnaround: Standard

#	Sample ID	Depth	Date Sampled	Matrix	Analytes														Sample Comments
					ph	CEC	%CLAY	Heavy Metals (8)	TRH	BTEXN	PAH	OC	PCB	Asbestos ID	Asbestos %w/w (NEPM /WA)	Phenol		Suites	
1	SS101	-	17.2.2022	Soil				X	X	X	X	x	x					B7+B13	Keep
2																			
3																			

Special Directions and Coments:

Relinquished by	EY	Received By	Amy
Signature		Signature	
Date	18.2.2022	Date	18/02

864760

eurofins | Environment Testing

www.eurofins.com.au EnviroSales@eurofins.com

Eurofins Environment Testing Australia Pty Ltd

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Melbourne
6 Monterey Road
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Phone : +61 3 8564 5000
NATA # 1261 Site # 1254

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Newcastle
4/52 Industrial Drive
Mayfield East NSW 2304
PO Box 60 Wickham 2293
Phone : +61 2 4968 8448
NATA # 1261 Site # 25079

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46-48 Banksia Road
Welshpool WA 6106
Phone : +61 8 6253 4444
NATA # 2377 Site # 2370

Eurofins Environment Testing NZ Limited

NZBN: 9429046024954

Auckland
35 O'Rorke Road
Penrose, Auckland 1061
Phone : +64 9 526 45 51
IANZ # 1327

Christchurch
43 Detroit Drive
Rolleston, Christchurch 7675
Phone : 0800 856 450
IANZ # 1290

Sample Receipt Advice

Company name:	Foundation Earth Sciences
Contact name:	Michael Silk (cc results)
Project name:	PUNCHBOWL
Project ID:	E2232-2
Turnaround time:	5 Day
Date/Time received	Feb 18, 2022 4:13 PM
Eurofins reference	864760

Sample Information

✓	A detailed list of analytes logged into our LIMS, is included in the attached summary table.
✓	All samples have been received as described on the above COC.
✓	COC has been completed correctly.
✓	Attempt to chill was evident.
✓	Appropriately preserved sample containers have been used.
✓	All samples were received in good condition.
✓	Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
✓	Appropriate sample containers have been used.
✓	Sample containers for volatile analysis received with zero headspace.
✗	Split sample sent to requested external lab.
✗	Some samples have been subcontracted.
N/A	Custody Seals intact (if used).

Notes

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Ursula Long on phone : or by email: UrsulaLong@eurofins.com

Results will be delivered electronically via email to Michael Silk (cc results) - michael@foundationes.com.au.

Global Leader - Results you can trust

eurofins | Environment Testing

web: www.eurofins.com.au
email: EnviroSales@eurofins.com

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ABN: 50 005 085 521

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Phone : +64 9 526 45 51
IANZ # 1327

Christchurch
43 Detroit Drive
Rolleston, Christchurch 7675
Phone : 0800 856 450
IANZ # 1290

Company Name: Foundation Earth Sciences
Address: PO BOX 4405
East Gosford
NSW 2250

Project Name: PUNCHBOWL
Project ID: E2232-2

Order No.:
Report #: 864760
Phone:
Fax:

Received: Feb 18, 2022 4:13 PM
Due: Feb 25, 2022
Priority: 5 Day
Contact Name: Michael Silk (cc results)

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						Suite B13: OCP/PCB	Moisture Set	Eurofins Suite B7
Melbourne Laboratory - NATA # 1261 Site # 1254								
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794								
Mayfield Laboratory - NATA # 1261 Site # 25079								
Perth Laboratory - NATA # 2377 Site # 2370								
External Laboratory								
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
1	SS101	Feb 17, 2022		Soil	S22-Fe38590	X	X	X
Test Counts						1	1	1

Foundation Earth Sciences
PO BOX 4405
East Gosford
NSW 2250

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection, proficiency testing scheme providers and reference materials producers reports and certificates.

Attention: **Michael Silk (cc results)**

Report **864760-S**
Project name PUNCHBOWL
Project ID E2232-2
Received Date Feb 18, 2022

Client Sample ID			**SS101**
Sample Matrix			**Soil**
Eurofins Sample No.			**S22-Fe38590**
Date Sampled			**Feb 17, 2022**
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons			
TRH C6-C9	20	mg/kg	< 20
TRH C10-C14	20	mg/kg	< 20
TRH C15-C28	50	mg/kg	< 50
TRH C29-C36	50	mg/kg	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50
Naphthalene[N02]	0.5	mg/kg	< 0.5
TRH C6-C10	20	mg/kg	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20
TRH >C10-C16	50	mg/kg	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50
TRH >C16-C34	100	mg/kg	< 100
TRH >C34-C40	100	mg/kg	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100
BTEX			
Benzene	0.1	mg/kg	< 0.1
Toluene	0.1	mg/kg	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2
o-Xylene	0.1	mg/kg	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3
4-Bromofluorobenzene (surr.)	1	%	86
Polycyclic Aromatic Hydrocarbons			
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2
Acenaphthene	0.5	mg/kg	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5
Anthracene	0.5	mg/kg	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5
Chrysene	0.5	mg/kg	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5

Client Sample ID			SS101
Sample Matrix			Soil
Eurofins Sample No.			S22-Fe38590
Date Sampled			Feb 17, 2022
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
Fluoranthene	0.5	mg/kg	< 0.5
Fluorene	0.5	mg/kg	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5
Naphthalene	0.5	mg/kg	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5
Pyrene	0.5	mg/kg	< 0.5
Total PAH*	0.5	mg/kg	< 0.5
2-Fluorobiphenyl (surr.)	1	%	118
p-Terphenyl-d14 (surr.)	1	%	128
Organochlorine Pesticides			
Chlordanes - Total	0.1	mg/kg	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05
a-HCH	0.05	mg/kg	< 0.05
Aldrin	0.05	mg/kg	< 0.05
b-HCH	0.05	mg/kg	< 0.05
d-HCH	0.05	mg/kg	< 0.05
Dieldrin	0.05	mg/kg	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05
Endrin	0.05	mg/kg	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05
g-HCH (Lindane)	0.05	mg/kg	< 0.05
Heptachlor	0.05	mg/kg	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05
Toxaphene	0.5	mg/kg	< 0.5
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1
Dibutylchlorendate (surr.)	1	%	89
Tetrachloro-m-xylene (surr.)	1	%	108
Polychlorinated Biphenyls			
Aroclor-1016	0.1	mg/kg	< 0.1
Aroclor-1221	0.1	mg/kg	< 0.1
Aroclor-1232	0.1	mg/kg	< 0.1
Aroclor-1242	0.1	mg/kg	< 0.1
Aroclor-1248	0.1	mg/kg	< 0.1
Aroclor-1254	0.1	mg/kg	< 0.1
Aroclor-1260	0.1	mg/kg	< 0.1
Total PCB*	0.1	mg/kg	< 0.1
Dibutylchlorendate (surr.)	1	%	89
Tetrachloro-m-xylene (surr.)	1	%	108

Client Sample ID			SS101
Sample Matrix			**Soil**
Eurofins Sample No.			**S22-Fe38590**
Date Sampled			**Feb 17, 2022**
Test/Reference	LOR	Unit	
Heavy Metals			
Arsenic	2	mg/kg	< 2
Cadmium	0.4	mg/kg	< 0.4
Chromium	5	mg/kg	46
Copper	5	mg/kg	45
Lead	5	mg/kg	< 5
Mercury	0.1	mg/kg	< 0.1
Nickel	5	mg/kg	150
Zinc	5	mg/kg	64
% Moisture	1	%	8.5

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Feb 21, 2022	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Feb 21, 2022	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Feb 21, 2022	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	Feb 21, 2022	14 Days
- Method: LTM-ORG-2010 BTEX and Volatile TRH			
Polycyclic Aromatic Hydrocarbons	Sydney	Feb 21, 2022	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8	Sydney	Feb 21, 2022	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Organochlorine Pesticides	Sydney	Feb 21, 2022	14 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Polychlorinated Biphenyls	Sydney	Feb 21, 2022	28 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
% Moisture	Sydney	Feb 19, 2022	14 Days
- Method: LTM-GEN-7080 Moisture			

eurofins | Environment Testing

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Company Name: Foundation Earth Sciences
Address: PO BOX 4405
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NSW 2250

Project Name: PUNCHBOWL
Project ID: E2232-2

Order No.:
Report #: 864760
Phone:
Fax:

Received: Feb 18, 2022 4:13 PM
Due: Feb 25, 2022
Priority: 5 Day
Contact Name: Michael Silk (cc results)

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						Suite B13: OCP/PCB	Moisture Set	Eurofins Suite B7
Melbourne Laboratory - NATA # 1261 Site # 1254								
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794								
Mayfield Laboratory - NATA # 1261 Site # 25079								
Perth Laboratory - NATA # 2377 Site # 2370								
External Laboratory								
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
1	SS101	Feb 17, 2022		Soil	S22-Fe38590	X	X	X
Test Counts						1	1	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
µg/L: micrograms per litre
ppm: parts per million
ppb: parts per billion
%: Percentage
org/100 mL: Organisms per 100 millilitres
NTU: Nephelometric Turbidity Units
MPN/100 mL: Most Probable Number of organisms per 100 millilitres

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR: No Limit

Results between 10-20 times the LOR: RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

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QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total*	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-HCH	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-HCH	mg/kg	< 0.05			0.05	Pass	
d-HCH	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-HCH (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Toxaphene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/kg	< 0.1			0.1	Pass	
Aroclor-1221	mg/kg	< 0.1			0.1	Pass	
Aroclor-1232	mg/kg	< 0.1			0.1	Pass	
Aroclor-1242	mg/kg	< 0.1			0.1	Pass	
Aroclor-1248	mg/kg	< 0.1			0.1	Pass	
Aroclor-1254	mg/kg	< 0.1			0.1	Pass	
Aroclor-1260	mg/kg	< 0.1			0.1	Pass	
Total PCB*	mg/kg	< 0.1			0.1	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	76			70-130	Pass	
TRH C10-C14	%	87			70-130	Pass	
Naphthalene	%	93			70-130	Pass	
TRH C6-C10	%	72			70-130	Pass	
TRH >C10-C16	%	87			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	80			70-130	Pass	
Toluene	%	81			70-130	Pass	
Ethylbenzene	%	77			70-130	Pass	
m&p-Xylenes	%	78			70-130	Pass	
o-Xylene	%	81			70-130	Pass	
Xylenes - Total*	%	79			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	101			70-130	Pass	
Acenaphthylene	%	92			70-130	Pass	
Anthracene	%	96			70-130	Pass	
Benz(a)anthracene	%	90			70-130	Pass	
Benzo(a)pyrene	%	93			70-130	Pass	
Benzo(b&j)fluoranthene	%	87			70-130	Pass	
Benzo(g.h.i)perylene	%	90			70-130	Pass	
Benzo(k)fluoranthene	%	99			70-130	Pass	
Chrysene	%	93			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Dibenz(a.h)anthracene	%	86			70-130	Pass	
Fluoranthene	%	91			70-130	Pass	
Fluorene	%	92			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	89			70-130	Pass	
Naphthalene	%	92			70-130	Pass	
Phenanthrene	%	96			70-130	Pass	
Pyrene	%	90			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	92			70-130	Pass	
4.4'-DDD	%	73			70-130	Pass	
4.4'-DDE	%	90			70-130	Pass	
4.4'-DDT	%	84			70-130	Pass	
a-HCH	%	87			70-130	Pass	
Aldrin	%	87			70-130	Pass	
b-HCH	%	87			70-130	Pass	
d-HCH	%	84			70-130	Pass	
Dieldrin	%	98			70-130	Pass	
Endosulfan I	%	94			70-130	Pass	
Endosulfan II	%	85			70-130	Pass	
Endosulfan sulphate	%	91			70-130	Pass	
Endrin	%	80			70-130	Pass	
Endrin aldehyde	%	80			70-130	Pass	
Endrin ketone	%	87			70-130	Pass	
g-HCH (Lindane)	%	87			70-130	Pass	
Heptachlor	%	77			70-130	Pass	
Heptachlor epoxide	%	92			70-130	Pass	
Hexachlorobenzene	%	94			70-130	Pass	
Methoxychlor	%	127			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls							
Aroclor-1016	%	94			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	94			80-120	Pass	
Cadmium	%	89			80-120	Pass	
Chromium	%	94			80-120	Pass	
Copper	%	91			80-120	Pass	
Lead	%	98			80-120	Pass	
Mercury	%	87			80-120	Pass	
Nickel	%	89			80-120	Pass	
Zinc	%	86			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C9	S22-Fe44354	NCP	%	74			70-130	Pass	
TRH C10-C14	S22-Fe42295	NCP	%	93			70-130	Pass	
Naphthalene	S22-Fe38297	NCP	%	83			70-130	Pass	
TRH C6-C10	S22-Fe44354	NCP	%	70			70-130	Pass	
TRH >C10-C16	S22-Fe42295	NCP	%	94			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S22-Fe38297	NCP	%	76			70-130	Pass	
Toluene	S22-Fe38297	NCP	%	73			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Ethylbenzene	S22-Fe38297	NCP	%	72			70-130	Pass	
m&p-Xylenes	S22-Fe38297	NCP	%	70			70-130	Pass	
o-Xylene	S22-Fe38297	NCP	%	75			70-130	Pass	
Xylenes - Total*	S22-Fe38297	NCP	%	72			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S22-Fe39294	NCP	%	106			75-125	Pass	
Cadmium	S22-Fe39294	NCP	%	102			75-125	Pass	
Chromium	S22-Fe39294	NCP	%	109			75-125	Pass	
Copper	S22-Fe39294	NCP	%	96			75-125	Pass	
Lead	S22-Fe39294	NCP	%	113			75-125	Pass	
Mercury	S22-Fe39294	NCP	%	94			75-125	Pass	
Nickel	S22-Fe39294	NCP	%	115			75-125	Pass	
Zinc	S22-Fe40779	NCP	%	85			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	S22-Fe39289	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S22-Fe38590	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S22-Fe38590	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S22-Fe38590	CP	mg/kg	< 50	< 50	<1	30%	Pass	
Naphthalene	S22-Fe39289	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S22-Fe39289	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	S22-Fe38590	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S22-Fe38590	CP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S22-Fe38590	CP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S22-Fe39289	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S22-Fe39289	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S22-Fe39289	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S22-Fe39289	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S22-Fe39289	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	S22-Fe39289	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S22-Fe38590	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S22-Fe38590	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S22-Fe38590	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S22-Fe38590	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S22-Fe38590	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S22-Fe38590	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	S22-Fe38590	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S22-Fe38590	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S22-Fe38590	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S22-Fe38590	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S22-Fe38590	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S22-Fe38590	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S22-Fe38590	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S22-Fe38590	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S22-Fe38590	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S22-Fe38590	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S22-Fe38590	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	S22-Fe38590	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	S22-Fe38590	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	S22-Fe38590	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-HCH	S22-Fe38590	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S22-Fe38590	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-HCH	S22-Fe38590	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-HCH	S22-Fe38590	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	S22-Fe38590	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	S22-Fe38590	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	S22-Fe38590	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	S22-Fe38590	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	S22-Fe38590	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	S22-Fe38590	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	S22-Fe38590	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-HCH (Lindane)	S22-Fe38590	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	S22-Fe38590	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	S22-Fe38590	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	S22-Fe38590	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	S22-Fe38590	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Toxaphene	S22-Fe38590	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Polychlorinated Biphenyls				Result 1	Result 2	RPD			
Aroclor-1016	S22-Fe38590	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1221	S22-Fe38590	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1232	S22-Fe38590	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1242	S22-Fe38590	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1248	S22-Fe38590	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1254	S22-Fe38590	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1260	S22-Fe38590	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Total PCB*	S22-Fe38590	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S22-Fe38590	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Cadmium	S22-Fe38590	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S22-Fe38590	CP	mg/kg	46	48	4.0	30%	Pass	
Copper	S22-Fe38590	CP	mg/kg	45	48	6.0	30%	Pass	
Lead	S22-Fe38590	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Mercury	S22-Fe38590	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S22-Fe38590	CP	mg/kg	150	160	6.0	30%	Pass	
Zinc	S22-Fe38590	CP	mg/kg	64	68	6.0	30%	Pass	Q15
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S22-Fe38590	CP	%	8.5	7.9	7.0	30%	Pass	

Comments

Eurofins | Environment Testing accreditation number 1261, site 18217 is currently in progress of a controlled transition to a new custom built location at 179 Magowar Road, Girraween, NSW 2145. All results on this report denoted as being performed by Eurofins | Environment Testing Unit F3, Building F, 16 Mars road, Lane Cove West, NSW 2066, corporate site 18217, will have been performed on either Lane Cove or new Girraween site

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised by:

Hannah Mawbey	Analytical Services Manager
Andrew Sullivan	Senior Analyst-Organic (NSW)
John Nguyen	Senior Analyst-Metal (NSW)
Roopesh Rangarajan	Senior Analyst-Volatile (NSW)



Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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CERTIFICATE OF ANALYSIS 289819

Client Details

Client	Foundation Earth Sciences Pty Ltd
Attention	Michael Silk
Address	PO Box 4405, East Gosford, NSW, 2250

Sample Details

Your Reference	**E2232-2, Punchbowl**
Number of Samples	6 Water
Date samples received	25/02/2022
Date completed instructions received	25/02/2022

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.

Report Details

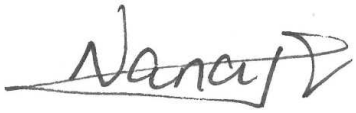
Date results requested by	04/03/2022
Date of Issue	04/03/2022

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Results Approved By
Dragana Tomas, Senior Chemist
Giovanni Agosti, Group Technical Manager
Kyle Gavrily, Chemist

Authorised By



Nancy Zhang, Laboratory Manager

VOCs in water						
Our Reference		289819-1	289819-2	289819-3	289819-4	289819-6
Your Reference	UNITS	GW1	GW2	GW3	GWD101	TB101
Date Sampled		24/02/2022	24/02/2022	24/02/2022	24/02/2022	24/02/2022
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	01/03/2022	01/03/2022	01/03/2022	01/03/2022	01/03/2022
Date analysed	-	01/03/2022	01/03/2022	01/03/2022	01/03/2022	01/03/2022
Dichlorodifluoromethane	µg/L	<10	<10	<10	<10	<10
Chloromethane	µg/L	<10	<10	<10	<10	<10
Vinyl Chloride	µg/L	<10	<10	<10	<10	<10
Bromomethane	µg/L	<10	<10	<10	<10	<10
Chloroethane	µg/L	<10	<10	<10	<10	<10
Trichlorofluoromethane	µg/L	<10	<10	<10	<10	<10
1,1-Dichloroethene	µg/L	<1	<1	<1	<1	<1
Trans-1,2-dichloroethene	µg/L	<1	<1	<1	<1	<1
1,1-dichloroethane	µg/L	<1	<1	<1	<1	<1
Cis-1,2-dichloroethene	µg/L	<1	<1	<1	<1	<1
Bromochloromethane	µg/L	<1	<1	<1	<1	<1
Chloroform	µg/L	<1	<1	<1	<1	<1
2,2-dichloropropane	µg/L	<1	<1	<1	<1	<1
1,2-dichloroethane	µg/L	<1	<1	<1	<1	<1
1,1,1-trichloroethane	µg/L	<1	<1	<1	<1	<1
1,1-dichloropropene	µg/L	<1	<1	<1	<1	<1
Cyclohexane	µg/L	<1	<1	<1	<1	<1
Carbon tetrachloride	µg/L	<1	<1	<1	<1	<1
Benzene	µg/L	<1	<1	<1	<1	<1
Dibromomethane	µg/L	<1	<1	<1	<1	<1
1,2-dichloropropane	µg/L	<1	<1	<1	<1	<1
Trichloroethene	µg/L	<1	<1	<1	<1	<1
Bromodichloromethane	µg/L	<1	<1	<1	<1	<1
trans-1,3-dichloropropene	µg/L	<1	<1	<1	<1	<1
cis-1,3-dichloropropene	µg/L	<1	<1	<1	<1	<1
1,1,2-trichloroethane	µg/L	<1	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1	<1
1,3-dichloropropane	µg/L	<1	<1	<1	<1	<1
Dibromochloromethane	µg/L	<1	<1	<1	<1	<1
1,2-dibromoethane	µg/L	<1	<1	<1	<1	<1
Tetrachloroethene	µg/L	<1	<1	<1	<1	<1
1,1,1,2-tetrachloroethane	µg/L	<1	<1	<1	<1	<1
Chlorobenzene	µg/L	<1	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1	<1

VOCs in water						
Our Reference		289819-1	289819-2	289819-3	289819-4	289819-6
Your Reference	UNITS	GW1	GW2	GW3	GWD101	TB101
Date Sampled		24/02/2022	24/02/2022	24/02/2022	24/02/2022	24/02/2022
Type of sample		Water	Water	Water	Water	Water
Bromoform	µg/L	<1	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2	<2
Styrene	µg/L	<1	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	µg/L	<1	<1	<1	<1	<1
o-xylene	µg/L	<1	<1	<1	<1	<1
1,2,3-trichloropropane	µg/L	<1	<1	<1	<1	<1
Isopropylbenzene	µg/L	<1	<1	<1	<1	<1
Bromobenzene	µg/L	<1	<1	<1	<1	<1
n-propyl benzene	µg/L	<1	<1	<1	<1	<1
2-chlorotoluene	µg/L	<1	<1	<1	<1	<1
4-chlorotoluene	µg/L	<1	<1	<1	<1	<1
1,3,5-trimethyl benzene	µg/L	<1	<1	<1	<1	<1
Tert-butyl benzene	µg/L	<1	<1	<1	<1	<1
1,2,4-trimethyl benzene	µg/L	<1	<1	<1	<1	<1
1,3-dichlorobenzene	µg/L	<1	<1	<1	<1	<1
Sec-butyl benzene	µg/L	<1	<1	<1	<1	<1
1,4-dichlorobenzene	µg/L	<1	<1	<1	<1	<1
4-isopropyl toluene	µg/L	<1	<1	<1	<1	<1
1,2-dichlorobenzene	µg/L	<1	<1	<1	<1	<1
n-butyl benzene	µg/L	<1	<1	<1	<1	<1
1,2-dibromo-3-chloropropane	µg/L	<1	<1	<1	<1	<1
1,2,4-trichlorobenzene	µg/L	<1	<1	<1	<1	<1
Hexachlorobutadiene	µg/L	<1	<1	<1	<1	<1
1,2,3-trichlorobenzene	µg/L	<1	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	113	113	116	108	120
Surrogate toluene-d8	%	95	96	100	95	99
Surrogate 4-BFB	%	105	108	108	103	108

vTRH(C6-C10)/BTEXN in Water						
Our Reference		289819-1	289819-2	289819-3	289819-4	289819-5
Your Reference	UNITS	GW1	GW2	GW3	GWD101	TS101
Date Sampled		24/02/2022	24/02/2022	24/02/2022	24/02/2022	24/02/2022
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	01/03/2022	01/03/2022	01/03/2022	01/03/2022	01/03/2022
Date analysed	-	01/03/2022	01/03/2022	01/03/2022	01/03/2022	01/03/2022
TRH C_6 - C_9	µg/L	<10	<10	<10	<10	[NA]
TRH C_6 - C_{10}	µg/L	<10	<10	<10	<10	[NA]
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10	<10	<10	<10	[NA]
Benzene	µg/L	<1	<1	<1	<1	100%
Toluene	µg/L	<1	<1	<1	<1	99%
Ethylbenzene	µg/L	<1	<1	<1	<1	98%
m+p-xylene	µg/L	<2	<2	<2	<2	94%
o-xylene	µg/L	<1	<1	<1	<1	103%
Naphthalene	µg/L	<1	<1	<1	<1	[NA]
Surrogate Dibromofluoromethane	%	113	113	116	108	118
Surrogate toluene-d8	%	95	96	100	95	103
Surrogate 4-BFB	%	105	108	108	103	108

vTRH(C6-C10)/BTEXN in Water		
Our Reference		289819-6
Your Reference	UNITS	TB101
Date Sampled		24/02/2022
Type of sample		Water
Date extracted	-	01/03/2022
Date analysed	-	01/03/2022
TRH C_6 - C_9	µg/L	<10
TRH C_6 - C_{10}	µg/L	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	120
Surrogate toluene-d8	%	99
Surrogate 4-BFB	%	108

svTRH (C10-C40) in Water					
Our Reference		289819-1	289819-2	289819-3	289819-4
Your Reference	UNITS	GW1	GW2	GW3	GWD101
Date Sampled		24/02/2022	24/02/2022	24/02/2022	24/02/2022
Type of sample		Water	Water	Water	Water
Date extracted	-	01/03/2022	01/03/2022	01/03/2022	01/03/2022
Date analysed	-	02/03/2022	02/03/2022	02/03/2022	02/03/2022
TRH C_{10} - C_{14}	µg/L	<50	<50	<50	<50
TRH C_{15} - C_{28}	µg/L	<100	<100	<100	<100
TRH C_{29} - C_{36}	µg/L	<100	<100	<100	<100
Total +ve TRH (C10-C36)	µg/L	<50	<50	<50	<50
TRH >C_{10} - C_{16}	µg/L	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50	<50	<50	<50
TRH >C_{16} - C_{34}	µg/L	<100	<100	<100	<100
TRH >C_{34} - C_{40}	µg/L	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	µg/L	<50	<50	<50	<50
Surrogate o-Terphenyl	%	100	86	90	86

PAHs in Water - Low Level					
Our Reference	UNITS	289819-1	289819-2	289819-3	289819-4
Your Reference		GW1	GW2	GW3	GWD101
Date Sampled		24/02/2022	24/02/2022	24/02/2022	24/02/2022
Type of sample		Water	Water	Water	Water
Date extracted	-	01/03/2022	01/03/2022	01/03/2022	01/03/2022
Date analysed	-	02/03/2022	02/03/2022	02/03/2022	02/03/2022
Naphthalene	µg/L	<0.2	<0.2	<0.2	<0.2
Acenaphthylene	µg/L	<0.1	<0.1	<0.1	<0.1
Acenaphthene	µg/L	<0.1	<0.1	<0.1	<0.1
Fluorene	µg/L	<0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	<0.1	<0.1	<0.1	<0.1
Anthracene	µg/L	<0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	<0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	µg/L	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	100	101	102	99

HM in water - dissolved					
Our Reference	UNITS	289819-1	289819-2	289819-3	289819-4
Your Reference		GW1	GW2	GW3	GWD101
Date Sampled		24/02/2022	24/02/2022	24/02/2022	24/02/2022
Type of sample		Water	Water	Water	Water
Date prepared	-	02/03/2022	02/03/2022	02/03/2022	02/03/2022
Date analysed	-	02/03/2022	02/03/2022	02/03/2022	02/03/2022
Arsenic-Dissolved	µg/L	1	<1	<1	1
Cadmium-Dissolved	µg/L	<0.1	<0.1	<0.1	<0.1
Chromium-Dissolved	µg/L	<1	<1	<1	<1
Copper-Dissolved	µg/L	<1	6	<1	<1
Lead-Dissolved	µg/L	<1	<1	<1	<1
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05
Nickel-Dissolved	µg/L	3	<1	2	3
Zinc-Dissolved	µg/L	3	5	5	3

Method ID	Methodology Summary
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-022	Determination of various metals by ICP-MS.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-023	Water samples are analysed directly by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.

QUALITY CONTROL: VOCs in water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date extracted	-			01/03/2022	1	01/03/2022	02/03/2022		01/03/2022	[NT]
Date analysed	-			01/03/2022	1	01/03/2022	02/03/2022		01/03/2022	[NT]
Dichlorodifluoromethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Chloromethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Vinyl Chloride	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Bromomethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Chloroethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Trichlorofluoromethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
1,1-Dichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Trans-1,2-dichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,1-dichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	112	[NT]
Cis-1,2-dichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Bromochloromethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Chloroform	µg/L	1	Org-023	<1	1	<1	<1	0	114	[NT]
2,2-dichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	106	[NT]
1,1,1-trichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	109	[NT]
1,1-dichloropropene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Cyclohexane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Carbon tetrachloride	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Dibromomethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Trichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	118	[NT]
Bromodichloromethane	µg/L	1	Org-023	<1	1	<1	<1	0	103	[NT]
trans-1,3-dichloropropene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
cis-1,3-dichloropropene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,1,2-trichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Toluene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,3-dichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Dibromochloromethane	µg/L	1	Org-023	<1	1	<1	<1	0	106	[NT]
1,2-dibromoethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Tetrachloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	103	[NT]
1,1,1,2-tetrachloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Chlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Bromoform	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
m+p-xylene	µg/L	2	Org-023	<2	1	<2	<2	0	[NT]	[NT]
Styrene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,1,2,2-tetrachloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]

QUALITY CONTROL: VOCs in water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
o-xylene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2,3-trichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Isopropylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Bromobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
n-propyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
2-chlorotoluene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
4-chlorotoluene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,3,5-trimethyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Tert-butyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2,4-trimethyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,3-dichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Sec-butyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,4-dichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
4-isopropyl toluene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
n-butyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dibromo-3-chloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2,4-trichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Hexachlorobutadiene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2,3-trichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	117	1	113	111	2	92	[NT]
Surrogate toluene-d8	%		Org-023	102	1	95	95	0	100	[NT]
Surrogate 4-BFB	%		Org-023	107	1	105	105	0	100	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date extracted	-			01/03/2022	1	01/03/2022	02/03/2022		01/03/2022	[NT]
Date analysed	-			01/03/2022	1	01/03/2022	02/03/2022		01/03/2022	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	1	<10	<10	0	113	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	1	<10	<10	0	113	[NT]
Benzene	µg/L	1	Org-023	<1	1	<1	<1	0	107	[NT]
Toluene	µg/L	1	Org-023	<1	1	<1	<1	0	111	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	114	[NT]
m+p-xylene	µg/L	2	Org-023	<2	1	<2	<2	0	117	[NT]
o-xylene	µg/L	1	Org-023	<1	1	<1	<1	0	114	[NT]
Naphthalene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	117	1	113	111	2	92	[NT]
Surrogate toluene-d8	%		Org-023	102	1	95	95	0	100	[NT]
Surrogate 4-BFB	%		Org-023	107	1	105	105	0	100	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	289819-2
Date extracted	-			01/03/2022	1	01/03/2022	01/03/2022		01/03/2022	01/03/2022
Date analysed	-			02/03/2022	1	02/03/2022	02/03/2022		02/03/2022	02/03/2022
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	1	<50	<50	0	130	119
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	1	<100	<100	0	125	106
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	1	<100	<100	0	125	103
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	1	<50	<50	0	130	119
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	1	<100	<100	0	125	106
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	1	<100	<100	0	125	103
Surrogate o-Terphenyl	%		Org-020	104	1	100	87	14	102	96

QUALITY CONTROL: PAHs in Water - Low Level						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	289819-3
Date extracted	-			01/03/2022	1	01/03/2022	01/03/2022		01/03/2022	01/03/2022
Date analysed	-			02/03/2022	1	02/03/2022	02/03/2022		02/03/2022	02/03/2022
Naphthalene	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	86	101
Acenaphthylene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	91	107
Fluorene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	93	109
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	100	114
Anthracene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	94	104
Pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	95	105
Benzo(a)anthracene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chrysene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	74	75
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	104	114
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	105	1	100	98	2	101	103

QUALITY CONTROL: HM in water - dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	289819-2
Date prepared	-			02/03/2022	1	02/03/2022	02/03/2022		02/03/2022	02/03/2022
Date analysed	-			02/03/2022	1	02/03/2022	02/03/2022		02/03/2022	02/03/2022
Arsenic-Dissolved	µg/L	1	Metals-022	<1	1	1	<1	0	102	96
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	1	<0.1	<0.1	0	102	96
Chromium-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	96	90
Copper-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	101	95
Lead-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	103	94
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	1	<0.05	<0.05	0	100	113
Nickel-Dissolved	µg/L	1	Metals-022	<1	1	3	3	0	101	93
Zinc-Dissolved	µg/L	1	Metals-022	<1	1	3	2	40	102	96

Result Definitions

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

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

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

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

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 289819
Date Received: 25/02/22
Time Received: 1440
Received by:

FOUNDATION EARTH SCIENCES

Chain of Custody Record

Client Details:	Foundation Earth Sciences PO Box 4405, East Gosford NSW 2250 email: ben@foundationes.com.au michael@foundationes.com.au; ray@foundationes.com.au emerson@foundationes.com.au ph: +61466 385 221	Project Manager:	Michael Silk	Project #:	E2232-2
		Sampled By:	EY	Project Name:	Punchbowl
Delivery Details:	Envirolab Pty Ltd 12 Ashley Street, Chatswood NSW 2067 email: ahle@envirolab.com.au ph: +612 9910 6200	Purchase Order #:	N/A	Quote #:	
		Page #:	1	Turnaround time:	Standard

#	Sample ID	Depth	Date Sampled	Matrix	Analytes														Sample Comments
					Heavy Metals (8)	TRH	BTEXN	PAH Low	VOC	TRH C6-C10 & BTEXN								Envirolab Suites	
1	GW1	-	24.2.2022	Water	X	X	X	X	X									Combo 3L	Keep
2	GW2	-	24.2.2022	Water	X	X	X	X	X									Combo 3L	Keep
3	GW3	-	24.2.2022	Water	X	X	X	X	X									Combo 3L	Keep
4	GWD101	-	24.2.2022	Water	X	X	X	X	X									Combo 3L	Keep
5	TS101	-	24.2.2022	Water					X	X								-	Keep
6	TB101	-	24.2.2022	Water					X	X								-	Keep
7																			Keep
8																			Keep

Special Directions and Coments:

Relinquished by	EY	Received By	Rey	Method of shipment
Signature		Signature		Courier
Date	25.2.2022	Date	25/2/2022 1440	

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details

Client	Foundation Earth Sciences Pty Ltd
Attention	Michael Silk

Sample Login Details

Your reference	E2232-2, Punchbowl
Envirolab Reference	289819
Date Sample Received	25/02/2022
Date Instructions Received	25/02/2022
Date Results Expected to be Reported	04/03/2022

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	6 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	6
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

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

Analysis Underway, details on the following page:

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

Sample ID	VOCs in water	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	PAHs in Water - Low Level	HM in water - dissolved
GW1	✓	✓	✓	✓	✓
GW2	✓	✓	✓	✓	✓
GW3	✓	✓	✓	✓	✓
GWD101	✓	✓	✓	✓	✓
TS101		✓			
TB101	✓	✓			

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.

FOUNDATION EARTH SCIENCES

Chain of Custody Record

Client Details:	Foundation Earth Sciences PO Box 4405, East Gosford NSW 2250 email: ben@foundationes.com.au michael@foundationes.com.au; ray@foundationes.com.au ph: +61466 385 221	**Project Manager:** Michael Silk **Sampled By:** EY **Purchase Order #:** N/A **Page #:** 1	**Project #:** E2232-2 **Project Name:** Punchbowl **Quote #:** **Turnaround:** Standard
Delivery Details:	Eurofins MGT - Sydney Office Unit F3-6 Building F, 16 Mars Road, Lane Cove 2066 email: EnviroSampleNSW@eurofins.com.au ph: +612 9900 8400		

#	Sample ID	Depth	Date Sampled	Matrix	Analytes														Sample Comments
					ph	CEC	%CLAY	HM	TRH	BTEXN	PAH	OC	VOC	Asbestos ID	Asbestos %w/w (NEPM /WA)	Phenol		Suites	
																		B7	Keep
1	GWSS101	-	24.2.2022	Water				X	X	X	X		X						

Special Directions and Coments:	EY	**Received By**	
Relinquished by		**Signature**	
Signature		**Date**	
Date	25.2.2022		

GL 5yd 25/2/22 3Pm 9.8°C 867 38

eurofins | Environment Testing

www.eurofins.com.au EnviroSales@eurofins.com

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IANZ # 1327

Christchurch
43 Detroit Drive
Rolleston, Christchurch 7675
Phone : 0800 856 450
IANZ # 1290

Sample Receipt Advice

Company name:	Foundation Earth Sciences
Contact name:	Michael Silk (cc results)
Project name:	PUNCHBOWL
Project ID:	E2232-2
Turnaround time:	5 Day
Date/Time received	Feb 25, 2022 3:00 PM
Eurofins reference	867386

Sample Information

✓	A detailed list of analytes logged into our LIMS, is included in the attached summary table.
✓	All samples have been received as described on the above COC.
✓	COC has been completed correctly.
✓	Attempt to chill was evident.
✓	Appropriately preserved sample containers have been used.
✓	All samples were received in good condition.
✓	Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
✓	Appropriate sample containers have been used.
✓	Sample containers for volatile analysis received with zero headspace.
✗	Split sample sent to requested external lab.
✗	Some samples have been subcontracted.
N/A	Custody Seals intact (if used).

Notes

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Ursula Long on phone : or by email: UrsulaLong@eurofins.com

Results will be delivered electronically via email to Michael Silk (cc results) - michael@foundationes.com.au.

Global Leader - Results you can trust

eurofins | Environment Testing

web: www.eurofins.com.au
email: EnviroSales@eurofins.com

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43 Detroit Drive
Rolleston, Christchurch 7675
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IANZ # 1290

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Address: PO BOX 4405
East Gosford
NSW 2250

Project Name: PUNCHBOWL
Project ID: E2232-2

Order No.:
Report #: 867386
Phone:
Fax:

Received: Feb 25, 2022 3:00 PM
Due: Mar 4, 2022
Priority: 5 Day
Contact Name: Michael Silk (cc results)

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						Volatile Organics	Eurofins Suite B7
Melbourne Laboratory - NATA # 1261 Site # 1254							
Sydney Laboratory - NATA # 1261 Site # 18217						X	X
Brisbane Laboratory - NATA # 1261 Site # 20794							
Mayfield Laboratory - NATA # 1261 Site # 25079							
Perth Laboratory - NATA # 2377 Site # 2370							
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	GWSS101	Feb 24, 2022		Water	S22-Ma01293	X	X
Test Counts						1	1

Foundation Earth Sciences
PO BOX 4405
East Gosford
NSW 2250

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection, proficiency testing scheme providers and reference materials producers reports and certificates.

Attention: **Michael Silk (cc results)**

Report **867386-W**
Project name PUNCHBOWL
Project ID E2232-2
Received Date Feb 25, 2022

Client Sample ID			**GWSS101**
Sample Matrix			**Water**
Eurofins Sample No.			**S22-Ma01293**
Date Sampled			**Feb 24, 2022**
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons			
TRH C6-C9	0.02	mg/L	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	< 0.1
Naphthalene[N02]	0.01	mg/L	< 0.01
TRH C6-C10	0.02	mg/L	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1
BTEX			
Benzene	0.001	mg/L	< 0.001
Toluene	0.001	mg/L	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002
o-Xylene	0.001	mg/L	< 0.001
Xylenes - Total*	0.003	mg/L	< 0.003
4-Bromofluorobenzene (surr.)	1	%	91
Volatile Organics			
1.1-Dichloroethane	0.001	mg/L	< 0.001
1.1-Dichloroethene	0.001	mg/L	< 0.001
1.1.1-Trichloroethane	0.001	mg/L	< 0.001
1.1.1.2-Tetrachloroethane	0.001	mg/L	< 0.001
1.1.2-Trichloroethane	0.001	mg/L	< 0.001
1.1.2.2-Tetrachloroethane	0.001	mg/L	< 0.001
1.2-Dibromoethane	0.001	mg/L	< 0.001
1.2-Dichlorobenzene	0.001	mg/L	< 0.001
1.2-Dichloroethane	0.001	mg/L	< 0.001
1.2-Dichloropropane	0.001	mg/L	< 0.001
1.2.3-Trichloropropane	0.001	mg/L	< 0.001
1.2.4-Trimethylbenzene	0.001	mg/L	< 0.001
1.3-Dichlorobenzene	0.001	mg/L	< 0.001

Client Sample ID			GWSS101
Sample Matrix			Water
Eurofins Sample No.			S22-Ma01293
Date Sampled			Feb 24, 2022
Test/Reference	LOR	Unit	
Volatile Organics			
1.3-Dichloropropane	0.001	mg/L	< 0.001
1.3.5-Trimethylbenzene	0.001	mg/L	< 0.001
1.4-Dichlorobenzene	0.001	mg/L	< 0.001
2-Butanone (MEK)	0.005	mg/L	< 0.005
2-Propanone (Acetone)	0.005	mg/L	< 0.005
4-Chlorotoluene	0.001	mg/L	< 0.001
4-Methyl-2-pentanone (MIBK)	0.005	mg/L	< 0.005
Allyl chloride	0.001	mg/L	< 0.001
Benzene	0.001	mg/L	< 0.001
Bromobenzene	0.001	mg/L	< 0.001
Bromochloromethane	0.001	mg/L	< 0.001
Bromodichloromethane	0.001	mg/L	< 0.001
Bromoform	0.001	mg/L	< 0.001
Bromomethane	0.005	mg/L	< 0.005
Carbon disulfide	0.001	mg/L	< 0.001
Carbon Tetrachloride	0.001	mg/L	< 0.001
Chlorobenzene	0.001	mg/L	< 0.001
Chloroethane	0.005	mg/L	< 0.005
Chloroform	0.005	mg/L	< 0.005
Chloromethane	0.005	mg/L	< 0.005
cis-1.2-Dichloroethene	0.001	mg/L	< 0.001
cis-1.3-Dichloropropene	0.001	mg/L	< 0.001
Dibromochloromethane	0.001	mg/L	< 0.001
Dibromomethane	0.001	mg/L	< 0.001
Dichlorodifluoromethane	0.005	mg/L	< 0.005
Ethylbenzene	0.001	mg/L	< 0.001
Iodomethane	0.001	mg/L	< 0.001
Isopropyl benzene (Cumene)	0.001	mg/L	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002
Methylene Chloride	0.005	mg/L	< 0.005
o-Xylene	0.001	mg/L	< 0.001
Styrene	0.001	mg/L	< 0.001
Tetrachloroethene	0.001	mg/L	< 0.001
Toluene	0.001	mg/L	< 0.001
trans-1.2-Dichloroethene	0.001	mg/L	< 0.001
trans-1.3-Dichloropropene	0.001	mg/L	< 0.001
Trichloroethene	0.001	mg/L	< 0.001
Trichlorofluoromethane	0.005	mg/L	< 0.005
Vinyl chloride	0.005	mg/L	< 0.005
Xylenes - Total*	0.003	mg/L	< 0.003
Total MAH*	0.003	mg/L	< 0.003
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	< 0.005
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	< 0.005
4-Bromofluorobenzene (surr.)	1	%	91
Toluene-d8 (surr.)	1	%	73

Client Sample ID			GWSS101
Sample Matrix			Water
Eurofins Sample No.			S22-Ma01293
Date Sampled			Feb 24, 2022
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
Acenaphthene	0.001	mg/L	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001
Anthracene	0.001	mg/L	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001
Chrysene	0.001	mg/L	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001
Fluoranthene	0.001	mg/L	< 0.001
Fluorene	0.001	mg/L	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001
Naphthalene	0.001	mg/L	< 0.001
Phenanthrene	0.001	mg/L	< 0.001
Pyrene	0.001	mg/L	< 0.001
Total PAH*	0.001	mg/L	< 0.001
2-Fluorobiphenyl (surr.)	1	%	59
p-Terphenyl-d14 (surr.)	1	%	134
Heavy Metals			
Arsenic	0.001	mg/L	0.005
Cadmium	0.0002	mg/L	< 0.0002
Chromium	0.001	mg/L	0.003
Copper	0.001	mg/L	0.004
Lead	0.001	mg/L	0.002
Mercury	0.0001	mg/L	< 0.0001
Nickel	0.001	mg/L	0.007
Zinc	0.005	mg/L	0.011

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Mar 03, 2022	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Mar 01, 2022	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Mar 03, 2022	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	Mar 01, 2022	14 Days
- Method: LTM-ORG-2010 BTEX and Volatile TRH			
Polycyclic Aromatic Hydrocarbons	Sydney	Mar 03, 2022	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8	Sydney	Mar 03, 2022	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Volatile Organics	Sydney	Mar 01, 2022	7 Days
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices			

eurofins | Environment Testing

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Company Name: Foundation Earth Sciences
Address: PO BOX 4405
East Gosford
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External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	GWSS101	Feb 24, 2022		Water	S22-Ma01293	X	X
Test Counts						1	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
µg/L: micrograms per litre
ppm: parts per million
ppb: parts per billion
%: Percentage
org/100 mL: Organisms per 100 millilitres
NTU: Nephelometric Turbidity Units
MPN/100 mL: Most Probable Number of organisms per 100 millilitres

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR: No Limit

Results between 10-20 times the LOR: RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

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QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons							
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/L	< 0.001			0.001	Pass	
Acenaphthylene	mg/L	< 0.001			0.001	Pass	
Anthracene	mg/L	< 0.001			0.001	Pass	
Benz(a)anthracene	mg/L	< 0.001			0.001	Pass	
Benzo(a)pyrene	mg/L	< 0.001			0.001	Pass	
Benzo(b&j)fluoranthene	mg/L	< 0.001			0.001	Pass	
Benzo(g.h.i)perylene	mg/L	< 0.001			0.001	Pass	
Benzo(k)fluoranthene	mg/L	< 0.001			0.001	Pass	
Chrysene	mg/L	< 0.001			0.001	Pass	
Dibenz(a.h)anthracene	mg/L	< 0.001			0.001	Pass	
Fluoranthene	mg/L	< 0.001			0.001	Pass	
Fluorene	mg/L	< 0.001			0.001	Pass	
Indeno(1.2.3-cd)pyrene	mg/L	< 0.001			0.001	Pass	
Naphthalene	mg/L	< 0.001			0.001	Pass	
Phenanthrene	mg/L	< 0.001			0.001	Pass	
Pyrene	mg/L	< 0.001			0.001	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/L	< 0.001			0.001	Pass	
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Mercury	mg/L	< 0.0001			0.0001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C10-C14	%	130			70-130	Pass	
TRH >C10-C16	%	125			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	116			70-130	Pass	
Acenaphthylene	%	105			70-130	Pass	
Anthracene	%	106			70-130	Pass	
Benz(a)anthracene	%	96			70-130	Pass	
Benzo(a)pyrene	%	107			70-130	Pass	
Benzo(b&j)fluoranthene	%	106			70-130	Pass	
Benzo(g.h.i)perylene	%	108			70-130	Pass	
Benzo(k)fluoranthene	%	103			70-130	Pass	
Chrysene	%	92			70-130	Pass	
Dibenz(a.h)anthracene	%	100			70-130	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Fluoranthene			%	110			70-130	Pass	
Fluorene			%	111			70-130	Pass	
Indeno(1.2.3-cd)pyrene			%	102			70-130	Pass	
Naphthalene			%	90			70-130	Pass	
Phenanthrene			%	115			70-130	Pass	
Pyrene			%	112			70-130	Pass	
LCS - % Recovery									
Heavy Metals									
Arsenic			%	110			80-120	Pass	
Cadmium			%	106			80-120	Pass	
Chromium			%	106			80-120	Pass	
Copper			%	105			80-120	Pass	
Lead			%	106			80-120	Pass	
Mercury			%	103			80-120	Pass	
Nickel			%	106			80-120	Pass	
Zinc			%	96			80-120	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S22-Fe50936	NCP	%	108			70-130	Pass	
Acenaphthylene	S22-Fe50936	NCP	%	101			70-130	Pass	
Anthracene	S22-Fe50936	NCP	%	106			70-130	Pass	
Benz(a)anthracene	S22-Fe50936	NCP	%	98			70-130	Pass	
Benzo(a)pyrene	S22-Fe50936	NCP	%	110			70-130	Pass	
Benzo(b&j)fluoranthene	S22-Fe50936	NCP	%	99			70-130	Pass	
Benzo(g.h.i)perylene	S22-Fe50936	NCP	%	109			70-130	Pass	
Benzo(k)fluoranthene	S22-Fe50936	NCP	%	111			70-130	Pass	
Chrysene	S22-Fe50936	NCP	%	90			70-130	Pass	
Dibenz(a.h)anthracene	S22-Fe50936	NCP	%	107			70-130	Pass	
Fluoranthene	S22-Fe50936	NCP	%	101			70-130	Pass	
Fluorene	S22-Fe50936	NCP	%	106			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S22-Fe50936	NCP	%	107			70-130	Pass	
Naphthalene	S22-Fe50936	NCP	%	80			70-130	Pass	
Phenanthrene	S22-Fe50936	NCP	%	113			70-130	Pass	
Pyrene	S22-Fe50936	NCP	%	101			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S22-Fe54116	NCP	%	96			75-125	Pass	
Cadmium	S22-Fe54116	NCP	%	95			75-125	Pass	
Chromium	S22-Fe54116	NCP	%	98			75-125	Pass	
Copper	S22-Fe54116	NCP	%	95			75-125	Pass	
Lead	S22-Fe54116	NCP	%	96			75-125	Pass	
Mercury	S22-Fe54116	NCP	%	92			75-125	Pass	
Nickel	S22-Fe54116	NCP	%	96			75-125	Pass	
Zinc	S22-Fe54116	NCP	%	96			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C10-C14	S22-Ma02454	NCP	mg/L	0.19	0.17	13	30%	Pass	
TRH C15-C28	S22-Ma02454	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	S22-Ma02454	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C10-C16	S22-Ma02454	NCP	mg/L	0.08	0.08	8.0	30%	Pass	
TRH >C16-C34	S22-Ma02454	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C34-C40	S22-Ma02454	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	

Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S22-Fe50935	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Acenaphthylene	S22-Fe50935	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Anthracene	S22-Fe50935	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benz(a)anthracene	S22-Fe50935	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(a)pyrene	S22-Fe50935	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(b&j)fluoranthene	S22-Fe50935	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(g.h.i)perylene	S22-Fe50935	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(k)fluoranthene	S22-Fe50935	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chrysene	S22-Fe50935	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibenz(a.h)anthracene	S22-Fe50935	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluoranthene	S22-Fe50935	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluorene	S22-Fe50935	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S22-Fe50935	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Naphthalene	S22-Fe50935	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Phenanthrene	S22-Fe50935	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Pyrene	S22-Fe50935	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S22-Ma05690	NCP	mg/L	0.010	0.015	10	30%	Pass	
Cadmium	S22-Ma05690	NCP	mg/L	< 0.0002	0.013	8.0	30%	Pass	
Chromium	S22-Ma05690	NCP	mg/L	0.048	0.003	13	30%	Pass	
Copper	S22-Ma05690	NCP	mg/L	0.027	0.11	7.0	30%	Pass	
Lead	S22-Ma05690	NCP	mg/L	0.048	0.003	9.0	30%	Pass	
Mercury	S22-Ma05690	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel	S22-Ma05690	NCP	mg/L	0.031	0.029	5.0	30%	Pass	
Zinc	S22-Ma05690	NCP	mg/L	0.085	0.53	6.0	30%	Pass	

Comments

Eurofins | Environment Testing accreditation number 1261, site 18217 is currently in progress of a controlled transition to a new custom built location at 179 Magowar Road, Girraween, NSW 2145. All results on this report denoted as being performed by Eurofins | Environment Testing Unit F3, Building F, 16 Mars road, Lane Cove West, NSW 2066, corporate site 18217, will have been performed on either Lane Cove or new Girraween site

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised by:

Ursula Long	Analytical Services Manager
Andrew Sullivan	Senior Analyst-Organic (NSW)
John Nguyen	Senior Analyst-Metal (NSW)
Roopesh Rangarajan	Senior Analyst-Volatile (NSW)



Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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CERTIFICATE OF ANALYSIS 147936

Client:
Benviron Group
PO Box 4405
East Gosford
NSW 2250

Attention: Samer Ghanem

Sample log in details:

Your Reference:	**E881, Punchbowl**		
No. of samples:	4 Waters		
Date samples received / completed instructions received	03/06/16	/	03/06/16

Analysis Details:
Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: / Issue Date:	10/06/16	/	8/06/16
Date of Preliminary Report:	Not Issued		

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

Results Approved By:

Jacinta Hurst
Laboratory Manager

ACCREDITED FOR TECHNICAL COMPETENCE

vTRH(C6-C10)/BTEXN in Water					
Our Reference:	UNITS	147936-1	147936-2	147936-3	147936-4
Your Reference	----------	GW1	GW2	GW3	D1
Type of sample	- ----------	Water	Water	Water	Water
Date extracted	-	06/06/2016	06/06/2016	06/06/2016	06/06/2016
Date analysed	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016
TRHC$_6$ - C$_9$	µg/L	<10	<10	<10	<10
TRHC$_6$ - C$_{10}$	µg/L	<10	<10	<10	<10
TRHC$_6$ - C$_{10}$ less BTEX (F1)	µg/L	<10	<10	<10	<10
Benzene	µg/L	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2
o-xylene	µg/L	<1	<1	<1	<1
Naphthalene	µg/L	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	98	97	97	95
Surrogate toluene-d8	%	97	96	95	95
Surrogate 4-BFB	%	96	95	97	97

svTRH (C10-C40) in Water Our Reference: Your Reference Type of sample	UNITS ---------- - ----------	147936-1 GW1 Water	147936-2 GW2 Water	147936-3 GW3 Water	147936-4 D1 Water
Date extracted	-	6/06/2016	6/06/2016	6/06/2016	6/06/2016
Date analysed	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016
TRHC$_{10}$ - C$_{14}$	µg/L	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	µg/L	<100	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	µg/L	<100	<100	<100	<100
TRH>C$_{10}$ - C$_{16}$	µg/L	<50	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	µg/L	<50	<50	<50	<50
TRH>C$_{16}$ - C$_{34}$	µg/L	<100	<100	<100	<100
TRH>C$_{34}$ - C$_{40}$	µg/L	<100	<100	<100	<100
Surrogate o-Terphenyl	%	92	89	86	81

PAHs in Water Our Reference: Your Reference Type of sample	UNITS ---------- - ----------	147936-1 GW1 Water	147936-2 GW2 Water	147936-3 GW3 Water	147936-4 D1 Water
Date extracted	-	06/06/2016	06/06/2016	07/06/2016	06/06/2016
Date analysed	-	06/06/2016	06/06/2016	07/06/2016	06/06/2016
Naphthalene	µg/L	<1	<1	<1	<1
Acenaphthylene	µg/L	<1	<1	<1	<1
Acenaphthene	µg/L	<1	<1	<1	<1
Fluorene	µg/L	<1	<1	<1	<1
Phenanthrene	µg/L	<1	<1	<1	<1
Anthracene	µg/L	<1	<1	<1	<1
Fluoranthene	µg/L	<1	<1	<1	<1
Pyrene	µg/L	<1	<1	<1	<1
Benzo(a)anthracene	µg/L	<1	<1	<1	<1
Chrysene	µg/L	<1	<1	<1	<1
Benzo(b,j+k)fluoranthene	µg/L	<2	<2	<2	<2
Benzo(a)pyrene	µg/L	<1	<1	<1	<1
Indeno(1,2,3-c,d)pyrene	µg/L	<1	<1	<1	<1
Dibenzo(a,h)anthracene	µg/L	<1	<1	<1	<1
Benzo(g,h,i)perylene	µg/L	<1	<1	<1	<1
Benzo(a)pyrene TEQ	µg/L	<5	<5	<5	<5
Total +ve PAH's	µg/L	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	87	78	86	69

OCP in water Our Reference: Your Reference Type of sample	UNITS ---------- - ----------	147936-1 GW1 Water	147936-2 GW2 Water	147936-3 GW3 Water	147936-4 D1 Water
Date extracted	-	06/06/2016	06/06/2016	06/06/2016	06/06/2016
Date analysed	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016
HCB	µg/L	<0.2	<0.2	<0.2	<0.2
alpha-BHC	µg/L	<0.2	<0.2	<0.2	<0.2
gamma-BHC	µg/L	<0.2	<0.2	<0.2	<0.2
beta-BHC	µg/L	<0.2	<0.2	<0.2	<0.2
Heptachlor	µg/L	<0.2	<0.2	<0.2	<0.2
delta-BHC	µg/L	<0.2	<0.2	<0.2	<0.2
Aldrin	µg/L	<0.2	<0.2	<0.2	<0.2
Heptachlor Epoxide	µg/L	<0.2	<0.2	<0.2	<0.2
gamma-Chlordane	µg/L	<0.2	<0.2	<0.2	<0.2
alpha-Chlordane	µg/L	<0.2	<0.2	<0.2	<0.2
Endosulfan I	µg/L	<0.2	<0.2	<0.2	<0.2
pp-DDE	µg/L	<0.2	<0.2	<0.2	<0.2
Dieldrin	µg/L	<0.2	<0.2	<0.2	<0.2
Endrin	µg/L	<0.2	<0.2	<0.2	<0.2
pp-DDD	µg/L	<0.2	<0.2	<0.2	<0.2
Endosulfan II	µg/L	<0.2	<0.2	<0.2	<0.2
pp-DDT	µg/L	<0.2	<0.2	<0.2	<0.2
Endrin Aldehyde	µg/L	<0.2	<0.2	<0.2	<0.2
Endosulfan Sulphate	µg/L	<0.2	<0.2	<0.2	<0.2
Methoxychlor	µg/L	<0.2	<0.2	<0.2	<0.2
Surrogate TCMX	%	107	102	101	96

PCBs in Water Our Reference: Your Reference Type of sample	UNITS ---------- - ----------	147936-1 GW1 Water	147936-2 GW2 Water	147936-3 GW3 Water	147936-4 D1 Water
Date extracted	-	06/06/2016	06/06/2016	06/06/2016	06/06/2016
Date analysed	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Aroclor 1016	µg/L	<2	<2	<2	<2
Aroclor 1221	µg/L	<2	<2	<2	<2
Aroclor 1232	µg/L	<2	<2	<2	<2
Aroclor 1242	µg/L	<2	<2	<2	<2
Aroclor 1248	µg/L	<2	<2	<2	<2
Aroclor 1254	µg/L	<2	<2	<2	<2
Aroclor 1260	µg/L	<2	<2	<2	<2
Surrogate TCLMX	%	107	102	101	96

HM in water - dissolved Our Reference: Your Reference Type of sample	UNITS ---------- - ----------	147936-1 GW1 Water	147936-2 GW2 Water	147936-3 GW3 Water	147936-4 D1 Water
Date prepared	-	06/06/2016	06/06/2016	06/06/2016	06/06/2016
Date analysed	-	06/06/2016	06/06/2016	06/06/2016	06/06/2016
Arsenic-Dissolved	µg/L	1	1	<1	1
Cadmium-Dissolved	µg/L	0.8	0.7	0.2	0.8
Chromium-Dissolved	µg/L	2	<1	<1	2
Copper-Dissolved	µg/L	1	2	<1	1
Lead-Dissolved	µg/L	<1	<1	<1	<1
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05
Nickel-Dissolved	µg/L	11	8	4	11
Zinc-Dissolved	µg/L	920	760	440	820

Method ID	Methodology Summary
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-013	Water samples are analysed directly by purge and trap GC-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Metals-022 ICP-MS	Determination of various metals by ICP-MS.
Metals-021	Determination of Mercury by Cold Vapour AAS.

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			06/06/2016	[NT]	[NT]	LCS-W3	06/06/2016
Date analysed	-			07/06/2016	[NT]	[NT]	LCS-W3	07/06/2016
TRH C_6 - C_9	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W3	91%
TRH C_6 - C_{10}	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W3	91%
Benzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W3	91%
Toluene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W3	92%
Ethylbenzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W3	90%
m+p-xylene	µg/L	2	Org-016	<2	[NT]	[NT]	LCS-W3	92%
o-xylene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W3	91%
Naphthalene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluoromethane	%		Org-016	98	[NT]	[NT]	LCS-W3	98%
Surrogate toluene-d8	%		Org-016	96	[NT]	[NT]	LCS-W3	98%
Surrogate 4-BFB	%		Org-016	96	[NT]	[NT]	LCS-W3	96%

QUALITY CONTROL svTRH (C10-C40) in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			06/06/2016	147936-1	6/06/2016 || 6/06/2016	LCS-W2	06/06/2016
Date analysed	-			06/06/2016	147936-1	07/06/2016 || 07/06/2016	LCS-W2	06/06/2016
TRH C_{10} - C_{14}	µg/L	50	Org-003	<50	147936-1	<50 || <50	LCS-W2	69%
TRH C_{15} - C_{28}	µg/L	100	Org-003	<100	147936-1	<100 || <100	LCS-W2	67%
TRH C_{29} - C_{36}	µg/L	100	Org-003	<100	147936-1	<100 || <100	LCS-W2	83%
TRH>C_{10} - C_{16}	µg/L	50	Org-003	<50	147936-1	<50 || <50	LCS-W2	69%
TRH>C_{16} - C_{34}	µg/L	100	Org-003	<100	147936-1	<100 || <100	LCS-W2	67%
TRH>C_{34} - C_{40}	µg/L	100	Org-003	<100	147936-1	<100 || <100	LCS-W2	83%
Surrogate o-Terphenyl	%		Org-003	87	147936-1	92 || 90 || RPD: 2	LCS-W2	113%

QUALITY CONTROL PAHs in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			07/06/2016	147936-1	06/06/2016 || 06/06/2016	LCS-W2	07/06/2016
Date analysed	-			07/06/2016	147936-1	06/06/2016 || 06/06/2016	LCS-W2	07/06/2016
Naphthalene	µg/L	1	Org-012	<1	147936-1	<1 || <1	LCS-W2	72%
Acenaphthylene	µg/L	1	Org-012	<1	147936-1	<1 || <1	[NR]	[NR]
Acenaphthene	µg/L	1	Org-012	<1	147936-1	<1 || <1	[NR]	[NR]
Fluorene	µg/L	1	Org-012	<1	147936-1	<1 || <1	LCS-W2	72%
Phenanthrene	µg/L	1	Org-012	<1	147936-1	<1 || <1	LCS-W2	74%
Anthracene	µg/L	1	Org-012	<1	147936-1	<1 || <1	[NR]	[NR]
Fluoranthene	µg/L	1	Org-012	<1	147936-1	<1 || <1	LCS-W2	73%
Pyrene	µg/L	1	Org-012	<1	147936-1	<1 || <1	LCS-W2	75%
Benzo(a)anthracene	µg/L	1	Org-012	<1	147936-1	<1 || <1	[NR]	[NR]

QUALITY CONTROL PAHs in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Chrysene	µg/L	1	Org-012	<1	147936-1	<1 || <1	LCS-W2	71%
Benzo(b,j +k)fluoranthene	µg/L	2	Org-012	<2	147936-1	<2 || <2	[NR]	[NR]
Benzo(a)pyrene	µg/L	1	Org-012	<1	147936-1	<1 || <1	LCS-W2	70%
Indeno(1,2,3-c,d)pyrene	µg/L	1	Org-012	<1	147936-1	<1 || <1	[NR]	[NR]
Dibenzo(a,h)anthracene	µg/L	1	Org-012	<1	147936-1	<1 || <1	[NR]	[NR]
Benzo(g,h,i)perylene	µg/L	1	Org-012	<1	147936-1	<1 || <1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012	94	147936-1	87 || 80 || RPD: 8	LCS-W2	70%
QUALITY CONTROL OCP in water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			06/06/2016	147936-1	06/06/2016 || 06/06/2016	LCS-W1	06/06/2016
Date analysed	-			07/06/2016	147936-1	07/06/2016 || 07/06/2016	LCS-W1	07/06/2016
HCB	µg/L	0.2	Org-005	<0.2	147936-1	<0.2 || <0.2	[NR]	[NR]
alpha-BHC	µg/L	0.2	Org-005	<0.2	147936-1	<0.2 || <0.2	LCS-W1	80%
gamma-BHC	µg/L	0.2	Org-005	<0.2	147936-1	<0.2 || <0.2	[NR]	[NR]
beta-BHC	µg/L	0.2	Org-005	<0.2	147936-1	<0.2 || <0.2	LCS-W1	71%
Heptachlor	µg/L	0.2	Org-005	<0.2	147936-1	<0.2 || <0.2	LCS-W1	74%
delta-BHC	µg/L	0.2	Org-005	<0.2	147936-1	<0.2 || <0.2	[NR]	[NR]
Aldrin	µg/L	0.2	Org-005	<0.2	147936-1	<0.2 || <0.2	LCS-W1	84%
Heptachlor Epoxide	µg/L	0.2	Org-005	<0.2	147936-1	<0.2 || <0.2	LCS-W1	72%
gamma-Chlordane	µg/L	0.2	Org-005	<0.2	147936-1	<0.2 || <0.2	[NR]	[NR]
alpha-Chlordane	µg/L	0.2	Org-005	<0.2	147936-1	<0.2 || <0.2	[NR]	[NR]
Endosulfan I	µg/L	0.2	Org-005	<0.2	147936-1	<0.2 || <0.2	[NR]	[NR]
pp-DDE	µg/L	0.2	Org-005	<0.2	147936-1	<0.2 || <0.2	LCS-W1	72%
Dieldrin	µg/L	0.2	Org-005	<0.2	147936-1	<0.2 || <0.2	LCS-W1	79%
Endrin	µg/L	0.2	Org-005	<0.2	147936-1	<0.2 || <0.2	LCS-W1	92%
pp-DDD	µg/L	0.2	Org-005	<0.2	147936-1	<0.2 || <0.2	LCS-W1	74%
Endosulfan II	µg/L	0.2	Org-005	<0.2	147936-1	<0.2 || <0.2	[NR]	[NR]
pp-DDT	µg/L	0.2	Org-005	<0.2	147936-1	<0.2 || <0.2	[NR]	[NR]
Endrin Aldehyde	µg/L	0.2	Org-005	<0.2	147936-1	<0.2 || <0.2	[NR]	[NR]
Endosulfan Sulphate	µg/L	0.2	Org-005	<0.2	147936-1	<0.2 || <0.2	LCS-W1	84%
Methoxychlor	µg/L	0.2	Org-005	<0.2	147936-1	<0.2 || <0.2	[NR]	[NR]
Surrogate TCMX	%		Org-005	71	147936-1	107 || 104 || RPD: 3	LCS-W1	67%

QUALITY CONTROL PCBs in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			06/06/2016	147936-1	06/06/2016 || 06/06/2016	LCS-W1	06/06/2016
Date analysed	-			07/06/2016	147936-1	07/06/2016 || 07/06/2016	LCS-W1	07/06/2016
Aroclor 1016	µg/L	2	Org-006	<2	147936-1	<2 || <2	[NR]	[NR]
Aroclor 1221	µg/L	2	Org-006	<2	147936-1	<2 || <2	[NR]	[NR]
Aroclor 1232	µg/L	2	Org-006	<2	147936-1	<2 || <2	[NR]	[NR]
Aroclor 1242	µg/L	2	Org-006	<2	147936-1	<2 || <2	[NR]	[NR]
Aroclor 1248	µg/L	2	Org-006	<2	147936-1	<2 || <2	[NR]	[NR]
Aroclor 1254	µg/L	2	Org-006	<2	147936-1	<2 || <2	LCS-W1	119%
Aroclor 1260	µg/L	2	Org-006	<2	147936-1	<2 || <2	[NR]	[NR]
Surrogate TCLMX	%		Org-006	71	147936-1	107 || 104 || RPD: 3	LCS-W1	73%

QUALITY CONTROL HM in water - dissolved	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			06/06/2016	[NT]	[NT]	LCS-W2	06/06/2016
Date analysed	-			06/06/2016	[NT]	[NT]	LCS-W2	06/06/2016
Arsenic-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W2	97%
Cadmium-Dissolved	µg/L	0.1	Metals-022 ICP-MS	<0.1	[NT]	[NT]	LCS-W2	106%
Chromium-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W2	98%
Copper-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W2	103%
Lead-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W2	104%
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	[NT]	[NT]	LCS-W2	84%
Nickel-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W2	100%
Zinc-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W2	100%

Report Comments:

Dissolved Metals: no preserved sample was received, therefore
the unpreserved sample was filtered through 0.45um filter at the lab.
Note: there is a possibility some elements may be underestimated.

Asbestos ID was analysed by Approved Identifier:	Not applicable for this job
Asbestos ID was authorised by Approved Signatory:	Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NR: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike : A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample) : This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.
Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.
Spikes for Physical and Aggregate Tests are not applicable.
For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

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

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

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

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

CERTIFICATE OF ANALYSIS 148009

Client:
Benviron Group
PO Box 4405
East Gosford
NSW 2250

Attention: Ben Buckley

Sample log in details:

Your Reference:	**E881, Punchbowl**		
No. of samples:	65 soils		
Date samples received / completed instructions received	06/06/16	/	06/06/16

Analysis Details:
Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: / Issue Date:	14/06/16	/	9/06/16
Date of Preliminary Report:	Not Issued		

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

Results Approved By:

Jacinta Hurst
Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	148009-1	148009-3	148009-5	148009-7	148009-9
Your Reference	---------- -	BH1/GW1	BH2	BH3	BH4	BH5
Depth	----------	0.3	0.2	0.3	0.2	0.2
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	08/06/2016	08/06/2016	08/06/2016	08/06/2016	08/06/2016
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
Surrogate aaa-Trifluorotoluene	%	91	87	90	86	90

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	148009-10	148009-11	148009-13	148009-15	148009-17
Your Reference	---------- -	BH5	BH6	BH7/GW2	BH8	BH9
Depth	----------	0.5	0.3	0.2	0.2	0.2
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	08/06/2016	08/06/2016	09/06/2016	09/06/2016	09/06/2016
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
Surrogate aaa-Trifluorotoluene	%	92	84	86	89	89

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	148009-19	148009-20	148009-21	148009-23	148009-25
Your Reference	---------- -	BH10	BH10	BH11	BH12	BH13
Depth	----------	0.2	0.5	0.2	0.2	0.2
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	09/06/2016	09/06/2016	09/06/2016	09/06/2016	09/06/2016
TRHC$_6$ - C$_9$	mg/kg	<25	<25	<25	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25	<25	<25	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	86	84	82	84	84

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	148009-27	148009-29	148009-30	148009-31	148009-33
Your Reference	---------- -	BH14/GW3	BH15	BH15	BH16	BH17
Depth	----------	0.3	0.2	0.8	0.2	0.3
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	09/06/2016	09/06/2016	09/06/2016	09/06/2016	09/06/2016
TRHC$_6$ - C$_9$	mg/kg	<25	<25	<25	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25	<25	<25	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	81	79	80	93	85

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	148009-35	148009-37	148009-39	148009-40	148009-41
Your Reference	---------- -	BH18	BH19	BH20	BH20	BH21
Depth	----------	0.2	0.2	0.3	1.0	0.3
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	09/06/2016	09/06/2016	09/06/2016	09/06/2016	09/06/2016
TRHC$_6$ - C$_9$	mg/kg	<25	<25	<25	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25	<25	<25	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	91	87	92	91	93

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	148009-43	148009-45	148009-47	148009-49	148009-50
Your Reference	---------- -	BH22	BH23	BH24	BH25	BH25
Depth	----------	0.2	0.2	0.3	0.2	0.6
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	09/06/2016	09/06/2016	09/06/2016	09/06/2016	09/06/2016
TRHC$_6$ - C$_9$	mg/kg	<25	<25	<25	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25	<25	<25	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	93	84	82	94	86

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	148009-51	148009-53	148009-55	148009-57	148009-59
Your Reference	---------- -	BH26	BH27	BH28	BH29	BH30
Depth	----------	0.3	0.3	0.2	0.3	0.2
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	09/06/2016	09/06/2016	09/06/2016	09/06/2016	09/06/2016
TRHC$_6$ - C$_9$	mg/kg	<25	<25	<25	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25	<25	<25	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	92	84	81	87	86

vTRH(C6-C10)/BTEXN in Soil				
Our Reference:	UNITS	148009-61	148009-62	148009-63
Your Reference	---------- -	D1	D2	D3
Depth	----------	-	-	-
Date Sampled		1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	09/06/2016	09/06/2016	09/06/2016
TRHC$_6$ - C$_9$	mg/kg	<25	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	91	95	101

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	148009-1	148009-3	148009-5	148009-7	148009-9
Your Reference	---------- -	BH1/GW1	BH2	BH3	BH4	BH5
Depth	----------	0.3	0.2	0.3	0.2	0.2
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	200	<100	<100	100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	140	<100	<100	<100	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	290	<100	<100	150	<100
Surrogate o-Terphenyl	%	103	103	98	101	100

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	148009-10	148009-11	148009-13	148009-15	148009-17
Your Reference	---------- -	BH5	BH6	BH7/GW2	BH8	BH9
Depth	----------	0.5	0.3	0.2	0.2	0.2
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	140	340	<100	120
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	230	<100	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	220	540	110	200
Surrogate o-Terphenyl	%	80	101	102	98	99

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	148009-19	148009-20	148009-21	148009-23	148009-25
Your Reference	---------- -	BH10	BH10	BH11	BH12	BH13
Depth	----------	0.2	0.5	0.2	0.2	0.2
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	160	<100	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	590	<100	110	260	400
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	510	<100	<100	180	300
TRH>C$_{34}$-C$_{40}$	mg/kg	730	<100	180	420	610
Surrogate o-Terphenyl	%	105	112	99	100	97

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	148009-27	148009-29	148009-30	148009-31	148009-33
Your Reference	---------- -	BH14/GW3	BH15	BH15	BH16	BH17
Depth	----------	0.3	0.2	0.8	0.2	0.3
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	07/06/2016	07/06/2016	07/06/2016	08/06/2016	08/06/2016
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	130	<100	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	450	<100	<100	<100	130
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	410	<100	<100	<100	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	640	<100	<100	<100	220
Surrogate o-Terphenyl	%	104	99	97	113	102

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	148009-35	148009-37	148009-39	148009-40	148009-41
Your Reference	---------- -	BH18	BH19	BH20	BH20	BH21
Depth	----------	0.2	0.2	0.3	1.0	0.3
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	08/06/2016	08/06/2016	08/06/2016	08/06/2016	08/06/2016
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	130	<100	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100	<100	<100	<100	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	250	<100	<100	<100
Surrogate o-Terphenyl	%	95	96	103	101	112

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	148009-43	148009-45	148009-47	148009-49	148009-50
Your Reference	---------- -	BH22	BH23	BH24	BH25	BH25
Depth	----------	0.2	0.2	0.3	0.2	0.6
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	08/06/2016	08/06/2016	08/06/2016	08/06/2016	08/06/2016
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	<100	<100	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100	<100	<100	<100	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	<100	<100	170	<100
Surrogate o-Terphenyl	%	100	99	101	97	98

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	148009-51	148009-53	148009-55	148009-57	148009-59
Your Reference	---------- -	BH26	BH27	BH28	BH29	BH30
Depth	----------	0.3	0.3	0.2	0.3	0.2
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	08/06/2016	08/06/2016	08/06/2016	08/06/2016	08/06/2016
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	<100	<100	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100	<100	<100	<100	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	65	98	111	101	98

svTRH (C10-C40) in Soil				
Our Reference:	UNITS	148009-61	148009-62	148009-63
Your Reference	---------- -	D1	D2	D3
Depth	----------	-	-	-
Date Sampled		1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	08/06/2016	08/06/2016	08/06/2016
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	<100	140
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100	<100	100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	<100	200
Surrogate o-Terphenyl	%	65	84	83

PAHs in Soil Our Reference: Your Reference	UNITS ----------	148009-1 BH1/GW1	148009-3 BH2	148009-5 BH3	148009-7 BH4	148009-9 BH5
Depth	-	0.3	0.2	0.3	0.2	0.2
Date Sampled	----------	1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	08/06/2016	08/06/2016	08/06/2016	08/06/2016	08/06/2016
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	0.2	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	0.3	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	0.3	<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	0.2	<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	0.1	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total Positive PAHs	mg/kg	NIL (+)VE	NIL (+)VE	NIL (+)VE	1.4	NIL (+)VE
Surrogate p-Terphenyl-d14	%	103	106	107	104	105

PAHs in Soil Our Reference: Your Reference	UNITS ---------- -	148009-10 BH5	148009-11 BH6	148009-13 BH7/GW2	148009-15 BH8	148009-17 BH9
Depth	----------	0.5	0.3	0.2	0.2	0.2
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	08/06/2016	08/06/2016	08/06/2016	08/06/2016	08/06/2016
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
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total Positive PAHs	mg/kg	NIL (+)VE	NIL (+)VE	NIL (+)VE	0.11	0.14
Surrogate p-Terphenyl-d14	%	114	101	109	102	103

PAHs in Soil Our Reference: Your Reference	UNITS ----------	148009-19 BH10	148009-20 BH10	148009-21 BH11	148009-23 BH12	148009-25 BH13
Depth	-	0.2	0.5	0.2	0.2	0.2
Date Sampled	----------	1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	08/06/2016	08/06/2016	08/06/2016	08/06/2016	08/06/2016
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	0.2	0.3	0.2
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	0.2	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total Positive PAHs	mg/kg	0.13	NIL (+)VE	0.19	0.56	0.17
Surrogate p-Terphenyl-d14	%	103	107	102	103	101

PAHs in Soil Our Reference: Your Reference	UNITS ----------	148009-27 BH14/GW3	148009-29 BH15	148009-30 BH15	148009-31 BH16	148009-33 BH17
Depth	-	0.3	0.2	0.8	0.2	0.3
Date Sampled	----------	1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	08/06/2016	08/06/2016	08/06/2016	08/06/2016	08/06/2016
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.2	<0.1	<0.1	<0.1	0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total Positive PAHs	mg/kg	0.23	NIL (+)VE	NIL (+)VE	NIL (+)VE	0.22
Surrogate p-Terphenyl-d14	%	104	104	105	104	104

PAHs in Soil Our Reference: Your Reference	UNITS ---------- -	148009-35 BH18	148009-37 BH19	148009-39 BH20	148009-40 BH20	148009-41 BH21
Depth	----------	0.2	0.2	0.3	1.0	0.3
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	08/06/2016	08/06/2016	08/06/2016	08/06/2016	08/06/2016
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	0.2	0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total Positive PAHs	mg/kg	NIL (+)VE	0.20	0.13	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	101	102	103	104	104

PAHs in Soil Our Reference: Your Reference	UNITS ----------	148009-43 BH22	148009-45 BH23	148009-47 BH24	148009-49 BH25	148009-50 BH25
Depth	----------	0.2	0.2	0.3	0.2	0.6
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	08/06/2016	08/06/2016	08/06/2016	08/06/2016	08/06/2016
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	0.3	0.3	0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total Positive PAHs	mg/kg	NIL (+)VE	0.28	0.29	0.15	NIL (+)VE
Surrogate p-Terphenyl-d14	%	101	102	102	101	105

PAHs in Soil Our Reference: Your Reference	UNITS ----------	148009-51 BH26	148009-53 BH27	148009-55 BH28	148009-57 BH29	148009-59 BH30
Depth	----------	0.3	0.3	0.2	0.3	0.2
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	08/06/2016	08/06/2016	08/06/2016	08/06/2016	08/06/2016
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	0.2	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	0.3	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	0.2	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total Positive PAHs	mg/kg	NIL (+)VE	NIL (+)VE	NIL (+)VE	0.98	NIL (+)VE
Surrogate p-Terphenyl-d14	%	99	102	99	98	103

PAHs in Soil Our Reference: Your Reference	UNITS ----------	148009-61 D1	148009-62 D2	148009-63 D3
Depth	----------	-	-	-
Date Sampled		1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	08/06/2016	08/06/2016	08/06/2016
Naphthalene	mg/kg	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	0.2	0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5
Total Positive PAHs	mg/kg	0.11	0.23	0.19
Surrogate p-Terphenyl-d14	%	102	82	86

Organochlorine Pesticides in soil						
Our Reference:	UNITS	148009-9	148009-10	148009-19	148009-20	148009-21
Your Reference	----------	BH5	BH5	BH10	BH10	BH11
	-					
Depth	----------	0.2	0.5	0.2	0.5	0.2
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	08/06/2016	08/06/2016	08/06/2016	08/06/2016	08/06/2016
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	105	60	106	105	106

Organochlorine Pesticides in soil						
Our Reference:	UNITS	148009-27	148009-29	148009-30	148009-39	148009-40
Your Reference	----------	BH14/GW3	BH15	BH15	BH20	BH20
	-					
Depth	----------	0.3	0.2	0.8	0.3	1.0
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	08/06/2016	08/06/2016	08/06/2016	08/06/2016	08/06/2016
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	107	104	105	112	104

Organochlorine Pesticides in soil						
Our Reference:	UNITS	148009-49	148009-50	148009-61	148009-62	148009-63
Your Reference	----------	BH25	BH25	D1	D2	D3
Depth	- ----------	0.2	0.6	-	-	-
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	08/06/2016	08/06/2016	08/06/2016	08/06/2016	08/06/2016
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	127	103	60	60	62

PCBs in Soil						
Our Reference:	UNITS	148009-9	148009-10	148009-19	148009-20	148009-21
Your Reference	----------	BH5	BH5	BH10	BH10	BH11
Depth	----------	0.2	0.5	0.2	0.5	0.2
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	08/06/2016	08/06/2016	08/06/2016	08/06/2016	08/06/2016
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
Surrogate TCLMX	%	105	60	106	105	106

PCBs in Soil						
Our Reference:	UNITS	148009-27	148009-29	148009-30	148009-39	148009-40
Your Reference	----------	BH14/GW3	BH15	BH15	BH20	BH20
Depth	----------	0.3	0.2	0.8	0.3	1.0
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	08/06/2016	08/06/2016	08/06/2016	08/06/2016	08/06/2016
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
Surrogate TCLMX	%	107	104	105	112	104

PCBs in Soil Our Reference: Your Reference	UNITS ----------	148009-49 BH25	148009-50 BH25	148009-61 D1	148009-62 D2	148009-63 D3
Depth	----------	0.2	0.6	-	-	-
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	08/06/2016	08/06/2016	08/06/2016	08/06/2016	08/06/2016
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
Surrogate TCLMX	%	127	103	60	60	62

Acid Extractable metals in soil						
Our Reference:	UNITS	148009-1	148009-3	148009-5	148009-7	148009-9
Your Reference	----------	BH1/GW1	BH2	BH3	BH4	BH5
	-					
Depth	----------	0.3	0.2	0.3	0.2	0.2
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Arsenic	mg/kg	<4	6	4	<4	<4
Cadmium	mg/kg	<0.4	0.4	<0.4	0.5	0.4
Chromium	mg/kg	16	44	30	84	50
Copper	mg/kg	32	28	21	50	30
Lead	mg/kg	16	20	11	10	8
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	26	25	21	65	48
Zinc	mg/kg	44	51	18	47	38

Acid Extractable metals in soil						
Our Reference:	UNITS	148009-10	148009-11	148009-13	148009-15	148009-17
Your Reference	----------	BH5	BH6	BH7/GW2	BH8	BH9
	-					
Depth	----------	0.5	0.3	0.2	0.2	0.2
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	0.4	0.4	<0.4	<0.4
Chromium	mg/kg	9	30	32	49	73
Copper	mg/kg	13	66	59	21	37
Lead	mg/kg	8	5	4	6	6
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	4	31	41	53	53
Zinc	mg/kg	10	43	40	39	34

Acid Extractable metals in soil						
Our Reference:	UNITS	148009-19	148009-20	148009-21	148009-23	148009-25
Your Reference	----------	BH10	BH10	BH11	BH12	BH13
	-					
Depth	----------	0.2	0.5	0.2	0.2	0.2
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Arsenic	mg/kg	<4	4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	0.5	0.4	0.5
Chromium	mg/kg	38	8	81	60	75
Copper	mg/kg	38	10	37	38	41
Lead	mg/kg	4	11	6	8	10
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	48	8	89	67	67
Zinc	mg/kg	33	10	51	43	50

Acid Extractable metals in soil						
Our Reference:	UNITS	148009-27	148009-29	148009-30	148009-31	148009-33
Your Reference	----------	BH14/GW3	BH15	BH15	BH16	BH17
	-					
Depth	----------	0.3	0.2	0.8	0.2	0.3
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Arsenic	mg/kg	<4	<4	4	11	4
Cadmium	mg/kg	<0.4	0.4	<0.4	0.6	0.5
Chromium	mg/kg	75	73	8	31	64
Copper	mg/kg	57	30	13	65	51
Lead	mg/kg	7	13	12	27	12
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	65	73	5	29	64
Zinc	mg/kg	55	45	11	100	54

Acid Extractable metals in soil						
Our Reference:	UNITS	148009-35	148009-37	148009-39	148009-40	148009-41
Your Reference	---------- -	BH18	BH19	BH20	BH20	BH21
Depth	----------	0.2	0.2	0.3	1.0	0.3
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Arsenic	mg/kg	7	<4	5	<4	<4
Cadmium	mg/kg	0.4	0.5	0.5	<0.4	<0.4
Chromium	mg/kg	24	100	72	9	66
Copper	mg/kg	28	31	28	8	26
Lead	mg/kg	19	10	17	9	10
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	20	82	61	6	46
Zinc	mg/kg	55	53	49	11	36

Acid Extractable metals in soil						
Our Reference:	UNITS	148009-43	148009-45	148009-47	148009-49	148009-50
Your Reference	---------- -	BH22	BH23	BH24	BH25	BH25
Depth	----------	0.2	0.2	0.3	0.2	0.6
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	0.5	0.5	0.5	<0.4	<0.4
Chromium	mg/kg	84	110	120	62	7
Copper	mg/kg	29	38	36	22	8
Lead	mg/kg	11	6	5	9	11
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	65	87	98	57	5
Zinc	mg/kg	53	51	63	43	6

Acid Extractable metals in soil						
Our Reference:	UNITS	148009-51	148009-53	148009-55	148009-57	148009-59
Your Reference	---------- -	BH26	BH27	BH28	BH29	BH30
Depth	----------	0.3	0.3	0.2	0.3	0.2
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Arsenic	mg/kg	<4	6	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	43	33	7	8	36
Copper	mg/kg	10	15	6	14	12
Lead	mg/kg	8	12	9	89	34
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	34	23	6	11	29
Zinc	mg/kg	26	23	12	64	45

Acid Extractable metals in soil						
Our Reference:	UNITS	148009-61	148009-62	148009-63	148009-66	148009-67
Your Reference	---------- -	D1	D2	D3	BH5 - TRIPLICATE	BH25 - TRIPLICATE
Depth	----------	-	-	-	0.2	0.2
Date Sampled		1/06/2016	1/06/2016	1/06/2016	01/06/2016	01/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Arsenic	mg/kg	5	<4	4	4	<4
Cadmium	mg/kg	0.4	<0.4	0.4	<0.4	<0.4
Chromium	mg/kg	62	65	63	14	49
Copper	mg/kg	24	33	32	14	22
Lead	mg/kg	17	8	19	8	9
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	49	64	46	10	47
Zinc	mg/kg	40	42	31	13	37

Moisture						
Our Reference:	UNITS	148009-1	148009-3	148009-5	148009-7	148009-9
Your Reference	---------- -	BH1/GW1	BH2	BH3	BH4	BH5
Depth	----------	0.3	0.2	0.3	0.2	0.2
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	7/06/2016	7/06/2016	7/06/2016	7/06/2016	7/06/2016
Date analysed	-	8/06/2016	8/06/2016	8/06/2016	8/06/2016	8/06/2016
Moisture	%	2.9	12	14	4.5	17

Moisture						
Our Reference:	UNITS	148009-10	148009-11	148009-13	148009-15	148009-17
Your Reference	---------- -	BH5	BH6	BH7/GW2	BH8	BH9
Depth	----------	0.5	0.3	0.2	0.2	0.2
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	7/06/2016	7/06/2016	7/06/2016	7/06/2016	7/06/2016
Date analysed	-	8/06/2016	8/06/2016	8/06/2016	8/06/2016	8/06/2016
Moisture	%	16	4.5	5.5	14	5.9

Moisture						
Our Reference:	UNITS	148009-19	148009-20	148009-21	148009-23	148009-25
Your Reference	---------- -	BH10	BH10	BH11	BH12	BH13
Depth	----------	0.2	0.5	0.2	0.2	0.2
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	7/06/2016	7/06/2016	7/06/2016	7/06/2016	7/06/2016
Date analysed	-	8/06/2016	8/06/2016	8/06/2016	8/06/2016	8/06/2016
Moisture	%	11	14	9.1	9.5	9.7

Moisture						
Our Reference:	UNITS	148009-27	148009-29	148009-30	148009-31	148009-33
Your Reference	---------- -	BH14/GW3	BH15	BH15	BH16	BH17
Depth	----------	0.3	0.2	0.8	0.2	0.3
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	7/06/2016	7/06/2016	7/06/2016	7/06/2016	7/06/2016
Date analysed	-	8/06/2016	8/06/2016	8/06/2016	8/06/2016	8/06/2016
Moisture	%	5.2	7.4	15	12	5.1

Moisture						
Our Reference:	UNITS	148009-35	148009-37	148009-39	148009-40	148009-41
Your Reference	---------- -	BH18	BH19	BH20	BH20	BH21
Depth	----------	0.2	0.2	0.3	1.0	0.3
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	7/06/2016	7/06/2016	7/06/2016	7/06/2016	7/06/2016
Date analysed	-	8/06/2016	8/06/2016	8/06/2016	8/06/2016	8/06/2016
Moisture	%	15	11	8.1	9.3	9.0

Moisture						
Our Reference:	UNITS	148009-43	148009-45	148009-47	148009-49	148009-50
Your Reference	---------- -	BH22	BH23	BH24	BH25	BH25
Depth	----------	0.2	0.2	0.3	0.2	0.6
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	7/06/2016	7/06/2016	7/06/2016	7/06/2016	7/06/2016
Date analysed	-	8/06/2016	8/06/2016	8/06/2016	8/06/2016	8/06/2016
Moisture	%	5.9	9.0	7.0	5.1	14

Moisture						
Our Reference:	UNITS	148009-51	148009-53	148009-55	148009-57	148009-59
Your Reference	---------- -	BH26	BH27	BH28	BH29	BH30
Depth	----------	0.3	0.3	0.2	0.3	0.2
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	7/06/2016	7/06/2016	7/06/2016	7/06/2016	7/06/2016
Date analysed	-	8/06/2016	8/06/2016	8/06/2016	8/06/2016	8/06/2016
Moisture	%	13	16	15	18	19

Moisture				
Our Reference:	UNITS	148009-61	148009-62	148009-63
Your Reference	---------- -	D1	D2	D3
Depth	----------	-	-	-
Date Sampled		1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil
Date prepared	-	7/06/2016	7/06/2016	7/06/2016
Date analysed	-	8/06/2016	8/06/2016	8/06/2016
Moisture	%	8.7	7.2	3.8

Method ID	Methodology Summary
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'TEQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'TEQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'TEQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 12 hours.

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			07/06/2016	148009-9	07/06/2016 || 07/06/2016	LCS-5	07/06/2016
Date analysed	-			09/06/2016	148009-9	08/06/2016 || 08/06/2016	LCS-5	08/06/2016
TRHC$_6$ - C$_9$	mg/kg	25	Org-016	<25	148009-9	<25 || <25	LCS-5	76%
TRHC$_6$ - C$_{10}$	mg/kg	25	Org-016	<25	148009-9	<25 || <25	LCS-5	76%
Benzene	mg/kg	0.2	Org-016	<0.2	148009-9	<0.2 || <0.2	LCS-5	67%
Toluene	mg/kg	0.5	Org-016	<0.5	148009-9	<0.5 || <0.5	LCS-5	71%
Ethylbenzene	mg/kg	1	Org-016	<1	148009-9	<1 || <1	LCS-5	79%
m+p-xylene	mg/kg	2	Org-016	<2	148009-9	<2 || <2	LCS-5	82%
o-Xylene	mg/kg	1	Org-016	<1	148009-9	<1 || <1	LCS-5	77%
naphthalene	mg/kg	1	Org-014	<1	148009-9	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	94	148009-9	90 || 89 || RPD: 1	LCS-5	71%

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			07/06/2016	148009-9	07/06/2016 || 07/06/2016	LCS-5	07/06/2016
Date analysed	-			08/06/2016	148009-9	07/06/2016 || 07/06/2016	LCS-5	07/06/2016
TRHC$_{10}$ - C$_{14}$	mg/kg	50	Org-003	<50	148009-9	<50 || <50	LCS-5	96%
TRHC$_{15}$ - C$_{28}$	mg/kg	100	Org-003	<100	148009-9	<100 || <100	LCS-5	89%
TRHC$_{29}$ - C$_{36}$	mg/kg	100	Org-003	<100	148009-9	<100 || <100	LCS-5	92%
TRH>C$_{10}$-C$_{16}$	mg/kg	50	Org-003	<50	148009-9	<50 || <50	LCS-5	96%
TRH>C$_{16}$-C$_{34}$	mg/kg	100	Org-003	<100	148009-9	<100 || <100	LCS-5	89%
TRH>C$_{34}$-C$_{40}$	mg/kg	100	Org-003	<100	148009-9	<100 || <100	LCS-5	92%
Surrogate o-Terphenyl	%		Org-003	120	148009-9	100 || 60 || RPD: 50	LCS-5	82%

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			07/06/2016	148009-9	07/06/2016 || 07/06/2016	LCS-5	07/06/2016
Date analysed	-			08/06/2016	148009-9	08/06/2016 || 08/06/2016	LCS-5	08/06/2016
Naphthalene	mg/kg	0.1	Org-012	<0.1	148009-9	<0.1 || <0.1	LCS-5	123%
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	148009-9	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	148009-9	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012	<0.1	148009-9	<0.1 || <0.1	LCS-5	111%
Phenanthrene	mg/kg	0.1	Org-012	<0.1	148009-9	<0.1 || <0.1	LCS-5	128%
Anthracene	mg/kg	0.1	Org-012	<0.1	148009-9	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	148009-9	<0.1 || <0.1	LCS-5	122%
Pyrene	mg/kg	0.1	Org-012	<0.1	148009-9	<0.1 || <0.1	LCS-5	132%
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	148009-9	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012	<0.1	148009-9	<0.1 || <0.1	LCS-5	119%
Benzo(b,j +k)fluoranthene	mg/kg	0.2	Org-012	<0.2	148009-9	<0.2 || <0.2	[NR]	[NR]

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	148009-9	<0.05 || <0.05	LCS-5	131%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	148009-9	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	148009-9	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	148009-9	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012	122	148009-9	105 || 116 || RPD: 10	LCS-5	98%
QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			07/06/2016	148009-9	07/06/2016 || 07/06/2016	LCS-5	07/06/2016
Date analysed	-			08/06/2016	148009-9	08/06/2016 || 08/06/2016	LCS-5	08/06/2016
HCB	mg/kg	0.1	Org-005	<0.1	148009-9	<0.1 || <0.1	[NR]	[NR]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	148009-9	<0.1 || <0.1	LCS-5	85%
gamma-BHC	mg/kg	0.1	Org-005	<0.1	148009-9	<0.1 || <0.1	[NR]	[NR]
beta-BHC	mg/kg	0.1	Org-005	<0.1	148009-9	<0.1 || <0.1	LCS-5	114%
Heptachlor	mg/kg	0.1	Org-005	<0.1	148009-9	<0.1 || <0.1	LCS-5	91%
delta-BHC	mg/kg	0.1	Org-005	<0.1	148009-9	<0.1 || <0.1	[NR]	[NR]
Aldrin	mg/kg	0.1	Org-005	<0.1	148009-9	<0.1 || <0.1	LCS-5	108%
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	148009-9	<0.1 || <0.1	LCS-5	115%
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	148009-9	<0.1 || <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	148009-9	<0.1 || <0.1	[NR]	[NR]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	148009-9	<0.1 || <0.1	[NR]	[NR]
pp-DDE	mg/kg	0.1	Org-005	<0.1	148009-9	<0.1 || <0.1	LCS-5	121%
Dieldrin	mg/kg	0.1	Org-005	<0.1	148009-9	<0.1 || <0.1	LCS-5	127%
Endrin	mg/kg	0.1	Org-005	<0.1	148009-9	<0.1 || <0.1	LCS-5	110%
pp-DDD	mg/kg	0.1	Org-005	<0.1	148009-9	<0.1 || <0.1	LCS-5	106%
Endosulfan II	mg/kg	0.1	Org-005	<0.1	148009-9	<0.1 || <0.1	[NR]	[NR]
pp-DDT	mg/kg	0.1	Org-005	<0.1	148009-9	<0.1 || <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	148009-9	<0.1 || <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	148009-9	<0.1 || <0.1	LCS-5	99%
Methoxychlor	mg/kg	0.1	Org-005	<0.1	148009-9	<0.1 || <0.1	[NR]	[NR]
Surrogate TCMX	%		Org-005	109	148009-9	105 || 64 || RPD: 49	LCS-5	89%

QUALITY CONTROL PCBs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			07/06/2016	148009-9	07/06/2016 || 07/06/2016	LCS-5	07/06/2016
Date analysed	-			08/06/2016	148009-9	08/06/2016 || 08/06/2016	LCS-5	08/06/2016
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	148009-9	<0.1 || <0.1	[NR]	[NR]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	148009-9	<0.1 || <0.1	[NR]	[NR]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	148009-9	<0.1 || <0.1	[NR]	[NR]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	148009-9	<0.1 || <0.1	[NR]	[NR]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	148009-9	<0.1 || <0.1	[NR]	[NR]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	148009-9	<0.1 || <0.1	LCS-5	122%
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	148009-9	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%		Org-006	109	148009-9	105 || 64 || RPD: 49	LCS-5	107%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			07/06/2016	148009-9	07/06/2016 || 07/06/2016	LCS-5	07/06/2016
Date analysed	-			07/06/2016	148009-9	07/06/2016 || 07/06/2016	LCS-5	07/06/2016
Arsenic	mg/kg	4	Metals-020	<4	148009-9	<4 || <4	LCS-5	110%
Cadmium	mg/kg	0.4	Metals-020	<0.4	148009-9	0.4 || <0.4	LCS-5	108%
Chromium	mg/kg	1	Metals-020	<1	148009-9	50 || 14 || RPD: 112	LCS-5	109%
Copper	mg/kg	1	Metals-020	<1	148009-9	30 || 14 || RPD: 73	LCS-5	110%
Lead	mg/kg	1	Metals-020	<1	148009-9	8 || 6 || RPD: 29	LCS-5	106%
Mercury	mg/kg	0.1	Metals-021	<0.1	148009-9	<0.1 || <0.1	LCS-5	104%
Nickel	mg/kg	1	Metals-020	<1	148009-9	48 || 11 || RPD: 125	LCS-5	102%
Zinc	mg/kg	1	Metals-020	<1	148009-9	38 || 15 || RPD: 87	LCS-5	104%

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	148009-23	07/06/2016 || 07/06/2016	LCS-6	07/06/2016
Date analysed	-	148009-23	09/06/2016 || 09/06/2016	LCS-6	09/06/2016
TRHC$_6$ - C$_9$	mg/kg	148009-23	<25 || <25	LCS-6	91%
TRHC$_6$ - C$_{10}$	mg/kg	148009-23	<25 || <25	LCS-6	91%
Benzene	mg/kg	148009-23	<0.2 || <0.2	LCS-6	80%
Toluene	mg/kg	148009-23	<0.5 || <0.5	LCS-6	85%
Ethylbenzene	mg/kg	148009-23	<1 || <1	LCS-6	94%
m+p-xylene	mg/kg	148009-23	<2 || <2	LCS-6	98%
o-Xylene	mg/kg	148009-23	<1 || <1	LCS-6	93%
naphthalene	mg/kg	148009-23	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%	148009-23	84 || 81 || RPD: 4	LCS-6	84%

Client Reference: E881, Punchbowl

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	148009-23	07/06/2016 || 07/06/2016	LCS-6	07/06/2016
Date analysed	-	148009-23	07/06/2016 || 07/06/2016	LCS-6	08/06/2016
TRHC$_{10}$ - C$_{14}$	mg/kg	148009-23	<50 || <50	LCS-6	94%
TRHC$_{15}$ - C$_{28}$	mg/kg	148009-23	<100 || 110	LCS-6	70%
TRHC$_{29}$ - C$_{36}$	mg/kg	148009-23	260 || 440 || RPD: 51	LCS-6	114%
TRH>C$_{10}$-C$_{16}$	mg/kg	148009-23	<50 || <50	LCS-6	94%
TRH>C$_{16}$-C$_{34}$	mg/kg	148009-23	180 || 380 || RPD: 71	LCS-6	70%
TRH>C$_{34}$-C$_{40}$	mg/kg	148009-23	420 || 630 || RPD: 40	LCS-6	114%
Surrogate o-Terphenyl	%	148009-23	100 || 101 || RPD: 1	LCS-6	94%
QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	148009-23	07/06/2016 || 07/06/2016	LCS-6	07/06/2016
Date analysed	-	148009-23	08/06/2016 || 08/06/2016	LCS-6	08/06/2016
Naphthalene	mg/kg	148009-23	<0.1 || <0.1	LCS-6	108%
Acenaphthylene	mg/kg	148009-23	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	148009-23	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	148009-23	<0.1 || <0.1	LCS-6	106%
Phenanthrene	mg/kg	148009-23	0.3 || 0.3 || RPD: 0	LCS-6	113%
Anthracene	mg/kg	148009-23	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	148009-23	0.1 || 0.1 || RPD: 0	LCS-6	109%
Pyrene	mg/kg	148009-23	0.2 || 0.2 || RPD: 0	LCS-6	118%
Benzo(a)anthracene	mg/kg	148009-23	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	148009-23	<0.1 || <0.1	LCS-6	106%
Benzo(b,j+k)fluoranthene	mg/kg	148009-23	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	148009-23	<0.05 || <0.05	LCS-6	110%
Indeno(1,2,3-c,d)pyrene	mg/kg	148009-23	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	148009-23	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	148009-23	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	148009-23	103 || 103 || RPD: 0	LCS-6	89%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	148009-23	07/06/2016 || 07/06/2016	LCS-6	07/06/2016
Date analysed	-	148009-23	07/06/2016 || 07/06/2016	LCS-6	07/06/2016
Arsenic	mg/kg	148009-23	<4 || <4	LCS-6	113%
Cadmium	mg/kg	148009-23	0.4 || 0.4 || RPD: 0	LCS-6	111%
Chromium	mg/kg	148009-23	60 || 64 || RPD: 6	LCS-6	111%
Copper	mg/kg	148009-23	38 || 31 || RPD: 20	LCS-6	109%
Lead	mg/kg	148009-23	8 || 9 || RPD: 12	LCS-6	106%
Mercury	mg/kg	148009-23	<0.1 || <0.1	LCS-6	105%
Nickel	mg/kg	148009-23	67 || 71 || RPD: 6	LCS-6	104%
Zinc	mg/kg	148009-23	43 || 48 || RPD: 11	LCS-6	107%
QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	148009-35	07/06/2016 || 07/06/2016	148009-10	07/06/2016
Date analysed	-	148009-35	09/06/2016 || 09/06/2016	148009-10	08/06/2016
$TRHC_6$ - C_9	mg/kg	148009-35	<25 || <25	148009-10	106%
$TRHC_6$ - C_{10}	mg/kg	148009-35	<25 || <25	148009-10	106%
Benzene	mg/kg	148009-35	<0.2 || <0.2	148009-10	92%
Toluene	mg/kg	148009-35	<0.5 || <0.5	148009-10	98%
Ethylbenzene	mg/kg	148009-35	<1 || <1	148009-10	110%
m+p-xylene	mg/kg	148009-35	<2 || <2	148009-10	115%
o-Xylene	mg/kg	148009-35	<1 || <1	148009-10	110%
naphthalene	mg/kg	148009-35	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%	148009-35	91 || 92 || RPD: 1	148009-10	93%
QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	148009-35	07/06/2016 || 07/06/2016	148009-10	7/06/2016
Date analysed	-	148009-35	08/06/2016 || 08/06/2016	148009-10	07/06/2016
$TRHC_{10}$ - C_{14}	mg/kg	148009-35	<50 || <50	148009-10	100%
$TRHC_{15}$ - C_{28}	mg/kg	148009-35	<100 || <100	148009-10	97%
$TRHC_{29}$ - C_{36}	mg/kg	148009-35	<100 || <100	148009-10	97%
$TRH>C_{10}$-C_{16}	mg/kg	148009-35	<50 || <50	148009-10	100%
$TRH>C_{16}$-C_{34}	mg/kg	148009-35	<100 || <100	148009-10	97%
$TRH>C_{34}$-C_{40}	mg/kg	148009-35	<100 || <100	148009-10	97%
Surrogate o-Terphenyl	%	148009-35	95 || 99 || RPD: 4	148009-10	108%

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	148009-35	07/06/2016 || 07/06/2016	148009-10	07/06/2016
Date analysed	-	148009-35	08/06/2016 || 08/06/2016	148009-10	08/06/2016
Naphthalene	mg/kg	148009-35	<0.1 || <0.1	148009-10	106%
Acenaphthylene	mg/kg	148009-35	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	148009-35	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	148009-35	<0.1 || <0.1	148009-10	100%
Phenanthrene	mg/kg	148009-35	<0.1 || <0.1	148009-10	115%
Anthracene	mg/kg	148009-35	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	148009-35	<0.1 || <0.1	148009-10	107%
Pyrene	mg/kg	148009-35	<0.1 || <0.1	148009-10	119%
Benzo(a)anthracene	mg/kg	148009-35	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	148009-35	<0.1 || <0.1	148009-10	92%
Benzo(b,j+k)fluoranthene	mg/kg	148009-35	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	148009-35	<0.05 || <0.05	148009-10	116%
Indeno(1,2,3-c,d)pyrene	mg/kg	148009-35	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	148009-35	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	148009-35	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	148009-35	101 || 102 || RPD: 1	148009-10	119%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	148009-10	07/06/2016
Date analysed	-	[NT]	[NT]	148009-10	08/06/2016
HCB	mg/kg	[NT]	[NT]	[NR]	[NR]
alpha-BHC	mg/kg	[NT]	[NT]	148009-10	89%
gamma-BHC	mg/kg	[NT]	[NT]	[NR]	[NR]
beta-BHC	mg/kg	[NT]	[NT]	148009-10	98%
Heptachlor	mg/kg	[NT]	[NT]	148009-10	76%
delta-BHC	mg/kg	[NT]	[NT]	[NR]	[NR]
Aldrin	mg/kg	[NT]	[NT]	148009-10	92%
Heptachlor Epoxide	mg/kg	[NT]	[NT]	148009-10	77%
gamma-Chlordane	mg/kg	[NT]	[NT]	[NR]	[NR]
alpha-chlordane	mg/kg	[NT]	[NT]	[NR]	[NR]
Endosulfan I	mg/kg	[NT]	[NT]	[NR]	[NR]
pp-DDE	mg/kg	[NT]	[NT]	148009-10	81%
Dieldrin	mg/kg	[NT]	[NT]	148009-10	107%
Endrin	mg/kg	[NT]	[NT]	148009-10	98%
pp-DDD	mg/kg	[NT]	[NT]	148009-10	80%
Endosulfan II	mg/kg	[NT]	[NT]	[NR]	[NR]
pp-DDT	mg/kg	[NT]	[NT]	[NR]	[NR]
Endrin Aldehyde	mg/kg	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulphate	mg/kg	[NT]	[NT]	148009-10	73%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Methoxychlor	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate TCMX	%	[NT]	[NT]	148009-10	110%
QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	148009-10	07/06/2016
Date analysed	-	[NT]	[NT]	148009-10	08/06/2016
Aroclor 1016	mg/kg	[NT]	[NT]	[NR]	[NR]
Aroclor 1221	mg/kg	[NT]	[NT]	[NR]	[NR]
Aroclor 1232	mg/kg	[NT]	[NT]	[NR]	[NR]
Aroclor 1242	mg/kg	[NT]	[NT]	[NR]	[NR]
Aroclor 1248	mg/kg	[NT]	[NT]	[NR]	[NR]
Aroclor 1254	mg/kg	[NT]	[NT]	148009-10	123%
Aroclor 1260	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%	[NT]	[NT]	148009-10	103%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	148009-35	07/06/2016 || 07/06/2016	148009-10	07/06/2016
Date analysed	-	148009-35	07/06/2016 || 07/06/2016	148009-10	07/06/2016
Arsenic	mg/kg	148009-35	7 || 8 || RPD: 13	148009-10	88%
Cadmium	mg/kg	148009-35	0.4 || 0.5 || RPD: 22	148009-10	94%
Chromium	mg/kg	148009-35	24 || 31 || RPD: 25	148009-10	112%
Copper	mg/kg	148009-35	28 || 31 || RPD: 10	148009-10	107%
Lead	mg/kg	148009-35	19 || 19 || RPD: 0	148009-10	93%
Mercury	mg/kg	148009-35	<0.1 || <0.1	148009-10	90%
Nickel	mg/kg	148009-35	20 || 26 || RPD: 26	148009-10	103%
Zinc	mg/kg	148009-35	55 || 56 || RPD: 2	148009-10	113%
QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	148009-49	07/06/2016 || 07/06/2016	148009-37	07/06/2016
Date analysed	-	148009-49	09/06/2016 || 09/06/2016	148009-37	09/06/2016
TRHC$_6$ - C$_9$	mg/kg	148009-49	<25 || <25	148009-37	109%
TRHC$_6$ - C$_{10}$	mg/kg	148009-49	<25 || <25	148009-37	109%
Benzene	mg/kg	148009-49	<0.2 || <0.2	148009-37	94%
Toluene	mg/kg	148009-49	<0.5 || <0.5	148009-37	102%
Ethylbenzene	mg/kg	148009-49	<1 || <1	148009-37	112%
m+p-xylene	mg/kg	148009-49	<2 || <2	148009-37	118%
o-Xylene	mg/kg	148009-49	<1 || <1	148009-37	112%
naphthalene	mg/kg	148009-49	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%	148009-49	94 || 88 || RPD: 7	148009-37	93%

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	148009-49	07/06/2016 || 07/06/2016	148009-37	7/06/2016
Date analysed	-	148009-49	08/06/2016 || 08/06/2016	148009-37	08/06/2016
TRHC$_{10}$ - C$_{14}$	mg/kg	148009-49	<50 || <50	148009-37	89%
TRHC$_{15}$ - C$_{28}$	mg/kg	148009-49	<100 || <100	148009-37	79%
TRHC$_{29}$ - C$_{36}$	mg/kg	148009-49	<100 || 110	148009-37	#
TRH>C$_{10}$-C$_{16}$	mg/kg	148009-49	<50 || <50	148009-37	89%
TRH>C$_{16}$-C$_{34}$	mg/kg	148009-49	<100 || <100	148009-37	79%
TRH>C$_{34}$-C$_{40}$	mg/kg	148009-49	170 || 200 || RPD: 16	148009-37	#
Surrogate o-Terphenyl	%	148009-49	97 || 99 || RPD: 2	148009-37	96%
QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	148009-49	07/06/2016 || 07/06/2016	148009-37	07/06/2016
Date analysed	-	148009-49	08/06/2016 || 08/06/2016	148009-37	08/06/2016
Naphthalene	mg/kg	148009-49	<0.1 || <0.1	148009-37	102%
Acenaphthylene	mg/kg	148009-49	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	148009-49	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	148009-49	<0.1 || <0.1	148009-37	105%
Phenanthrene	mg/kg	148009-49	0.1 || 0.1 || RPD: 0	148009-37	112%
Anthracene	mg/kg	148009-49	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	148009-49	<0.1 || <0.1	148009-37	108%
Pyrene	mg/kg	148009-49	<0.1 || <0.1	148009-37	115%
Benzo(a)anthracene	mg/kg	148009-49	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	148009-49	<0.1 || <0.1	148009-37	92%
Benzo(b,j+k)fluoranthene	mg/kg	148009-49	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	148009-49	<0.05 || <0.05	148009-37	114%
Indeno(1,2,3-c,d)pyrene	mg/kg	148009-49	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	148009-49	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	148009-49	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	148009-49	101 || 101 || RPD: 0	148009-37	113%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date extracted	-	148009-49	07/06/2016 || 07/06/2016
Date analysed	-	148009-49	08/06/2016 || 08/06/2016
HCB	mg/kg	148009-49	<0.1 || <0.1
alpha-BHC	mg/kg	148009-49	<0.1 || <0.1
gamma-BHC	mg/kg	148009-49	<0.1 || <0.1
beta-BHC	mg/kg	148009-49	<0.1 || <0.1
Heptachlor	mg/kg	148009-49	<0.1 || <0.1
delta-BHC	mg/kg	148009-49	<0.1 || <0.1
Aldrin	mg/kg	148009-49	<0.1 || <0.1
Heptachlor Epoxide	mg/kg	148009-49	<0.1 || <0.1
gamma-Chlordane	mg/kg	148009-49	<0.1 || <0.1
alpha-chlordane	mg/kg	148009-49	<0.1 || <0.1
Endosulfan I	mg/kg	148009-49	<0.1 || <0.1
pp-DDE	mg/kg	148009-49	<0.1 || <0.1
Dieldrin	mg/kg	148009-49	<0.1 || <0.1
Endrin	mg/kg	148009-49	<0.1 || <0.1
pp-DDD	mg/kg	148009-49	<0.1 || <0.1
Endosulfan II	mg/kg	148009-49	<0.1 || <0.1
pp-DDT	mg/kg	148009-49	<0.1 || <0.1
Endrin Aldehyde	mg/kg	148009-49	<0.1 || <0.1
Endosulfan Sulphate	mg/kg	148009-49	<0.1 || <0.1
Methoxychlor	mg/kg	148009-49	<0.1 || <0.1
Surrogate TCMX	%	148009-49	127 || 108 || RPD: 16

QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date extracted	-	148009-49	07/06/2016 || 07/06/2016
Date analysed	-	148009-49	08/06/2016 || 08/06/2016
Aroclor 1016	mg/kg	148009-49	<0.1 || <0.1
Aroclor 1221	mg/kg	148009-49	<0.1 || <0.1
Aroclor 1232	mg/kg	148009-49	<0.1 || <0.1
Aroclor 1242	mg/kg	148009-49	<0.1 || <0.1
Aroclor 1248	mg/kg	148009-49	<0.1 || <0.1
Aroclor 1254	mg/kg	148009-49	<0.1 || <0.1
Aroclor 1260	mg/kg	148009-49	<0.1 || <0.1
Surrogate TCLMX	%	148009-49	127 || 108 || RPD: 16

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	148009-49	07/06/2016 || 07/06/2016	148009-37	07/06/2016
Date analysed	-	148009-49	07/06/2016 || 07/06/2016	148009-37	07/06/2016
Arsenic	mg/kg	148009-49	<4 || <4	148009-37	88%
Cadmium	mg/kg	148009-49	<0.4 || <0.4	148009-37	83%
Chromium	mg/kg	148009-49	62 || 12 || RPD: 135	148009-37	97%
Copper	mg/kg	148009-49	22 || 9 || RPD: 84	148009-37	113%
Lead	mg/kg	148009-49	9 || 7 || RPD: 25	148009-37	71%
Mercury	mg/kg	148009-49	<0.1 || <0.1	148009-37	95%
Nickel	mg/kg	148009-49	57 || 5 || RPD: 168	148009-37	93%
Zinc	mg/kg	148009-49	43 || 8 || RPD: 137	148009-37	84%

Report Comments:

Acid Extractable Metals in Soil: The laboratory RPD acceptance criteria has been exceeded for 148009-9 for Cr, Cu, Ni and Zn. Therefore a triplicate result has been issued as laboratory sample number 148009-66.

Acid Extractable Metals in Soil: The laboratory RPD acceptance criteria has been exceeded for 148009-49 for Cr, Cu, Ni and Zn. Therefore a triplicate result has been issued as laboratory sample number 148009-67.

sTRH in soil: # Percent recovery is not possible to report due to interference from analytes (other than those being tested) in the sample/s.

Asbestos ID was analysed by Approved Identifier:	Not applicable for this job
Asbestos ID was authorised by Approved Signatory:	Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NR: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike : A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample) : This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.
Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.
Spikes for Physical and Aggregate Tests are not applicable.
For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

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

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

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

COC 6/6/16
4:39pm.

Chain of Custody Record

Client Details:	Benviron Group PO Box 4405, East Gosford NSW 2250 email: ben@benvirongroup.com.au ph: +61466 385 221	**Project Manager:**	Ben Buckley	**Project #:**	E881
		Sampled By:	Danny Taylor	**Project Name:**	Punchbowl
Delivery Details:	Envirolab Pty Ltd - Sydney Office 12 Ashley Street, Chatswood NSW 2067 email: ahie@envirolab.com.au ph: +612 9910 6200	**Purchase Order #:**	N/A	**Quote #:**	
		Page #:	1 of 6	**Turnaround time:**	Standard

#	Sample ID	Date Sampled	Matrix	Analytes: Combo 3	Combo5															Sample Comments
1	BH1/GW1 0.3m	01/06/16	SOIL	X																
2	BH1/GW1 1.0m	01/06/16	SOIL																	
3	BH2 0.2m	01/06/16	SOIL	X																
4	BH2 0.7m	01/06/16	SOIL																	
5	BH3 0.3m	01/06/16	SOIL	X																
6	BH3 1.0m	01/06/16	SOIL																	
7	BH4 0.2m	01/06/16	SOIL	X																
8	BH4 0.9m	01/06/16	SOIL																	
9	BH5 0.2m	01/06/16	SOIL	X	X															
10	BH5 0.5m	01/06/16	SOIL		X															
11	BH6 0.3m	01/06/16	SOIL	X																
12	BH6 1.0m	01/06/16	SOIL																	

ENVIROLAB SERVICES
Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 148009

Date Received: 06062016
~~Time Received:~~ 1730
Received by: CB
~~Temp: Cool/Ambient~~ 7.0°C
~~Cooling: Ice/Icepack~~
~~Security: Intact/Broken/None~~

Special Directions and Coments:

Relinquished by	Ben Buckley	**Received By**	ELS	**Method of shipment**
Signature	Ben Buckley	**Signature**	CB	
Date	16/05/16	**Date**	06062016	

Chain of Custody Record

Client Details:	Benviron Group PO Box 4405, East Gosford NSW 2250 email: ben@benvirongroup.com.au ph: +61466 385 221	**Project Manager:**	Ben Buckley	**Project #:**	E881
		Sampled By:	Daniel Taylor	**Project Name:**	Punchbowl
Delivery Details:	Envirolab Pty Ltd - Sydney Office 12 Ashley Street, Chatswood NSW 2067 email: ahie@envirolab.com.au ph: +612 9910 6200	**Purchase Order #:**	N/A	**Quote #:**	
		Page #:	2 of 6	**Turnaround time:**	Standard

#	Sample ID	Date Sampled	Matrix	Analytes																Sample Comments
				Combo 3	Combo5															
13	BH7/GW2 0.2m	01/06/16	SOIL	X																
14	BH7/GW2 2.5M	01/06/16	SOIL																	
15	BH8 0.2m	01/06/16	SOIL	X																
16	BH8 0.8m	01/06/16	SOIL																	
17	BH9 0.2m	01/06/16	SOIL	X																
18	BH9 0.5m	01/06/16	SOIL																	
19	BH10 0.2m	01/06/16	SOIL	X	X															
20	BH10 0.5m	01/06/16	SOIL		X															
21	BH11 0.2m	01/06/16	SOIL	X	X															
22	BH11 1.1m	01/06/16	SOIL																	
23	BH12 0.2m	01/06/16	SOIL	X																
24	BH12 0.8m	01/06/16	SOIL																	

Special Directions and Coments:

Relinquished by	Ben Buckley	**Received By**	ELS	**Method of shipment**
Signature	Ben Buckley	**Signature**	CB	
Date	16/05/16	**Date**	06062016	

Chain of Custody Record

Client Details:	Benviron Group PO Box 4405, East Gosford NSW 2250 email: ben@benvirongroup.com.au ph: +61466 385 221	**Project Manager:**	Ben Buckley	**Project #:**	E881
		Sampled By:	Daniel Taylor	**Project Name:**	Punchbowl
Delivery Details:	Envirolab Pty Ltd - Sydney Office 12 Ashley Street, Chatswood NSW 2067 email: ahie@envirolab.com.au ph: +612 9910 6200	**Purchase Order #:**	N/A	**Quote #:**	
		Page #:	3 of 6	**Turnaround time:**	Standard

#	Sample ID	Date Sampled	Matrix	Analytes																Sample Comments
				Combo 3	Combo5															
25	BH13 0.2m	01/06/16	SOIL	X																
26	BH13 1.1m	01/06/16	SOIL																	
27	BH14/GW3 0.3r	01/06/16	SOIL	X	X															
28	BH14/GW3 2.5r	01/06/16	SOIL																	
29	BH15 0.2m	01/06/16	SOIL	X	X															
30	BH15 0.8m	01/06/16	SOIL		X															
31	BH16 0.2m	01/06/16	SOIL	X																
32	BH16 0.6m	01/06/16	SOIL																	
33	BH17 0.3m	01/06/16	SOIL	X																
34	BH17 0.5m	01/06/16	SOIL																	
35	BH18 0.2m	01/06/16	SOIL	X																
36	BH18 0.9m	01/06/16	SOIL																	

Special Directions and Coments:

Relinquished by	Ben Buckley	**Received By**	ELS	**Method of shipment**
Signature	Ben Buckley	**Signature**	CB	
Date	16/05/16	**Date**	06062016	

Chain of Custody Record

Client Details:	**Benviron Group** **PO Box 4405, East Gosford NSW 2250** **email: ben@benvirongroup.com.au** **ph: +61466 385 221**	**Project Manager:**	Ben Buckley	**Project #: E881**	
		Sampled By:	Daniel Taylor	**Project Name: Punchbowl**	
Delivery Details:	**Envirolab Pty Ltd - Sydney Office** **12 Ashley Street, Chatswood NSW 2067** **email: ahie@envirolab.com.au** **ph: +612 9910 6200**	**Purchase Order #:**	N/A	**Quote #:**	
		Page #:	4 of 6	**Turnaround time: Standard**	

#	Sample ID	Date Sampled	Matrix	Analytes																Sample Comments
				Combo 3	Combo5															
37	BH19 0.2m	01/06/16	SOIL	X																
38	BH19 1.0m	01/06/16	SOIL																	
39	BH20 0.3m	01/06/16	SOIL	X	X															
40	BH20 1.0m	01/06/16	SOIL		X															
41	BH21 0.3m	01/06/16	SOIL	X																
42	BH21 1.1m	01/06/16	SOIL																	
43	BH22 0.2m	01/06/16	SOIL	X																
44	BH22 0.7m	01/06/16	SOIL																	
45	BH23 0.2m	01/06/16	SOIL	X																
46	BH23 1.0m	01/06/16	SOIL																	
47	BH24 0.3m	01/06/16	SOIL	X																
48	BH24 0.8m	01/06/16	SOIL																	

Special Directions and Coments:

Relinquished by	Ben Buckley	**Received By**	ELS	**Method of shipment**
Signature	Ben Buckley	**Signature**	CB	
Date	16/05/16	**Date**	06062016	

Chain of Custody Record

Client Details:	Benviron Group PO Box 4405, East Gosford NSW 2250 email: ben@benvirongroup.com.au ph: +61466 385 221	**Project Manager:**	Ben Buckley	**Project #:**	E881
		Sampled By:	Daniel Taylor	**Project Name:**	Punchbowl
Delivery Details:	Envirolab Pty Ltd - Sydney Office 12 Ashley Street, Chatswood NSW 2067 email: ahie@envirolab.com.au ph: +612 9910 6200	**Purchase Order #:**	N/A	**Quote #:**	
		Page #:	5 of 6	**Turnaround time:**	Standard

#	Sample ID	Date Sampled	Matrix	Analytes																Sample Comments
				Combo 3	Combo5															
49	BH25 0.2m	01/06/16	SOIL	X	X															
50	BH25 0.6m	01/06/16	SOIL		X															
51	BH26 0.3m	01/06/16	SOIL	X																
52	BH26 0.8m	01/06/16	SOIL																	
53	BH27 0.3m	01/06/16	SOIL	X																
54	BH27 1.0m	01/06/16	SOIL																	
55	BH28 0.2m	01/06/16	SOIL	X																
56	BH28 0.8m	01/06/16	SOIL																	
57	BH29 0.3m	01/06/16	SOIL	X																
58	BH29 0.9m	01/06/16	SOIL																	
59	BH30 0.2m	01/06/16	SOIL	X																
60	BH30 1.0m	01/06/16	SOIL																	

Special Directions and Coments:

Relinquished by	Ben Buckley	**Received By**	CB	**Method of shipment**
Signature	Ben Buckley	**Signature**	ELS	
Date	16/05/16	**Date**	06062016	

Chain of Custody Record

Client Details:	Benviron Group PO Box 4405, East Gosford NSW 2250 email: ben@benvirongroup.com.au ph: +61466 385 221	**Project Manager:**	Ben Buckley	**Project #:**	E881
		Sampled By:	Daniel Taylor	**Project Name:**	Punchbowl
Delivery Details:	Envirolab Pty Ltd - Sydney Office 12 Ashley Street, Chatswood NSW 2067 email: ahie@envirolab.com.au ph: +612 9910 6200	**Purchase Order #:**	N/A	**Quote #:**	
		Page #:	6 of 6	**Turnaround time:**	Standard

#	Sample ID	Date Sampled	Matrix	Analytes																Sample Comments
				Combo 3	Combo5															
61	D1	01/06/16	SOIL		X															
62	D2	01/06/16	SOIL		X															
63	D3	01/06/16	SOIL		X															
Extra 64	SS2																			
65	SS3.																			

Special Directions and Coments:

Relinquished by	Ben Buckley	**Received By**	CB	**Method of shipment**
Signature	Ben Buckley	**Signature**	ELS	
Date	06/06/16	**Date**	06062016	

ENVIROLAB

Envirolab Service
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 151708
Date Received: 11/8/2016
Time Received: 17:55
Received by: R
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

4.2

Chain of Custody Record

Client Details:	Benviron Group PO Box 4405, East Gosford NSW 2250 email: ben@benvirongroup.com.au michael@benvirongroup.com.au ph: +61466 385 221	**Project Manager:**	Michael Silk	**Project #:** E881
		Sampled By:	Michael Silk	**Project Name:** Punchbowl
Delivery Details:	Envirolab Pty Ltd 12 Ashley Street, Chatswood NSW 2067 email: ahie@envirolab.com.au ph: +612 9910 6200	**Purchase Order #:**	N/A	**Quote #:**
		Page #:	1	**Turnaround time:** Standard

#	Sample ID	Depth	Date Sampled	Matrix	Analytes																Sample Comments
					ph	CEC	%CLAY														
1	BH31	0.1-0.2	11.8.16	soil	X	X	X														
2	BH31	0.4-0.5	11.8.16	soil	X	X	X														
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

Special Directions and Coments:

Relinquished by	Michael Silk	**Received By**	P.Ray	**Method of shipment**
Signature	MSilk	**Signature**	PRay	Courier
Date	11.8.16	**Date**	11/8/2016 17:55	

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

SAMPLE RECEIPT ADVICE

Client Details	
Client	Benviron Group
Attention	Michael Silk

Sample Login Details	
Your Reference	E881, Punchbowl
Envirolab Reference	**151708**
Date Sample Received	11/08/2016
Date Instructions Received	11/08/2016
Date Results Expected to be Reported	**18/08/2016**

Sample Condition	
Samples received in appropriate condition for analysis	YES
No. of Samples Provided	2 soils
Turnaround Time Requested	Standard
Temperature on receipt (°C)	na
Cooling Method	None
Sampling Date Provided	YES

Comments
Samples will be held for 1 month for water samples and 2 months for soil samples from date of receipt of samples

Please direct any queries to:

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

Sample and Testing Details on following page

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

Sample Id	*CEC*	*Clay 50-120g*	*pH 1:5 soil:water*
BH31-0.1-0.2	✓	✓	✓
BH31-0.4-0.5	✓	✓	✓

Chain of Custody Record

Client Details:	**Benviron Group** **PO Box 4405, East Gosford NSW 2250** **email: ben@benvirongroup.com.au** **ph: +61466 385 221**	**Project Manager:**	Ben Buckley	**Project #: E881**	
		Sampled By:	Danny Taylor	**Project Name: Punchbowl**	
Delivery Details:	**Eurofins MGT - Sydney Office** **Unit F3-6 Building F, 16 Mars Road, Lane Cove 2066** **email: EnviroSampleNSW@eurofins.com.au** **ph: +612 9900 8400**	**Purchase Order #:**	N/A	**Quote #:**	
		Page #:	1 of 1	**Turnaround time: Standard**	

#	Sample ID	Date Sampled	Matrix	Analytes																	Sample Comments
				Suite B7	Suite B13																
1	SS1	01/06/16	SOIL	X	X																
2	SS2	01/06/16	SOIL	X	X																
3	SS3	01/06/16	SOIL	X	X																

Special Directions and Coments:

Relinquished by	Ben Buckley	**Received By**	Ellen HG	**Method of shipment**
Signature	Ben Buckley	**Signature**	060616 1640	503420
Date	06/06/16	**Date**		

Chain of Custody Record

Client Details:	Benviron Group PO Box 4405, East Gosford NSW 2250 email: ben@benvirongroup.com.au ph: +61466 385 221	**Project Manager:**	Ben Buckley	**Project #:**	E881
		Sampled By:	Danny Taylor	**Project Name:**	Punchbowl
Delivery Details:	Eurofins MGT - Sydney Office Unit F3-6 Building F, 16 Mars Road, Lane Cove 2066 email: EnviroSampleNSW@eurofins.com.au ph: +612 9900 8400	**Purchase Order #:**	N/A	**Quote #:**	
		Page #:	1 of 1	**Turnaround time:**	Standard

#	Sample ID	Date Sampled	Matrix	Analytes																Sample Comments
				Suite B7	Suite B13															
1	SS1	01/06/16	SOIL	X	X															
2	SS2	01/06/16	SOIL	X	X															
3	SS3	01/06/16	SOIL	X	X															

Special Directions and Coments:

Relinquished by	Ben Buckley	**Received By**	Ellen Wu	**Method of shipment**
Signature	Ben Buckley	**Signature**		
Date	06/06/16	**Date**	070616 11:50.	

Samples SS2 & SS3 recd 070616 #503420

Chain of Custody Record

Client Details:	**Benviron Group** **PO Box 4405, East Gosford NSW 2250** **email: ben@benvirongroup.com.au** **ph: +61466 385 221**	**Project Manager:**	Ben Buckley	**Project #: E881**	
		Sampled By:	Danny Taylor	**Project Name: Punchbowl**	
Delivery Details:	**Eurofins MGT - Sydney Office** **Unit F3-6 Building F, 16 Mars Road, Lane Cove 2066** **email: EnviroSampleNSW@eurofins.com.au** **ph: +612 9900 8400**	**Purchase Order #:**	N/A	**Quote #:**	
		Page #:	1 of 1	**Turnaround time: Standard**	

#	Sample ID	Date Sampled	Matrix	Analytes																Sample Comments
				Suite B7	Suite B13															
1	SS1	01/06/16	SOIL	X	X															
2	SS2	01/06/16	SOIL	X	X															
3	SS3	01/06/16	SOIL	X	X															

Special Directions and Coments:

Relinquished by	Ben Buckley	**Received By**	Ellen Wu.	**Method of shipment**
Signature	Ben Buckley	**Signature**		
Date	06/06/16	**Date**	070616 11:50.	

Samples SS2 & SS3 recd 070616 #503420

eurofins | mgt

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

Melbourne
3-5 Kingston Town Close
Oakleigh Vic 3166
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Sample Receipt Advice

Company name:	**Benviron Group**
Contact name:	Ben Buckley
Project name:	PUNCHBOWL
Project ID:	E881
COC number:	Not provided
Turn around time:	5 Day
Date/Time received:	Jun 7, 2016 11:50 AM
Eurofins | mgt reference:	**503420**

Sample information

☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

☒ All samples have been received as described on the above COC.

☑ COC has been completed correctly.

☑ Attempt to chill was evident.

☑ Appropriately preserved sample containers have been used.

☑ All samples were received in good condition.

☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

☑ Appropriate sample containers have been used.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Notes

Samples SS2, SS3 received 07/06

Contact notes

If you have any questions with respect to these samples please contact:

Andrew Black on Phone : (+61) 2 9900 8490 or by e.mail: AndrewBlack@eurofins.com

Results will be delivered electronically via e.mail to Ben Buckley - ben@benvirongroup.com.au.

eurofins | mgt

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

Melbourne
2-5 Kingston Town Close
Oakleigh VIC 3166
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Company Name: Benviron Group
Address: PO BOX 4405
East Gosford
NSW 2250

Project Name: PUNCHBOWL
Project ID: E881

Order No.:
Report #: 503420
Phone:
Fax:

Received: Jun 7, 2016 11:50 AM
Due: Jun 15, 2016
Priority: 5 Day
Contact Name: Ben Buckley

Eurofins | mgt Analytical Services Manager : Andrew Black

Sample Detail						Eurofins | mgt Suite B13	Moisture Set	Eurofins | mgt Suite B7
Melbourne Laboratory - NATA Site # 1254 & 14271								
Sydney Laboratory - NATA Site # 18217						X	X	X
Brisbane Laboratory - NATA Site # 20794								
External Laboratory								
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
1	SS1	Jun 01, 2016		Soil	S16-Jn06089	X	X	X
2	SS2	Jun 01, 2016		Soil	S16-Jn06090	X	X	X
3	SS3	Jun 01, 2016		Soil	S16-Jn06091	X	X	X
Test Counts						3	3	3

eurofins | mgt

Certificate of Analysis

Benviron Group
PO BOX 4405
East Gosford
NSW 2250

NATA Accredited
Accreditation Number 1261
Site Number 18217

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

Attention: **Ben Buckley**

Report **503420-S**
Project name PUNCHBOWL
Project ID E881
Received Date Jun 07, 2016

Client Sample ID			**SS1**	**SS2**	**SS3**
Sample Matrix			**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S16-Jn06089**	**S16-Jn06090**	**S16-Jn06091**
Date Sampled			**Jun 01, 2016**	**Jun 01, 2016**	**Jun 01, 2016**
Test/Reference	LOR	Unit			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					
TRH C6-C9	20	mg/kg	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	140
TRH C10-36 (Total)	50	mg/kg	< 50	< 50	140
BTEX					
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	96	86	85
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50
Polycyclic Aromatic Hydrocarbons					
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5

Client Sample ID			SS1	SS2	SS3
Sample Matrix			Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-Jn06089	S16-Jn06090	S16-Jn06091
Date Sampled			Jun 01, 2016	Jun 01, 2016	Jun 01, 2016
Test/Reference	LOR	Unit			
Polycyclic Aromatic Hydrocarbons					
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	75	102	93
p-Terphenyl-d14 (surr.)	1	%	80	113	100
Organochlorine Pesticides					
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05
a-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05
b-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05
d-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Methoxychlor	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Toxaphene	1	mg/kg	< 1	< 1	< 1
Dibutylchlorendate (surr.)	1	%	64	94	92
Tetrachloro-m-xylene (surr.)	1	%	97	102	97
Polychlorinated Biphenyls (PCB)					
Aroclor-1016	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Aroclor-1232	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Aroclor-1242	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Aroclor-1248	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Aroclor-1254	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Aroclor-1260	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Total PCB*	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Dibutylchlorendate (surr.)	1	%	64	94	92
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	180
TRH >C34-C40	100	mg/kg	< 100	280	460
Heavy Metals					
Arsenic	2	mg/kg	4.4	2.8	3.2
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	68	110	94
Copper	5	mg/kg	23	34	46
Lead	5	mg/kg	14	6.2	11

Client Sample ID			SS1	SS2	SS3
Sample Matrix			**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S16-Jn06089**	**S16-Jn06090**	**S16-Jn06091**
Date Sampled			**Jun 01, 2016**	**Jun 01, 2016**	**Jun 01, 2016**
Test/Reference	LOR	Unit			
Heavy Metals					
Mercury	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Nickel	5	mg/kg	65	120	78
Zinc	5	mg/kg	53	70	59
% Moisture	1	%	7.5	7.8	17

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Jun 10, 2016	14 Day
- Method: TRH C6-C36 - LTM-ORG-2010			
BTEX	Sydney	Jun 08, 2016	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Jun 08, 2016	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Polycyclic Aromatic Hydrocarbons	Sydney	Jun 10, 2016	14 Day
- Method: E007 Polyaromatic Hydrocarbons (PAH)			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Jun 10, 2016	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Metals M8	Sydney	Jun 08, 2016	28 Day
- Method: LTM-MET-3040_R0 TOTAL AND DISSOLVED METALS AND MERCURY IN WATERS BY ICP-MS			
Eurofins | mgt Suite B13			
Organochlorine Pesticides	Sydney	Jun 10, 2016	14 Day
- Method: E013 Organochlorine Pesticides (OC)			
Polychlorinated Biphenyls (PCB)	Sydney	Jun 10, 2016	28 Day
- Method: E013 Polychlorinated Biphenyls (PCB)			
% Moisture	Sydney	Jun 08, 2016	14 Day
- Method: LTM-GEN-7080 Moisture			

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Project Name: PUNCHBOWL
Project ID: E881

Order No.:
Report #: 503420
Phone:
Fax:

Received: Jun 7, 2016 11:50 AM
Due: Jun 15, 2016
Priority: 5 Day
Contact Name: Ben Buckley

Eurofins | mgt Analytical Services Manager : Andrew Black

Sample Detail						Eurofins | mgt Suite B13	Moisture Set	Eurofins | mgt Suite B7
Melbourne Laboratory - NATA Site # 1254 & 14271								
Sydney Laboratory - NATA Site # 18217						X	X	X
Brisbane Laboratory - NATA Site # 20794								
External Laboratory								
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
1	SS1	Jun 01, 2016		Soil	S16-Jn06089	X	X	X
2	SS2	Jun 01, 2016		Soil	S16-Jn06090	X	X	X
3	SS3	Jun 01, 2016		Soil	S16-Jn06091	X	X	X
Test Counts						3	3	3

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
4. Results are uncorrected for matrix spikes or surrogate recoveries.
5. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
6. Samples were analysed on an 'as received' basis. 7. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per Kilogram

ug/l: micrograms per litre

ppb: Parts per billion

org/100ml: Organisms per 100 millilitres

MPN/100mL: Most Probable Number of organisms per 100 millilitres

mg/l: milligrams per litre

ppm: Parts per million

%: Percentage

NTU: Nephelometric Turbidity Units

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery
CRM	Certified Reference Material - reported as percent recovery
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands. In the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
Batch Duplicate	A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.
Batch SPIKE	Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs 20-130%

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-BHC	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-BHC	mg/kg	< 0.05			0.05	Pass	
d-BHC	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-BHC (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.2			0.2	Pass	
Toxaphene	mg/kg	< 1			1	Pass	
Method Blank							
Polychlorinated Biphenyls (PCB)							
Aroclor-1016	mg/kg	< 0.5			0.5	Pass	
Aroclor-1232	mg/kg	< 0.5			0.5	Pass	
Aroclor-1242	mg/kg	< 0.5			0.5	Pass	
Aroclor-1248	mg/kg	< 0.5			0.5	Pass	
Aroclor-1254	mg/kg	< 0.5			0.5	Pass	
Aroclor-1260	mg/kg	< 0.5			0.5	Pass	
Total PCB*	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.05			0.05	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	93			70-130	Pass	
TRH C10-C14	%	89			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	98			70-130	Pass	
Toluene	%	100			70-130	Pass	
Ethylbenzene	%	97			70-130	Pass	
m&p-Xylenes	%	99			70-130	Pass	
o-Xylene	%	98			70-130	Pass	
Xylenes - Total	%	99			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	109			70-130	Pass	
TRH C6-C10	%	99			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	102			70-130	Pass	
Acenaphthylene	%	106			70-130	Pass	
Anthracene	%	107			70-130	Pass	
Benz(a)anthracene	%	98			70-130	Pass	
Benzo(a)pyrene	%	94			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benzo(b&j)fluoranthene	%	95			70-130	Pass	
Benzo(g.h.i)perylene	%	71			70-130	Pass	
Benzo(k)fluoranthene	%	102			70-130	Pass	
Chrysene	%	109			70-130	Pass	
Dibenz(a.h)anthracene	%	74			70-130	Pass	
Fluoranthene	%	104			70-130	Pass	
Fluorene	%	101			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	72			70-130	Pass	
Naphthalene	%	107			70-130	Pass	
Phenanthrene	%	111			70-130	Pass	
Pyrene	%	106			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	105			70-130	Pass	
4.4'-DDD	%	113			70-130	Pass	
4.4'-DDE	%	103			70-130	Pass	
4.4'-DDT	%	78			70-130	Pass	
a-BHC	%	107			70-130	Pass	
Aldrin	%	103			70-130	Pass	
b-BHC	%	111			70-130	Pass	
d-BHC	%	110			70-130	Pass	
Dieldrin	%	109			70-130	Pass	
Endosulfan I	%	108			70-130	Pass	
Endosulfan II	%	108			70-130	Pass	
Endosulfan sulphate	%	92			70-130	Pass	
Endrin	%	116			70-130	Pass	
Endrin aldehyde	%	97			70-130	Pass	
Endrin ketone	%	84			70-130	Pass	
g-BHC (Lindane)	%	111			70-130	Pass	
Heptachlor	%	120			70-130	Pass	
Heptachlor epoxide	%	109			70-130	Pass	
Hexachlorobenzene	%	106			70-130	Pass	
Methoxychlor	%	77			70-130	Pass	
Toxaphene	%	118			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls (PCB)							
Aroclor-1260	%	106			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	%	95			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	82			70-130	Pass	
Cadmium	%	85			70-130	Pass	
Chromium	%	82			70-130	Pass	
Copper	%	83			70-130	Pass	
Lead	%	83			70-130	Pass	
Mercury	%	90			70-130	Pass	
Nickel	%	83			70-130	Pass	
Zinc	%	86			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S16-Jn07280	NCP	%	87			70-130	Pass	
TRH C10-C14	S16-Jn06236	NCP	%	104			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S16-Jn07280	NCP	%	95			70-130	Pass	
Toluene	S16-Jn07280	NCP	%	96			70-130	Pass	
Ethylbenzene	S16-Jn07280	NCP	%	93			70-130	Pass	
m&p-Xylenes	S16-Jn07280	NCP	%	95			70-130	Pass	
o-Xylene	S16-Jn07280	NCP	%	94			70-130	Pass	
Xylenes - Total	S16-Jn07280	NCP	%	94			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S16-Jn07280	NCP	%	102			70-130	Pass	
TRH C6-C10	S16-Jn07280	NCP	%	98			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S16-Jn05964	NCP	%	101			70-130	Pass	
Acenaphthylene	S16-Jn05964	NCP	%	103			70-130	Pass	
Anthracene	S16-Jn05964	NCP	%	112			70-130	Pass	
Benz(a)anthracene	S16-Jn05964	NCP	%	96			70-130	Pass	
Benzo(a)pyrene	S16-Jn05964	NCP	%	83			70-130	Pass	
Benzo(b&j)fluoranthene	S16-Jn05964	NCP	%	88			70-130	Pass	
Benzo(g.h.i)perylene	S16-Jn04884	NCP	%	82			70-130	Pass	
Benzo(k)fluoranthene	S16-Jn05964	NCP	%	93			70-130	Pass	
Chrysene	S16-Jn05964	NCP	%	104			70-130	Pass	
Dibenz(a.h)anthracene	S16-Jn05964	NCP	%	78			70-130	Pass	
Fluoranthene	S16-Jn05964	NCP	%	103			70-130	Pass	
Fluorene	S16-Jn05964	NCP	%	102			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S16-Jn04884	NCP	%	77			70-130	Pass	
Naphthalene	S16-Jn05964	NCP	%	103			70-130	Pass	
Phenanthrene	S16-Jn04884	NCP	%	111			70-130	Pass	
Pyrene	S16-Jn05964	NCP	%	101			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	S16-Jn07777	NCP	%	107			70-130	Pass	
4.4'-DDD	S16-Jn07777	NCP	%	126			70-130	Pass	
4.4'-DDE	S16-Jn07777	NCP	%	106			70-130	Pass	
4.4'-DDT	S16-Jn07777	NCP	%	89			70-130	Pass	
a-BHC	S16-Jn07777	NCP	%	105			70-130	Pass	
Aldrin	S16-Jn07777	NCP	%	108			70-130	Pass	
b-BHC	S16-Jn07777	NCP	%	116			70-130	Pass	
d-BHC	S16-Jn07777	NCP	%	115			70-130	Pass	
Dieldrin	S16-Jn07777	NCP	%	116			70-130	Pass	
Endosulfan I	S16-Jn07777	NCP	%	111			70-130	Pass	
Endosulfan II	S16-Jn07777	NCP	%	116			70-130	Pass	
Endosulfan sulphate	S16-Jn07777	NCP	%	97			70-130	Pass	
Endrin	S16-Jn07777	NCP	%	123			70-130	Pass	
Endrin aldehyde	S16-Jn07777	NCP	%	109			70-130	Pass	
Endrin ketone	S16-Jn07777	NCP	%	98			70-130	Pass	
g-BHC (Lindane)	S16-Jn07777	NCP	%	115			70-130	Pass	
Heptachlor	S16-Jn07777	NCP	%	116			70-130	Pass	
Heptachlor epoxide	S16-Jn07777	NCP	%	114			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Hexachlorobenzene	S16-Jn07777	NCP	%	101			70-130	Pass	
Methoxychlor	S16-Jn07777	NCP	%	105			70-130	Pass	
Toxaphene	S16-Jn07777	NCP	%	111			70-130	Pass	
Spike - % Recovery									
Polychlorinated Biphenyls (PCB)				Result 1					
Aroclor-1260	S16-Jn07777	NCP	%	120			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	S16-Jn06236	NCP	%	109			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S16-Jn06752	NCP	%	86			70-130	Pass	
Cadmium	S16-Jn06752	NCP	%	90			70-130	Pass	
Chromium	S16-Jn06752	NCP	%	94			70-130	Pass	
Copper	S16-Jn06752	NCP	%	75			70-130	Pass	
Lead	S16-Jn06752	NCP	%	85			70-130	Pass	
Mercury	S16-Jn06752	NCP	%	89			70-130	Pass	
Nickel	S16-Jn06752	NCP	%	79			70-130	Pass	
Zinc	S16-Jn06752	NCP	%	83			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S16-Jn07276	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S16-Jn09039	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S16-Jn09039	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S16-Jn09039	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S16-Jn07276	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S16-Jn07276	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S16-Jn07276	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S16-Jn07276	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S16-Jn07276	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	S16-Jn07276	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S16-Jn07276	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S16-Jn07276	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S16-Jn05963	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S16-Jn05963	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S16-Jn05963	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S16-Jn05963	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S16-Jn05963	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S16-Jn05963	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	S16-Jn05963	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S16-Jn05963	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S16-Jn05963	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S16-Jn05963	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S16-Jn05963	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S16-Jn05963	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S16-Jn05963	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S16-Jn05963	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Phenanthrene	S16-Jn05963	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S16-Jn05963	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S16-Jn07786	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	S16-Jn07786	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	S16-Jn07786	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	S16-Jn07786	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	S16-Jn07786	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S16-Jn07786	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-BHC	S16-Jn07786	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	S16-Jn07786	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	S16-Jn07786	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	S16-Jn07786	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	S16-Jn07786	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	S16-Jn07786	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	S16-Jn07786	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	S16-Jn07786	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	S16-Jn07786	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-BHC (Lindane)	S16-Jn07786	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	S16-Jn07786	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	S16-Jn07786	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	S16-Jn07786	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	S16-Jn07786	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Toxaphene	S16-Jn07786	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Polychlorinated Biphenyls (PCB)				Result 1	Result 2	RPD			
Aroclor-1016	S16-Jn07786	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1232	S16-Jn07786	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1242	S16-Jn07786	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1248	S16-Jn07786	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1254	S16-Jn07786	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1260	S16-Jn07786	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	S16-Jn09039	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S16-Jn09039	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S16-Jn09039	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S16-Jn06751	NCP	mg/kg	5.8	5.4	7.0	30%	Pass	
Cadmium	S16-Jn06751	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S16-Jn06751	NCP	mg/kg	6.3	6.4	1.0	30%	Pass	
Copper	S16-Jn06751	NCP	mg/kg	6.1	6.1	<1	30%	Pass	
Lead	S16-Jn06751	NCP	mg/kg	16	17	5.0	30%	Pass	
Mercury	S16-Jn06751	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Nickel	S16-Jn06751	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	S16-Jn06751	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S16-Jn04561	NCP	%	19	20	5.0	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised By

Andrew Black	Analytical Services Manager
Bob Symons	Senior Analyst-Inorganic (NSW)
Ivan Taylor	Senior Analyst-Metal (NSW)
Ryan Hamilton	Senior Analyst-Organic (NSW)
Ryan Hamilton	Senior Analyst-Volatile (NSW)



Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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Certificate of Analysis

Benviron Group
PO BOX 4405
East Gosford
NSW 2250

NATA Accredited
Accreditation Number 1261
Site Number 18217

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

Attention: **Ben Buckley**

Report **503772-W**
Project name PUNCHBOWL
Project ID E881
Received Date Jun 08, 2016

Client Sample ID			**SS1**
Sample Matrix			**Water**
Eurofins | mgt Sample No.			**S16-Jn07995**
Date Sampled			**Jun 01, 2016**
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons - 1999 NEPM Fractions			
TRH C6-C9	0.02	mg/L	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1
TRH C10-36 (Total)	0.1	mg/L	< 0.1
BTEX			
Benzene	0.001	mg/L	< 0.001
Toluene	0.001	mg/L	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002
o-Xylene	0.001	mg/L	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003
4-Bromofluorobenzene (surr.)	1	%	86
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene[N02]	0.01	mg/L	< 0.01
TRH C6-C10	0.02	mg/L	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05
Polycyclic Aromatic Hydrocarbons			
Acenaphthene	0.001	mg/L	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001
Anthracene	0.001	mg/L	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001
Chrysene	0.001	mg/L	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001
Fluoranthene	0.001	mg/L	< 0.001
Fluorene	0.001	mg/L	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001
Naphthalene	0.001	mg/L	< 0.001
Phenanthrene	0.001	mg/L	< 0.001
Pyrene	0.001	mg/L	< 0.001

Client Sample ID			SS1
Sample Matrix			**Water**
Eurofins | mgt Sample No.			**S16-Jn07995**
Date Sampled			**Jun 01, 2016**
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
Total PAH*	0.001	mg/L	< 0.001
2-Fluorobiphenyl (surr.)	1	%	146
p-Terphenyl-d14 (surr.)	1	%	106
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
TRH >C10-C16	0.05	mg/L	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1
Heavy Metals			
Arsenic (filtered)	0.001	mg/L	0.001
Cadmium (filtered)	0.0001	mg/L	0.0006
Chromium (filtered)	0.001	mg/L	0.002
Copper (filtered)	0.001	mg/L	0.003
Lead (filtered)	0.001	mg/L	< 0.001
Mercury (filtered)	0.0001	mg/L	< 0.0001
Nickel (filtered)	0.001	mg/L	0.019
Zinc (filtered)	0.005	mg/L	0.86

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Jun 10, 2016	7 Day
- Method: TRH C6-C36 - LTM-ORG-2010			
BTEX	Sydney	Jun 08, 2016	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Jun 08, 2016	7 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Polycyclic Aromatic Hydrocarbons	Melbourne	Jun 10, 2016	7 Day
- Method: USEPA 8270 Polycyclic Aromatic Hydrocarbons			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Jun 10, 2016	7 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Metals M8 filtered	Sydney	Jun 08, 2016	28 Day
- Method: LTM-MET-3040 Metals in Waters by ICP-MS			

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NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
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NATA # 1261 Site # 20794

Company Name:	Benviron Group	**Order No.:**		**Received:**	Jun 8, 2016 3:14 PM
Address:	PO BOX 4405	**Report #:**	503772	**Due:**	Jun 16, 2016
	East Gosford	**Phone:**		**Priority:**	5 Day
	NSW 2250	**Fax:**		**Contact Name:**	Ben Buckley
Project Name:	PUNCHBOWL				
Project ID:	E881				

Eurofins | mgt Analytical Services Manager : Andrew Black

Sample Detail						Eurofins | mgt Suite B7 (filtered metals)
Melbourne Laboratory - NATA Site # 1254 & 14271						X
Sydney Laboratory - NATA Site # 18217						X
Brisbane Laboratory - NATA Site # 20794						
External Laboratory						
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**	
1	SS1	Jun 01, 2016		Water	S16-Jn07995	X
Test Counts						1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
4. Results are uncorrected for matrix spikes or surrogate recoveries.
5. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
6. Samples were analysed on an 'as received' basis. 7. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per Kilogram

ug/l: micrograms per litre

ppb: Parts per billion

org/100ml: Organisms per 100 millilitres

MPN/100mL: Most Probable Number of organisms per 100 millilitres

mg/l: milligrams per litre

ppm: Parts per million

%: Percentage

NTU: Nephelometric Turbidity Units

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery
CRM	Certified Reference Material - reported as percent recovery
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands. In the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
Batch Duplicate	A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.
Batch SPIKE	Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs 20-130%

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/L	< 0.001			0.001	Pass	
Acenaphthylene	mg/L	< 0.001			0.001	Pass	
Anthracene	mg/L	< 0.001			0.001	Pass	
Benz(a)anthracene	mg/L	< 0.001			0.001	Pass	
Benzo(a)pyrene	mg/L	< 0.001			0.001	Pass	
Benzo(b&j)fluoranthene	mg/L	< 0.001			0.001	Pass	
Benzo(g.h.i)perylene	mg/L	< 0.001			0.001	Pass	
Benzo(k)fluoranthene	mg/L	< 0.001			0.001	Pass	
Chrysene	mg/L	< 0.001			0.001	Pass	
Dibenz(a.h)anthracene	mg/L	< 0.001			0.001	Pass	
Fluoranthene	mg/L	< 0.001			0.001	Pass	
Fluorene	mg/L	< 0.001			0.001	Pass	
Indeno(1.2.3-cd)pyrene	mg/L	< 0.001			0.001	Pass	
Naphthalene	mg/L	< 0.001			0.001	Pass	
Phenanthrene	mg/L	< 0.001			0.001	Pass	
Pyrene	mg/L	< 0.001			0.001	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
Heavy Metals							
Arsenic (filtered)	mg/L	< 0.001			0.001	Pass	
Cadmium (filtered)	mg/L	< 0.0001			0.0001	Pass	
Chromium (filtered)	mg/L	< 0.001			0.001	Pass	
Copper (filtered)	mg/L	< 0.001			0.001	Pass	
Lead (filtered)	mg/L	< 0.001			0.001	Pass	
Mercury (filtered)	mg/L	< 0.0001			0.0001	Pass	
Nickel (filtered)	mg/L	< 0.001			0.001	Pass	
Zinc (filtered)	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	86			70-130	Pass	
TRH C10-C14	%	95			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	97			70-130	Pass	
Toluene	%	94			70-130	Pass	
Ethylbenzene	%	93			70-130	Pass	
m&p-Xylenes	%	94			70-130	Pass	
o-Xylene	%	95			70-130	Pass	
Xylenes - Total	%	95			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	94			70-130	Pass	
TRH C6-C10	%	95			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	118			70-130	Pass	
Acenaphthylene	%	119			70-130	Pass	
Anthracene	%	115			70-130	Pass	
Benz(a)anthracene	%	126			70-130	Pass	
Benzo(a)pyrene	%	85			70-130	Pass	
Benzo(b&j)fluoranthene	%	121			70-130	Pass	
Benzo(g.h.i)perylene	%	102			70-130	Pass	
Benzo(k)fluoranthene	%	93			70-130	Pass	
Chrysene	%	127			70-130	Pass	
Dibenz(a.h)anthracene	%	98			70-130	Pass	
Fluoranthene	%	129			70-130	Pass	
Fluorene	%	121			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	102			70-130	Pass	
Naphthalene	%	113			70-130	Pass	
Phenanthrene	%	120			70-130	Pass	
Pyrene	%	126			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	%	96			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic (filtered)	%	105			70-130	Pass	
Cadmium (filtered)	%	102			70-130	Pass	
Chromium (filtered)	%	107			70-130	Pass	
Copper (filtered)	%	108			70-130	Pass	
Lead (filtered)	%	101			70-130	Pass	
Mercury (filtered)	%	97			70-130	Pass	
Nickel (filtered)	%	107			70-130	Pass	
Zinc (filtered)	%	106			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S16-Jn08985	NCP	%	85			70-130	Pass	
TRH C10-C14	S16-Jn07996	NCP	%	83			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S16-Jn08985	NCP	%	101			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Toluene	S16-Jn08985	NCP	%	99			70-130	Pass	
Ethylbenzene	S16-Jn08985	NCP	%	97			70-130	Pass	
m&p-Xylenes	S16-Jn08985	NCP	%	98			70-130	Pass	
o-Xylene	S16-Jn08985	NCP	%	98			70-130	Pass	
Xylenes - Total	S16-Jn08985	NCP	%	98			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S16-Jn08985	NCP	%	85			70-130	Pass	
TRH C6-C10	S16-Jn08985	NCP	%	90			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	S16-Jn07996	NCP	%	84			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	S16-Jn08305	NCP	%	109			70-130	Pass	
Cadmium (filtered)	S16-Jn08305	NCP	%	109			70-130	Pass	
Chromium (filtered)	S16-Jn08305	NCP	%	107			70-130	Pass	
Copper (filtered)	S16-Jn08305	NCP	%	87			70-130	Pass	
Mercury (filtered)	S16-Jn08305	NCP	%	96			70-130	Pass	
Nickel (filtered)	S16-Jn08305	NCP	%	103			70-130	Pass	
Zinc (filtered)	S16-Jn08305	NCP	%	107			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S16-Jn08984	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH C10-C14	S16-Jn07995	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	S16-Jn07995	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	S16-Jn07995	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S16-Jn08984	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	S16-Jn08984	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	S16-Jn08984	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	S16-Jn08984	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	S16-Jn08984	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total	S16-Jn08984	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S16-Jn08984	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
TRH C6-C10	S16-Jn08984	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S16-Jn07995	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Acenaphthylene	S16-Jn07995	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Anthracene	S16-Jn07995	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benz(a)anthracene	S16-Jn07995	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(a)pyrene	S16-Jn07995	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(b&j)fluoranthene	S16-Jn07995	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(g.h.i)perylene	S16-Jn07995	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(k)fluoranthene	S16-Jn07995	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chrysene	S16-Jn07995	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibenz(a.h)anthracene	S16-Jn07995	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluoranthene	S16-Jn07995	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluorene	S16-Jn07995	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	

Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Indeno(1.2.3-cd)pyrene	S16-Jn07995	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Naphthalene	S16-Jn07995	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Phenanthrene	S16-Jn07995	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Pyrene	S16-Jn07995	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	S16-Jn07995	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C16-C34	S16-Jn07995	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C34-C40	S16-Jn07995	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	S16-Jn08302	NCP	mg/L	0.004	0.004	3.0	30%	Pass	
Cadmium (filtered)	S16-Jn08302	NCP	mg/L	0.0001	0.0001	<1	30%	Pass	
Chromium (filtered)	S16-Jn08302	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper (filtered)	S16-Jn08302	NCP	mg/L	0.001	0.001	13	30%	Pass	
Lead (filtered)	S16-Jn08302	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Mercury (filtered)	S16-Jn08302	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel (filtered)	S16-Jn08302	NCP	mg/L	0.010	0.010	4.0	30%	Pass	
Zinc (filtered)	S16-Jn08302	NCP	mg/L	0.017	0.017	1.0	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised By

Andrew Black	Analytical Services Manager
Ivan Taylor	Senior Analyst-Metal (NSW)
Mele Singh	Senior Analyst-Organic (VIC)
Ryan Hamilton	Senior Analyst-Volatile (NSW)



Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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CERTIFICATE OF ANALYSIS 151708

Client:
Benviron Group
PO Box 4405
East Gosford
NSW 2250

Attention: Michael Silk

Sample log in details:

Your Reference:	**E881, Punchbowl**		
No. of samples:	2 soils		
Date samples received / completed instructions received	11/08/16	/	11/08/16

Analysis Details:
Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: / Issue Date:	18/08/16	/	18/08/16
Date of Preliminary Report:	Not Issued		

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Results Approved By:

David Springer
General Manager

CEC Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- - ---------- 	151708-1 BH31 0.1-0.2 11/08/2016 soil	151708-2 BH31 0.4-0.5 11/08/2016 soil
Date prepared	-	16/08/2016	16/08/2016
Date analysed	-	16/08/2016	16/08/2016
Exchangeable Ca	meq/100g	25	14
Exchangeable K	meq/100g	0.3	0.1
Exchangeable Mg	meq/100g	3.4	2.2
Exchangeable Na	meq/100g	0.14	0.35
Cation Exchange Capacity	meq/100g	29	16

Clay 50-120g Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- - ---------- -	151708-1 BH31 0.1-0.2 11/08/2016 soil	151708-2 BH31 0.4-0.5 11/08/2016 soil
Date prepared	-	12/08/2016	12/08/2016
Date analysed	-	15/08/2016	15/08/2016
Clay in soils <2um	% (w/w)	9	58

Misc Inorg - Soil			
Our Reference:	UNITS	151708-1	151708-2
Your Reference	----------	BH31	BH31
	-		
Depth	----------	0.1-0.2	0.4-0.5
Date Sampled		11/08/2016	11/08/2016
Type of sample		soil	soil
Date prepared	-	15/08/2016	15/08/2016
Date analysed	-	15/08/2016	15/08/2016
pH 1:5 soil:water	pH Units	7.7	7.5

Method ID	Methodology Summary
Metals-009	Determination of exchangeable cations and cation exchange capacity in soils using 1M Ammonium Chloride exchange and ICP-AES analytical finish.
AS1289.3.6.3	Determination Particle Size Analysis using AS1289.3.6.3 and AS1289.3.6.1 and in house method INORG-107. Clay fraction at <2um reported.
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.

QUALITY CONTROL CEC	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			16/08/2016	151708-1	16/08/2016 || 16/08/2016	LCS-1	16/08/2016
Date analysed	-			16/08/2016	151708-1	16/08/2016 || 16/08/2016	LCS-1	16/08/2016
Exchangeable Ca	meq/100g	0.1	Metals-009	<0.1	151708-1	25 || 25 || RPD: 0	LCS-1	111%
Exchangeable K	meq/100g	0.1	Metals-009	<0.1	151708-1	0.3 || 0.4 || RPD: 29	LCS-1	104%
Exchangeable Mg	meq/100g	0.1	Metals-009	<0.1	151708-1	3.4 || 3.4 || RPD: 0	LCS-1	110%
Exchangeable Na	meq/100g	0.1	Metals-009	<0.1	151708-1	0.14 || 0.14 || RPD: 0	LCS-1	117%

QUALITY CONTROL Clay 50-120g	UNITS	PQL	METHOD	Blank
Date prepared	-			[NT]
Date analysed	-			[NT]
Clay in soils <2um	% (w/w)		AS1289.3.6.3	[NT]

QUALITY CONTROL Misc Inorg - Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			15/08/2016	[NT]	[NT]	LCS-1	15/08/2016
Date analysed	-			15/08/2016	[NT]	[NT]	LCS-1	15/08/2016
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	[NT]	[NT]	LCS-1	100%

Report Comments:

Asbestos ID was analysed by Approved Identifier:	Not applicable for this job
Asbestos ID was authorised by Approved Signatory:	Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NR: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike : A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample) : This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.
Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.
Spikes for Physical and Aggregate Tests are not applicable.
For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

APPENDIX I: FIELD RECORD FORMS

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SITE INSPECTION
DAILY WORKSHEET RECORD

Project name:	D82	**Project #:**	2232-4
Client:		**Date:**	17/2/22
Site Address:	924 Punchbowl Road, Punchbowl		
Site Contact:	Chris	**Phone:**	
Representative:	Tommy & Ray		
Title:	Foreman	**Phone:**	0409784783
Field Notes:			

Start Time:	7:00	**Finish Time:**	4pm
Weather:		**Rainfall (mm):**	
Wind Direction:		**Wind Speed:**	
Humidity:			
Odours present:		**Staining Present:**	
Environmental and Safety Concerns:			
Asbestos RCs & acid sulphate soil.			
Actions:			

Site Safety Induction:		**Stormwater Control:**	
Dust Suppression:		**Traffic Control:**	
Machinery onsite:		**Equipment onsite:**	
Additional Observations:			

FOUNDATION EARTH SCIENCES

Well Installation and Development Details

PROJECT DETAILS	
Client:	**Monitoring Well ID:** Gw1
Site Address: 921 Pukekohe Road.	**Logged By:** RL
Project: DS2	**Date:** 17/2/22
METHODOLOGY AND EQUIPMENT	
Water Measurement Device	**Reference Zone:** Gw1
Groundwater Extraction Method:	**Reference Point to Ground Surface (mm):**
WELL INSTALLATION DETAILS	
Total Bore Depth (m): 4.1	**Screening Zone (m bgl):**
Borehole Diameter:	**Finish:**
Standpipe Diameter:	**Coordinates:**
GROUNDWATER GAUGING (PRE-DEVELOPMENT)	**GROUNDWATER GAUGING (POST-DEVELOPMENT)**
SWL (m bgl): 1.8m	**SWL (m bgl):** 4.0
Depth to product (m bgl):	**Depth to product (m bgl):**
Product Thickness (mm):	**Product Thickness (mm):**
Time:	**Time:**
	Total GW Volume Extracted (L):
OBSERVATIONS (PRE-DEVELOPMENT)	**OBSERVATIONS (POST-DEVELOPMENT)**
Odour: ND	**Odour:**
Sheen: ND	**Sheen:**
Colour: Brown grey	**Colour:**
Turbidity: low	**Turbidity:**
Other:	**Other:**

FOUNDATION EARTH SCIENCES

Well Installation and Development Details

PROJECT DETAILS	
Client:	**Monitoring Well ID:** GW2
Site Address: 925 Punchbowl Road, Punchbowl	**Logged By:** RL
Project: DSI	**Date:** 17/2/22
METHODOLOGY AND EQUIPMENT	
Water Measurement Device	**Reference Zone:**
Groundwater Extraction Method:	**Reference Point to Ground Surface (mm):**
WELL INSTALLATION DETAILS	
Total Bore Depth (m): 3.6.	**Screening Zone (m bgl):**
Borehole Diameter:	**Finish:**
Standpipe Diameter:	**Coordinates:**
GROUNDWATER GAUGING (PRE-DEVELOPMENT)	**GROUNDWATER GAUGING (POST-DEVELOPMENT)**
SWL (m bgl): 1.6	**SWL (m bgl):**
Depth to product (m bgl):	**Depth to product (m bgl):**
Product Thickness (mm):	**Product Thickness (mm):**
Time:	**Time:**
	Total GW Volume Extracted (L):
OBSERVATIONS (PRE-DEVELOPMENT)	**OBSERVATIONS (POST-DEVELOPMENT)**
Odour: ND	**Odour:**
Sheen: ND	**Sheen:**
Colour: Light grey - brown	**Colour:**
Turbidity: Low turb	**Turbidity:**
Other:	**Other:**

FOUNDATION EARTH SCIENCES

Well Installation and Development Details

PROJECT DETAILS	
Client:	**Monitoring Well ID:** GW3
Site Address: 921 Old Punchbowl Road	**Logged By:** RL
Project: D32	**Date:** 17/12/22
METHODOLOGY AND EQUIPMENT	
Water Measurement Device	**Reference Zone:**
Groundwater Extraction Method:	**Reference Point to Ground Surface (mm):**
WELL INSTALLATION DETAILS	
Total Bore Depth (m): 5.28	**Screening Zone (m bgl):**
Borehole Diameter:	**Finish:**
Standpipe Diameter:	**Coordinates:**
GROUNDWATER GAUGING (PRE-DEVELOPMENT)	**GROUNDWATER GAUGING (POST-DEVELOPMENT)**
SWL (m bgl): 4.75	**SWL (m bgl):** 5.00
Depth to product (m bgl):	**Depth to product (m bgl):**
Product Thickness (mm):	**Product Thickness (mm):**
Time:	**Time:**
	Total GW Volume Extracted (L):
OBSERVATIONS (PRE-DEVELOPMENT)	**OBSERVATIONS (POST-DEVELOPMENT)**
Odour: ND	**Odour:**
Sheen: ND	**Sheen:**
Colour: brown/yellow	**Colour:**
Turbidity: Low	**Turbidity:**
Other:	**Other:**

APPENDIX J: AERIAL PHOTOGRAPHS

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Historical Aerial Photographs

921 Punchbowl Road,

Punchbowl NSW

1943:


DP 21524
DP 378634
DP 21524
DP 382627
DP 5245
DP 1027748
DP 132440
DP 236825
PUNCHBOWL ROAD
1:1,128
0
15
30m

1955:



1971:



1982:



1994:



2004:



Current (Six Maps):



APPENDIX K: SUMMARY TABLES

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Table K1

Sample Information				Heavy Metals (mg/kg)								TRH (mg/kg)						BTEX (mg/kg)					PAH (mg/kg)				OCP (mg/kg)											TOTAL PCB	ASBESTOS		
Label	Depth (m BGL)	Date	Soil Type	ARSENIC	CADMIUM	CHROMIUM	COPPER	LEAD	MERCURY	NICKEL	ZINC	F1 (C_6-C_{10}) [2]	F2 (>C_{10}-C_{16}) [3]	F1 (C_6-C_{10})	F2 (>C_{10}-C_{16})	F3 (C_{16}-C_{34})	F4 (C_{34}-C_{40})	BENZENE	TOLUENE	ETHYL BENZENE	TOTAL XYLENES	NAPHTHALENE	BENZO(A)PYRENE	CARINOGENIC PAHs (as Bap TEQ)	TOTAL PAH	NAPHTHALENE	DDT + DDD + DDE	ALDRIN + DIELDRIN	CHLORDANE	ENDOSULFAN	ENDRIN	HEPTACHLOR	HCB	METHOXYCHLOR	TOXAPHENE	DDT	TOTAL PCB	% w/w (AF /FA)	% w/w (ACM)	Asbestos ID
Foundation Earth Sciences Additional DSI 2022																																							
BH101	0.3-0.4	17.2.2022	F-Silty Clay	<4	<0.4	30	20	19	<0.1	27	34	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	ND
BH101	0.9-1.0	17.2.2022	N-Silty CLAY	6	<0.4	17	17	16	<0.1	19	38	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05	<0.1	-	-	-	-	-	-	-	-	-	-	-	-
BH102	0.2-0.3	17.2.2022	F-Silty Clay	4	<0.4	12	13	26	<0.1	8	42	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-
BH103	0.2-0.3	17.2.2022	F-Clayey Silt	<4	<0.4	20	4	6	<0.1	3	9	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	ND
BH103	0.6-0.7	17.2.2022	N-Silty CLAY	10	<0.4	12	16	30	<0.1	9	23	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05	<0.1	-	-	-	-	-	-	-	-	-	-	-	-
BH104	0.2-0.3	17.2.2022	F-Silty Clay	4	<0.4	48	20	9	<0.1	37	26	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	ND
BH104	0.7-0.8	17.2.2022	N-Clayey SILT	<4	<0.4	6	5	7	<0.1	4	5	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05	<0.1	-	-	-	-	-	-	-	-	-	-	-	-
BH105	0.4-0.5	17.2.2022	F-Silty Clay	7	<0.4	13	19	33	<0.1	13	51	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0.3	<0.5	2.9	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-
BH105	0.9-1.0	17.2.2022	N-Clayey SILT	<4	<0.4	6	7	8	<0.1	3	7	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-
BH106	0.3-0.4	17.2.2022	F-Silty Clay	<4	<0.4	13	23	6	<0.1	47	20	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	ND
BH106	0.7-0.8	17.2.2022	N-Clayey SILT	5	<0.4	6	8	15	<0.1	7	5	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05	<0.1	-	-	-	-	-	-	-	-	-	-	-	-
BH107	0.2-0.3	17.2.2022	F-Silty Clay	<4	<0.4	11	17	12	<0.1	11	14	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	ND
BH107	0.8-0.9	17.2.2022	F-Silty Clay	<4	<0.4	11	17	16	<0.1	14	23	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-
BH108	0.4-0.5	17.2.2022	F-Silty Clay	<4	<0.4	10	42	4	<0.1	100	31	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	ND
BH108	0.9-1.0	17.2.2022	N-Silty CLAY	<4	<0.4	12	6	6	<0.1	3	5	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05	<0.1	-	-	-	-	-	-	-	-	-	-	-	-
BH109	0.3-0.4	17.2.2022	F-Silty Clay	<4	<0.4	22	20	15	<0.1	35	30	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-
BH110	0.3-0.4	17.2.2022	F-Silty Clay	<4	<0.4	11	12	17	<0.1	8	16	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	ND
BH110	0.8-0.9	17.2.2022	N-Clayey SILT	6	<0.4	16	19	19	<0.1	13	24	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05	<0.1	-	-	-	-	-	-	-	-	-	-	-	-
D101	-	17.2.2022	-	<4	<0.4	9	43	3	<0.1	95	30	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-
SS101	-	17.2.2022	-	<2	<0.4	46	45	<5	<0.1	150	64	<20	<50	<20	<50	<100	<100	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	0.6	<0.5	<0.5	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	-	<0.05	<0.5	<0.05	<0.1	-	-	-
Statistical Analysis				Cr																																		
No of Observations				47																																		
Minimum				7																																		
Maximum				120																																		
Standard Deviation				31.02																																		
Mean				48.38																																		
95% Student's UCL				*55.94*																																		
Limit of Resolution (LOR)				4	0.4	1	1	1	0.1	1	1	25	50	25	50	100	100	0.2	0.5	1	1	1	0.05	0.5	0.05	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.001	0.01	0.1
NEPM (2013) HIL A				**100**	**20**	**100**	**6,000**	**300**	**40**	**400**	**7,400**													**3**	**300**		**240**	**6**	**50**	**270**	**10**	**6**	**10**	**300**			**1**			
NEPM (2013) EIL & ESLs [1]				100																					170									180				
Benviron Group DSI 2016																																						
Fill BH31 (0.1-0.2m) / BH5(0.2m)						450	590	1100		300	1000																											
N BH31 (0.4-0.5m) / BH5 (0.5m)						410	570	1100		280	710																											
NEPM (2013) ESLs - (Fine Grain Soil - Clay / Silt) [1]												180	120			1,300	5,600	65	105	125	45		0.7														
NEPM (2013) HSL A & B (CLAY)																																						
0m to <1m												50	280					0.7	480	NL	110	5																
Soil Saturation Concentration (Csat)												850	560					430	630	68	330	10																
NEPM (2013) HSL A & B (SILT)																																						
0m to <1m												40	230					0.6	390	NL	95	4																
Soil Saturation Concentration (Csat)												910	570					440	640	69	330	10																
NEPM (2013) Management Limit (Fine Grain Soil)																800	1,000	5,000	10,000																		
NEPM (2013) HSL - Asbestos																																				0.001%		Detected
%w/w asbestos for FA and AF																																						
%w/w asbestos for ACM - Residential A																																				0.01%		

Notes

1 Urban residential / public open space is broadly equivalent to the HIL-A, HIL-B and HIL-C land use scenarios in Table 1A(1) Footnote 1 and as described in Schedule B7.
2 To obtain F1 subtract the sum of BTEX concentrations from the C6-C10 fraction.
3 To obtain F2 subtract naphthalene from the >C_{10}-C_{16} fraction.
NL Calculated HSL is Non Limiting per NEPM (2013)
ND Not detected

Table K1

Sample Information				Heavy Metals (mg/kg)								TRH (mg/kg)						BTEX (mg/kg)					PAH (mg/kg)				OCP (mg/kg)											TOTAL PCB	ASBESTOS		
Label	Depth (m BGL)	Date	Soil Type	ARSENIC	CADMIUM	CHROMIUM	COPPER	LEAD	MERCURY	NICKEL	ZINC	F1 (C_6-C_{10}) [2]	F2 (>C_{10}-C_{16}) [3]	F1 (C_6-C_{10})	F2 (>C_{10}-C_{16})	F3 (C_{16}-C_{34})	F4 (C_{34}-C_{60})	BENZENE	TOLUENE	ETHYL BENZENE	TOTAL XYLENES	NAPHTHALENE	BENZO(A)PYRENE	CARINOGENIC PAHs (as Bap TEQ	TOTAL PAH	NAPHTHALENE	DDT + DDD + DDE	ALDRIN + DIELDRIN	CHLORDANE	ENDOSULFAN	ENDRIN	HEPTACHLOR	HCB	METHOXYCHLOR	TOXAPHENE	DDT	TOTAL PCB	% w/w (AF /FA)	% w/w (ACM)	Asbestos ID
Benviron Group DSI 2016																																							
BH1	0.3	1.6.2016	F-Gravelly Silt	<4	<0.4	16	32	16	<0.1	26	44	<25	<50	<25	<50	140	290	<0.2	<0.5	<1	<3	<1	<0.05	<0.5	NIL	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2	0.2	1.6.2016	F-Gravelly Silt	6	0.4	44	28	20	<0.1	25	51	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	<0.05	<0.5	NIL	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
BH3	0.3	1.6.2016	N-Silty CLAY	4	<0.4	30	21	11	<0.1	21	18	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	<0.05	<0.5	NIL	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4	0.2	1.6.2016	N-Clayey SILT	<4	0.5	84	50	10	<0.1	65	47	<25	<50	<25	<50	<100	150	<0.2	<0.5	<1	<3	<1	0.1	<0.5	1.4	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
BH5	0.2	1.6.2016	F-Gravelly Silt	<4	0.4	50	30	8	<0.1	48	38	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	<0.05	<0.5	NIL	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.7	-	-	-
BH5	0.5	1.6.2016	N-Clayey SILT	<4	<0.4	9	13	8	<0.1	4	10	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	<0.05	<0.5	NIL	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.7	-	-	-
BH6	0.3	1.6.2016	F-Gravelly Silt	<4	0.4	30	66	5	<0.1	31	43	<25	<50	<25	<50	<100	220	<0.2	<0.5	<1	<3	<1	<0.05	<0.5	NIL	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
BH7	0.2	1.6.2016	F-Gravelly Sandy Silt	<4	0.4	32	59	4	<0.1	41	40	<25	<50	<25	<50	230	540	<0.2	<0.5	<1	<3	<1	<0.05	<0.5	NIL	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
BH8	0.2	1.6.2016	F-Gravelly Sandy Silt	<4	<0.4	49	21	6	<0.1	53	39	<25	<50	<25	<50	<100	110	<0.2	<0.5	<1	<3	<1	<0.05	<0.5	0.11	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
BH9	0.2	1.6.2016	F-Gravelly Sandy Silt	<4	<0.4	73	37	6	<0.1	53	34	<25	<50	<25	<50	<100	200	<0.2	<0.5	<1	<3	<1	<0.05	<0.5	0.14	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
BH10	0.2	1.6.2016	F-Gravelly Silt	<4	<0.4	38	38	4	<0.1	48	33	<25	<50	<25	<50	510	730	<0.2	<0.5	<1	<3	<1	<0.05	<0.5	0.13	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.7	-	-	-
BH10	0.5	1.6.2016	N-Clayey SILT	4	<0.4	8	10	11	<0.1	8	10	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	<0.05	<0.5	NIL	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.7	-	-	-
BH11	0.2	1.6.2016	F-Gravelly Sandy Silt	<4	0.5	81	37	6	<0.1	89	51	<25	<50	<25	<50	<100	180	<0.2	<0.5	<1	<3	<1	<0.05	<0.5	0.19	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.7	-	-	-
BH12	0.2	1.6.2016	F-Gravelly Silt	<4	0.4	60	38	8	<0.1	67	43	<25	<50	<25	<50	180	420	<0.2	<0.5	<1	<3	<1	<0.05	<0.5	0.56	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
BH13	0.2	1.6.2016	F-Gravelly Silt	<4	0.5	75	41	10	<0.1	67	50	<25	<50	<25	<50	300	610	<0.2	<0.5	<1	<3	<1	<0.05	<0.5	0.17	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
BH14	0.3	1.6.2016	F-Gravelly Sandy Silt	<4	<0.4	75	57	7	<0.1	65	55	<25	<50	<25	<50	410	640	<0.2	<0.5	<1	<3	<1	<0.05	<0.5	0.23	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.7	-	-	-
BH15	0.2	1.6.2016	F-Gravel, Silt	<4	0.4	73	30	13	<0.1	73	45	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	<0.05	<0.5	NIL	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.7	-	-	-
BH15	0.8	1.6.2016	N-Clayey SILT	4	<0.4	8	13	12	<0.1	5	11	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	<0.05	<0.5	NIL	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.7	-	-	-
BH16	0.2	1.6.2016	F-Gravel, Silt	11	0.6	31	65	27	<0.1	29	100	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	<0.05	<0.5	NIL	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
BH17	0.3	1.6.2016	F-Gravelly Sandy Silt	4	0.5	64	51	12	<0.1	64	54	<25	<50	<25	<50	<100	220	<0.2	<0.5	<1	<3	<1	<0.05	<0.5	0.22	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
BH18	0.2	1.6.2016	F-Gravelly Sandy Silt	7	0.4	24	28	19	<0.1	20	55	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	<0.05	<0.5	NIL	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
BH19	0.2	1.6.2016	F-Gravel	<4	0.5	100	31	10	<0.1	82	53	<25	<50	<25	<50	<100	250	<0.2	<0.5	<1	<3	<1	<0.05	<0.5	0.2	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
BH20	0.3	1.6.2016	F-Gravelly Sandy Silt	5	0.5	72	28	17	<0.1	61	49	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	<0.05	<0.5	0.13	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.7	-	-	-
BH20	1	1.6.2016	N-Clayey SILT	<4	<0.4	9	8	9	<0.1	6	11	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	<0.05	<0.5	NIL	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.7	-	-	-
BH21	0.3	1.6.2016	F-Gravel	<4	<0.4	66	26	10	<0.1	46	36	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	<0.05	<0.5	NIL	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
BH22	0.2	1.6.2016	F-Sand	<4	0.5	84	29	11	<0.1	65	53	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	<0.05	<0.5	NIL	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
BH23	0.2	1.6.2016	F-Gravelly Silt	<4	0.5	110	38	6	<0.1	87	51	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	<0.05	<0.5	0.28	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
BH24	0.3	1.6.2016	F-Gravelly Silt	<4	0.5	120	36	5	<0.1	98	63	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	<0.05	<0.5	0.29	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
BH25	0.2	1.6.2016	F-Gravelly Clayey Silt	<4	<0.4	62	22	9	<0.1	57	43	<25	<50	<25	<50	<100	170	<0.2	<0.5	<1	<3	<1	<0.05	<0.5	0.15	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.7	-	-	-
BH25	0.6	1.6.2016	N-Clayey SILT	<4	<0.4	7	8	11	<0.1	5	6	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	<0.05	<0.5	NIL	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.7	-	-	-
BH26	0.3	1.6.2016	F-Gravelly Silt	<4	<0.4	43	10	8	<0.1	34	26	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	<0.05	<0.5	NIL	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
BH27	0.3	1.6.2016	F-Gravelly Clayey Silt	6	<0.4	33	15	12	<0.1	23	23	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	<0.05	<0.5	NIL	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
BH28	0.2	1.6.2016	F-Gravel	<4	<0.4	7	6	9	<0.1	6	12	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	<0.05	<0.5	NIL	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
BH29	0.3	1.6.2016	F-Silt	<4	<0.4	8	14	89	<0.1	11	64	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	<0.05	<0.5	0.98	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
BH30	0.2	1.6.2016	F-Gravel	<4	<0.4	36	12	34	<0.1	29	45	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	<0.05	<0.5	NIL	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
D1	-	1.6.2016	-	5	0.4	62	24	17	<0.1	49	40	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	<0.05	<0.5	0.11	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.7	-	-	-
D2	-	1.6.2016	-	<4	<0.4	65	33	8	<0.1	64	42	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	<0.05	<0.5	0.23	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.7	-	-	-
D3	-	1.6.2016	-	4	0.4	63	32	19	<0.1	46	31	<25	<50	<25	<50	100	200	<0.2	<0.5	<1	<3	<1	<0.05	<0.5	0.19	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.7	-	-	-
SS1	-	1.6.2016	-	4.4	<0.4	68	23	14	<0.05	65	53	<20	<50	<20	<50	<100	<100	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	0.6	<0.5	<0.5	0.05	0.05	<0.1	0.05	<0.05	0.05	0.05	<0.2	<1	<0.05	<0.5	-	-	-
SS2	-	1.6.2016	-	2.8	<0.4	110	34	6.2	<0.05	120	70	<20	<50	<20	<50	<100	280	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	0.6	<0.5	<0.5	0.05	0.05	<0.1	0.05	<0.05	0.05	0.05	<0.2	<1	<0.05	<0.5	-	-	-
SS3	-	1.6.2016	-	3.2	<0.4	94	46	11	<0.05	78	59	<20	<50	<20	<50	180	460	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	0.6	<0.5	<0.5	0.05	0.05	<0.1	0.05	<0.05	0.05	0.05	<0.2	<1	<0.05	<0.5	-	-	-
Statistical Analysis						Cr																																	
No of Observations						47																																	
Minimum						7																																	
Maximum						120																																	
Standard Deviation						31.02																																	
Mean						48.38																																	
95% Student's UCL						*55.94*																																	
Limit of Resolution (LOR)				4	0.4	1	1	1	0.1	1	1	25	50	25	50	100	100	0.2	0.5	1	1	1	0.05	0.5	0.05	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.001	0.01	0.1
NEPM (2013) HIL A				**100**	**20**	**100**	**6,000**	**300**	**40**	**400**	**7,400**													**3**	**300**		**240**	**6**	**50**	**270**	**10**	**6**	**10**	**300**			**1**			
NEPM (2013) EIL & ESLs [1]				100																					170									180					
Benviron Group DSI 2016																																							
Fill BH31 (0.1-0.2m) / BH5(0.2m)						450	590	1100		300	1000																												
N BH31 (0.4-0.5m) / BH5 (0.5m)						410	570	1100		280	710																												
NEPM (2013) ESLs - (Fine Grain Soil - Clay / Silt) [1]												180	120			1,300	5,600	65	105	125	45		0.7															
NEPM (2013) HSL A & B (CLAY)																																							
0m to <1m												50	280					0.7	480	NL	110	5																	
Soil Saturation Concentration (Csat)												850	560					430	630	68	330	10																	
NEPM (2013) HSL A & B (SILT)																																							
0m to <1m												40	230					0.6	390	NL	95	4																	
Soil Saturation Concentration (Csat)												910	570					440	640	69	330	10																	
NEPM (2013) Management Limit (Fine Grain Soil)														800	1,000	5,000	10,000																					
NEPM (2013) HSL - Asbestos																																					0.001%		Detected
%w/w asbestos for FA and AF																																							
%w/w asbestos for ACM - Residential A																																					0.01%		

Notes

1 Urban residential / public open space is broadly equivalent to the HIL-A, HIL-B and HIL-C land use scenarios in Table 1A(1) Footnote 1 and as described in Schedule B7.
2 To obtain F1 subtract the sum of BTEX concentrations from the C6-C10 fraction.
3 To obtain F2 subtract naphthalene from the >C_{10}-C_{16} fraction.
NL Calculated HSL is Non Limiting per NEPM (2013)
ND Not detected

Table K2

Sample Information		Heavy Metals								TRH		BTEX							OCP (ug/L				PCB (ug/L)		PAH				
SAMPLE ID	Date	ARSENIC	CADMIUM	CHROMIUM	COPPER	LEAD	MERCURY	NICKEL	ZINC	F1 (C_6-C_{10}) [2]	F2 (>C_{10}-C_{16}) [3]	BENZENE	TOLUENE	ETHYL BENZENE	M/P-XYLENE	O-XYLENE	NAPHTHALENE	TOTAL-XYLENE	ENDRIN	ENDOSULFAN	HEPTACHLOR	DDT	AROCHOR 1242	AROCHLOR 1254	BENZO(A)PYRENE	ANTHRACENE	PHENANTHRENE	FLUORANTHENE	NAPHTHALENE
Benviron Group DSI 2016																													
GW1	1.6.2016	1	0.8	2	1	<1	<0.05	11	920	<10	<50	<1	<1	<1	<2	<1	<1	<3	<0.2	<0.2	<0.2	<0.2	<2	<2	<1	<1	<1	<1	<1
GW2	1.6.2016	1	0.7	<1	2	<1	<0.05	8	760	<10	<50	<1	<1	<1	<2	<1	<1	<3	<0.2	<0.2	<0.2	<0.2	<2	<2	<1	<1	<1	<1	<1
GW3	1.6.2016	<1	0.2	<1	<1	<1	<0.05	4	440	<10	<50	<1	<1	<1	<2	<1	<1	<3	<0.2	<0.2	<0.2	<0.2	<2	<2	<1	<1	<1	<1	<1
D1	1.6.2016	1	0.8	2	1	<1	<0.05	11	820	<10	<50	<1	<1	<1	<2	<1	<1	<3	<0.2	<0.2	<0.2	<0.2	<2	<2	<1	<1	<1	<1	<1
SS1	1.6.2016	1	0.6	2	3	<1	<0.1	19	860	<20	<50	<1	<1	<1	<2	<1	<10	<3	-	-	-	-	-	-	<1	<1	<1	<1	<1
FES DSI 2022																													
GW1	24.2.2022	1	<0.1	<1	<1	<1	<0.05	3	3	<10	<50	<1	<1	<1	<2	<1	<1	<3	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2
GW2	24.2.2022	<1	<0.1	<1	6	<1	<0.05	<1	5	<10	<50	<1	<1	<1	<2	<1	<1	<3	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2
GW3	24.2.2022	<1	<0.1	<1	<1	<1	<0.05	2	5	<10	<50	<1	<1	<1	<2	<1	<1	<3	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2
GWD101	24.2.2022	1	<0.1	<1	<1	<1	<0.05	3	3	<10	<50	<1	<1	<1	<2	<1	<1	<3	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.2
GWSS101	24.2.2022	5	<0.2	3	4	2	<0.1	7	11	<20	<50	<1	<1	<1	<2	<1	<10	<3	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1
Limit of Resolution (LOR)		1	0.1	1	1	1	0.05	1	1	10	50	1	1	1	2	1	1	2							0.1	0.1	0.1	0.1	0.2
GILs - NEPM (2013) - Groundwater Investigation Levels																													
Fresh Waters [2]		**24/13**	**0.20**	**1.00**	**1.40**	**3.40**	**0.06**	**11.00**	**8.00**			**950**	**-**	**-**	**200**	**350**									**-**	**-**	**-**	**-**	**16**
Fresh Waters - Low Reliability (Trigger Values) [3]													180	80	-	-			0.01	0.03	0.01	0.06	0.3	0.01	0.1	0.01	0.6	1	-
Drinking Water [4]		10.00	2.00	50.00	2000.00	10.00	1.00	20.00	-			1	800	300	600				0.004	0.005					0.01	-	-	-	-
Groundwater HSLs - NEPM (2013) HSL A (SILT)																													
2m to <4m										6	NL	4,000	NL	NL	-	-	NL	NL											
4m to <8m										6	NL	5,000	NL	NL	-	-	NL	NL											
Solubility Limit										9,000	3,000	59,000	61,000	3,900	-	-	170	21,000											
Groundwater HSLs - NEPM (2013) HSL A (CLAY)																													
2m to <4m										NL	NL	5,000	NL	NL	-	-	NL	NL											
4m to <8m										NL	NL	5,000	NL	NL	-	-	NL	NL											
Solubility Limit										9,000	3,000	59,000	61,000	3,900	-	-	170	21,000											

Notes

1	All units are in ug/L
2	Investigation Levels apply to typical slightly-moderately disturbed systems
3	QSAR derived, statistical distribution method used, 95% trigger values applied as per ANZECC 2000
4	Investigation levels are taken from the health values of the Australian Drinking Water Guidelines NHMRC 2011
NL	Non Limiting

Table K3

Sample Information		ALKANES							ALKENES					BENZENES												Other VOC	
SAMPLE ID	GME DATE	TETRACHLOROMETHANE (CARBON TETRACHLORIDE)	TRICHLOROMETHANE (CHLOROFORM)	BROMODICHLOROMETHANE	TRIHALOMETHANES (TOTAL)	1, 2-DICHLOROETHANE	CYCLOHEXANE	1,1,2-TRICHLOROETHANE	CHLOROETHENE (VINYL CHLORIDE)	TRICHLOROETHENE	CIS-1,2-DICHLOROETHENE	1,1-DICHLOROETHENE	TETRACHLOROETHENE (PCE PERCHLOROETHENE)	CHLOROBENZENE	1,2-DICHLOROBENZENE	1,3-DICHLOROBENZENE	1,4-DICHLOROBENZENE	1,2,3-TRICHLOROBENZENE	1,2,4-TRICHLOROBENZENE	ISOPROPYL BENZENE (CUMENE)	SEC-BUTYL BENZENE	1,3,5-TRIMETHYL BENZENE	N-PROPYL BENZENE	N-BUTYL BENZENE	1.2.4 - TRIMETHYLBENZENE	4-ISOPROPYL TOULENE	HEXACHLOROBUTADIENE
FES DSI 2022																												
GW1	24.2.2022	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-	<1
GW2	24.2.2022	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-	<1
GW3	24.2.2022	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-	<1
GWD1	24.2.2022	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-	<1
GWSS1	24.2.2022	<1	<5	<1	<1	<1	-	<1	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	-	<1	-	-	-	-
Limit of Resolution (LOR)		1	1	1	1	1	1	1	10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
GILs - NEPM (2013) - Groundwater Investigation Levels																												
Fresh Waters [2]		NV	NV			NV	NV	6,500	NV	NV	NV	NV	NV	NV	160	260	60	3	85					NV		NV
Fresh Water Low reliability (Trigger Values -99%) [a]			370																								
Fresh Water Low reliability (Trigger Values -95%) [b]										330										30							
Drinking Water [4]		3			250	3			0.30		60	30	50														
US EPA Regional Screening Levels (RSLs) May 2016																												
US EPA MCLs [c]							NV													NV	NV	NV	NV	NV	NV	NV	
US EPA Tapwater [d]							13,000													NV	2,000	120	660	1,000	15	NV	

Notes

1	All units are in ug/L
2	Investigation levels apply to typical slightly-moderately disturbed systems
4	Investigation levels are taken from the health values of the Australian Drinking Water Guidelines NHMRC 2011
-	NV - no derived value
-	" - " Not Tested
a:	QSAR derived, statistical distribution method used, 99% trigger value applied as per ANZECC guidelines for slightly-moderately disturbed systems
b:	QSAR derived, statistical distribution method used, 95% trigger value applied as per ANZECC guidelines for slightly-moderately disturbed systems
c:	US EPA Region 9 RSL (MCLs) utilised in absence of criteria from NEPM 2013. MCLs are legally enforceable USEPA drinking water standards
d:	US EPA Region 9 RSL (Tapwater) utilised in absence of criteria from NEPM 2013. Non cancer

Table K4

	Heavy Metals (mg/kg)								TRH (mg/kg)					BTEX (mg/kg)				PAH (mg/kg)		OCP (mg/kg)		PCB (mg/kg)	
	ARSENIC	CADMIUM	CHROMIUM	COPPER	LEAD	MERCURY	NICKEL	ZINC	C6-C9	C10-C14	C15-C28	C29-C36	C10-C36 [a]	BENZENE	TOLUENE	ETHYL BENZENE	TOTAL XYLENES	BENZO(a)PYRENE	TOTAL PAH	Other OCPs	TOTAL ENDOSULFAN [11]	TOTAL PCB	ASBESTOS ID (Presence / Absence)
NSW EPA Waste Criteria (No Leachates)																							
CT1	100	20	100	-	100	4	40	-	NA	-	-	-	NA	10	288	600	1000	0.8	200	<50	60	<50	Detected
CT2	400	80	400	-	400	16	160	-	NA	-	-	-	NA	40	1152	2400	4000	3.2	800	<50	240	<50	
NSW EPA Waste Criteria (With Leachates)																							
SCC1	500	100	1900	-	1500	50	1050	-	650	-	-	-	10000	18	518	1080	1800	10	200	Total = <50** [4]	108	<50**	
SCC2	2000	400	7600	-	6000	200	4200	-	2600	-	-	-	40000	72	2073	4320	7200	23	800	Total = <50** [4]	432	<50**	
Limit of Resolution (LOR)	4	0.4	5	5	5	0.10	5	5	25	50	100	100	NA	0.2	0.5	1	3	0.05	0.05	0.1	0.1	0.1	
Sample ID	**Depth**	**Date**																					
Benviron Group DSI 2016																							
BH1	0.3	1.6.2016	<4	<0.4	16	32	16	<0.1	26	44	<25	<50	<100	200	200	<0.2	<0.5	<1	<3	<0.05	NIL	-	-	-	-
BH2	0.2	1.6.2016	6	0.4	44	28	20	<0.1	25	51	<25	<50	<100	<100	<100	<0.2	<0.5	<1	<3	<0.05	NIL	-	-	-	-
BH5	0.2	1.6.2016	<4	0.4	50	30	8	<0.1	48	38	<25	<50	<100	<100	<100	<0.2	<0.5	<1	<3	<0.05	NIL	<0.1	<0.1	<0.7	-
BH6	0.3	1.6.2016	<4	0.4	30	66	5	<0.1	31	43	<25	<50	<100	140	140	<0.2	<0.5	<1	<3	<0.05	NIL	-	-	-	-
BH7	0.2	1.6.2016	<4	0.4	32	59	4	<0.1	41	40	<25	<50	<100	340	340	<0.2	<0.5	<1	<3	<0.05	NIL	-	-	-	-
BH8	0.2	1.6.2016	<4	<0.4	49	21	6	<0.1	53	39	<25	<50	<100	<100	<100	<0.2	<0.5	<1	<3	<0.05	0.11	-	-	-	-
BH9	0.2	1.6.2016	<4	<0.4	73	37	6	<0.1	53	34	<25	<50	<100	120	120	<0.2	<0.5	<1	<3	<0.05	0.14	-	-	-	-
BH10	0.2	1.6.2016	<4	<0.4	38	38	4	<0.1	48	33	<25	<50	160	590	750	<0.2	<0.5	<1	<3	<0.05	0.13	<0.1	<0.1	<0.7	-
BH11	0.2	1.6.2016	<4	0.5	81	37	6	<0.1	89	51	<25	<50	<100	110	110	<0.2	<0.5	<1	<3	<0.05	0.19	<0.1	<0.1	<0.7	-
BH12	0.2	1.6.2016	<4	0.4	60	38	8	<0.1	67	43	<25	<50	<100	260	260	<0.2	<0.5	<1	<3	<0.05	0.56	-	-	-	-
BH13	0.2	1.6.2016	<4	0.5	75	41	10	<0.1	67	50	<25	<50	<100	400	400	<0.2	<0.5	<1	<3	<0.05	0.17	-	-	-	-
BH14	0.3	1.6.2016	<4	<0.4	75	57	7	<0.1	65	55	<25	<50	130	450	580	<0.2	<0.5	<1	<3	<0.05	0.23	<0.1	<0.1	<0.7	-
BH15	0.2	1.6.2016	<4	0.4	73	30	13	<0.1	73	45	<25	<50	<100	<100	<100	<0.2	<0.5	<1	<3	<0.05	NIL	<0.1	<0.1	<0.7	-
BH16	0.2	1.6.2016	11	0.6	31	65	27	<0.1	29	100	<25	<50	<100	<100	<100	<0.2	<0.5	<1	<3	<0.05	NIL	-	-	-	-
BH17	0.3	1.6.2016	4	0.5	64	51	12	<0.1	64	54	<25	<50	<100	130	130	<0.2	<0.5	<1	<3	<0.05	0.22	-	-	-	-
BH18	0.2	1.6.2016	7	0.4	24	28	19	<0.1	20	55	<25	<50	<100	<100	<100	<0.2	<0.5	<1	<3	<0.05	NIL	-	-	-	-
BH19	0.2	1.6.2016	<4	0.5	100	31	10	<0.1	82	53	<25	<50	<100	130	130	<0.2	<0.5	<1	<3	<0.05	0.2	-	-	-	-
BH20	0.3	1.6.2016	5	0.5	72	28	17	<0.1	61	49	<25	<50	<100	<100	<100	<0.2	<0.5	<1	<3	<0.05	0.13	<0.1	<0.1	<0.7	-
BH21	0.3	1.6.2016	<4	<0.4	66	26	10	<0.1	46	36	<25	<50	<100	<100	<100	<0.2	<0.5	<1	<3	<0.05	NIL	-	-	-	-
BH22	0.2	1.6.2016	<4	0.5	84	29	11	<0.1	65	53	<25	<50	<100	<100	<100	<0.2	<0.5	<1	<3	<0.05	NIL	-	-	-	-
BH23	0.2	1.6.2016	<4	0.5	110	38	6	<0.1	87	51	<25	<50	<100	<100	<100	<0.2	<0.5	<1	<3	<0.05	0.28	-	-	-	-
BH24	0.3	1.6.2016	<4	0.5	120	36	5	<0.1	98	63	<25	<50	<100	<100	<100	<0.2	<0.5	<1	<3	<0.05	0.29	-	-	-	-
BH25	0.2	1.6.2016	<4	<0.4	62	22	9	<0.1	57	43	<25	<50	<100	<100	<100	<0.2	<0.5	<1	<3	<0.05	0.15	<0.1	<0.1	<0.7	-
BH26	0.3	1.6.2016	<4	<0.4	43	10	8	<0.1	34	26	<25	<50	<100	<100	<100	<0.2	<0.5	<1	<3	<0.05	NIL	-	-	-	-
BH27	0.3	1.6.2016	6	<0.4	33	15	12	<0.1	23	23	<25	<50	<100	<100	<100	<0.2	<0.5	<1	<3	<0.05	NIL	-	-	-	-
BH28	0.2	1.6.2016	<4	<0.4	7	6	9	<0.1	6	12	<25	<50	<100	<100	<100	<0.2	<0.5	<1	<3	<0.05	NIL	-	-	-	-
BH29	0.3	1.6.2016	<4	<0.4	8	14	89	<0.1	11	64	<25	<50	<100	<100	<100	<0.2	<0.5	<1	<3	<0.05	0.98	-	-	-	-
BH30	0.2	1.6.2016	<4	<0.4	36	12	34	<0.1	29	45	<25	<50	<100	<100	<100	<0.2	<0.5	<1	<3	<0.05	NIL	-	-	-	-
D1 (BH20)	-	1.6.2016	5	0.4	62	24	17	<0.1	49	40	<25	<50	<100	<100	<LOR	<0.2	<0.5	<1	<3	<0.05	0.11	<0.1	<0.1	<0.7	-
D2 (BH11)	-	1.6.2016	<4	<0.4	65	33	8	<0.1	64	42	<25	<50	<100	<100	<LOR	<0.2	<0.5	<1	<3	<0.05	0.23	<0.1	<0.1	<0.7	-
D3 (BH14)	-	1.6.2016	4	0.4	63	32	19	<0.1	46	31	<25	<50	140	<100	140	<0.2	<0.5	<1	<3	<0.05	0.19	<0.1	<0.1	<0.7	-
SS1 (BH20)	-	1.6.2016	4.4	<0.4	68	23	14	<0.05	65	53	<25	<50	<100	<100	<LOR	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	<0.1	0.05	<0.5	-
SS2 (BH11)	-	1.6.2016	2.8	<0.4	110	34	6.2	<0.05	120	70	<25	<50	<100	<100	<LOR	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	<0.1	0.05	<0.5	-
SS3 (BH14)	-	1.6.2016	3.2	<0.4	94	46	11	<0.05	78	59	<25	<50	140	<100	140	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	<0.1	0.05	<0.5	-
Foundation Earth Sciences DSI 2021																							
BH101	0.3-0.4	17.2.2022	<4	<0.4	30	20	19	<0.1	27	34	<25	<50	<100	<100	<LOR	<0.2	<0.5	<1	<1	<0.05	<0.05	<0.1	<0.1	<0.1	ND
BH102	0.2-0.3	17.2.2022	4	<0.4	12	13	26	<0.1	8	42	<25	<50	<100	<100	<LOR	<0.2	<0.5	<1	<1	<0.05	<0.05	<0.1	<0.1	<0.1	-
BH103	0.2-0.3	17.2.2022	<4	<0.4	20	4	6	<0.1	3	9	<25	<50	<100	<100	<LOR	<0.2	<0.5	<1	<1	<0.05	<0.05	<0.1	<0.1	<0.1	ND
BH104	0.2-0.3	17.2.2022	4	<0.4	48	20	9	<0.1	37	26	<25	<50	<100	<100	<LOR	<0.2	<0.5	<1	<1	<0.05	<0.05	<0.1	<0.1	<0.1	ND
BH105	0.4-0.5	17.2.2022	7	<0.4	13	19	33	<0.1	13	51	<25	<50	<100	<100	<LOR	<0.2	<0.5	<1	<1	0.3	2.9	<0.1	<0.1	<0.1	-
BH106	0.3-0.4	17.2.2022	<4	<0.4	13	23	6	<0.1	47	20	<25	<50	<100	<100	<LOR	<0.2	<0.5	<1	<1	<0.05	<0.05	<0.1	<0.1	<0.1	ND
BH107	0.2-0.3	17.2.2022	<4	<0.4	11	17	12	<0.1	11	14	<25	<50	<100	<100	<LOR	<0.2	<0.5	<1	<1	<0.05	<0.05	<0.1	<0.1	<0.1	ND
BH107	0.8-0.9	17.2.2022	<4	<0.4	11	17	16	<0.1	14	23	<25	<50	<100	<100	<LOR	<0.2	<0.5	<1	<1	<0.05	<0.05	<0.1	<0.1	<0.1	-
BH108	0.4-0.5	17.2.2022	<4	<0.4	10	42	4	<0.1	100	31	<25	<50	<100	<100	<LOR	<0.2	<0.5	<1	<1	<0.05	<0.05	<0.1	<0.1	<0.1	ND
BH109	0.3-0.4	17.2.2022	<4	<0.4	22	20	15	<0.1	35	30	<25	<50	<100	<100	<LOR	<0.2	<0.5	<1	<1	<0.05	<0.05	<0.1	<0.1	<0.1	-
BH110	0.3-0.4	17.2.2022	<4	<0.4	11	12	17	<0.1	8	16	<25	<50	<100	<100	<LOR	<0.2	<0.5	<1	<1	<0.05	<0.05	<0.1	<0.1	<0.1	ND
D101 (BH109)	-	17.2.2022	<4	<0.4	9	43	3	<0.1	95	30	<25	<50	<100	<100	<LOR	<0.2	<0.5	<1	<1	<0.05	<0.05	<0.1	<0.1	<0.1	-
SS101 (BH109)	-	17.2.2022	<2	<0.4	46	45	<5	<0.1	150	64	<25	<50	<100	<100	<LOR	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	<0.05	<0.05	<0.1	-

Notes

1 CT1, CT2 : Total concentrations used for defining General Solid Waste and Restricted Solid Waste respectively (without TCLP)
2 SCC1, SCC2 : Total Concentration used for defining General Solid Waste and Restricted Solid Waste respectively (in conjunction with TCLP)
3 Concentrations in GREEN exceed the CT1 criteria
4 Concentrations in RED exceed the CT2 criteria
5 Concentrations in BLUE exceed the SCC1 criteria
6 Concentrations in ORANGE exceed the SCC2 criteria
7 Concentrations in YELLOW indicate the presence of Asbestos
8 NA = Not Applicable
9 " - " Not Tested
10 *** Indicates Retest Result
11 Total Endosulfan = Endosulfan I, Endosulfan II and Endosulfan Sulphate

APPENDIX L: CALIBRATION CERTIFICATE

© Foundation Earth Sciences 2022

Multi Parameter Water Meter

Instrument **YSI Quatro Pro Plus**
Serial No. **18J104315**

airmet
Air-Met Scientific Pty Ltd
1300 137 067

Item	Test	Pass	Comments
Battery	Charge Condition	✓	
	Fuses	✓	
	Capacity	✓	
Switch/keypad	Operation	✓	
Display	Intensity	✓	
	Operation (segments)	✓	
Grill Filter	Condition	✓	
	Seal	✓	
PCB	Condition	✓	
Connectors	Condition	✓	
Sensor	1. pH	✓	
	2. mV	✓	
	3. EC	✓	
	4. D.O	✓	
	5. Temp	✓	
Alarms	Beeper		
	Settings		
Software	Version		
Data logger	Operation		
Download	Operation		
Other tests:			

Certificate of Calibration

This is to certify that the above instrument has been calibrated to the following specifications:

Sensor	Serial no	Standard Solutions	Certified	Solution Bottle Number	Instrument Reading
1. pH 10.00		pH 10.00		378646	pH 9.75
2. pH 7.00		pH 7.00		377339	pH 7.06
3. pH 4.00		pH 4.00		380327	pH 4.07
4. mV		229.6mV		365451/374424	229.5mV
5. EC		2.76mS		377099	2.76mS
6. D.O		0.00ppm		371864	0.00ppm
7. Temp		22°C		MultiTherm	21.3°C

Calibrated by: Gary Needs

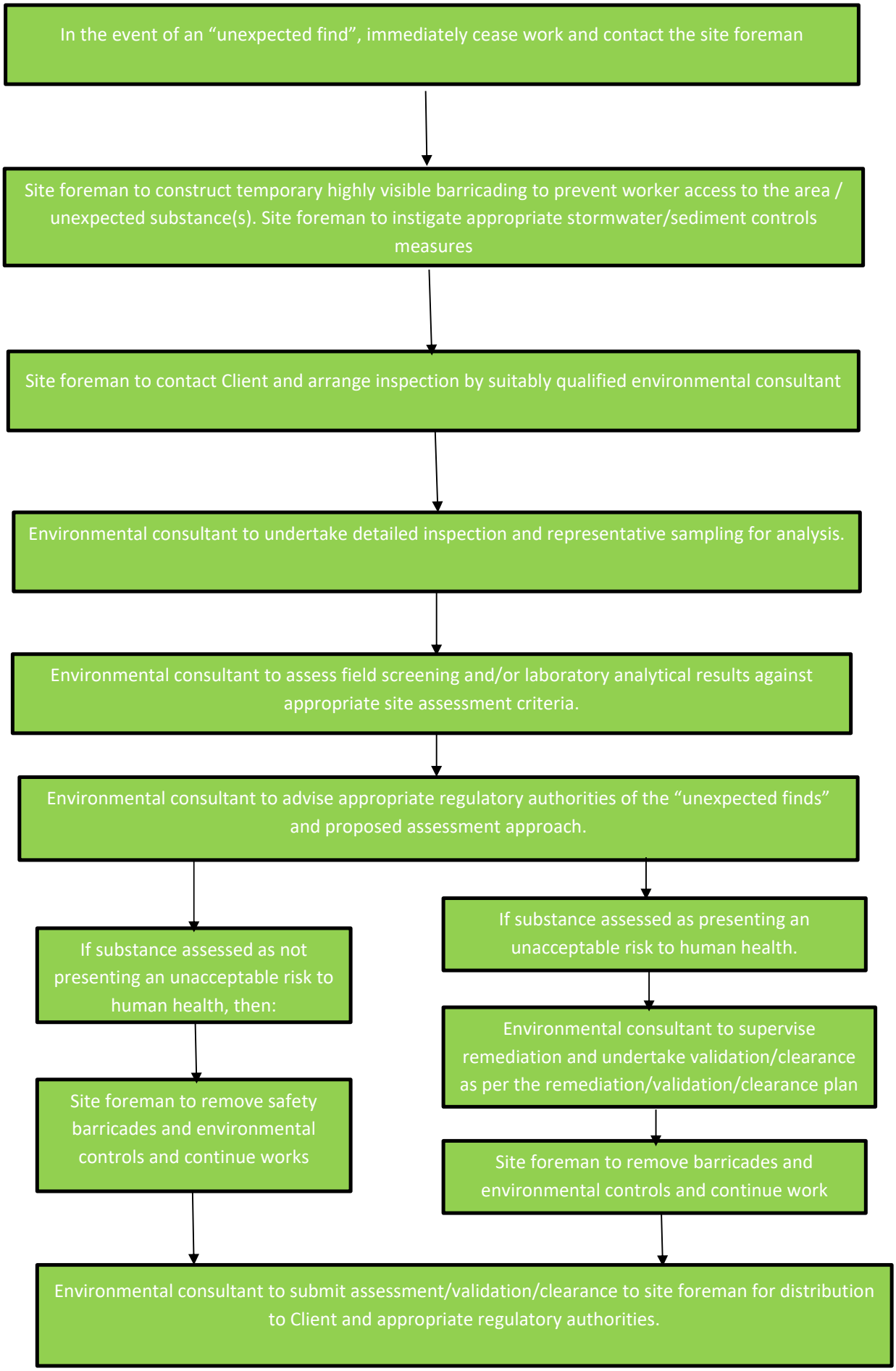
Calibration date: **22/02/2022**

Next calibration due: **24/03/2022**

APPENDIX M: UNEXPECTED FINDS PROTOCOL

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APPENDIX N: LAND TITLE INFORMATION

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Direct Info
Quick and easy online

Title Search

08/08/2016 12:00 PM

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: AUTO CONSOL 15118-2

SEARCH DATE	TIME	EDITION NO	DATE
8/8/2016	12:00 PM	7	23/12/2013

LAND

LAND DESCRIBED IN SCHEDULE OF PARCELS
AT PUNCHBOWL
LOCAL GOVERNMENT AREA CANTERBURY-BANKSTOWN
PARISH OF BANKSTOWN COUNTY OF CUMBERLAND
TITLE DIAGRAM SEE SCHEDULE OF PARCELS

FIRST SCHEDULE

THE CROATIAN CLUB LIMITED

SECOND SCHEDULE (7 NOTIFICATIONS)

---

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 C767645 EASEMENT FOR DRAINAGE AFFECTING THE PARTS OF LOT 15 IN DP132440 & LOT A IN DP378634 SHOWN SO BURDENED IN THE TITLE DIAGRAMS & THE PART OF LOT 6 IN DP5245 SHOWN 11 FT WIDE & 12 FT WIDE IN DP189382
3 F928154 EASEMENT FOR TRANSMISSION LINE AFFECTING THE PART OF LOT A IN DP378634 SHOWN IN PLAN WITH F928154
Z944756 TRANSFER OF EASEMENT TO SYDNEY ELECTRICITY
4 7570101 LEASE TO OPTUS MOBILE PTY LIMITED OF PART SHOWN HATCHED IN PLAN WITH 7570101 COMMENCES 23/8/2010. EXPIRES: 22/8/2015.
5 7570102 LEASE TO OPTUS MOBILE PTY LIMITED OF PART SHOWN HATCHED IN PLAN WITH 7570102 COMMENCES 23/8/2015. EXPIRES: 22/8/2020.
6 AG686225 MORTGAGE TO ALFRED GAIL
7 AI234179 MORTGAGE TO ALFRED GAIL

NOTATIONS

UNREGISTERED DEALINGS: NIL

SCHEDULE OF PARCELS	TITLE DIAGRAM
LOT 6 IN DP5245	DP5245

Direct Info Pty Ltd - ABN 25 160 378 263 *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.

Direct Info
Quick and easy online

LOT 15 IN DP132440	DP132440
LOT A IN DP378634	DP378634.

*** END OF SEARCH ***

Punchbowl PRINTED ON 8/8/2016

* 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.
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Direct Info Pty Ltd - ABN 25 160 378 263 *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.

Direct Info
Quick and easy online

Historical Search

08/08/2016 12:07 PM

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

8/8/2016 12:07PM

FOLIO: A/378634

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 15118 FOL 2

Recorded	Number	Type of Instrument	C.T. Issue
29/7/1989		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
21/5/1996		CONVERTED TO AUTO CONSOL 15118-2	CONSOL CREATED CT NOT ISSUED

*** END OF SEARCH ***

Direct Info Pty Ltd - ABN 25 160 378 263 *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.

Req:R184529 /Doc:CT 15118-002 CT /Rev:16-Dec-2010 /Sts:OK.SC /Pgs:ALL /Prt:08-Aug-2016 12:09 /Seq:1 of 2
Ref:Punchbowl /Src:Q

CERTIFICATE OF TITLE

15118002

NEW SOUTH WALES

REAL PROPERTY ACT, 1900

Vol. 15118 Fol. 2

CANCELLED

Auto Gasol 15118-2

EDITION 7 SEE AUTO FOLIO

ISSUED 9 1983

First Title Old System

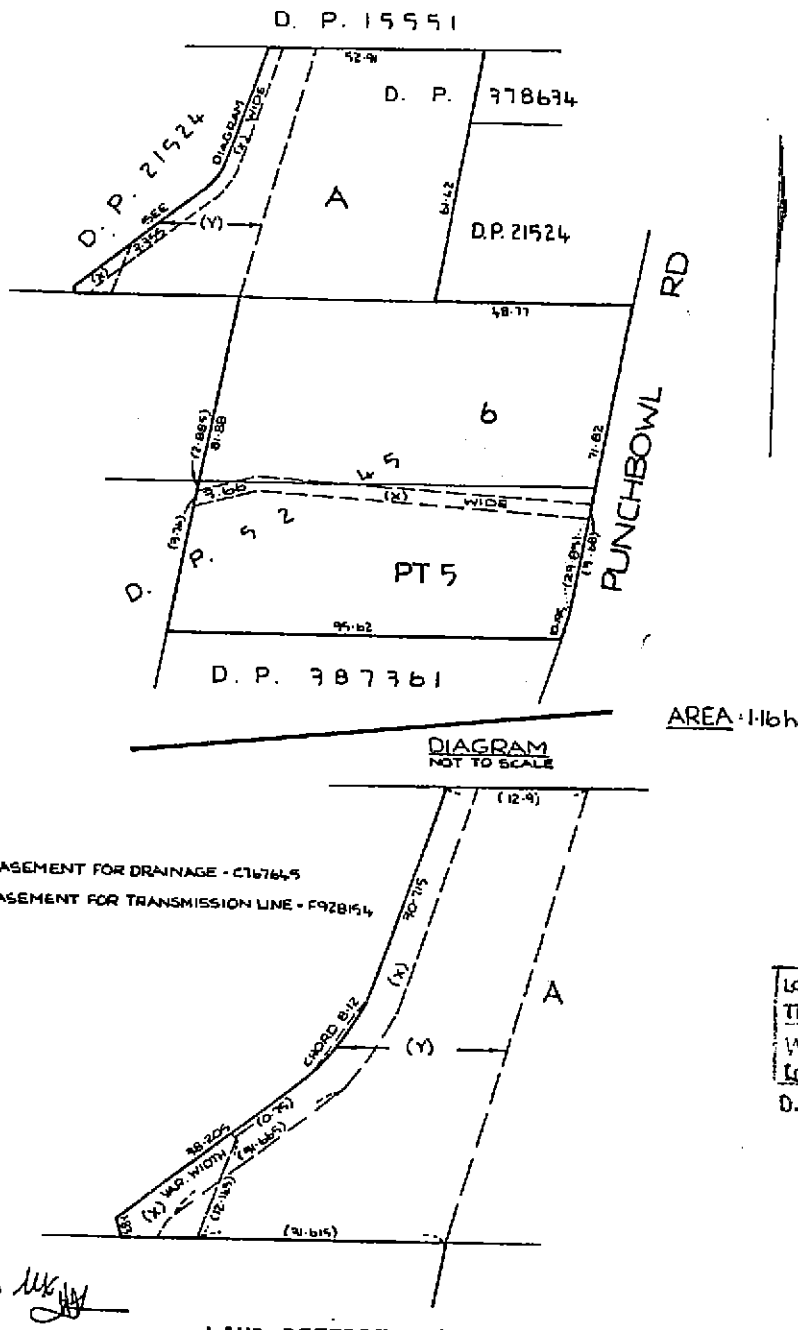
Prior Title Vol. 6554 Fol. 239

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

Registrar General.

PLAN SHOWING LOCATION OF LAND

LENGTHS ARE IN METRES



LOT A D.P.378634, LOT 6 & THE PT LOT 5 DP 5245 WITHIN DESCRIBED IS NOW LOT A D.P.378634, LOT 6 D.P.5245 & LOT 15 D.P.132440.

LAND REFERRED TO

Lot A in Deposited Plan 378634 and Lot 6 and the part of Lot 5 in Deposited Plan 5245 shown in the plan hereon at Punchbowl in the City of Bankstown Parish of Bankstown County of Cumberland.

FIRST SCHEDULE

THE CROATIAN CLUB LIMITED.

SECOND SCHEDULE

1. Reservations and conditions in the Crown Grant.
2. C767645 Easements for drainage affecting the lands shown so burdened in the plan hereon.
3. F928154 Easement for transmission line affecting the land shown so burdened in the plan hereon.
4. ~~T567768 Mortgage to Cragford Pty. Limited.~~ V89565

PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON (Page 1) Vol. 15118 Fol. 2

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

Req:R184529 /Doc:CT 15118-002 CT /Rev:16-Dec-2010 /Sts:OK.SC /Pgs:ALL /Prt:08-Aug-2016 12:09 /Seq:2 of 2
Ref:Punchbowl /Src:Q

Vol. 15118 Fol. 2

L.O. 1066 D. West, Government Printer

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR | Registrar General

CANCELLED

SEE AUTO FOLIO

SECOND SCHEDULE (continued)

PARTICULARS	Registrar General	CANCELLATION
V89566 Mortgage to Commonwealth Trading Bank of Australia. Registered 9-8-1984. F928154 Easement Z944756 Transfer of Easement to Sydney Electricity Registered 11-2-1993.		

NOTATIONS AND UNREGISTERED DEALINGS

V8956 6 dm — 66 m1 Z944756 T(R)		

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

Req:R184705 /Doc:CT 06554-239 CT /Rev:09-Aug-2012 /Sts:OK.OK /Prt:08-Aug-2016 12:20 /Seq:1 of 2
Ref:Punchbowl /Src:Q

202.

Thomson BL3992

75051—2 4.51

Appn. No. 5578

Reference to last Certificates

Vol. 5987 Fol. 214

" 6007 " 133

Deposited Plan No. 21524 (as to part)

New South Wales.

[CERTIFICATE OF TITLE.]

CANCELLED W

Register Book.

Vol. 6554 Fol. 239

CHARLES HENDERSON & SON PTY. LIMITED, Transferee as to part under Instrument of Transfer No.F587320 and as to the other part by virtue of Certificate of Title Volume 5987 Folio 214 now surrendered for consolidation is now the proprietor of an Estate in Fee Simple,

subject nevertheless to the reservations and conditions, if any, contained in the Grant hereinafter referred to, and also subject to such encumbrances, liens, and interests as are notified hereon, in That piece of land situated

in the Municipality of Bankstown Parish of Bankstown , and County of Cumberland

containiug Two acres three roods eighteen and three quarters perches or thereabouts as shown in the plan hereon and therein edged red being Lot A in plan annexed to the said Instrument of Transfer No.F587320 and Lots 5 and 6 in Deposited Plan No. 5245 and being part of 22 acres (Portion 102 of Parish) originally granted to Samuel Pitt by Crown Grant dated the 8th day of February 1836.

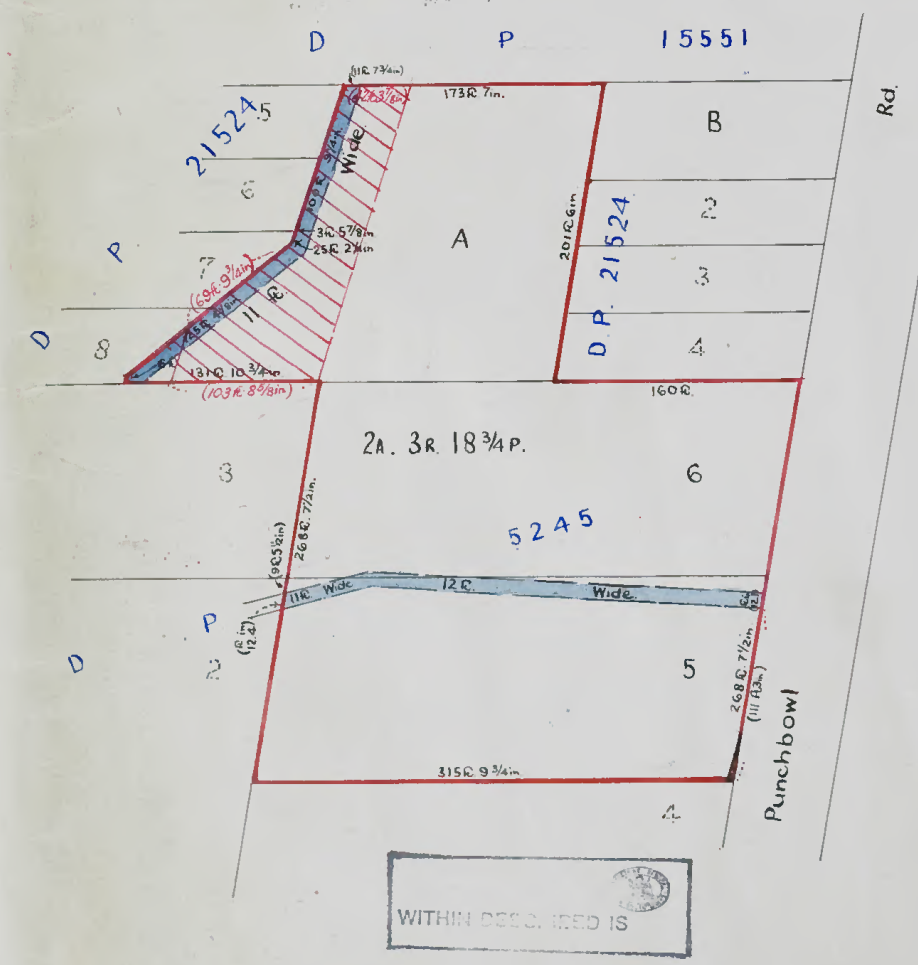
In wituess whereof I have hereunto signed my name aud affixed my Seal, this Second day of September , 1952

Signed in the presenee of J. McKern

V.6554 F.239

J. Pells

Registrar-General.



WITHIN DESCRIBED IS

Scale 100 feet to one inch.

NOTIFICATION REFERRED TO

Amongst the reservations and conditions contained in the Grant above referred to are reservations of all mines of gold and of silver.

J. Pells

Registrar General

No.C767645 Resumption of easement for drainage in favour of the Minister for Public Works over the pieces of land coloured blue in the plan hereon.

J. Pells

Registrar General

No.F411236 Mortgage dated the 28th day of February 1951 from Charles Henderson & Son Pty. Limited to The English Scottish and Australian Bank Limited of part of the land above described Produced and entered the 9th day of March 1951 at 46 minutes past 11 o'clock in the forenoon.

J. Pells

Registrar General

Mtgd

No. F626248 MORTGAGE dated 19th May 1952 from the said Charles Henderson & Son Pty Limited to The English Scottish and Australian Bank Limited of Lot A. of the land within described

Produced 4th June 1952 and entered 23rd September 1952 at 12 o'clock noon.

J. Pells

REGISTRAR GENERAL

F587320 1R2

£6 16 2nd SK

£92 15 4 MR 4.1.4 SK

35K

No. F928154 NOTICE OF RESUMPTION

The Electricity Commission of New South Wales

is the proprietor of an easement of section that part of the land within described shown by red hatching and blue colour Ratched red on the plan hereon, freed from all other interests.

Produced 9th September, 1953, and entered 28th September, 1953, at 12 o'clock ~~in the~~ noon.

J. Wells

Registrar General.

No. G 199290 DISCHARGE of within mortgage F411234 dated 12th November 1954

Produced 24th November 1954 and entered 21st December 1954 at 12 o'clock ~~in the~~ noon.

J. Wells

REGISTRAR GENERAL.

No. G199291 DISCHARGE of within mortgage F411234 dated 12th November 1954

Produced 24th November 1954 and entered 21st December 1954 at 12 o'clock ~~in the~~ noon.

J. Wells

REGISTRAR GENERAL.

No. G199292 MORTGAGE dated 9th November 1954 from the said Clarke Henderson & Son Pty Limited to The Commercial Banking Company of Sydney Limited

Produced 24th November 1954 and entered 21st December 1954 at 12 o'clock ~~in the~~ noon.

J. Wells

REGISTRAR GENERAL.

MORTGAGE No. G199292 has been discharged.

See G911861 Entered 24th March 1958

J. Wells

REGISTRAR GENERAL.

Clansville Pty Limited is

now the registered proprietor of the land within described

See TRANSFER No. M27134 dated 19th August 1958

Entered 29th August 1958.

Jawatson

REGISTRAR GENERAL

No. T65758 MORTGAGE dated 9th September 1962 to Bank of New South Wales

Entered 2nd October 19 62.

Discharged Q546416 23-6-1978

Jawatson

REGISTRAR GENERAL

No. K911094 Caveat

DATED 27th December 1967

PRODUCED 29th December 1967

ENTERED 10th January 1968

withdrawn Q546415 23-6-1978

Jawatson

REGISTRAR GENERAL.

MORTGAGE No. J457158 has been discharged.

as regards lot 8 in D.P 236825

See M81549 Entered 22nd December 1970

Jawatson

REGISTRAR GENERAL

The Commissioner for Main Roads is

now the registered proprietor of the land within described.

Shown hatched black in the Plan hereon being Lot 8 in D.P 236825

See TRANSFER No. M81549 dated 28th October 1970 (with consent of Caveator)

Entered 22nd December 1970

Jawatson

REGISTRAR GENERAL

Transfer Q546417 Cragford Pty Limited is now the registered proprietor of the land within described excluding land hatched black on plan hereon being Lot 8 in DP 236825 registered 23.6.1978

Discharged T567766

Registrar General.

Encumbrance Q546418 to Cheyne Limited excluding land hatched black on plan hereon being Lot 8 in DP 236825 registered 23.6.1978

Discharged T567765 10.8.1983.

Registrar General

Mortgage Q546419 to Euro-Pacific Finance Corporation Limited excluding land hatched black on plan hereon being Lot 8 in DP 236825 registered 23.6.1978

Discharged T567766 10.8.1983

Registrar General

Caveat Q556371 by Euro-Pacific Finance Corporation Limited excluding land hatched black on plan hereon being Lot 8 in DP 236825 registered 23.6.1978

Withdrawn T567764 10.8.1983

Registrar General

REGISTERED PROPRIETOR The Croation Club Limited excluding Lot 8 in D.P.236825 by Transfer T567767 Registered 10.8.1983

REGISTRAR GENERAL.

T567768 Mortgage to Cragford Pty Limited excluding Lot 8 in D.P. 236825 Registered 10.8.1983

The land in this dealing is now comprised in Vol. 15118 Fol. 2

REGISTRAR GENERAL.

FOLIO CANCELLED AS TO RESIDUE
NEW FOLIO CREATED FOR 8/236825

Req:R184917 /Doc:CT 06007-133 CT /Rev:08-Aug-2012 /Sts:OK.OK /Prt:08-Aug-2016 12:31 /Seq:1 of 2
Ref:Punchbowl /Src:Q

201

Appn. No. 5578

Reference to Last Certificate

Vol. 3847 Fol.162

New South Wales

5237—1 4.49

[CERTIFICATE OF TITLE.]

ORDER NO. F1355

CANCELLED W

REGISTER BOOK.

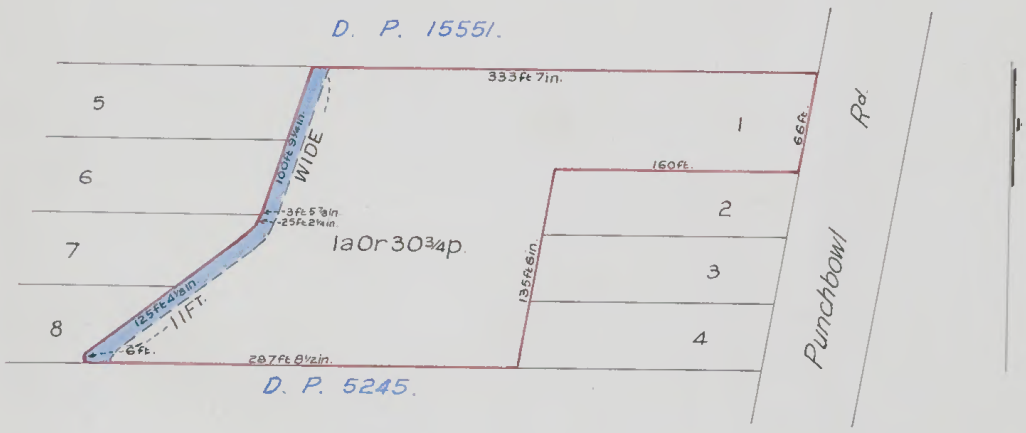
Vol. 6007 Fol. 133

ROBERT WILLIAM ARTHUR RICHARDSON of Punchbowl, Tramway Pensioner, by virtue of Certificate of Title Volume 3847 Folio 162 now surrendered is now the proprietor of an Estate in Fee Simple subject nevertheless to the reservations and conditions, if any, contained in the Grant hereinafter referred to, and also subject to such encumbrances, liens, and interests as are notified hereon, in That piece of land situated in the Municipality of Bankstown Parish of Bankstown , and County of Cumberland containing One acre thirty and three quarters perches or thereabouts as shown in the plan hereon and therein edged red being lot 1 in Deposited Plan No. 21524 and being part of 22 acres (Portion 102 of Parish) originally granted to Samuel Pitt by Crown Grant dated the 8th day of February 1836.

In witness whereof I have hereunto signed my name and affixed my Seal, this Eighteenth day of August , 1949.

Signed in the presence of

Registrar-General.



F1355 L.M. 6/10

Scale:-100feet to one inch

NOTIFICATION REFERRED TO

Amongst the reservations and conditions contained in the Grant above referred to are reservations of all mines of Gold and of Silver.

Registrar General

No. C767645 Resumption of Easement for Drainage in favour of The Minister for Public Works over the piece of land 11 feet wide and of variable width coloured blue in plan hereon.

Easement now vested in M.W.S. & D. Board per Gaz. 7.7.50 Fol. 2070 M.W. 24.7.50

Registrar General

No. F587320 TRANSFER dated 26th October 1951 from the said Robert William Arthur Richardson to Charles Henderson & Son Pty. Limited of part

of the land within described

Produced 12th December 1952 and entered 4th June 1953 at 12 o'clock ~~in the~~ noon.

As to land in this transfer this ~~Certificate~~ is cancelled and new Certificate issued Vol. 6554 Fol. 239

REGISTRAR GENERAL

This deed is classified and Certificate of Title issued Vol 6554 Fol 238 For Residue

J. Wells

OF 559566 REGISTRAR GENERAL.

F587320

F559566 SC

F587320 10 JAN

12 JAN 48 M

Req:R184929 /Doc:CT 05987-214 CT /Rev:08-Aug-2012 /Sts:OK.OK /Prt:08-Aug-2016 12:32 /Seq:1 of 2
Ref:Punchbowl /Src:Q

201

Appn. No. 5578

Reference to last certificate

Vol. 3845 Fol. 49

New South Wales.

5237—1 4.49

[CERTIFICATE OF TITLE.]

ORDER NO. D971884

RESIDUE AFTER TRANSFER NO.D985026

REGISTER BOOK.

Vol. 5987 Fol. 214

CANCELLED

CHARLES HENDERSON & SON PTY. LIMITED, by virtue of Certificate of Title Volume 3845 Folio 49 now surrendered as to Residue after Transfer No.D985026 is now the proprietor of an Estate in Fee Simple, subject nevertheless to the reservations and conditions, if any, contained in the Grant hereinafter referred to, and also subject to such encumbrances, liens, and interests as are notified hereon, in That piece of land situated in the Municipality of Bankstown Parish of Bankstown , and County of Cumberland containing One acre three roods twenty six perches or thereabouts as shown in the plan hereon and therein edged red being Lots 5 and 6 in Deposited Plan No.5245 and being part of 22 acres (Portion 102 of Parish) originally granted to Samuel Pitt by Crown Grant dated the 8th day of February 1836.

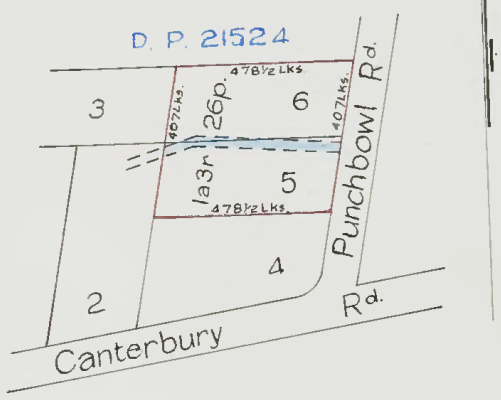
In witness whereof I have hereunto signed my name and affixed my Seal, this Fourteenth day of July , 1949

Signed in the presence of G. McKern

J Wells

Registrar-General.

REGISTRAR GENERAL NEW SOUTH WALES



D971884 6.M

Scale:- 4 chains to one inch.

NOTIFICATION REFERRED TO

Amongst the reservations and conditions contained in the Grant above referred to are reservations of all mines of Gold and of Silver.

J Wells

Registrar General.

REGISTRAR GENERAL NEW SOUTH WALES

No.C767645 Resumption of Easement for Drainage in favour of the Minister for Public Works affecting the piece of land coloured blue in plan hereon.

Easement now excised in M.W.S.& D.Board Dec'ay 7.7.50 M.2076 M.W.S. 24.7.50

J. Wells

Registrar General.

REGISTRAR GENERAL NEW SOUTH WALES

No. F240768 MORTGAGE dated 7th June 1950
from the said Charles Henderson & Son Pty Limited
To the Commercial Banking Company of Sydney Limited

Produced and entered 14th June 1950
at 4 mts. p.t. 10 o'clock in the afternoon.

J. Wells

REGISTRAR GENERAL.

REGISTRAR GENERAL NEW SOUTH WALES

No. F411235 DISCHARGE of within mortgage
No. F240768 dated 5th March 1951
Produced and entered 9th March 1951
at 46 mts p.t 11 o'clock in the fore noon.

J. Wells

REGISTRAR GENERAL

REGISTRAR GENERAL NEW SOUTH WALES

No. F411236 MORTGAGE dated 28th February 1951
from the said Charles Henderson & Son Pty Limited
To The English Scottish and Australian Bank Limited

Produced and entered 9th March 1951
at 46 mts p.t 11 o'clock in the fore noon.

J. Wells

REGISTRAR GENERAL

REGISTRAR GENERAL NEW SOUTH WALES

This deed is cancelled and Certificate of Title issued
Vol 6554 Fol 239
Consolidation 6554

J. Wells

F.F 587320 REGISTRAR GENERAL.

F587320 Canal

Req:R185136 /Doc:CT 03847-162 CT /Rev:04-Aug-2012 /Sts:OK.OK /Prt:08-Aug-2016 12:48 /Seq:1 of 2
Ref:Punchbowl /Src:Q

Appn. No. 5578

Reference to last certificate

Vol. 2393 Fol. 82

New South Wales.

[CERTIFICATE OF TITLE.]

REGISTER BOOK,

VOL. 3847 FOL. 162

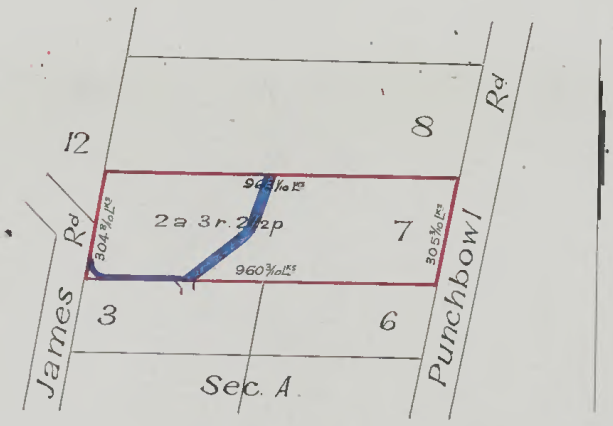
CANCELLED

MARGARET RICHARDSON wife of Robert William Arthur Richardson of Redfern, Tramway Employee, Transferee under Instrument of Transfer from Alfred Morris No.B 330661 is now the proprietor of an Estate in Fee Simple subject nevertheless to the reservations and conditions, if any, contained in the Grants hereinafter referred to, and also subject to such encumbrances, liens, and interests, as are notified hereon, in that piece of land situated in the Municipality of Bankstown Parish of Bankstown , and County of Cumberland containing Two acres three roods twenty one and one half perches , or thereabouts, as shown in the Plan hereon and therein edged red, being Lot 7 of Section A in a plan deposited in the Land Titles Office, Sydney, No. 5245 and being part of 100 acres (Portion 44 of Parish) originally granted to James Ruse by Crown Grant dated the first day of January One thousand eight hundred and ten and also part of 22 acres (Portion 102 of Parish) originally granted to Samuel Pitt by Crown Grant dated the eighth day of February One thousand eight hundred and thirty six. Which said Grants are delineated in the Public Map of the said Parish in the Department of Lands.

In witness whereof I have hereunto signed my name and affixed my Seal, this first day of April 1926.

Signed in the presence of L. Mowat.

Registrar General.



Scale 4Chns to one inch

RMS.

NOTIFICATION REFERRED TO.

Amongst the reservations and conditions contained in the Grants above referred to are reservations in the Grant of 22 acres (Portion 102 of Parish) of all mines of Gold and of Silver.

Registrar General.

No. C 767.645. *NOTICE OF RESUMPTION An Easement affecting that Part of the land within described shown by blue color on the plan hereon has become vested in THE MINISTER FOR PUBLIC WORKS as Constructing Authority for the purposes of the Public Works Act, 1912 by operation of the said Act and in pursuance of the Gazette Notice in connection therewith. (Freed and discharged from all trusts, obligations, estates, interests, contracts, charges, rates, rights of way or other easements whatsoever) Produced 22nd. March 1939 and entered 28th. June 1939 at 12 o'clock noon.*

Registrar General.

No. D849379 APPLICATION BY TRANSMISSION

Robert William Arthur Richardson of Punchbowl Tramway Pensioner is now the registered Proprietor of the land within described in pursuance of the above Application Produced 16th June 1948 and entered 16th July 1948 at 12 o'clock ~~in the~~ noon.

J. Wells

REGISTRAR GENERAL.

No. F1354 TRANSFER dated 23rd. April 1949 from the said Robert William Arthur Richardson to Maxwell Barry Brayley of Punchbowl, Telegraphist of Lot 5 D.P. 21524 of the land within described Produced 27th April 1949 and entered 26th May 1949 at 12 o'clock ~~in the~~ noon.

As to land in this transfer this ~~Certificate~~ cancelled and new Certificate issued Vol. 6007 Fol. 132

J. Wells

REGISTRAR GENERAL.

No. F1356 TRANSFER dated 23rd. April 1949 from the said Robert William Arthur Richardson to Arthur Ellis Kirkland of Canterbury, Engineer of Lot 3, D.P. 21524 of the land within described Produced 27th April 1949 and entered 26th May 1949 at 12 o'clock ~~in the~~ noon.

As to land in this transfer this ~~Certificate~~ cancelled and new Certificate issued Vol. 6007 Fol. 134

J. Wells

REGISTRAR GENERAL.

Req:R185136 /Doc:CT 03847-162 CT /Rev:04-Aug-2012 /Sts:OK.OK /Prt:08-Aug-2016 12:48 /Seq:2 of 2
Ref:Punchbowl /Src:Q

No. F 1357 TRANSFER dated 23rd April 1949
from the said Robert William Arthur Richardson to
Milton Mark Archer of Warwick Farm, Bricklayer
of Lot 2 D.P. 215240 of the land within described
Produced ~~29th~~ 23rd April 19 49 and entered 26th May 1949
at 12 o'clock ~~in the~~ noon.
As to land in this transfer this ~~Certificate~~ cancelled and new Certificate issued Vol. 6007 Fol. 135
J. Wells
REGISTRAR GENERAL.

No. F 1358 TRANSFER dated 5th April 1949
from the said Robert William Arthur Richardson
to Isobel Patricia Gallagher of Punchbowl
Spinster, an infant born on 22nd October 1928
of Lot 6 D.P. 215240 of the land within described
Produced 27th April 19 49 and entered 26th May 1949
at 12 o'clock ~~in the~~ noon.
As to land in this transfer this ~~Certificate~~ cancelled and new Certificate issued Vol. 6007 Fol. 136
J. Wells
REGISTRAR GENERAL.

No. E24443 TRANSFER dated 12th May 1949
from the said Robert William Arthur Richardson
to Charles Richard Henderson of Lots
4, 7 and 8 D.P. 21524.
of the land within described
Produced 9th June 1949 and entered 15th September 1949.
at 12 o'clock ~~in the~~ noon.
As to land in this transfer this Certificate cancelled and new Certificate issued Vol. 6064 Fol. 227
J. Wells
REGISTRAR GENERAL.

This Deals is Cancelled and Certificate of Title issued
Vol. 6007 Fol. 133
in lot 1 D.P. 215240
J. Wells
Ob. F1355. REGISTRAR GENERAL.

Direct Info
Quick and easy online

Title Search

08/08/2016 12:55 PM

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: D/382627

SEARCH DATE	TIME	EDITION NO	DATE
8/8/2016	12:55 PM	6	23/12/2013

LAND

LOT D IN DEPOSITED PLAN 382627
LOCAL GOVERNMENT AREA CANTERBURY-BANKSTOWN
PARISH OF BANKSTOWN COUNTY OF CUMBERLAND
TITLE DIAGRAM DP382627

FIRST SCHEDULE

THE CROATIAN CLUB LIMITED (T T567767)

SECOND SCHEDULE (5 NOTIFICATIONS)

---

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 C767645 EASEMENT FOR DRAINAGE AFFECTING THE PART OF THE LAND ABOVE DESCRIBED SHOWN SO BURDENED IN VOL 7496 FOL 208
3 G14288 EASEMENT AFFECTING THE PART OF THE LAND ABOVE DESCRIBED SHOWN SO BURDENED IN VOL 7496 FOL 208
Z944756 TRANSFER OF EASEMENT TO SYDNEY ELECTRICITY
4 AG686225 MORTGAGE TO ALFRED GAIL
5 AI234179 MORTGAGE TO ALFRED GAIL

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

Direct Info Pty Ltd - ABN 25 160 378 263 *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.

Direct Info
Quick and easy online

Historical Search

08/08/2016 12:56 PM

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

8/8/2016 12:56PM

FOLIO: D/382627

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 7496 FOL 208

Recorded	Number	Type of Instrument	C.T. Issue
2/9/1989		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
19/1/1990		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
19/2/1993	Z944756	REQUEST	
1/9/1998	5208208	DISCHARGE OF MORTGAGE	
1/9/1998	5208209	MORTGAGE	EDITION 1
1/6/2001	7660372	DEPARTMENTAL DEALING	
1/6/2001	7660173	DISCHARGE OF MORTGAGE	
1/6/2001	7660174	MORTGAGE	EDITION 2
18/9/2006	AC605449	DISCHARGE OF MORTGAGE	
18/9/2006	AC605450	MORTGAGE	EDITION 3
29/3/2007	AD23024	DISCHARGE OF MORTGAGE	
29/3/2007	AD23025	MORTGAGE	EDITION 4
15/12/2011	AG686224	DISCHARGE OF MORTGAGE	
15/12/2011	AG686225	MORTGAGE	EDITION 5
23/12/2013	AI234179	MORTGAGE	EDITION 6

*** END OF SEARCH ***

Direct Info Pty Ltd - ABN 25 160 378 263 *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.

Req:R185259 /Doc:CT 07496-208 CT /Rev:10-Aug-2012 /Sts:OK.OK /Prt:08-Aug-2016 12:58 /Seq:1 of 2
Ref:Punchbowl /Src:Q

202

New South Wales.

[CERTIFICATE OF TITLE.]

Primary Appn. No. 5578

Reference to Last Title

Vol. 6027 Fol. 49

Deposited Plan No. 5245

REGISTER BOOK.

VOL. 7496 FOL. 208

EH Issued on . Transfer No. G837176

CANCELLED W
ON ISSUE OF NEW FOLIO D/382627

S
GRY

CHARLES RICHARD HENDERSON, of Punchbowl, Timber Merchant, is now the proprietor of an Estate in Fee Simple, subject nevertheless to the reservations and conditions, if any, contained in the Grant s hereinafter referred to, and also subject to such encumbrances, liens, and interests as are notified hereon, in That piece of land in the Municipality of Bankstown Parish of Bankstown , and County of Cumberland shown in the plan hereon and therein edged red being Lot D in plan lodged with Transfer No. F801178 and being part of Portion 44 granted to James Ruse on 1st January 1810 and part of Portion 102 granted to Samuel Pitt on 8th February 1836.

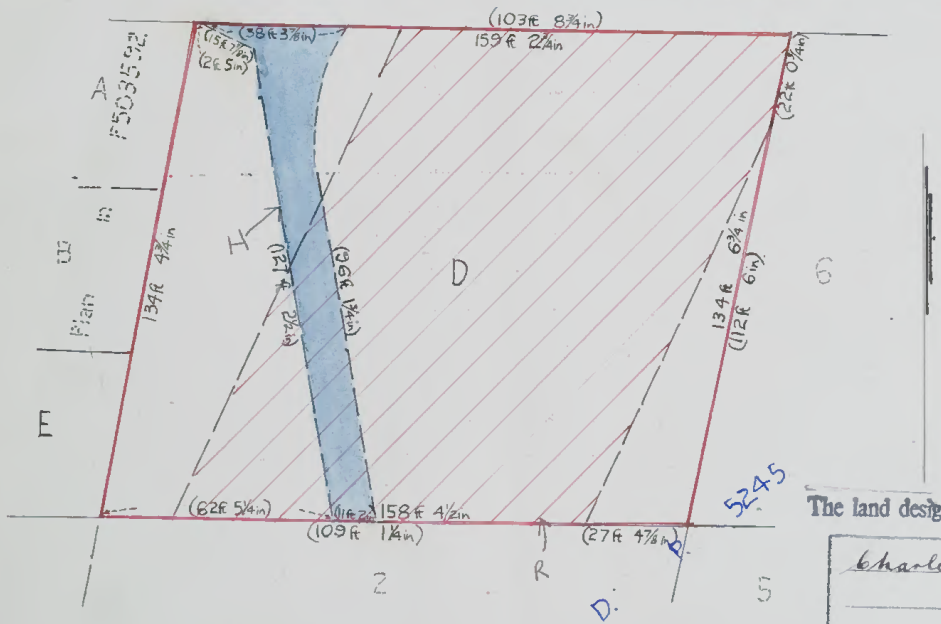
In witness whereof I have hereunto signed my name and affixed my Seal, this Nineteenth day of May , 19 58

Signed in the presence of B.J. Mortimer

J. Pells
Registrar-General.

REGISTRAR GENERAL NEW SOUTH WALES

D. P. 21524 The land designated "H" is coloured Blue



Area: 1rd. 37per.
Scale: 40 feet to one inch.

G837176 R&B 43.W.

NOTIFICATION REFERRED TO

Easement for drainage affecting the piece of land coloured blue and coloured blue hatched red in the planhereon created by Transfer No. C767645.

J. Pells
Registrar General.

REGISTRAR GENERAL NEW SOUTH WALES

Easement affecting the piece of land hatched red and coloured blue hatched red in the planhereon created by Transfer No. G14288.

J. Pells
Registrar General.

REGISTRAR GENERAL NEW SOUTH WALES

The land designated "R" is ~~coloured~~ hatched Red

Charles Henderson & Son Pty Limited is now the registered proprietor of the land within described

See TRANSFER No. H22133 dated 12th August 1958

Entered 29th August 1958.

J. Watson
REGISTRAR GENERAL

REGISTRAR GENERAL NEW SOUTH WALES

Glenville Pty. Limited is now the registered proprietor of the land within described

See TRANSFER No. H27134 dated 19th August 1958

Entered 29th August 1958.

J. Watson
REGISTRAR GENERAL

REGISTRAR GENERAL NEW SOUTH WALES

T 27133

Persons are cautioned against altering or adding to this Certificate or any notification thereon.

9327 12.57 K 2026—2 A. H. Pettifer, Government Printer

No. 1457158 MORTGAGE dated 19th September 1963
to Bank of New South Wales

Entered 2nd October 1963

Discharged 8546416 23-6-1978

REGISTRAR GENERAL

No. K911094 Caveat
DATED 27th December 1967
PRODUCED 29th December 1967
ENTERED 10th January 1968

Withdrawn Q546415 23-6-1978

REGISTRAR GENERAL.

T567768 Mortgage to Cragford Pty Limited
Registered 10.8.1983

Discharged V89565 9-8-1984

GENERAL

V89566P Mortgage to Commonwealth Trading Bank of Australia. Registered 9-8-1984

REGISTRAR GENERAL

COMPUTER FOLIO NO FURTHER DEALINGS TO BE REGISTERED.

TRANSFER NO. Q546417 Cragford Pty Limited is now the registered proprietor of the land within described

Registered 23 - 6 -1978

Q546418

REGISTRAR GENERAL

Encumbrance No. Q546418 to Toohey Limited

Registered 23 - 6 -1978

Q546419

Discharged T567765 10.8.1983

REGISTRAR GENERAL

MORTGAGE No. Q546419 to Euro-Pacific Finance Corporation Limited

Registered 23 - 6 -1978

Discharged T567766 10.8.1983

REGISTRAR GENERAL

Caveat Q556371 by Euro-Pacific Finance Corporation Limited
Registered 23.6.1978
Withdrawn T567764 10.8.1983

Registrar General

REGISTERED PROPRIETOR The Creation Club Limited
by Transfer T567767
Registered 10.8.1983

REGISTRAR GENERAL

Req:R185340 /Doc:CT 06027-049 CT /Rev:08-Aug-2012 /Sts:OK.OK /Prt:08-Aug-2016 13:05 /Seq:1 of 2
Ref:Punchbowl /Src:Q

201.

Appn. No. 5578
Reference to last certificate
Vol. 3845 Fol. 49

New South Wales.

13987—1 6.49

[CERTIFICATE OF TITLE.]

CANCELLED W

REGISTER BOOK.
Vol. 6027 Fol. 43

JAMES CHARLES GILBERT LEVER, of Bankstown, Builder, Transferee under Instrument of Transfer No. D985026 is now the proprietor of am Estate in Fee Simple,

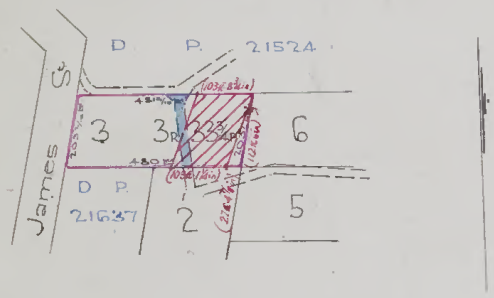
subject nevertheless to the reservations and conditions, if any, contained in the Grants hereinafter referred to, and also subject to such eucumbrauces, liens, and interests as are notified hereon, in that piece of land situated in the Municipality of Bankstown Parish of Bankstown, and County of Cumberland containing Three roods thirty three and three quarters perches or thereabouts as shown in the plan hereon and therein edged red being lot 3 in Deposited Plan No. 5245 and being part of 100 acres (Portion 44 of Parish) originally granted to James Ruse by Crown Grant dated the 1st day of January 1810 and part of 22 acres (Portion 102 of Parish) originally granted to Samuel Pitt by Crown Grant dated the 8th day of February 1836.

In witness whereof I have hereunto signed my name and affixed my Seal, this Twentieth day of September, 1949.

Signed in the presence of F. Bridgey.

J. Wells
Registrar-General.

REGISTRAR GENERAL NEW SOUTH WALES



Scale:- 4 Chains to one inch.

D 985026 1166

NOTIFICATION REFERRED TO

Amongst the reservations and conditions contained in the Grants above referred to are reservations in the Grant of 22 acres (Portion 102 of Parish) of all mines of gold and of silver.

J. Wells
Registrar General.

No. C767645 Resumption of Easement for drainage in favour of the Minister for Public Works affecting the piece of land coloured blue in the plan hereon.

J. Wells
Registrar General.

No. F286713 TRANSFER dated 21st July 1950 from the said James Charles Gilbert Lever to the said James Charles Gilbert Lever and Phoebe Lever his wife as joint tenants of the land within described
Produced and entered 17th August 1950
at 1 3/4 pt 1 o'clock in the after noon.

J. Wells
REGISTRAR GENERAL.

No. F503592 TRANSFER dated 31st July 1951
from the said James Charles Gilbert Lever and Phoebe Lever
to John Davis of Sydney, Advertising Manager of part
of the land within described
Produced 31st July 1951 and entered 13th November 1951
at 12 o'clock in the noon.
As to land in this transfer this Certificate cancelled and new Certificate issued Vol. 6408 Fol. 150

J. Wells
REGISTRAR GENERAL.

No. F574502 MORTGAGE dated 20th November 1951
from the said James Charles Gilbert Lever and Phoebe Lever to Commonwealth Bank of Australia ~~as regards part~~ of the land within described
Produced 21st November 1951 and entered 18th January 1952
at 12 o'clock in the noon.

J. Wells
REGISTRAR GENERAL

No. F801177 DISCHARGE of within mortgage F574502 dated 12th December 1952.
Produced 5th February 1953 and entered 13th July 1953
at 12 o'clock in the noon.

J. Wells
REGISTRAR GENERAL.

Req:R185340 /Doc:CT 06027-049 CT /Rev:08-Aug-2012 /Sts:OK.OK /Prt:08-Aug-2016 13:05 /Seq:2 of 2
Ref:Punchbowl /Src:Q

No. F801178 TRANSFER dated 16th January 1953
from the said James Charles Gilbert Lever and Phoebe Lever to Robert Hunter McGlinchy of Leithhardt Fitter and Elaine Rose McGlinchy his wife as joint tenants of part
of the land within described
Produced 5th February 1953 and entered 13th July 1953
at 12 o'clock ~~in the~~ noon.
As to land in this transfer this Certificate cancelled and fresh Certificate issued Vol. 6690 Fol. 95
J. Wells
REGISTRAR GENERAL

No. G 14288 Transfer and Grant dated 19th December 1953 from the said James Charles Gilbert Lever and Phoebe Lever to the Electricity Commission of New South Wales of an easement (as fully set out in the said instrument) affecting that part of the land within described shown by blue colour hatched red and red hatching in the plan hereon.
Re
Produced 8th February 1954 and entered 26th July 1954 at 12 o'clock noon.
J. Wells
Registrar General

No. G837176 TRANSFER dated 11th September 1957
to Charles Richard Henderson of Lot D
on M.P.S(R.P.)82627 being the residue
of the land within described.
Entered 16th May 1958
As to land in this transfer this deed is cancelled and new Certificate issued Vol. 7496 Fol. 208
J. Wells
REGISTRAR GENERAL

Lot 1
G837176

G837176 Lot D

Req:R185399 /Doc:CT 03845-049 CT /Rev:04-Aug-2012 /Sts:OK.OK /Prt:08-Aug-2016 13:13 /Seq:1 of 2
Ref:Punchbowl /Src:Q

Appn. No. 5578

Reference to last Certificate

Vol. 2402 Fol. 90

New South Wales.

[CERTIFICATE OF TITLE.] 83277 9.25

Order No. B328650

REGISTER BOOK,

VOL. 3845 FOL. 49

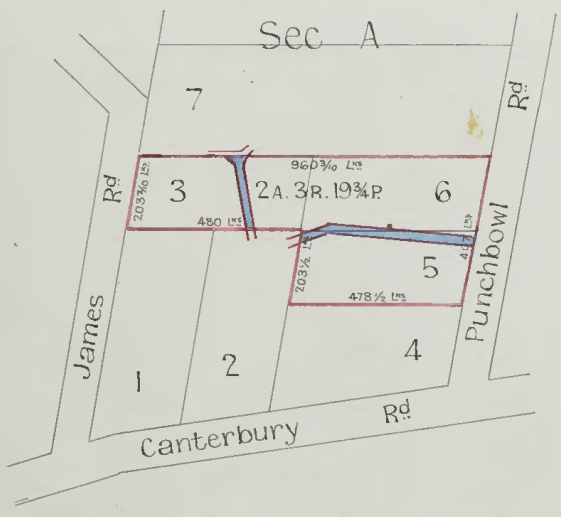
CANCELLED N

Florence Louisa Sharp wife of Vincent Campbell Sharp of Hurlstone Park Gentleman by virtue of Certificate of Title Volume 2402 Folio 90 now surrendered is now the proprietor of an estate in fee simple subject nevertheless to the reservations and conditions, if any, contained in the Grants hereinafter referred to, and also subject to such encumbrances, liens, and interests, as are notified hereon, in That piece of land situated in the Municipality of Bankstown Parish of Bankstown, and County of Cumberland containing Two acres three roods nineteen and three quarters perches, or thereabouts, as shown in the Plan hereon and therein edged red, being Lots 3, 5 and 6 of Section A on a plan deposited in the Land Titles Office Sydney No. 5245 and being part of one hundred acres (Portion 47 of Parish) originally granted to James Rose by Crown Grant dated the first day of January one thousand eight hundred and ten and also part of twenty two acres (Portion 102 of Parish) originally granted to Samuel Pitt by Crown Grant dated the eighth day of February one thousand eight hundred and thirty six. Which said Grants are delineated in the Public Map of the said Parish in the Department of Lands

In witness whereof I have hereunto signed my name and affixed my Seal, this twenty third day of March 1926.

Signed in the presence of R. Mooney

Registrar General.



Scale : 4 Chains to one inch

Notification referred to

Amongst the reservations and conditions contained in the Grants above referred to are reservations in the Grant of 22 acres (Portion 102 of Parish) of all mines of gold and of silver

Registrar General

No. 1962589 TRANSFER dated 15th January 1949 from the said Florence Louisa Sharp to Charles Henderson & Son Pty. Limited of the land within described Produced and entered 8th February 1949 at 11 o'clock in the forenoon.

REGISTRAR GENERAL.

No. D985026 TRANSFER dated 4th February 1949 from the said Charles Henderson & Son Pty Limited to James Charles Gilbert Lewis of Lot 3 D.P. 5245 of the land within described Produced 24th March 1949 and entered 26th April 1949 at 12 o'clock in the noon. As to land in this transfer this Certificate is cancelled and new Certificate issued Vol. 6027 Fol. 49

REGISTRAR GENERAL.

This Deed is Cancelled and Certificate of Title issued Vol. 5987 Fol. 214 for the residue

REGISTRAR GENERAL.

No. C 767645. NOTICE OF RESUMPTION. An Easement affecting that part of the land within described shown by blue color on the plan hereon has become vested in THE MINISTER FOR PUBLIC WORKS as Constructing Authority for the purposes of the Public Works Act, 1912 by operation of the said Act and in pursuance of the Gazette Notice in connection therewith. (Freed and discharged from all trusts, obligations, estates, interests, contracts, charges, rates, rights of way or other easements whatsoever) Produced 22nd March 1939 and entered 28th June 1939 at 12 o'clock noon.

Registrar General.

Te 962589

B328650

NR C767645R T 11/5/39

D971884 Lots 3 & 6 this title under Instrument for portion of Lot T D985026 Lot 3 R.

Direct Info
Quick and easy online

Title Search

08/08/2016 01:59 PM

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: AUTO CONSOL 15118-2

SEARCH DATE	TIME	EDITION NO	DATE
8/8/2016	1:59 PM	7	23/12/2013

LAND

LAND DESCRIBED IN SCHEDULE OF PARCELS
AT PUNCHBOWL
LOCAL GOVERNMENT AREA CANTERBURY-BANKSTOWN
PARISH OF BANKSTOWN COUNTY OF CUMBERLAND
TITLE DIAGRAM SEE SCHEDULE OF PARCELS

FIRST SCHEDULE

THE CROATIAN CLUB LIMITED

SECOND SCHEDULE (7 NOTIFICATIONS)

---

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 C767645 EASEMENT FOR DRAINAGE AFFECTING THE PARTS OF LOT 15
IN DP132440 & LOT A IN DP378634 SHOWN SO BURDENED IN
THE TITLE DIAGRAMS & THE PART OF LOT 6 IN DP5245 SHOWN
11 FT WIDE & 12 FT WIDE IN DP189382
3 F928154 EASEMENT FOR TRANSMISSION LINE AFFECTING THE PART
OF LOT A IN DP378634 SHOWN IN PLAN WITH F928154
Z944756 TRANSFER OF EASEMENT TO SYDNEY ELECTRICITY
4 7570101 LEASE TO OPTUS MOBILE PTY LIMITED OF PART SHOWN
HATCHED IN PLAN WITH 7570101 COMMENCES 23/8/2010.
EXPIRES: 22/8/2015.
5 7570102 LEASE TO OPTUS MOBILE PTY LIMITED OF PART SHOWN
HATCHED IN PLAN WITH 7570102 COMMENCES 23/8/2015.
EXPIRES: 22/8/2020.
6 AG686225 MORTGAGE TO ALFRED GAIL
7 AI234179 MORTGAGE TO ALFRED GAIL

NOTATIONS

UNREGISTERED DEALINGS: NIL

SCHEDULE OF PARCELS	TITLE DIAGRAM
LOT 6 IN DP5245	DP5245

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Direct Info
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LOT 15 IN DP132440	DP132440
LOT A IN DP378634	DP378634.

*** END OF SEARCH ***

Punchbowl PRINTED ON 8/8/2016

* 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.
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Direct Info
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Historical Search

08/08/2016 02:01 PM

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

8/8/2016 2:01PM

FOLIO: 6/5245

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 15118 FOL 2

Recorded	Number	Type of Instrument	C.T. Issue
21/8/1988		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
21/5/1996		CONVERTED TO AUTO CONSOL 15118-2	CONSOL CREATED CT NOT ISSUED

*** END OF SEARCH ***

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Direct Info
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Title Search

08/08/2016 02:13 PM

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 1/236825

SEARCH DATE	TIME	EDITION NO	DATE
8/8/2016	2:13 PM	6	23/12/2013

LAND

LOT 1 IN DEPOSITED PLAN 236825
AT PUNCHBOWL
LOCAL GOVERNMENT AREA CANTERBURY-BANKSTOWN
PARISH OF BANKSTOWN COUNTY OF CUMBERLAND
TITLE DIAGRAM DP236825

FIRST SCHEDULE

THE CROATIAN CLUB LIMITED (T T567757)

SECOND SCHEDULE (4 NOTIFICATIONS)

---

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 M48052 COVENANT
3 AG686225 MORTGAGE TO ALFRED GAIL
4 AI234179 MORTGAGE TO ALFRED GAIL

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

Direct Info Pty Ltd - ABN 25 160 378 263 *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.

Direct Info
Quick and easy online

Historical Search

08/08/2016 02:14 PM

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

8/8/2016 2:14PM

FOLIO: 1/236825

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 10881 FOL 62

Recorded	Number	Type of Instrument	C.T. Issue
5/6/1987		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
10/3/1988		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
11/8/1993		AMENDMENT: LOCAL GOVT AREA	
1/9/1998	5208208	DISCHARGE OF MORTGAGE	
1/9/1998	5208209	MORTGAGE	EDITION 1
1/6/2001	7660173	DISCHARGE OF MORTGAGE	
1/6/2001	7660174	MORTGAGE	EDITION 2
18/9/2006	AC605449	DISCHARGE OF MORTGAGE	
18/9/2006	AC605450	MORTGAGE	EDITION 3
29/3/2007	AD23024	DISCHARGE OF MORTGAGE	
29/3/2007	AD23025	MORTGAGE	EDITION 4
15/12/2011	AG686224	DISCHARGE OF MORTGAGE	
15/12/2011	AG686225	MORTGAGE	EDITION 5
23/12/2013	AI234179	MORTGAGE	EDITION 6

*** END OF SEARCH ***

Direct Info Pty Ltd - ABN 25 160 378 263 *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.

10881062

NEW SOUTH WALES

[redacted]ICATE OF TITL
[redacted]PERTY ACT, 1900, as amended.

Application No.5578
Prior Title Vol.6867 Folio 113

Vol. 10881 Fol. 62

ID Edition issued 18-2-1970

(Page 1) Vol. 10881 Fol. 62

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

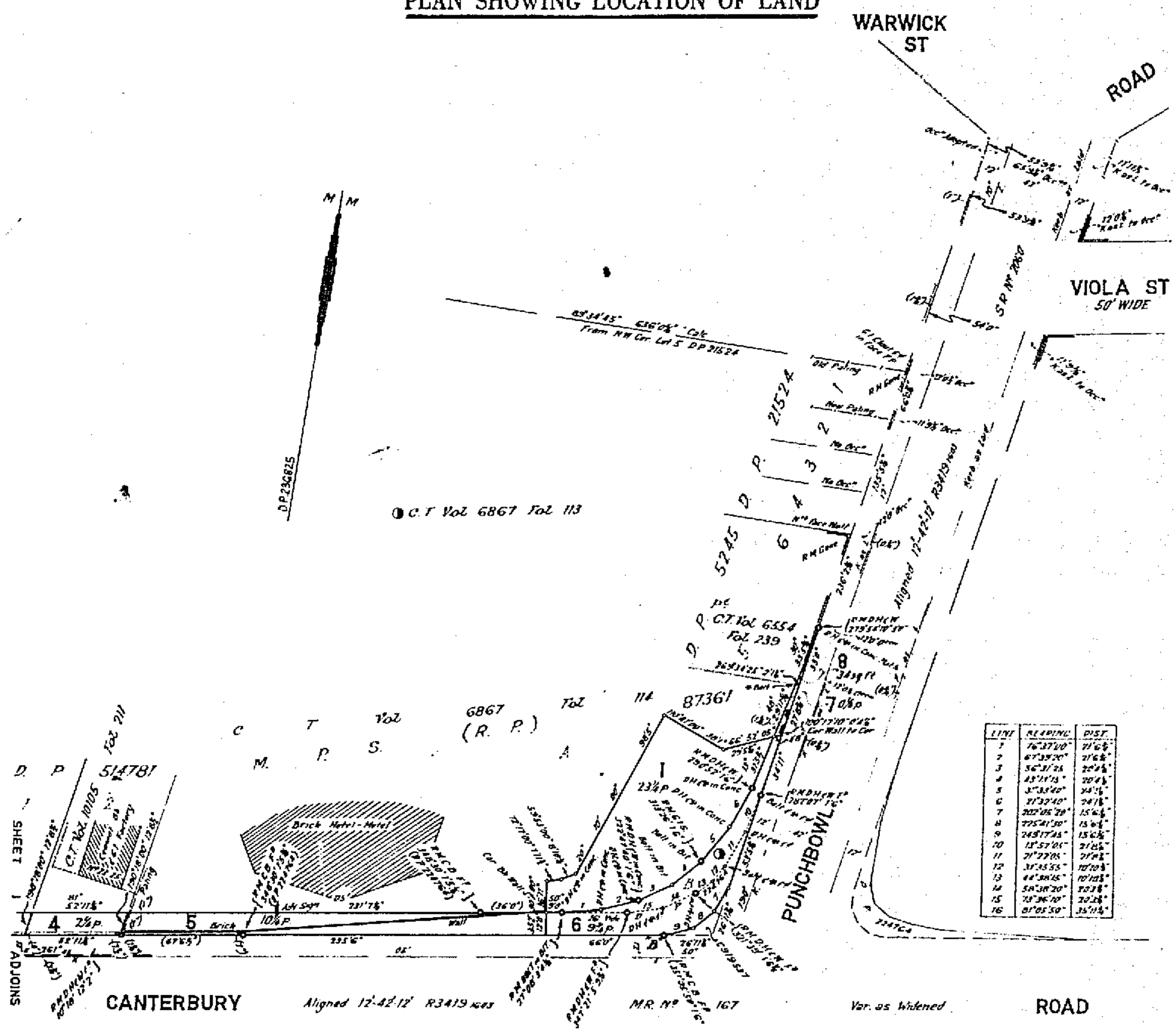
CANCELLED

Witness *L. Huckstepp.*

J. Watson
Registrar General.

SEE AUTO FOLIO

PLAN SHOWING LOCATION OF LAND



ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 1 in Deposited Plan 236825 at Punchbowl in the Municipality of Bankstown Parish of Bankstown and County of Cumberland being part of Portion 102 granted to Samuel Pitt on 8-2-1836.

FIRST SCHEDULE

~~THE COMMISSIONER FOR MAIN ROADS.~~

SECOND SCHEDULE

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

J. Watson
Registrar General

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

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

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

Vol. 08881 Fol 62

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	ENTERED	Signature of Registrar General
~~Clampville~~ Cragford Pty. Limited	Transfer	M48052	28-10-1970	13-11-1970	
~~Cragford Pty. Limited~~	Transfer	Q546417		23-6-1978	
The Croatian Club Limited by Transfer T567757. Registered 10-8-1983.					

CANCELLED

SEE AUTO FOLIO

SECOND SCHEDULE (continued)

INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	PARTICULARS	ENTERED	Signature of Registrar General	CANCELLATION		
Covenant	M48052		Created by Transfer No M48052	13.11.1970				
~~Mortgage~~	~~Q546417~~		~~to Cro-Pacific Finance Corporation Limited~~	23.6.1978		Discharged	T567766	
~~T567768 Mortgage to Cragford Pty. Limited. Registered 10-8-1983.~~						~~discharged~~ ~~Withdrawn~~	V89565	
V89566 Mortgage to Commonwealth Trading Bank of Australia. Registered 9-8-1984.								

(Page 2 of 2 pages)

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

3/3/70 (1970 MK)

M48052 TO Lodgt 054641 T

19 M.

D.P. 263695. Regd 23-12-82 C.N.I.

T567766 DM 67 T 68 M

V89565 DM 6 M

Req:R186129 /Doc:CT 10881-062 CT /Rev:24-Feb-2011 /Sts:OK.SC /Pgs:ALL /Prt:08-Aug-2016 14:16 /Seq:2 of 4
Ref:Punchbowl /Src:Q

Req:R186129 /Doc:CT 10881-062 CT /Rev:24-Feb-2011 /Sts:OK.SC /Pgs:ALL /Prt:08-Aug-2016 14:16 /Seq:3 of 4
Ref:Punchbowl /Src:Q

NEW SOUTH WALES

CERTIFICATE OF TITLE

REAL PROPERTY ACT, 1900, as amended.

TORRENS TITLE
Register Book

Application No.5578

Prior Title Vol.6867 Fol.113

Vol. 10881 Fol. 62

CANCELLED

MA Edition ~~issued 10-9-1968~~ 2nd new edition

(Page 1) Vol. 10881 Fol. 62

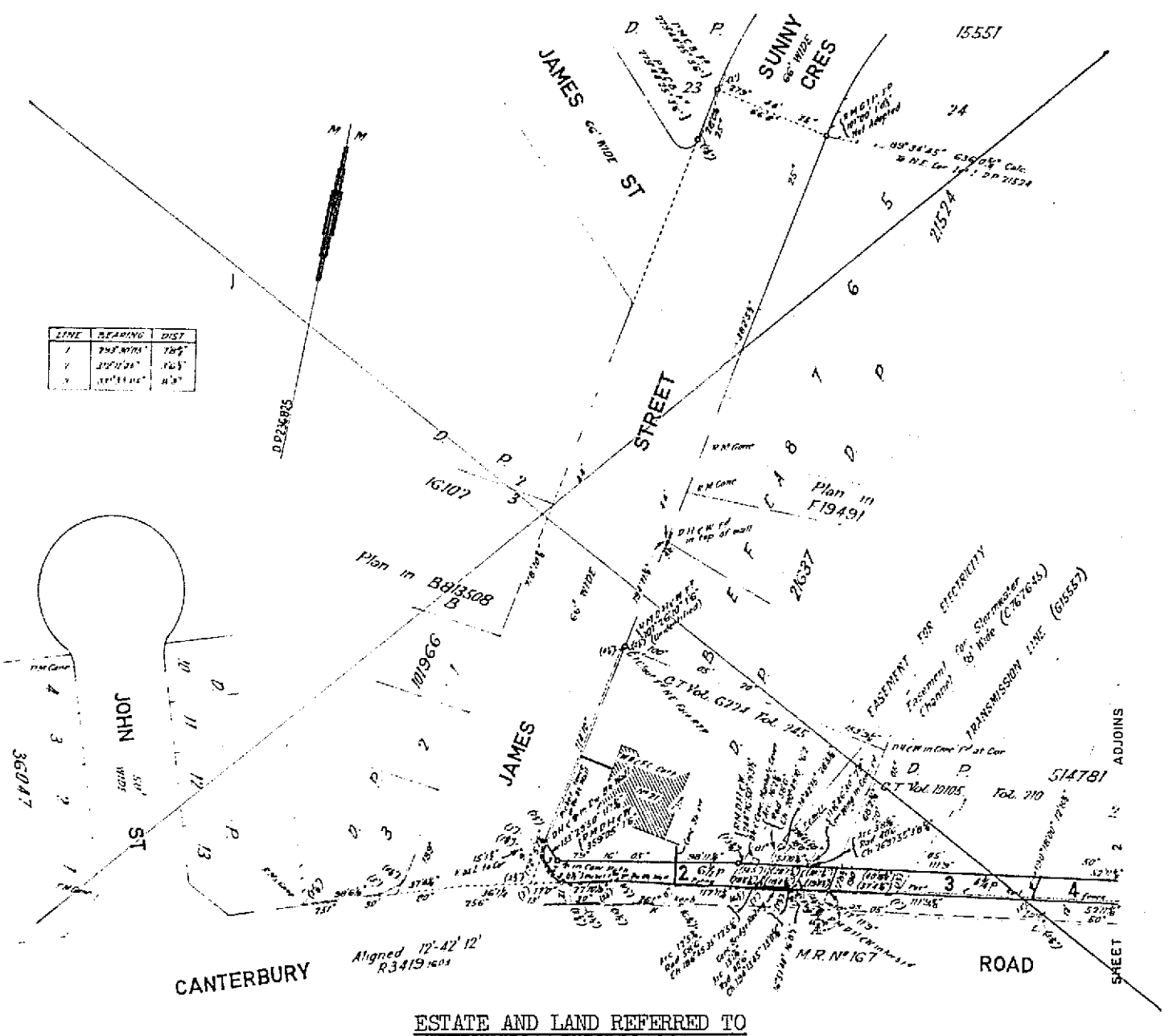
I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

Witness M.Flint

Registrar General.

REGISTRAR GENERAL NEW SOUTH WALES

~~PLAN SHOWING LOCATION OF LAND~~



ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 1 in Deposited Plan 236825 at Punchbowl in the Municipality of Bankstown Parish of Bankstown and County of Cumberland being part of Portion 102 granted to Samuel Pitt on 8-2-1836.

FIRST SCHEDULE (continued overleaf)

THE COMMISSIONER FOR MAIN ROADS.

SECOND SCHEDULE (continued overleaf)

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

Registrar General.

1970M400
Reg. Gen.
16-2-1970

WARNING: THIS DOCUMENT MUST NOT BE REMOVED FROM THE LAND TITLES OFFICE.
PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON
RG 2/82 NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED.

V. C. N. BLIGHT, GOVERNMENT PRINTER

Vol. 10881 Fol 62

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT			ENTERED	Signature of Registrar-General
	NATURE	NUMBER	DATE		
CANCELLED See new edition issued 18-2-1970 VIDE Pps. 70M400. REGISTRAR GENERAL					

For amendments see title vide 70

SECOND SCHEDULE (continued)

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

(Page 2 of 2 pages)

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

Req:R186129 /Doc:CT 10881-062 CT /Rev:24-Feb-2011 /Sts:OK.SC /Pgs:ALL /Prt:08-Aug-2016 14:16 /Seq:4 of 4
Ref:Punchbowl /Src:Q

Req:R186273 /Doc:CT 06867-113 CT /Rev:09-Aug-2012 /Sts:OK.OK /Prt:08-Aug-2016 14:20 /Seq:1 of 2
Ref:Punchbowl /Src:Q

202

Primary Appn. No. 5578

Reference to Last Title

Vol. 2411 Fol. 66

Deposited Plan No. 5245

New South Wales.

[CERTIFICATE OF TITLE.]

REGISTER BOOK.

VOL. 6867 FOL. 113

Issued on Order No. F995716

CANCELLED R W 11-8-09

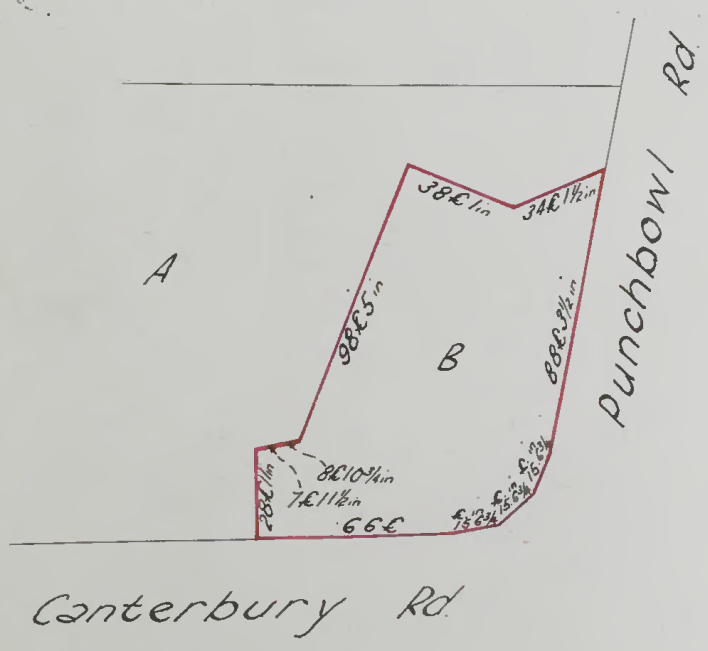
CHARLES HENDERSON & SON. PTY. LIMITED, is now the proprietor of an Estate in Fee Simple, subject nevertheless to the reservations and conditions, if any, contained in the Grant hereinafter referred to, and also subject to such encumbrances, liens, and interests as are notified hereon, in That piece of land situated in the Municipality of Bankstown Parish of Bankstown , and County of Cumberland shown in the plan hereon and therein edged red being Lot B in Miscellaneous Plan of Subdivision (R.P.) Registered No. 87361 and being part of Portion 102 granted to Samuel Pitt on 8th February 1836.

In witness whereof I have hereunto signed my name and affixed my Seal, this Seventh day of October , 19 54.

Signed in the presence of G.W. Moss

J. Pells

Registrar-General.



Area: 33 per.
Scale: 50 feet to one inch

F995716

NOTIFICATION REFERRED TO

No. F982154 Caveat dated 3rd December 1953. Produced 4th December 1953 and entered 31st December 1953 at 12 o'clock noon.

J. Pells

Registrar General.

CAVEAT No F982154 has been withdrawn.

See H478013 Entered 13th May 1960.

Jawatson

REGISTRAR GENERAL.

H.C. Sleigh Limited

now the registered proprietor of the land within described.

See TRANSFER No H478014 dated 15th March 1960

Entered 13th May 1960.

Jawatson

REGISTRAR GENERAL.

The Commissioner For Main Roads is

now the registered proprietor of land within described.

See TRANSFER No J946939 dated 25th March 1965

Entered 22nd April 1965.

Jawatson

REGISTRAR GENERAL.

946939

H478013

D.P. 236825 CT 6626/66

Persons are cautioned against altering or adding to this Certificate or any notification thereon.

68463—2 2.54 K2006—1 A. H. PETTIFER, GOVERNMENT PRINTER.

Req:R186273 /Doc:CT 06867-113 CT /Rev:09-Aug-2012 /Sts:OK.OK /Prt:08-Aug-2016 14:20 /Seq:2 of 2
Ref:Punchbowl /Src:Q

This deed is cancelled as to THE WHOLE EX RD
New Certificates of Title have issued on 10.9.1968
for lots in DEPOSITED Plan No. 236825 as follows:-
Lots 1 Vol. 10881 Fol 62 respectively.

REGISTRAR GENERAL

FOLIO CANCELLED AS TO RESIDUE

NEW FOLIO CREATED FOR 6/236825

Req:R186398 /Doc:CT 02411-066 CT /Rev:30-Jul-2012 /Sts:OK.OK /Prt:08-Aug-2016 14:27 /Seq:1 of 2
Ref:Punchbowl /Src:Q

CERTIFICATE OF TITLE.

(C.)

New South Wales.

[Appn No. 5578]
[Reference to last Certificate]
[Vol. 2328 Folio 218]

REGISTER BOOK,
Vol. 2411 Folio 66

CANCELLED R

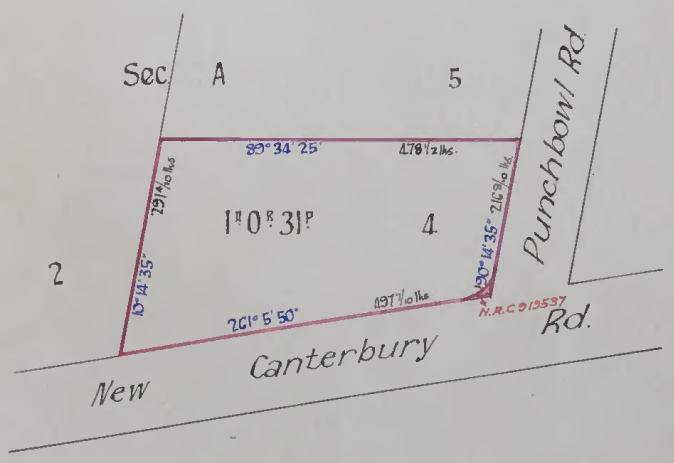
Harold Clive Hawksford of Marrickville Motor Engineer Transferee under Instrument of Transfer No. A. 56623 from The Australian Bank of Commerce Limited Mortgagee exercising Power of Sale is now the proprietor of an Estate in Fee Simple, subject nevertheless to the reservations and conditions, if any, contained in the Grant hereinafter referred to, and also subject to such encumbrances, liens, and interests as are notified hereon, in That piece of land situated in the Municipality of Bankstown, Parish of Bankstown, and County of Cumberland containing One acre thirty one perches, or thereabouts. as shown on the Plan hereon, and therein edged red, being Lot A of Section A on a Plan deposited in the Land Titles Office, Sydney, No. 5245 and part of Seventy two acres (portion 102 of parish) delineated in the Public map of the said parish deposited in the Department of Lands originally granted to Samuel Pitt by Crown Grant dated the eighth day of February one thousand eight hundred and thirty six

In witness whereof, I have hereunto signed my name and affixed my Seal, this Fifteenth day of October one thousand nine hundred and thirteen.

Signed the 15th day of October 1913,
in the presence of J. McArmstrong

R. D. Oake
Deputy Registrar General.

REGISTRAR GENERAL NEW SOUTH WALES



SCALE: 2chs to an inch

NOTIFICATION REFERRED TO.

Amongst the reservations and conditions contained in the Grant above referred to are the following namely
Reservations of all Mines of Gold and of Silver

R. D. Oake
Deputy Registrar General

REGISTRAR GENERAL NEW SOUTH WALES

No. A 917746 MORTGAGE dated 3rd March 1923
from the said Harold Clive Hawksford to Charles William Townsend of Goulburn Gentleman

Produced and entered 9th March 1923
at 8 mts pt 12 o'clock in the afternoon.

REGISTRAR GENERAL

REGISTRAR GENERAL NEW SOUTH WALES

15.5.23

No. B 396114 DISCHARGE of within Mortgage
A917746 dated 18th August 1926.
Produced 19th August 1926 and entered
19th August 1926.
at 4 mts past 12 o'clock in the after noon.
REGISTRAR GENERAL.

No. C763866 MORTGAGE dated 1st July 1937
from the said Harold Clive Hawkesford to Alicia Meier of Sydney Widow
Produced 10th March 1939 and entered 14th April 1939
at 10 o'clock in the fore noon.
REGISTRAR GENERAL

No. C919537 NOTICE OF RESUMPTION That part of the land within described shown by pink colour in the plan hereon (excluding mines and deposits as provided by Section 141 of the Public Works Act 1912) has become vested in The Commissioner for Main Roads as constructing authority for the purposes of the Main Roads Act 1924-1939 by operation of the Public Works Act 1912 and in pursuance of the Gazette Notice in connection therewith freed and discharged from all trusts obligations estates interests contracts charges rates rights-of-way or other easements whatsoever.
Produced 4th July 1940 and entered 28th August 1940
at 12 o'clock in the noon.
Registrar General.

No D68570 DISCHARGE of within mortgage
No. C763866 dated 4th April 1941
Produced and entered 15th October 1941
at 45 mts past 10 o'clock in the fore noon.
REGISTRAR GENERAL

No. D423216 TRANSFER dated 27th September 1945
from the said Harold Clive Hawkesford to Roswell Charles Henderson of Edmondsleigh Vaucluse of the land within described excluding the land shown by pink colour on the plan hereon of the land within described
Produced and entered 18th October 1945
at 8 mts past 11 o'clock in the fore noon.
REGISTRAR GENERAL.

No. D663384 MORTGAGE dated 5th May 1947
from the said Roswell Charles Henderson to The National Bank of Australasia Limited of the land within described excluding road shown by pink colour on plan hereon
Produced and entered 12th May 1947
at 43 mts past 10 o'clock in the fore noon.
REGISTRAR GENERAL.

No. D895349 DISCHARGE of within mortgage
No. D663384 dated 10th March 1948
Produced and entered 20th September 1948
at 1 mt past 2 o'clock in the after noon.
REGISTRAR GENERAL.

No. D895350 TRANSFER dated 17th March 1948
from the said Roswell Charles Henderson
to Charles Henderson & Son Pty Limited
of the land within described excluding road shown by pink colour in Plan hereon ~~of the land within described~~
Produced and entered 20th September 1948
at 1 mt past 2 o'clock in the after noon.
REGISTRAR GENERAL.

No. D895351 MORTGAGE dated 8th September 1948
from the said Charles Henderson & Son Pty Limited to The National Bank of Australasia Limited excluding road shown by pink colour in plan hereon
Produced and entered 20th September 1948
at 1 mt past 2 o'clock in the after noon.
REGISTRAR GENERAL

No D946646 DISCHARGE of within mortgage
D895351 dated 15th December 1948
Produced 4th January 1949 and entered 25th February 1949
at 12 o'clock ~~in the~~ noon.
REGISTRAR GENERAL

No D946647 MORTGAGE dated 17th December 1948
from the said Charles Henderson & Son Pty Limited to The Commercial Banking Company of Sydney Limited of the land within described excluding road shown by pink colour in plan hereon
Produced 4th January 1949 and entered 25th February 1949
at 12 o'clock ~~in the~~ noon.
REGISTRAR GENERAL

No. F411238 DISCHARGE of within mortgage
No. D946647 dated 5th March 1951
Produced and entered 9th March 1951
at 46 mts past 11 o'clock in the fore noon.
REGISTRAR GENERAL

No. F411236 MORTGAGE dated 28th February 1951
from the said Charles Henderson & Son Pty Limited to The English Scottish and Australian Bank Limited of the land within described excluding road shown by pink colour in the plan hereon
Produced and entered 9th March 1951
at 46 mts past 11 o'clock in the fore noon.
REGISTRAR GENERAL

No. F982154. Caveat dated 3rd December 1953.
Produced 4th December 1953 and entered
31st December 1953 at 12 o'clock noon
as regards part.
Registrar General

No F995715 DISCHARGE of within mortgage
F411236 dated 20th November 1954
as regards Lot B. M&S (R.P) 87361
Produced 30th December 1953 and entered 11th October 1954
at 12 o'clock ~~in the~~ noon.
REGISTRAR GENERAL

As to part
this Deed is cancelled and new Certificate of Title issued
Vol. 6867 Fol. 113
Vide. F995716.
Registrar General.

As to residue
this Deed is cancelled and new Certificate of Title issued
Vol. 6867 Fol. 114
Vide. F981526
Registrar General

Direct Info
Quick and easy online

Title Search

08/08/2016 02:34 PM

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 14/132440

SEARCH DATE	TIME	EDITION NO	DATE
8/8/2016	2:34 PM	7	23/12/2013

LAND

LOT 14 IN DEPOSITED PLAN 132440
AT PUNCHBOWL
LOCAL GOVERNMENT AREA CANTERBURY-BANKSTOWN
PARISH OF BANKSTOWN COUNTY OF CUMBERLAND
TITLE DIAGRAM DP132440

FIRST SCHEDULE

THE CROATIAN CLUB LIMITED

SECOND SCHEDULE (4 NOTIFICATIONS)

---

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
* 2 8166752 LEASE TO AUSGRID (SEE AJ71566) OF SUBSTATION NO 3778 TOGETHER WITH RIGHT OF WAY & EASEMENT FOR ELECTRICITY PURPOSES 3.97 WIDE OVER ANOTHER PART OF THE LAND ABOVE DESCRIBED SHOWN IN PLAN WITH 8166752. EXPIRES: 30/4/2050.
3 AG686225 MORTGAGE TO ALFRED GAIL
4 AI234179 MORTGAGE TO ALFRED GAIL

NOTATIONS

DP263695 NOTE: PROPOSED ROAD
DP1027950 NOTE: SURVEY INFORMATION ONLY.
UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

Direct Info Pty Ltd - ABN 25 160 378 263 *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.

Direct Info
Quick and easy online

Historical Search

08/08/2016 02:35 PM

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

8/8/2016 2:35PM

FOLIO: 14/132440

First Title(s): OLD SYSTEM
Prior Title(s): VOL 6867 FOL 114

Recorded	Number	Type of Instrument	C.T. Issue
22/3/1996	DP132440	DEPOSITED PLAN	LOT RECORDED FOLIO NOT CREATED
31/8/1998	DP132440	DEPOSITED PLAN	FOLIO CREATED CT NOT ISSUED
1/9/1998	5208208	DISCHARGE OF MORTGAGE	
1/9/1998	5208209	MORTGAGE	EDITION 1
8/5/2001	DP1027950	DEPOSITED PLAN	
1/6/2001	7660372	DEPARTMENTAL DEALING	
1/6/2001	7660173	DISCHARGE OF MORTGAGE	
1/6/2001	7660174	MORTGAGE	EDITION 2
19/12/2001	8166752	LEASE	EDITION 3
18/9/2006	AC605449	DISCHARGE OF MORTGAGE	
18/9/2006	AC605450	MORTGAGE	EDITION 4
29/3/2007	AD23024	DISCHARGE OF MORTGAGE	
29/3/2007	AD23025	MORTGAGE	EDITION 5
15/12/2011	AG686224	DISCHARGE OF MORTGAGE	
15/12/2011	AG686225	MORTGAGE	EDITION 6
23/12/2013	AI234179	MORTGAGE	EDITION 7
18/3/2015	AJ333948	DEPARTMENTAL DEALING	
23/3/2015	AJ71566	CHANGE OF NAME	

*** END OF SEARCH ***

Direct Info Pty Ltd - ABN 25 160 378 263 *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.

Req:R186591 /Doc:DL 8166752 /Rev:28-Dec-2001 /Sts:NO.OK /Pgs:ALL /Prt:08-Aug-2016 14:37 /Seq:1 of 6

Ref:Punchbowl /Src:Q 7L
Licence: 10V/0058/95
Edition: 9804

LEASE

New South Wales
Real Property Act 1900

8166752T

STAMP DUTY

Office of State Revenue use only

OFFICE OF STATE REVENUE

CLIENT No. 3498308 STAMP No. 691
STAMP DUTY Exempt SIGNATURE
TRANSACTION No. 014404 DATE 31.10.01
ASSESSMENT DETAILS: S.179

PLAN FEE $60

(A) **TORRENS TITLE**

Property leased: if appropriate, specify the part or premises

Certificate of Title 14/132440
PART being the premises shown on the plan hereto annexed marked "A" and thereon described as "Substation Premises No 3778 Name 'Punchbowl Cant West'" hereinafter called the "demised premises" together with right of way and easement referred to in Clauses 1 and 2 of Annexure "B" hereto.

(B) **LODGED BY**

LTO Box	Name, Address or DX and Telephone	CODE
48t	CITYLINK & LEGALITIES Bartiers Sharon Hoffer. REF Reference (optional) BP/SH/001013	L

(C) **LESSOR**

THE CROATIAN CLUB LIMITED (ACN 000 412 331)

The lessor leases to the lessee the property referred to above.

(D) Encumbrances (if applicable): 1. 2. 3.

(E) **LESSEE**

ENERGYAUSTRALIA ABN 67 505 337 385.

(F) **TENANCY:**

(G) 1. **TERM:** 50 years at a rental of 10c per annum payable at the expiration of the said term (if demanded)
2. **COMMENCING DATE:** 1 May 2000
3. **TERMINATING DATE:** 30 April 2050
4. ~~With an **OPTION TO RENEW** for a period of set out in~~
5. ~~With an **OPTION TO PURCHASE** set out in~~
6. Together with and reserving the **RIGHTS** set out in Annexure "B" hereto
7. Incorporates the provisions set out in **ANNEXURE "B"** hereto.
8. Incorporates the provisions set out in **MEMORANDUM** filed in the Land Titles Office as No. W578000

All handwriting must be in block capitals.
A set of notes on this form (97-07L-2) is available from the Land Titles Office.

Checked by (LTO use):

CT 551 V PROD. EB Reg 80

(A) I certify this dealing correct for the purposes of the Real Property Act 1900. **DATE:** 30-10-2001

~~Signed in my presence by the lessor who is personally known to me.~~

~~Signature of witness:~~ ~~Signature of lessor:~~

~~Name of witness~~:

~~Address of witness:~~

THE COMMON SEAL of THE CROATION CLUB LTD
was hereunto affixed by authority of the Board of Directors
in the presence of:

~~*Where applicable, complete the statutory declaration below*~~

THE CROATIAN CLUB LIMITED A.B.N. 89 000 412 331 Common Seal

Director

Director/Secretary

Full name (please print)

Full name (please print)

~~Signed in my presence by the lessee who is personally known to me.~~

~~Signature of witness:~~ ~~Signature of lessee~~:

~~Name of witness:~~

~~Address of witness:~~

SIGNED SEALED AND DELIVERED for and
on behalf of ENERGYAUSTRALIA by
GRANT KENNETH GREENE-SMITH
its duly constituted Attorney pursuant to Power
of Attorney registered Book 4290 No 806

Attorney

Witness WARWICK WEEKLEY
570 GEORGE ST
SYDNEY

~~(I) STATUTORY DECLARATION~~

I solemnly and sincerely declare that-

1. The time for the exercise of option to renew/option to purchase in expired lease No. has ended;
2. The lessee under that lease has not exercised the option;
3. A variation of lease extending the term has not been entered into.

I make this solemn declaration conscientiously believing the same to be true and by virtue of the Oaths Act 1900.

Made and subscribed at in the State of on

in the presence of -

Signature of witness: Signature of lessor:

Name of witness:

Address of witness:

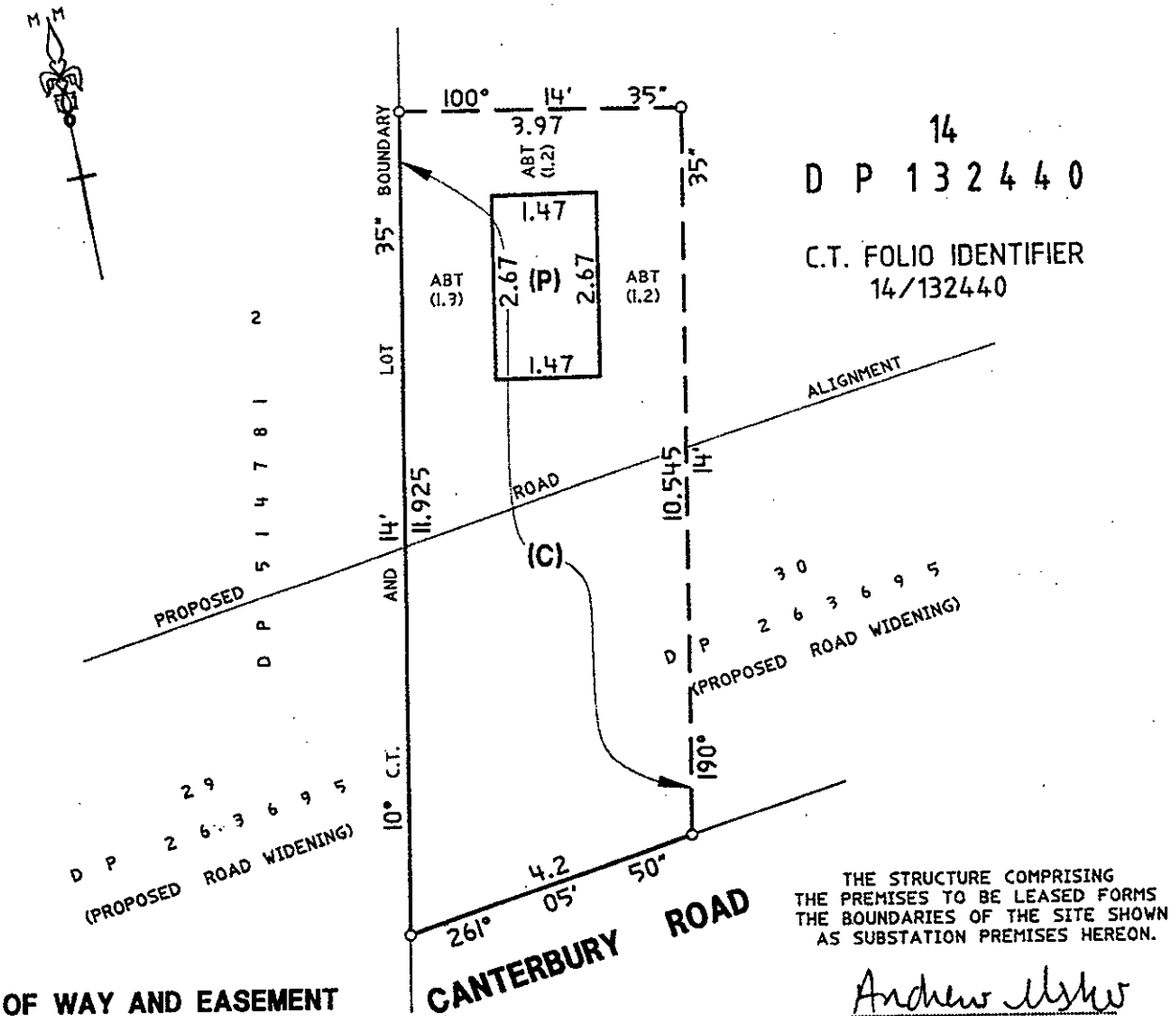
Qualification of witness:

L.G.A: BANKSTOWN
LOCALITY: PUNCHBOWL

PLAN SHOWING SUBSTATION PREMISES No.3778 RIGHT OF WAY AND EASEMENT FOR ELECTRICITY PURPOSES WITHIN C.T. FOLIO IDENTIFIER 14/132440

PARISH OF BANKSTOWN COUNTY OF CUMBERLAND

REDUCTION RATIO 1:100



THE STRUCTURE COMPRISING THE PREMISES TO BE LEASED FORMS THE BOUNDARIES OF THE SITE SHOWN AS SUBSTATION PREMISES HEREON.

Andrew Usher

ANDREW USHER
REGISTERED SURVEYOR
25 JANUARY 2000

(C) RIGHT OF WAY AND EASEMENT FOR ELECTRICITY PURPOSES 3.97 WIDE.

(P) SUBSTATION PREMISES No. 3778
NAME "PUNCHBOWL CANT WEST"

SIGNATURES AND SEALS OF PARTIES

THIS IS THE PLAN MARKED ..... REFERRED TO IN .....

THIS IS THE PLAN MARKED 'A' REFERRED TO IN LEASE MADE BETWEEN THE CROATION CLUB LIMITED AS LESSOR AND ENERGYAUSTRALIA AS LESSEE

SIGNED FOR & ON BEHALF OF
THE ~~LESSOR~~ LESSEE

SIGNED FOR & ON BEHALF OF
THE ~~LESSEE~~ LESSOR

S.13851

ANNEXURE "B" TO MEMORANDUM OF LEASE
MADE THE 30 DAY OF OCTOBER 2001
BETWEEN THE CROATIAN CLUB LIMITED AS LESSOR
and ENERGYAUSTRALIA AS LESSEE

The Lessee shall have the benefit of the following rights and liberties;

1. The Lessee shall have full right and liberty for its officers servants workmen agents and contractors with or without tools materials plant and other apparatus and vehicles to pass and repass at all times of the day or night during the term hereby created over the land marked "Right of Way and Easement for Electricity Purposes 3.97 Wide" on the plan hereto annexed marked "A" (hereinafter referred to as "right of way") and during such times as the Lessee considers necessary to park vehicles upon the said right of way PROVIDED HOWEVER that access for the Lessor its agents tenants or licensees is not unnecessarily impeded.

2. The Lessee shall have full right liberty and licence for its officers servants workmen agents and contractors during the term hereby created to construct lay down dismantle replace repair renew and maintain underground/overhead electricity cables through beneath or over the land marked "Right of Way and Easement for Electricity Purposes 3.97 Wide" on the plan hereto annexed marked "A" (hereinafter referred to as "easement") AND ALSO free and uninterrupted passage of electricity through the cables within the said easement.

3. Clause 5 of Memorandum W578000 is deleted and replaced by the following words:-

   "The Lessee shall have the right to use the substation installation and easement for the purpose of supplying other customers of the Lessee. In approving the connection of other electrical loads to the substation the Lessee will give priority to electrical loads which are located within the premises. If required by the Lessor, the Lessee will exclusively supply the Lessor from the substation installation upon the Lessor paying the Lessee's costs (which shall be determined in the Lessee's absolute discretion) for making alternate supply arrangements for any other customers of the Lessee supplied by the substation installation."

4. Clause 7 of Memorandum W578000 is deleted and replaced with the following words:-

   "The Lessor is to be responsible for both party's legal costs in relation to this Lease . The Lessee will arrange for the stamping of the Lease and for its lodgement at the Land Titles Office."

5. Clause 10 of Memorandum W578000 is amended by the deletion of the words "and any air ducting".

6. Clause 11 of Memorandum W578000 is deleted.

SIGNED FOR AND ON BEHALF OF
THE CROATION CLUB LIMITED

Cheryl Sorek.

SIGNED FOR AND ON BEHALF OF
ENERGYAUSTRALIA

u:\2000\001013\annex.Doc(maj)

RP 63

W
578000 W

Q 1 of 1
$ 35

MEMORANDUM

Insert name of relevant bank, building society, or other mortgagee, lessor, firm &c.

On behalf of THE SYDNEY COUNTY COUNCIL of 570 George Street, Sydney

Insert nature of document which will refer to this memorandum.

I certify that this memorandum (comprising page(s)), contains the provisions which are deemed to be incorporated in su
Memorandum of Lease
as refer to this memorandu

To be signed by the authorised officer for the lessor, mortgagee, chargee &c.

W.R. FARROW
Solicitor to The
Sydney County Council

Signature of Authorised Offic

Clauses are to be numbered consecutively from number 1.

MEMORANDUM

1. The covenants and powers implied in every Lease by virtue of Sections 84 and 85 of the Conveyancing Act 1919 shall not apply to or be implied in this Lease except insofar as the same or some part or parts thereof are included in the covenants hereinafter contained.

2. To the full effect of the covenants hereinafter shortly noted as the same are set forth in words at length in the second column of Part 2 of the Fourth Schedule to the Conveyancing Act 1919 (as amended):

1. The Lessee covenants with the Lessor to pay rent.
16. and will not assign or sublet without leave, no fine to be taken.
21. and the Lessor covenants with the Lessee for quiet enjoyment.

THE STANDARD MARGINS, QUALITY OF PAPER &C. PRESCRIBED BY REGULATION 6, REAL PROPERTY ACT REGULATIONS, 1970 SHOULD BE MAINTAINED IN THIS FORM AND IN ANY ANNEXURES.

3. The Lessee shall have full right and liberty with or without tools, materials, plant and other apparatus and vehicles for access to the demised premises for its officers, servants, workmen, agents and contractors at all times of the day and night during the term hereby created.

4. The Lessee may during the term hereby created install erect construct dismantle repair replace renew and maintain upon the demised premises such plant electricity conductors wires cables transformers and other apparatus for the transmission or storage of electric current or purposes incidental thereto and carry out such construction work therein as to effectively establish a substation for the supply and/or distribution of electricity.

5. The Lessee shall have the right to use the substation installation and easement for the purpose of supplying other customers PROVIDED HOWEVER that in approving the connection of electrical loads to the substation the Lessee shall give priority to electrical loads which are located within the premises of the Lessor.

6. The Lessee shall have the right at the expiration or sooner determination hereof to take remove and carry away from the demised premises and any easement all cables fixtures fittings plant machinery and other equipment laid erected or brought by it on under and about such premises.

7. Each party will bear its own costs in relation to this Lease provided always that the Lessor shall be responsible for any costs in obtaining the consent of any mortgagee and arranging production of the title deed at the Land Titles Office. The Lessee will arrange for the stamping of the Lease and for its lodgement at the Land Titles Office.

317

TO BE COMPLETED BY LODGING PARTY

Insert the name, postal address or Document Exchange reference, telephone number and delivery box number

LODGED BY
BARTIER PERRY PURCELL
167 MACQUARIE ST.,
SYDNEY 221-0377
DX 103 102Q
Delivery Box Number

Filed in the Office of the REGISTRAR GENERAL
on 23/10/1986.

Registrar General

MEMORANDUM (continued)

8. The Lessor shall pay any rates and taxes which may be levied in respect of the demised premises or of the premises of which the demised premises forms part.

9. The Lessor shall maintain in a serviceable condition any right of way (and/or any Right of Way and Easement) referred to on the plan annexed to the Lease and any drainage system which may affect the demised premises.

10. The Lessor shall take all reasonable precautions to ensure any ventilation and any air ducting provided for the demised premises are not obstructed or impaired.

11. The Lessor shall maintain in a satisfactory condition the building structure which encloses or forms part of the demised premises including any external doors, gates ventilation panels and external finishes and shall take all necessary action to ensure dry wall and floor conditions and structural stability. The Lessee will carry out cleaning and painting within the substation.

12. The Lessor shall not alter existing ground levels on or adjacent to the demised premises or any easement created in connection therewith or permit the erection of any structure on above or below such easement without first obtaining the written consent of the Lessee.

THE STANDARD MARGINS, QUALITY OF PAPER &C. PRESCRIBED BY REGULATION 6, REAL PROPERTY ACT REGULATIONS, 1970 SHOULD BE MAINTAINED IN THIS FORM AND IN ANY ANNEXURES.

0254R

(For continuation, see annexure(s) hereto)

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Req:R186609 /Doc:CT 06867-114 CT /Rev:09-Aug-2012 /Sts:OK.OK /Prt:08-Aug-2016 14:38 /Seq:1 of 2
Ref:Punchbowl /Src:Q

202

Primary Appn. No. 5578

Reference to Last Title

Vol. 2411 Fol. 66

Deposited Plan No. 5245

GRY
S

New South Wales.

[CERTIFICATE OF TITLE.]

REGISTER BOOK.

VOL. 6867 FOL. 114

Issued on Order No. F981526

10-8-2009

CANCELLED R W

ON ISSUE OF NEW FOLIO A/387361

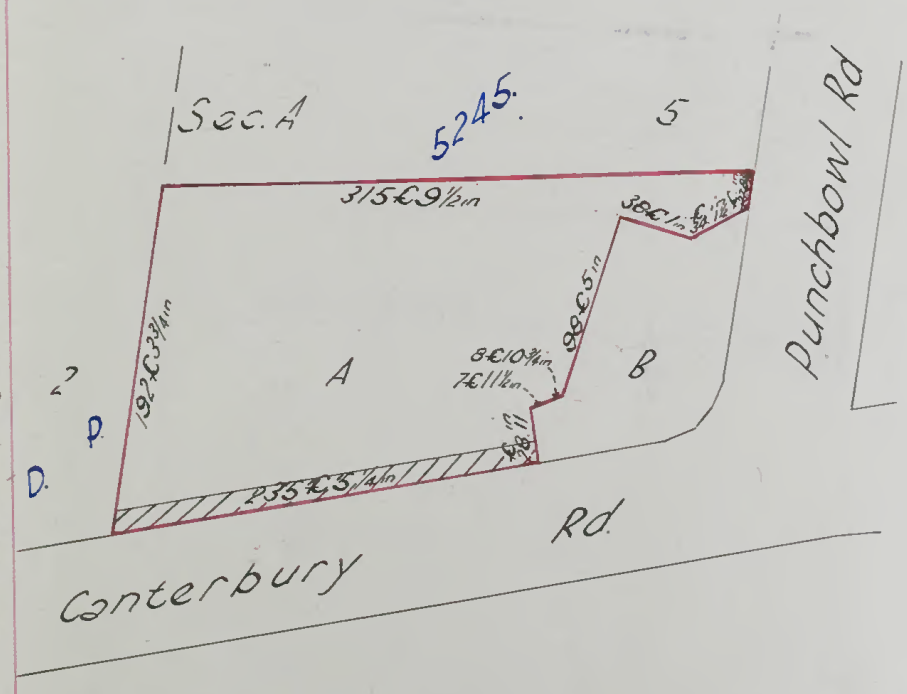
CHARLES HENDERSON & SON PTY. LIMITED, is now the proprietor of an Estate in Fee Simple, subject nevertheless to the reservations and conditions, if any, contained in the Grant hereinafter referred to, and also subject to such encumbrances, liens, and interests as are notified hereon, in That piece of land situated in the Municipality of Bankstown Parish of Bankstown , and County of Cumberland shown in the plan hereon and therein edged red being Lot A in Miscellaneous Plan of Subdivision (R.P.) Registered No. 87361 and being part of Portion 102 granted to Samuel Pitt on 8th February 1836.

In witness whereof I have hereunto signed my name and affixed my Seal, this Seventh day of October , 1954.

Signed in the presence of G.W. Moss

J. Wells

Registrar-General.



Area: 3rd 37¼per.
Scale: 80 feet to one inch

NOTIFICATION REFERRED TO

No. F411236 Mortgage dated 28th February 1951 from Charles Henderson & Son Pty. Limited to The English Scottish and Australian Bank Limited. Produced and entered 9th March 1951 at 46 minutes past 11 o'clock in the forenoon.

J. Wells

REGISTRAR GENERAL. NEW SOUTH WALES

Registrar General.

No. G199291 DISCHARGE of within mortgage F411236 dated 12th November 1954

Produced 24th November 1954 and entered 24th November 1954 at 12 o'clock in the noon.

J. Wells
REGISTRAR GENERAL.

No. G199292 MORTGAGE dated 12th November 1954 from the said Charles Henderson & Son Pty Limited to The Commercial Banking Company of Sydney Limited

Produced 24th November 1954 and entered 24th November 1954 at 12 o'clock in the noon.

J. Wells
REGISTRAR GENERAL.

MORTGAGE No. G199292 has been discharged.
See G917861 Entered 24th March 1958.

J. Wells
REGISTRAR GENERAL.

Glanville Pty. Limited is

now the registered proprietor of the land within described

See TRANSFER No. H22134 dated 19th August 1958

Entered 29th August 1958

Jan Watson
REGISTRAR GENERAL

G199291 D
292 M

F981526

Persons are cautioned against altering or adding to this Certificate or any notification thereon.

68463—2 2.54 K2006—1 A. H. PETTIFER, GOVERNMENT PRINTER.

Req:R186609 /Doc:CT 06867-114 CT /Rev:09-Aug-2012 /Sts:OK.OK /Prt:08-Aug-2016 14:38 /Seq:2 of 2
Ref:Punchbowl /Src:Q

No. J457158 MORTGAGE dated 19th September 1963
to Bank of New South Wales

Entered 2nd October 1963.

Discharged Q546416 27.6.1978

REGISTRAR GENERAL

No. K911094 Caveat.
DATED 27th December 1967
PRODUCED 29th December 1967
ENTERED 10th January 1968

REGISTRAR GENERAL.

MORTGAGE No. J457158 has been discharged.
as regards Lots 5 and 7 in D.P. 236825
See M81549 Entered 22nd December 1970

REGISTRAR GENERAL

The Commissioner for Main Roads is
now the registered proprietor of that part of the land within described.
shown hatched black on the plan hereon being Lots 5 and 7 in D.P. 236825
See TRANSFER No. M81549 dated 28th October 1970
(With Consent of Caveator)
Entered 22nd December 1970

REGISTRAR GENERAL

TRANSFER NO. Q546417 Cragford Pty Limited is
now the registered proprietor of the land within described
excluding land hatched black on plan hereon being lots 5 and 7 in DP 236825
Registered 23-6-1978

REGISTRAR GENERAL

Encumbrance Q546418 to Toaneys Limited excluding land hatched black on plan hereon being lots 5 and 7 in DP 236825
Registered 23-6-1978
Discharged T567765 10.8.1983

REGISTRAR GENERAL

MORTGAGE No. Q546419 to Euro-Pacific finance Corporation limited excluding land hatched black on plan hereon being lots 5 and 7 in DP 236825
Registered 23-6-1978
Discharged T567766 10.8.1983.

Caveat Q556371 by Euro-Pacific finance Corporation limited excluding land hatched black in plan hereon being lots 5 and 7 in DP 236825
Registered 23.6.1978.
Withdrawn T567764 10.8.1983.

Registered General

REGISTERED PROPRIETOR The Croation Club Limited excluding Lots 5 and 7 in D.P. 236825 by Transfer T567767
Registered 10.8.1983

REGISTRAR GENERAL

T567768 Mortgage to Cragford Pty Limited excluding Lots 5 and 7 in D.P. 236825 by Transfer T567767
Registered 10.8.1983
Discharged V89565 9-8-1984.

REGISTRAR GENERAL

V89566 Mortgage to Commonwealth Trading Bank of Australia. Registered 9-8-1984.

REGISTRAR GENERAL

COMPUTER FOLIO NO FURTHER DEALINGS TO BE REGISTERED.

FOLIO CANCELLED AS TO RESIDUE

NEW FOLIOS CREATED FOR 5/236825 & 7/236825

Direct Info
Quick and easy online

Title Search

08/08/2016 02:54 PM

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: AUTO CONSOL 15118-2

SEARCH DATE	TIME	EDITION NO	DATE
8/8/2016	2:54 PM	7	23/12/2013

LAND

LAND DESCRIBED IN SCHEDULE OF PARCELS
AT PUNCHBOWL
LOCAL GOVERNMENT AREA CANTERBURY-BANKSTOWN
PARISH OF BANKSTOWN COUNTY OF CUMBERLAND
TITLE DIAGRAM SEE SCHEDULE OF PARCELS

FIRST SCHEDULE

THE CROATIAN CLUB LIMITED

SECOND SCHEDULE (7 NOTIFICATIONS)

---

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 C767645 EASEMENT FOR DRAINAGE AFFECTING THE PARTS OF LOT 15
IN DP132440 & LOT A IN DP378634 SHOWN SO BURDENED IN
THE TITLE DIAGRAMS & THE PART OF LOT 6 IN DP5245 SHOWN
11 FT WIDE & 12 FT WIDE IN DP189382
3 F928154 EASEMENT FOR TRANSMISSION LINE AFFECTING THE PART
OF LOT A IN DP378634 SHOWN IN PLAN WITH F928154
Z944756 TRANSFER OF EASEMENT TO SYDNEY ELECTRICITY
4 7570101 LEASE TO OPTUS MOBILE PTY LIMITED OF PART SHOWN
HATCHED IN PLAN WITH 7570101 COMMENCES 23/8/2010.
EXPIRES: 22/8/2015.
5 7570102 LEASE TO OPTUS MOBILE PTY LIMITED OF PART SHOWN
HATCHED IN PLAN WITH 7570102 COMMENCES 23/8/2015.
EXPIRES: 22/8/2020.
6 AG686225 MORTGAGE TO ALFRED GAIL
7 AI234179 MORTGAGE TO ALFRED GAIL

NOTATIONS

UNREGISTERED DEALINGS: NIL

SCHEDULE OF PARCELS	TITLE DIAGRAM
LOT 6 IN DP5245	DP5245

Direct Info Pty Ltd - ABN 25 160 378 263 *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.

Direct Info
Quick and easy online

LOT 15 IN DP132440	DP132440
LOT A IN DP378634	DP378634.

*** END OF SEARCH ***

Punchbowl PRINTED ON 8/8/2016

* 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.
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Direct Info Pty Ltd - ABN 25 160 378 263 *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.

Direct Info
Quick and easy online

Historical Search

08/08/2016 02:55 PM

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

8/8/2016 2:55PM

FOLIO: 15/132440

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 15118 FOL 2

Recorded	Number	Type of Instrument	C.T. Issue
22/3/1996	DP132440	DEPOSITED PLAN	LOT RECORDED FOLIO NOT CREATED
21/5/1996		CONVERTED TO AUTO CONSOL 15118-2	CONSOL CREATED CT NOT ISSUED

*** END OF SEARCH ***

Direct Info Pty Ltd - ABN 25 160 378 263 *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 O: SECTION 149 CERTIFICATE

© Foundation Earth Sciences 2022

The NEW City of CANTERBURY BANKSTOWN

PLANNING CERTIFICATE

UNDER SECTION 149 OF THE ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979

Benviron Group
3/112 Fairfield St
FAIRFIELD EAST NSW 2165

CERTIFICATE DETAILS

NUMBER	20163043	**DATE**	25-Aug-2016

RECEIPT AND REFERENCE DETAILS

FEE	$53.00		
RECEIPT NUMBER	3402840	**RECEIPT DATE**	23-Aug-2016
REFERENCE	0404040693		

PROPERTY DESCRIPTION

PROPERTY	21 Canterbury Road, PUNCHBOWL NSW 2196		
TITLE	Lot 14 DP 132440		
PARISH	Bankstown	**COUNTY**	CUMBERLAND

PLANNING INSTRUMENTS

In accordance with Section 149(2) and at the date of this certificate the following Environmental Planning Instruments apply to the land.

Bankstown Local Environmental Plan 2015 Gazetted on 05-Mar-2015

LAND ZONING

B1 Neighbourhood Centre

THE CITY OF CANTERBURY-BANKSTOWN
PO Box 8, Bankstown NSW 1885 **PH** 02 9707 9000 **FAX** 02 9707 9700

PLANNING CERTIFICATE

UNDER SECTION 149 OF THE ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979

SECTION 149(2) DETAILS

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

1. NAMES OF RELEVANT PLANNING INSTRUMENTS AND DCPs

Affected by Planning Proposal_2013_BANKS_001 which makes various amendments to planning controls in the North West Local Area Plan; and Zone R4 High Density Residential, Zone B1 Neighbourhood Centre and Zone B2 Local Centre in the City of Bankstown.

Affected by Bankstown Local Environmental Plan 2015 Amendments and Planning Proposals in respect of general information as detailed in Appendix 1.

Affected by State Environmental Planning Policies (SEPP's), Proposed State Environmental Planning Policies and Deemed State Environmental Planning Policies as detailed in Appendix 2.

Affected by Bankstown Development Control Plan 2015 (refer to Appendix 3 which lists the contents chapters within the DCP).

2. ZONING AND LAND USE UNDER RELEVANT LEPs

Unless specified otherwise in this section of the certificate, the land does not include or comprise critical habitat, is not in a conservation area and has no environmental heritage item on the land.

The purposes for which the plan or instrument provides that development may be carried out within the zone without the need for development consent are specified in clause 3.1 of the LEP 2015 plan and the land use table as detailed in Appendix 4. Reference should be made to the LEP 2015 plan as a whole for details.

The purposes for which the plan or instrument provides that development may not be carried out within the zone except with development consent are specified in Part 2 and clause 3.2 of the LEP 2015 plan and detailed in Appendix 4. Reference should be made to the LEP 2015 plan as a whole for details.

The purposes for which the plan or instrument provides that development is prohibited within the zone are specified in Part 2 and clauses 4.1A-2(c), 4.1B-2(4), 6.6 and 6.8 of the LEP 2015 plan and detailed in Appendix 4. Reference should be made to the LEP 2015 plan as a whole for details.

2A. ZONING AND LAND USE UNDER STATE ENVIRONMENTAL PLANNING POLICY (SYDNEY REGION GROWTH CENTRES) 2006

Unless specified otherwise in this section of the certificate, the land is not within any zone or land use under a Precinct Plan, a proposed Precinct Plan or Part 3 of State Environmental Planning Policy (Sydney Region Growth Centres) 2006.

THE CITY OF CANTERBURY-BANKSTOWN
PO Box 8, Bankstown NSW 1885 **PH** 02 9707 9000 **FAX** 02 9707 9700

3. COMPLYING DEVELOPMENT

General Housing Code

Complying development under the General Housing Code within "State Environmental Planning Policy (Exempt and Complying Development Codes) 2008" **may not** be carried out on the land.
The land is non complying because the land has been identified by an environmental planning instrument as being either one of the following zones:-

- B5 Business Development, B6 Enterprise Corridor, B7 Business Park
- IN1 General Industrial, IN2 Light Industrial
- SP1 Special Activities, SP2 Infrastructure
- RE1 Public Recreation, RE2 Private Recreation
- E1 National Park and Nature Reserves
- Land unzoned under LEP 2015.....*refer to the Land Zoning of this certificate on page 1.*

OR
The land is affected by one or more of the following 4 exemptions:-

- A Heritage item ..... *refer to clause 2 of this certificate,*
- Land in the 25 or higher ANEF contour ..... *refer to clause 7 of this certificate,*

(Unless the development is only for the erection of ancillary development, the alteration of or an addition to ancillary development or the alteration of a dwelling house)

- Acid sulfate soils class 1 or 2 ..... *refer to clause 7 of this certificate,*
- Land in a vegetated buffer area ..... *refer to clause 7 of this certificate.*

Note: If the land has been rendered non complying due to an exemption listed above, you are advised to check with Council for the extent of the exemption. The Code may render the land complying for any land which is outside the extent of the exemption. Reference should be made to the "Planning Maps" on Council's website www.bankstown.nsw.gov.au which identifies the land exemptions.

Housing Alterations Code

Complying development under the Housing Alterations Code within the provisions of "State Environmental Planning Policy (Exempt and Complying Development Codes) 2008" **may not** be carried out on the land.
The land is non complying because the land has been identified by an environmental planning instrument as being either one of the following zones:-

- B5 Business Development, B6 Enterprise Corridor, B7 Business Park
- IN1 General Industrial, IN2 Light Industrial
- SP1 Special Activities, SP2 Infrastructure
- RE1 Public Recreation, RE2 Private Recreation
- E1 National Park and Nature Reserves
- Land unzoned under LEP 2015.....*refer to the Land Zoning of this certificate on page 1.*

OR
The land is affected by the following exemption:-

- A Heritage item .....*refer to clause 2 of this certificate.*

Note: If the land has been rendered non complying due to an exemption listed above, you are advised to check with Council for the extent of the exemption. The Code may render the land complying for any land which is outside the extent of the exemption. Reference should be made to the "Planning Maps" on Council's website www.bankstown.nsw.gov.au which identifies the land exemptions.

Subdivisions Code (strata subdivision)

Complying development under the Subdivisions Code within "State Environmental Planning Policy (Exempt and Complying Development Codes) 2008" **may** be carried out on the land.

Rural Housing Code

Complying development under the Rural Housing Code within "State Environmental Planning Policy (Exempt and Complying Development Codes) 2008" **may not** be carried out on the land.
The land is non complying because the land has been identified by an environmental planning instrument as being either one of the following zones:-

- R2 Low Density Residential, R3 Medium Density Residential, R4 High Density Residential
- B1 Neighbourhood Centre, B2 Local Centre, B4 Mixed Use, B5 Business Development, B6 Enterprise Corridor, B7 Business Park
- IN1 General Industrial, IN2 Light Industrial
- SP1 Special Activities, SP2 Infrastructure
- RE1 Public Recreation, RE2 Private Recreation
- E1 National Park and Nature Reserves

THE CITY OF CANTERBURY-BANKSTOWN
PO Box 8, Bankstown NSW 1885 **PH** 02 9707 9000 **FAX** 02 9707 9700

- Land unzoned under LEP 2015.....*refer to the Land Zoning of this certificate on page 1.*

OR

The land is affected by one or more of the following 4 exemptions:-

- A Heritage item ..... *refer to clause 2 of this certificate,*
- Land in the 25 or higher ANEF contour.... ..... *refer to clause 7 of this certificate,*

(Unless the development is only for the erection of ancillary development, the alteration of or an addition to ancillary development or the alteration of a dwelling house)

- Acid sulfate soils class 1 or 2 ..... *refer to clause 7 of this certificate,*
- Land in a vegetated buffer area ..... *refer to clause 7 of this certificate,*

Note: If the land has been rendered non complying due to an exemption listed above, you are advised to check with Council for the extent of the exemption. The Code may render the land complying for any land which is outside the extent of the exemption. Reference should be made to the "Planning Maps" on Council's website www.bankstown.nsw.gov.au which identifies the land exemptions.

General Development Code

Complying development under the General Development Code within "State Environmental Planning Policy (Exempt and Complying Development Codes) 2008" **may** be carried out on the land.

Demolition Code

Complying development under the Demolition Code within "State Environmental Planning Policy (Exempt and Complying Development Codes) 2008" **may** be carried out on the land.

Fire Safety Code

Complying development under the Fire Safety Code within "State Environmental Planning Policy (Exempt and Complying Development Codes) 2008" **may** be carried out on the land.

Commercial and Industrial Alterations Code

Complying development under the Commercial and Industrial Alterations Code within the provisions of "State Environmental Planning Policy (Exempt and Complying Development Codes) 2008" **may not** be carried out on the land.

The land is non complying because the land has been identified by an environmental planning instrument as being either one of the following zones:-

- RU4 Primary Production Small Lots
- R2 Low Density Residential, R3 Medium Density Residential, R4 High Density Residential
- SP1 Special Activities, SP2 Infrastructure
- RE1 Public Recreation, RE2 Private Recreation
- E1 National Park and Nature Reserves
- Land unzoned under LEP 2015.....*refer to the Land Zoning of this certificate on page 1.*

OR

The land is affected by one of the following exemptions:-

- A Heritage item ..... *refer to clause 2 of this certificate.*
- A Flood Control Lot .....*refer to clause 7A of this certificate.*

Note: If the land has been rendered non complying due to an exemption listed above, you are advised to check with Council for the extent of the exemption. The Code may render the land complying for any land which is outside the extent of the exemption. Reference should be made to the "Planning Maps" on Council's website www.bankstown.nsw.gov.au which identifies the land exemptions.

Further: Although the land is non complying for Subdivisions 9 & 10, the Code may render the land complying for Subdivisions 1-8 and 11-12. Reference should be made to "Part 5 – Commercial and Industrial Alterations Code" of the SEPP for details.

Commercial and Industrial (New Buildings and Additions) Code

Complying development under the Commercial and Industrial (New Buildings and Additions) Code within the provisions of "State Environmental Planning Policy (Exempt and Complying Development Codes) 2008" **may not** be carried out on the land.

The land is non complying because the land has been identified by an environmental planning instrument as being either one of the following zones:-

- RU4 Primary Production Small Lots
- R2 Low Density Residential, R3 Medium Density Residential, R4 High Density Residential
- SP1 Special Activities, SP2 Infrastructure
- RE1 Public Recreation, RE2 Private Recreation

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- E1 National Park and Nature Reserves
- Land unzoned under LEP 2015.....*refer to the Land Zoning of this certificate on page 1.*

OR

The land is affected by one of the following exemptions:-

- A Heritage item ..... *refer to clause 2 of this certificate.*
- Acid Sulfate Soils class 1 or 2 .....*refer to clause 7 of this certificate*
- A Vegetated Buffer Area.....*refer to clause 7 of this certificate*

Note: If the land has been rendered non complying due to an exemption listed above, you are advised to check with Council for the extent of the exemption. The Code may render the land complying for any land which is outside the extent of the exemption. Reference should be made to the "Planning Maps" on Council's website www.bankstown.nsw.gov.au which identifies the land exemptions.

4. COASTAL PROTECTION

Unless specified otherwise in this section of the certificate, the land is not affected by the operation of Section 38 or 39 of the Coastal Protection Act 1979.

4A. CERTAIN INFORMATION RELATING TO BEACHES AND COASTS

Unless specified otherwise in this section of the certificate, the land is not subject to an order under Part 4D of the Coastal Protection Act 1979 in relation to temporary coastal protection works (or on public land adjacent to the land) and, Council has not been notified under Section 55X of the Coastal Protection Act 1979 that temporary coastal protection works have been placed on the land (or on public land adjacent to the land).

4B. ANNUAL CHARGES UNDER LOCAL GOVERNMENT ACT 1993 FOR COASTAL PROTECTION SERVICES THAT RELATE TO EXISTING COASTAL PROTECTION WORKS

Unless specified otherwise in this section of the certificate, the owner (or any previous owner) has not consented in writing that the land is subject to annual charges under Section 496B of the Local Government Act 1993 for coastal protection services that relate to existing coastal protection works.

5. MINE SUBSIDENCE

Not affected by Section 15 of the Mine Subsidence Compensation Act 1961, proclaiming land to be a mine subsidence district.

6. ROAD WIDENING AND REALIGNMENT

Affected by road widening or road realignment under an Environmental Planning Instrument. Council's records show that the land is affected by future road widening proposals. Please check with the Roads and Maritime Services for the effect. Not affected by road widening or road realignment under Division 2 of Part 3 of the Roads Act 1993 or any resolution of Council.

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7. COUNCIL AND OTHER PUBLIC AUTHORITY POLICIES ON HAZARD RISK RESTRICTIONS

Unless specified otherwise in this section of the certificate, the land is not affected by policies adopted by Council or by any other authority (that has notified Council of its adoption) that restricts development of the land. For bush fire prone land refer to section 11. For flood prone land refer to section 7A.

Affected by a resolution of Council adopting a policy, which may restrict the development of the land because of the likelihood of acid sulfate soils. For further information, please refer to clause 6.1 of LEP 2015 or contact Councils Planning staff on 9707 9000.

Affected by a resolution of Council adopting a policy concerning the management of contaminated land. That policy applies to all land in the City of Canterbury-Bankstown and will restrict development of the land if the circumstances set out in the policy prevail. A copy of the policy is available on Council's website at www.bankstown.nsw.gov.au or from the Customer Service Area.

Note: Additional information regarding contaminated land matters for this property may also be provided on part 5 of this section 149 planning certificate. For further information contact Council on 9707 9000.

7A. FLOOD RELATED DEVELOPMENT CONTROLS INFORMATION

Unless specified otherwise in this section of the certificate, the land is not affected by flood related development controls.

A Flood control lot.
The property is affected by a policy known as Bankstown Development Control Plan 2015, Part B12 - Flood Risk Management and clause 6.3 – Flood planning of the LEP 2015, by reference to the Salt Pan Creek Stormwater Catchment Study (June 2007) and Report Addendum (October 2009) (a copy of which is available for inspection at Council's Offices), which categorises land affected by the 100 year flood into two flood risk precincts:

- High flood risk precinct – Land below the 100 year flood that is either subject to a high hydraulic hazard or where there are significant evacuation difficulties; and
- Medium flood risk precinct - Land below the 100 year flood that is not subject to a high hydraulic hazard and where there are no evacuation difficulties.

Bankstown Development Control Plan 2015 includes flood related development controls for properties based on the relevant flood risk precinct. Contact Council for information about the flood risk precinct applying to this property.

8. LAND RESERVED FOR ACQUISITION

Affected by either an Environmental Planning Instrument or proposed Environmental Planning Instrument referred to in clause 5.1 providing for the acquisition of the land or part of the land by a public authority, as referred to in Section 27 of the Environmental Planning & Assessment Act. Reference should be made to the LEP 2015 plan as a whole for details.

9. CONTRIBUTION PLANS

Affected by Bankstown City Council Section 94A Development Contributions Plan 2009 which allows Council to impose a levy on development within the City of Canterbury-Bankstown in accordance with Directions issued by the Minister for Planning. The levy will be spent on the provision of public works and infrastructure. Date of commencement 8th June 2009. For further details on the plan contact Council on 9707 9000 or visit Council's website – www.bankstown.nsw.gov.au

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9A. BIODIVERSITY CERTIFIED LAND

Unless specified otherwise in this section of the certificate, the land is not biodiversity certified land within the meaning of Part 7AA of the Threatened Species Conservation Act 1995.

10. BIOBANKING AGREEMENTS

Unless specified otherwise in this section of the certificate, the land is not subject to a Biobanking Agreement under Part 7A of the Threatened Species Conservation Act 1995, made by the Department of Environment, Climate Change and Water that has notified Council of the existence of the agreement.

11. BUSHFIRE PRONE LAND

Unless specified otherwise in this section of the certificate, the land is not bushfire prone.

12. PROPERTY VEGETATION PLANS

Unless specified otherwise in this section of the certificate, the land is not subject to a Property Vegetation Plan under the Native Vegetation Act 2003, as approved by any other authority that has notified Council of the existence of the plan.

13. ORDERS UNDER TREES (DISPUTES BETWEEN NEIGHBOURS) ACT 2006

Unless specified otherwise in this section of the certificate, the land is not subject to a Tree Order under the Trees (Disputes Between Neighbours) Act 2006, made by an authority that has notified Council of the existence of the order.

14. DIRECTIONS UNDER PART 3A

Unless specified otherwise in this section of the certificate, the land is not subject to a Direction by the Minister under section 75P (2) (c1) of the Act that a provision of an EPI does not have an effect.

15. CONDITIONS AFFECTING SENIORS HOUSING

Unless specified otherwise in this section of the certificate, the land is not subject to a development application granted after 12.10.2007 under SEPP (Housing for Seniors or People with a Disability) 2004 setting out the terms of any conditions imposed under clause 18(2) or a current site compatibility certificate issued under clause 25 of the SEPP.

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16. SITE COMPATIBILITY CERTIFICATES FOR INFRASTRUCTURE

Unless specified otherwise in this section of the certificate, the land is not subject to a development application under clause 19 of SEPP (Infrastructure) 2007 where a valid site compatibility certificate has been issued.

17. SITE COMPATIBILITY CERTIFICATES & CONDITIONS FOR AFFORDABLE RENTAL HOUSING

Unless specified otherwise in this section of the certificate, the land is not subject to a development application under SEPP (Affordable Rental Housing) 2009 where a valid site compatibility certificate and conditions have been issued.

18. PAPER SUBDIVISION INFORMATION

Unless specified otherwise in this section of the certificate, the land is not subject to a paper subdivision or subdivision order.

19. SITE VERIFICATION CERTIFICATES

Unless specified otherwise in this section of the certificate, the land is not subject to a current site verification certificate of which the Council is aware in respect to Division 3 of Part 4AA of State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007.

20. LOOSE–FILL ASBESTOS INSULATION

A residential dwelling erected on this land has not been identified in the Loose–Fill Asbestos Insulation Register as containing loose–fill ceiling insulation. Contact NSW Fair Trading for more information.

MATTERS ARISING UNDER THE CONTAMINATED LAND MANAGEMENT ACT, 1997

Unless specified otherwise in this section of the certificate, there are no matters arising under Section 59(2) of the Contaminated Land Management Act 1997.

MATTERS ARISING UNDER THE NATION BUILDING AND JOBS PLAN (STATE INFRASTRUCTURE DELIVERY) ACT, 2009

Unless specified otherwise in this section of the certificate, there are no matters arising under Section 26 of the Nation Building and Jobs Plan (State Infrastructure Delivery) Act 2009.

This completes the prescribed matters for the certificate under section 149(2) of the Environmental Planning and Assessment Act 1979, as amended. While this certificate indicates the zoning of the land, it is suggested that the relevant Planning Instrument be inspected on Council's website under Development – Planning Maps or at Council's Customer Service Centre to provide an overall view of the area and the site's surrounding zonings.

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Please contact Council's general enquiries number listed at the bottom of this sheet for further information about any matter referred to in this certificate.

M. Ratkun

Melissa Ratkun
Manager Information Management

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Appendix 1

Bankstown Local Environmental Plan 2015 Amendments & Planning Proposals.

(relating to general information only which may affect part or the whole of the City)

Note: As of 1 July 2009, Draft LEP's have been replaced with "Planning Proposals". A planning proposal is a document that explains the intended effect of, and justification for, a proposed LEP.

Nil

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Appendix 2

State Environmental Planning Policies (SEPP's), Proposed SEPP's and Deemed SEPP's

Note: The names of the relevant instrument's plus their gazettal dates are listed below. For further details please refer to the Department of Planning website www.planning.nsw.gov.au under the heading "Planning System – Legislation and Planning Instruments".

SEPP No.19 – Bushland in Urban Areas, gazetted 24.10.1986
SEPP No.21 – Caravan Parks, gazetted 24.4.1992
SEPP No.30 – Intensive Agriculture, gazetted 8.12.1989
SEPP No.32 – Urban Consolidation (Redevelopment of Urban Land), gazetted 15.11.1991
SEPP No.33 – Hazardous and Offensive Development, gazetted 13.3.1992
SEPP No.50 – Canal Estate Development, gazetted 10.11.1997
SEPP No.55 – Remediation of Land, gazetted 28.8.1998
SEPP No.62 – Sustainable Aquaculture, gazetted 25.8.2000
SEPP No.64 – Advertising and Signage, gazetted 16.3.2001
SEPP No.65 – Design Quality of Residential Flat Development, gazetted 26.7.2002
SEPP – (Housing for Seniors or People with a Disability) 2004, gazetted 31.3.2004
SEPP – (Building Sustainability Index: BASIX) 2004, gazetted 25.6.2004
SEPP – (Major Development) 2005, gazetted 1.8.2005
SEPP – (Mining, Petroleum Production and Extractive Industries) 2007, gazetted 16.2.2007
SEPP – (Miscellaneous Consent Provisions) 2007, gazetted 26.10.2007
SEPP – (Infrastructure) 2007, gazetted 21.12.2007
SEPP – (Exempt and Complying Development Codes) 2008, gazetted 12.12.2008
SEPP – (Affordable Rental Housing) 2009, gazetted 31.7.2009
SEPP – (Sydney Drinking Water Catchment) 2011, gazetted 21.1.2011

PROPOSED SEPP - Competition SEPP, 27.7.2010

Note: As of 1 July 2009, regional environmental plans (REPs) are no longer part of the hierarchy of environmental planning instruments in NSW. The removal of the REP layer is intended to simplify the State's planning system. All existing REPs (listed below) are now deemed State environmental planning policies (SEPPs).

Deemed SEPP – Greater Metropolitan Regional Environmental Plan No. 2 – Georges River Catchment, gazetted 5.2.1999

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Appendix 3

Bankstown Development Control Plan 2015

DATE OF COMMENCEMENT – 13th May 2015

The following is a list of the contents within Bankstown Development Control Plan 2015. If further information is required please contact Council on 9707 9000.

INTRODUCTION	
PART A	**PRECINCT CONTROLS**
A1	Centres
A2	Corridors
A3	Key infill development sites
PART B	**GENERAL CONTROLS**
B1	Residential development
B2	Commercial centres
B3	Industrial precincts
B4	Sustainable development
B5	Parking
B6	Child care centres
B7	Educational establishments
B8	Places of public worship
B9	Sex services premises
B10	Telecommunications facilities
B11	Tree preservation order
B12	Flood risk management

Please note: Council may from time to time exhibit draft changes to the development control plan that may affect your land. To find out more, please contact Council on 9707 9000 or view Council's website and refer to the Development Control Plan - www.bankstown.nsw.gov.au

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Appendix 4

Land Use Table

Note. A type of development referred to in the Land Use Table is a reference to that type of development only to the extent it is not regulated by an applicable State environmental planning policy. The following State environmental planning policies in particular may be relevant to development on land to which this Plan applies:
State Environmental Planning Policy (Affordable Rental Housing) 2009 (including provision for secondary dwellings)
State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004
State Environmental Planning Policy (Infrastructure) 2007 (relating to public facilities such as those for air transport, correction, education, electricity generation, health services, ports, railways, roads, waste management and water supply systems)
State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007
State Environmental Planning Policy (Rural Lands) 2008
State Environmental Planning Policy No 33—Hazardous and Offensive Development
State Environmental Planning Policy No 50—Canal Estate Development
State Environmental Planning Policy No 62—Sustainable Aquaculture
State Environmental Planning Policy No 64—Advertising and Signage

Zone RU4 Primary Production Small Lots
Permitted without consent Home occupations
Permitted with consent Agriculture; Animal boarding or training establishments; Building identification signs; Business identification signs; Dwelling houses; Environmental facilities; Environmental protection works; Extensive agriculture; Farm buildings; Flood mitigation works; Intensive plant agriculture; Kiosks; Plant nurseries; Recreation areas; Recreation facilities (indoor); Recreation facilities (outdoor); Roads; Roadside stalls; Water supply systems
Prohibited Any development not specified in item 2 or 3

Zone R2 Low Density Residential
Permitted without consent Home occupations
Permitted with consent Bed and breakfast accommodation; Boarding houses; Boat sheds; Building identification signs; Business identification signs; Car parks; Child care centres; Community facilities; Dual occupancies; Dwelling houses; Emergency services facilities; Environmental facilities; Environmental protection works; Exhibition homes; Flood mitigation works; Group homes; Health consulting rooms; Home-based child care; Hospitals; Information and education facilities; Jetties; Multi dwelling housing; Places of public worship; Public administration buildings; Recreation areas; Respite day care centres; Roads; Secondary dwellings; Semi-detached dwellings; Seniors housing; Water recreation structures; Water supply systems
Prohibited Any development not specified in item 2 or 3

Zone R3 Medium Density Residential
Permitted without consent Nil
Permitted with consent Attached dwellings; Bed and breakfast accommodation; Boarding houses; Building identification signs; Business identification signs; Car parks; Child care centres; Community facilities; Dwelling houses; Emergency services facilities; Environmental facilities; Environmental protection works; Flood mitigation works; Group homes; Information and education facilities; Multi dwelling housing; Neighbourhood shops; Places of public worship; Public administration buildings; Recreation areas; Respite day care centres; Roads; Secondary dwellings; Seniors housing; Water supply systems
Prohibited Any development not specified in item 2 or 3

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Zone R4 High Density Residential
Permitted without consent Nil
Permitted with consent Attached dwellings; Bed and breakfast accommodation; Boarding houses; Building identification signs; Business identification signs; Car parks; Child care centres; Community facilities; Dwelling houses; Emergency services facilities; Environmental facilities; Environmental protection works; Flood mitigation works; Information and education facilities; Multi dwelling housing; Neighbourhood shops; Places of public worship; Public administration buildings; Recreation areas; Residential flat buildings; Respite day care centres; Roads; Secondary dwellings; Seniors housing; Serviced apartments; Shop top housing; Water supply systems
Prohibited Any development not specified in item 2 or 3

Zone B1 Neighbourhood Centre
Permitted without consent Nil
Permitted with consent Boarding houses; Building identification signs; Bulky goods premises; Business identification signs; Business premises; Car parks; Child care centres; Community facilities; Environmental facilities; Environmental protection works; Flood mitigation works; Garden centres; Hardware and building supplies; Health services facilities; Information and education facilities; Kiosks; Landscaping material supplies; Markets; Medical centres; Neighbourhood shops; Office premises; Places of public worship; Plant nurseries; Public administration buildings; Recreation areas; Recreation facilities (indoor); Recreation facilities (outdoor); Registered clubs; Research stations; Residential flat buildings; Respite day care centres; Restaurants or cafes; Roads; Seniors housing; Service stations; Shop top housing; Shops; Take away food and drink premises; Timber yards; Tourist and visitor accommodation; Vehicle repair stations; Vehicle sales or hire premises; Veterinary hospitals; Water supply systems
Prohibited Any development not specified in item 2 or 3

Zone B2 Local Centre
Permitted without consent Nil
Permitted with consent Boarding houses; Building identification signs; Business identification signs; Child care centres; Commercial premises; Community facilities; Educational establishments; Entertainment facilities; Function centres; Information and education facilities; Medical centres; Passenger transport facilities; Recreation facilities (indoor); Registered clubs; Residential flat buildings; Respite day care centres; Restricted premises; Roads; Seniors housing; Service stations; Shop top housing; Tourist and visitor accommodation; Any other development not specified in item 2 or 4
Prohibited Agriculture; Air transport facilities; Airstrips; Animal boarding or training establishments; Biosolids treatment facilities; Boat building and repair facilities; Boat launching ramps; Boat sheds; Camping grounds; Caravan parks; Cemeteries; Charter and tourism boating facilities; Correctional centres; Crematoria; Depots; Eco-tourist facilities; Electricity generating works; Exhibition homes; Exhibition villages; Extractive industries; Farm buildings; Forestry; Freight transport facilities; Heavy industrial storage establishments; Helipads; Highway service centres; Home occupations (sex services); Industrial retail outlets; Industrial training facilities; Industries; Jetties; Marinas; Mooring pens; Moorings; Mortuaries; Open cut mining; Port facilities; Residential accommodation; Rural industries; Sewage treatment plants; Sex services premises; Signage; Storage premises; Transport depots; Truck depots; Vehicle body repair workshops; Waste or resource management facilities; Water recreation structures; Water recycling facilities; Wharf or boating facilities; Wholesale supplies

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Zone B4 Mixed Use
Permitted without consent Nil
Permitted with consent Boarding houses; Building identification signs; Business identification signs; Child care centres; Commercial premises; Community facilities; Educational establishments; Entertainment facilities; Function centres; Hotel or motel accommodation; Information and education facilities; Medical centres; Passenger transport facilities; Recreation facilities (indoor); Registered clubs; Residential flat buildings; Respite day care centres; Restricted premises; Roads; Seniors housing; Shop top housing; Any other development not specified in item 2 or 4
Prohibited Agriculture; Air transport facilities; Airstrips; Animal boarding or training establishments; Biosolids treatment facilities; Boat building and repair facilities; Boat launching ramps; Boat sheds; Camping grounds; Caravan parks; Cemeteries; Charter and tourism boating facilities; Crematoria; Depots; Eco-tourist facilities; Electricity generating works; Exhibition homes; Exhibition villages; Extractive industries; Farm buildings; Forestry; Freight transport facilities; Heavy industrial storage establishments; Highway service centres; Home occupations (sex services); Industrial retail outlets; Industrial training facilities; Industries; Jetties; Marinas; Mooring pens; Moorings; Mortuaries; Open cut mining; Port facilities; Residential accommodation; Resource recovery facilities; Rural industries; Sewage treatment plants; Sex services premises; Signage; Storage premises; Transport depots; Truck depots; Vehicle body repair workshops; Warehouse and distribution centres; Waste disposal facilities; Water recreation structures; Water recycling facilities; Wharf or boating facilities; Wholesale supplies

Zone B5 Business Development
Permitted without consent Nil
Permitted with consent Building identification signs; Bulky goods premises; Business identification signs; Business premises; Child care centres; Food and drink premises; Garden centres; Hardware and building supplies; Hotel or motel accommodation; Kiosks; Landscaping material supplies; Markets; Neighbourhood shops; Office premises; Passenger transport facilities; Plant nurseries; Respite day care centres; Roads; Serviced apartments; Timber yards; Vehicle sales or hire premises; Warehouse or distribution centres; Any other development not specified in item 2 or 4
Prohibited Agriculture; Air transport facilities; Airstrips; Amusement centres; Animal boarding or training establishments; Biosolids treatment facilities; Boat building and repair facilities; Boat launching ramps; Boat sheds; Camping grounds; Caravan parks; Cemeteries; Charter and tourism boating facilities; Commercial premises; Correctional centres; Crematoria; Depots; Eco-tourist facilities; Electricity generating works; Exhibition homes; Exhibition villages; Extractive industries; Farm buildings; Forestry; Freight transport facilities; Heavy industrial storage establishments; Helipads; Home occupations (sex services); Industries; Jetties; Marinas; Mooring pens; Moorings; Mortuaries; Open cut mining; Port facilities; Residential accommodation; Resource recovery facilities; Restricted premises; Rural industries; Sewage treatment plants; Sex services premises; Signage; Storage premises; Tourist and visitor accommodation; Transport depots; Truck depots; Vehicle body repair workshops; Waste disposal facilities; Water recreation structures; Water recycling facilities; Wharf or boating facilities; Wholesale supplies

Zone B6 Enterprise Corridor
Permitted without consent Nil
Permitted with consent Building identification signs; Bulky goods premises; Business identification signs; Business premises; Community facilities; Food and drink premises; Garden centres; Hardware and building supplies; Hotel or motel accommodation; Kiosks; Landscaping material supplies; Light industries; Markets; Multi dwelling housing; Neighbourhood shops; Office premises; Passenger transport facilities; Plant nurseries; Residential flat buildings; Roads; Seniors housing; Timber yards; Vehicle sales or hire premises; Warehouse or distribution centres; Any other development not specified in item 2 or 4
Prohibited Agriculture; Air transport facilities; Airstrips; Amusement centres; Animal boarding or training establishments; Biosolids treatment facilities; Boat building and repair facilities; Boat launching ramps; Boat sheds; Camping grounds; Caravan parks; Cemeteries; Charter and tourism boating facilities; Commercial premises; Correctional centres; Crematoria; Depots; Eco-tourist facilities; Electricity generating works; Exhibition homes; Exhibition villages; Extractive industries; Farm buildings; Forestry; Freight transport facilities; Heavy industrial storage establishments; Helipads; Home occupations (sex services); Industries; Jetties; Marinas; Mooring pens; Moorings; Mortuaries; Open cut mining; Port facilities; Residential accommodation; Resource recovery facilities; Restricted premises; Rural industries; Sewage treatment plants; Sex services premises; Signage; Storage premises; Transport depots; Truck depots; Vehicle body repair workshops; Waste disposal facilities; Water recreation structures; Water recycling facilities; Wharf or boating facilities; Wholesale supplies

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Zone B7 Business Park
Permitted without consent Nil
Permitted with consent Building identification signs; Business identification signs; Child care centres; Light industries; Neighbourhood shops; Office premises; Passenger transport facilities; Respite day care centres; Roads; Warehouse or distribution centres; Any other development not specified in item 2 or 4
Prohibited Agriculture; Air transport facilities; Airstrips; Amusement centres; Animal boarding or training establishments; Biosolids treatment facilities; Boat building and repair facilities; Boat launching ramps; Boat sheds; Camping grounds; Caravan parks; Cemeteries; Charter and tourism boating facilities; Commercial premises; Correctional centres; Crematoria; Depots; Eco-tourist facilities; Electricity generating works; Entertainment facilities; Exhibition homes; Exhibition villages; Extractive industries; Farm buildings; Forestry; Freight transport facilities; Function centres; Heavy industrial storage establishments; Highway service centres; Home occupations (sex services); Industrial retail outlets; Industries; Jetties; Marinas; Mooring pens; Moorings; Mortuaries; Open cut mining; Places of public worship; Port facilities; Recreation facilities (indoor); Recreation facilities (major); Recreation facilities (outdoor); Registered clubs; Residential accommodation; Resource recovery facilities; Restricted premises; Rural industries; Service stations; Sewage treatment plants; Sex services premises; Signage; Storage premises; Tourist and visitor accommodation; Transport depots; Truck depots; Vehicle body repair workshops; Vehicle repair stations; Veterinary hospitals; Waste disposal facilities; Water recreation structures; Water recycling facilities; Wharf or boating facilities; Wholesale supplies

Zone IN1 General Industrial
Permitted without consent Nil
Permitted with consent Agricultural produce industries; Building identification signs; Business identification signs; Depots; Food and drink premises; Freight transport facilities; Garden centres; General industries; Hardware and building supplies; Hospitals; Industrial training facilities; Kiosks; Landscaping material supplies; Light industries; Markets; Medical centres; Neighbourhood shops; Plant nurseries; Roads; Timber yards; Vehicle sales or hire premises; Warehouse or distribution centres; Any other development not specified in item 2 or 4
Prohibited Agriculture; Air transport facilities; Airstrips; Amusement centres; Biosolids treatment facilities; Boat launching ramps; Boat sheds; Camping grounds; Caravan parks; Cemeteries; Charter and tourism boating facilities; Child care centres; Commercial premises; Eco-tourist facilities; Entertainment facilities; Exhibition homes; Exhibition villages; Extractive industries; Farm buildings; Forestry; Function centres; Health services facilities; Heavy industrial storage establishments; Home occupations (sex services); Industries; Jetties; Marinas; Mooring pens; Moorings; Open cut mining; Port facilities; Residential accommodation; Respite day care centres; Restricted premises; Rural industries; Schools; Sewage treatment plants; Signage; Tourist and visitor accommodation; Water recreation structures; Water recycling facilities; Wharf or boating facilities; Wholesale supplies

Zone IN2 Light Industrial
Permitted without consent Nil
Permitted with consent Agricultural produce industries; Building identification signs; Business identification signs; Depots; Food and drink premises; Garden centres; Hardware and building supplies; Hospitals; Industrial training facilities; Kiosks; Landscaping material supplies; Light industries; Markets; Medical centres; Neighbourhood shops; Plant nurseries; Roads; Timber yards; Vehicle sales or hire premises; Warehouse or distribution centres; Any other development not specified in item 2 or 4
Prohibited Agriculture; Air transport facilities; Airstrips; Amusement centres; Biosolids treatment facilities; Boat launching ramps; Boat sheds; Camping grounds; Caravan parks; Cemeteries; Charter and tourism boating facilities; Child care centres; Commercial premises; Correctional centres; Crematoria; Eco-tourist facilities; Entertainment facilities; Exhibition homes; Exhibition villages; Extractive industries; Farm buildings; Forestry; Freight transport facilities; Function centres; Health services facilities; Heavy industrial storage establishments; Helipads; Highway service centres; Home occupations (sex services); Industries; Jetties; Marinas; Mooring pens; Moorings; Mortuaries; Open cut mining; Port facilities; Recreation facilities (major); Residential accommodation; Resource recovery facilities; Respite day care centres; Restricted premises; Rural industries; Schools; Sewage treatment plants; Signage; Tourist and visitor accommodation; Transport depots; Truck depots; Waste disposal facilities; Water recreation structures; Water recycling facilities; Wharf or boating facilities; Wholesale supplies

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Zone SP1 Special Activities
Permitted without consent Nil
Permitted with consent The purpose shown on the Land Zoning Map, including any development that is ordinarily incidental or ancillary to development for that purpose
Prohibited Any development not specified in item 2 or 3

Zone SP2 Infrastructure
Permitted without consent Nil
Permitted with consent Roads; The purpose shown on the Land Zoning Map, including any development that is ordinarily incidental or ancillary to development for that purpose
Prohibited Any development not specified in item 2 or 3

Zone RE1 Public Recreation
Permitted without consent Nil
Permitted with consent Boat launching ramps; Boat sheds; Building identification signs; Business identification signs; Car parks; Caravan parks; Charter and tourism boating facilities; Child care centres; Community facilities; Eco-tourist facilities; Emergency services facilities; Entertainment facilities; Environmental facilities; Environmental protection works; Extensive agriculture; Flood mitigation works; Food and drink premises; Function centres; Information and education facilities; Intensive plant agriculture; Jetties; Kiosks; Marinas; Markets; Recreation areas; Recreation facilities (indoor); Recreation facilities (major); Recreation facilities (outdoor); Respite day care centres; Roads; Water recreation structures; Water supply systems; Wharf or boating facilities
Prohibited Any development not specified in item 2 or 3

Zone RE2 Private Recreation
Permitted without consent Nil
Permitted with consent Building identification signs; Business identification signs; Car parks; Community facilities; Environmental facilities; Environmental protection works; Flood mitigation works; Helipads; Kiosks; Marinas; Recreation areas; Recreation facilities (indoor); Recreation facilities (outdoor); Registered clubs; Roads; Water supply systems
Prohibited Any development not specified in item 2 or 3

Zone E1 National Parks and Nature Reserves
Permitted without consent Uses authorised under the National Parks and Wildlife Act 1974
Permitted with consent Nil
Prohibited Any development not specified in item 2 or 3

Zone W1 Natural Waterways
Permitted without consent Nil
Permitted with consent Boat launching ramps; Boat sheds; Charter and tourism boating facilities; Environmental facilities; Environmental protection works; Flood mitigation works; Jetties; Marinas; Mooring pens; Moorings; Water recreation structures; Wharf or boating facilities
Prohibited Business premises; Hotel or motel accommodation; Industries; Multi dwelling housing; Recreation facilities (major); Residential flat buildings; Restricted premises; Retail premises; Seniors housing; Service stations; Warehouse or distribution centres; Any other development not specified in item 2 or 3

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APPENDIX P: STATISTICAL ANALYSIS

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1	**UCL Statistics for Uncensored Full Data Sets**											
2												
3	User Selected Options											
4	Date/Time of Computation	4/03/2022 4:23:37 PM										
5	From File	WorkSheet.xls										
6	Full Precision	OFF										
7	Confidence Coefficient	95%										
8	Number of Bootstrap Operations	2000										
9												
10												
11	**C1**											
12												
13	**General Statistics**											
14	Total Number of Observations			47			Number of Distinct Observations				39	
15							Number of Missing Observations				0	
16	Minimum			7			Mean				48.38	
17	Maximum			120			Median				46	
18	SD			31.02			Std. Error of Mean				4.524	
19	Coefficient of Variation			0.641			Skewness				0.451	
20												
21	**Normal GOF Test**											
22	Shapiro Wilk Test Statistic			0.931			**Shapiro Wilk GOF Test**					
23	5% Shapiro Wilk Critical Value			0.946			Data Not Normal at 5% Significance Level					
24	Lilliefors Test Statistic			0.0943			**Lilliefors GOF Test**					
25	5% Lilliefors Critical Value			0.129			Data appear Normal at 5% Significance Level					
26	**Data appear Approximate Normal at 5% Significance Level**											
27												
28	**Assuming Normal Distribution**											
29	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
30	95% Student's-t UCL			55.98			95% Adjusted-CLT UCL (Chen-1995)				56.14	
31							95% Modified-t UCL (Johnson-1978)				56.03	
32												
33	**Gamma GOF Test**											
34	A-D Test Statistic			0.861			**Anderson-Darling Gamma GOF Test**					
35	5% A-D Critical Value			0.761			Data Not Gamma Distributed at 5% Significance Level					
36	K-S Test Statistic			0.134			**Kolmogrov-Smirnoff Gamma GOF Test**					
37	5% K-S Critical Value			0.131			Data Not Gamma Distributed at 5% Significance Level					
38	**Data Not Gamma Distributed at 5% Significance Level**											
39												
40	**Gamma Statistics**											
41	k hat (MLE)			2.017			k star (bias corrected MLE)				1.903	
42	Theta hat (MLE)			23.99			Theta star (bias corrected MLE)				25.43	
43	nu hat (MLE)			189.6			nu star (bias corrected)				178.8	
44	MLE Mean (bias corrected)			48.38			MLE Sd (bias corrected)				35.08	
45							Approximate Chi Square Value (0.05)				148.9	
46	Adjusted Level of Significance			0.0449			Adjusted Chi Square Value				148.1	
47												
48	**Assuming Gamma Distribution**											
49	95% Approximate Gamma UCL (use when n>=50))			58.11			95% Adjusted Gamma UCL (use when n<50)				58.45	
50												
51	**Lognormal GOF Test**											
52	Shapiro Wilk Test Statistic			0.909			**Shapiro Wilk Lognormal GOF Test**					
53	5% Shapiro Wilk Critical Value			0.946			Data Not Lognormal at 5% Significance Level					
54	Lilliefors Test Statistic			0.149			**Lilliefors Lognormal GOF Test**					

55	5% Lilliefors Critical Value				0.129	Data Not Lognormal at 5% Significance Level						
56	**Data Not Lognormal at 5% Significance Level**											
57												
58	**Lognormal Statistics**											
59	Minimum of Logged Data				1.946	Mean of logged Data						3.611
60	Maximum of Logged Data				4.787	SD of logged Data						0.813
61												
62	**Assuming Lognormal Distribution**											
63	95% H-UCL				66.55	90% Chebyshev (MVUE) UCL						71.36
64	95% Chebyshev (MVUE) UCL				80.58	97.5% Chebyshev (MVUE) UCL						93.37
65	99% Chebyshev (MVUE) UCL				118.5							
66												
67	**Nonparametric Distribution Free UCL Statistics**											
68	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
69												
70	**Nonparametric Distribution Free UCLs**											
71	95% CLT UCL				55.82	95% Jackknife UCL						55.98
72	95% Standard Bootstrap UCL				55.94	95% Bootstrap-t UCL						56.56
73	95% Hall's Bootstrap UCL				56.25	95% Percentile Bootstrap UCL						55.6
74	95% BCA Bootstrap UCL				55.51							
75	90% Chebyshev(Mean, Sd) UCL				61.96	95% Chebyshev(Mean, Sd) UCL						68.1
76	97.5% Chebyshev(Mean, Sd) UCL				76.64	99% Chebyshev(Mean, Sd) UCL						93.4
77												
78	**Suggested UCL to Use**											
79	95% Student's-t UCL				55.98							
80												
81	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
82	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
83	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
84	For additional insight the user may want to consult a statistician.											
85												