Douglas PARTNERS

GROUNDED EXPERTISE

Report on Preliminary Site Investigation with Limited Sampling

Proposed Warehouse and Distribution Centre

200 Beech Road, Casula NSW

Prepared for Perpetual Corporate Trust Limited as Trustee for AM Crossroads Unit Trust

Project 226958.00

12 September 2024

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

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Douglas Partners acknowledges Australia's First Peoples as the Traditional Owners of the Land and Sea on which we operate. We pay our respects to Elders past and present and to all Aboriginal and Torres Strait Islander peoples across the many communities in which we live, visit and work. We recognise and respect their ongoing cultural and spiritual connection to Country.

Executive Summary

Douglas Partners Pty Ltd (Douglas) was engaged by Green Point Private Advisory Pty Ltd (GPPA) on behalf of Perpetual Corporate Trust Limited as Trustee for AM Crossroads Unit Trust to prepare this Preliminary Site Investigation with Limited Sampling (PSI) for a proposed warehouse and distribution centre at 200 Beech Road, Casula NSW (the 'site').

The proposed development will be subject to a state significant development application (SSDA) and it is understood that several assessments are required to address the secretary's environmental assessment requirements (SEARs) for the SSDA including:

- A preliminary site investigation for contamination (PSI);
- A salinity investigation; and
- A geotechnical assessment.

The preparation of an acid sulfate management plan for the site is not considered warranted given that the area the site is located within is mapped as having an extremely low probability of occurrence (C4 rating) of acid sulfate soils.

The objective of this PSI is to assess the potential for contamination at the site based on past and present land uses and to comment on the need for further investigation and/or management with regard to the proposed development.

The results of the desktop investigation identified that the site and surrounds have a history as undeveloped land which has likely been used for low intensity agricultural and pastoral use, up until the mid-2000s, when a commercial hardware warehouse (Bunnings Warehouse) was developed on-site. The site land use is currently commercial/retail with an associated carpark.

Historical placement of fill was identified as the primary potential source of contamination at the site. Other potential sources of contamination included historical low intensity agricultural and pastoral land use; fly tipping of refuse material and former shed structures in the eastern portion of the site.

As a part of this investigation, shallow soil sampling was completed at 15 boreholes drilled at broadly spaced locations in exterior areas of the site, targeting potential sources of contamination and background areas. Soil samples were sent for analysis of contaminants of potential concern (CoPC) commonly associated with the identified potential sources of contamination. CoPCs were not detected at concentrations greater than the laboratory limit of reporting or SAC in all soil samples analysed.

From a contamination perspective, based on the findings of this PSI, the potential for widespread gross contamination at the site is considered to be low and the site can likely be made suitable for the proposed warehouse and distribution centre. Notwithstanding this, due to the operational nature of the commercial premises, soil sampling could not be completed within the footprint of the warehouse premises. Therefore, the potential for contamination within the footprint of the building, whilst considered to be low, cannot be completely ruled out. Further sampling will be required within the building footprint either following the ceasing of commercial operations or following demolition of the building to assess the contamination status of soils.

With respect to site contamination, the recommended further assessment within the building footprint should build on the information provided in this report with reference to National Environment Protection Council (NEPC, 1999) National Environment Protection Council (Assessment of Site Contamination) Measure 1999 (amended 2013) (NEPC, 2013). Further assessment should include intrusive investigations, sampling, analysis and assessment to determine land use suitability. A detailed site investigation, remediation action plan and/or a long term environmental management plan are not considered required for the site at this stage.

Table of Contents

Report on Preliminary Site Investigation with Limited Sampling Proposed Warehouse and Distribution Centre 200 Beech Road, Casula NSW

1. Introduction

Douglas Partners Pty Ltd (Douglas) was engaged by Green Point Private Advisory Pty Ltd (GPPA) on behalf of Perpetual Corporate Trust Limited as Trustee for AM Crossroads Unit Trust to prepare this Preliminary Site Investigation with Limited Sampling (PSI) for a proposed warehouse and distribution centre at 200 Beech Road, Casula NSW (the 'site'). The site is shown on Drawing 1, Appendix A.

The investigation was undertaken in accordance with Douglas' proposal 226958.00.P.001.Rev1 dated 4 April 2024.

It is understood, based on a review of the project/consultant brief provided in the email dated 11 December 2023, that the site has an approximate area of 3.844 hectares (ha) and currently comprises a single storey hardware and building supplies premises operated by Bunnings Warehouse. Redevelopment of the site is proposed which will include:

- Demolition of existing hardware & building supplies premises;
- Site preparation works, including earthworks and clearing of no. 26 existing trees; and
- Construction of a multi-level warehouse and distribution centre comprising;
  - No.2 x two storey warehouse buildings, with ancillary office floorspace in each;
  - No. 186 car parking spaces provided at grade and mezzanine level;
  - Hardstand areas to provide internal vehicular circulation routes;
  - Construction of two vehicular access ramps to first floor level, one serving cars and the other serving trucks; and
  - Associated new soft landscaping and the replacement planting of no. 26 trees;

The proposed development will be subject to a state significant development application (SSDA) and it is understood that several assessments are required to address the secretary's environmental assessment requirements (SEARs) for the SSDA including:

- A preliminary site investigation for contamination (PSI);
- A salinity investigation; and
- A geotechnical assessment.

It is understood that the report will be used to support SSDA for the proposed development.

The objective of this PSI is to assess the potential for contamination at the site based on past and present land uses and to comment on the need for further investigation and/or management with regard to the proposed development.

This PSI was completed in conjunction with a geotechnical assessment (refer to 226958.02.R.001.Rev0, to be issued) and salinity investigation and management plan (refer to 226958.00.R.002.Rev0, to be issued), which have both been separately reported.

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

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

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

2. Scope of Works

The following scope of works was undertaken for this PSI:

- Review of local topographic, geological, soil, acid sulfate and salinity mapping;
- Search for groundwater bores registered with the NSW Office of Water located on or adjacent to the site;
- Review of aerial photography to identify Potential Areas of Environmental Concern (PAEC);
- Search of the NSW EPA Land Information records to confirm that there are no statutory notices or licences current on any parts of the site or nearby surrounds under the *Contaminated Land Management Act 1997* and the *Protection of the Environment Operations Act 1997*;
- SafeWork NSW search for dangerous goods stored or previously stored on-site;
- A site walkover by a Douglas Environmental Scientist to observe the site conditions and identify any visible additional PAEC;
- Development of a preliminary conceptual site model (CSM);
- Drilling of 15 boreholes at broadly spaced locations and targeting PAEC across the site satisfying approximately 30% of Table 2 of NSW EPA's *Sampling design guidelines for contaminated land* (NSW EPA, 2022);
- Soil sampling at each borehole location at regular depth intervals;
- Analyses of selected soil samples for common contaminants of potential concern (COPC) at a National Association of Testing Authorities (NATA) accredited laboratory;
- Interpretation of results with reference to current NSW EPA endorsed commercial/industrial land use criteria; and
- Preparation of this PSI report outlining the details of the investigation aims, objectives and methodologies and recommendations on the need for further investigation or remedial/management measures, if required.

3. Site Information

Site address*	200 Beech Road, Casula NSW
Legal description	Lots 100 and 101 Deposited Plan (DP) 1033932
Approximate area	3.844 hectares (ha)
Zoning	Zone E3 Productivity Support
Local council area	Liverpool City Council
Current use	Single storey hardware and building supplies premises operated by Bunnings Warehouse and associated carpark.
Surrounding uses	North – Camden Valley Way/Hume Highway, beyond which is residential; Northeast to east – The Crossroads Hotel, Campbelltown Road, beyond which is residential and Glenfield Road; South – Remembrance Driveway/Campbelltown Road, beyond which is residential; Southwest – Mixed use commercial land use with associated carparks, beyond which is Parkers Farm Place; West – Beech Road, beyond which is mixed use commercial land use

* It should be noted that Six Maps identifies Lot 101 DP1033932 as 2260 – 2270 Camden Valley Way, Casula.

The site boundary is shown on Figure 1.

Figure 1: Site boundary (as shown in red outline)

4. Environmental Setting

Regional topography	The surrounding regional topography is sloping from the northeast/east to the southwest/west.
Site topography	The site topography is gently sloping from the northeast to the southwest with an overall difference in level of approximately 2 m from the highest part (RL 56.0 relative to Australian Height Datum [AHD]) located in the north eastern portion of the site to the lowest part (RL 46.0) located in the southern portion of the site.
Soil landscape	Reference to the Penrith 1:100 000 Soils Landscape Sheet (NSW Government 1991), indicates that the site is underlain by residual Blacktown soils. The Blacktown soil landscape (dark green with mapping unit bt) is characterised by topography of gently undulating rises on Wianamatta Group Shale, with local relief to 30 m and slopes usually less than 5%, typically represented by broad rounded crests and ridges with gently inclined slopes. This is a residual soil landscape, which the mapping indicates comprises multiple soil horizons that include shallow red-brown podzolic soils comprising mostly clayey soils on crests and upper slopes, to deep brown to yellow clay soils on mid to lower slopes and in areas of poor drainage. These soils are typically of low fertility, are moderately reactive, highly plastic and generally have a low wet strength.
Geology	The NSW Seamless Geological Series (GNSW 2019) indicates that the site is underlain by Triassic Aged Bringelly Shale (mapping unit Twib) of the Wianamatta Group. Bringelly Shale typically comprises shale, carbonaceous claystone, laminite, lithic sandstone and/or rare coal.
Acid sulfate soils	Reference to the CSIRO Australian Soil Resource Information System website (CSIRO 2014) indicates the site is in an area mapped as having an extremely low probability of occurrence (C4 rating) of acid sulfate soils.
Surface water and Groundwater	A search of the publicly available registered groundwater bore database indicated that there are no registered groundwater bores within 1 km of the site. Maxwells Creek, a tributary of the Georges River, and an associated dam, is present approximately 400 m west of the site. An unnamed creek and dam at Tucker Reserve is present approximately 800 m east of the site. Glenfield Creek, another tributary of the Georges River is present approximately 600 m southeast of the site. A tributary of Glenfield Creek and its subsequent dams are located approximately 700 m southeast of the site. The receiving body for groundwater from the site is expected to be Maxwells Creek. The discharge of groundwater into Maxwells Creek will depend on the depth of groundwater relative to the elevation of the base of the creek and could change over time. Given the local geology (i.e. Bringelly Shale), the groundwater in the fractured rock beneath the site is anticipated to be saline and very low yield. Accordingly, there would be no significant potential beneficial uses of the groundwater.

Salinity	Reference to the Department of Infrastructure, Planning and Natural Resources Salinity Potential in Western Sydney (2002) indicates that the site is mapped as having a moderate salinity potential (pale yellow). Mapping indicates that a high salinity potential (orange) northwest, west and southwest of the site, aligning with the creek lines. Salinity potential mapping is shown in Figure 2 below.

Figure 2: Extract of salinity potential mapping (NSW Department of Infrastructure, Planning and Natural Resources, 2002).

Site boundary is denoted by the red outline.
Orange shaded area = High salinity potential
Pale yellow shaded area = Moderate salinity potential

5. Site History

5.1 Historical aerial photography

Historical aerial photographs from 1947, 1965, 1975, 1986, 1991 and 2005 (supplied by NSW Spatial Services) and from 2016 and 2024 (supplied by MetroMap) were reviewed to identify potential areas of environmental concern (PAEC) within the site. The historical aerial photographs are included as Drawings 2 to 9, Appendix A. A summary of key features observed for the site and surrounding land is presented in Table 1.

Table 1: Summary of Historical Aerial Photographs

Year	Site	Surrounding Land Use
1947 (Drawing 2)	The site was undeveloped land with grass cover across most of the site likely used for low intensity agriculture or pastoral use. A potential creek/drainage line was observable in the western, central to south eastern portions of the site. Sparse tree cover existed across the north western, central and south western portions of the site. A potential fence was observable in the eastern portion of the site.	Most of the immediate surroundings of the site comprised undeveloped land with grass and tree cover likely used for low intensity agriculture or pastoral use. The Crossroads Hotel was present approximately 80 m northeast of the site[1]. Camden Valley Way/Hume Highway was also visible approximately 30 m north of the site. A few residential dwellings were visible north, east, southeast and further northwest of the site. Campbelltown Road was visible bordering the southeastern boundary of the site. Cropping/tilling lines, indicative of market garden activities, were visible north, east and southeast of the site, beyond Campbelltown Road. An unsealed track/ground disturbance was visible southwest of the site.
1965 (Drawing 3)	Tree cover increased throughout most of the site. An unsealed track was observed across the western half of the site.	The on-site access track from the site extended to the southwest to west of the site, possibly used as a bicycle track. Increased residential and potential commercial development occurred north, northeast and east of the site. Additional market garden activities were observed, west, east and southeast of the site. Widening of the Hume Highway was visible northeast of the site. Most of the unsealed track previously observed in the 1947 aerial located southwest of the site was no longer observable.

[1] https://www.crossroadshotel.com.au/about (Last accessed 12 June 2024).

Year	Site	Surrounding Land Use
1975 (Drawing 4)	An additional unsealed access track was visible in the eastern portion of the site.	Significant road widening/ construction/earthworks occurred in relation to Camden Valley Way/Hume Highway, located north of the site, Campbelltown Road located east to southeast of the site, and Glenfield Road located southeast of the site. Ground disturbance affiliated with the bulk earthworks was also observed north of the site. Additional unsealed access tracks and ground disturbances were visible southwest of the site. Land clearing was observed approximately 140 m west of the site. Demolition and redevelopment/ renovation of The Crossroads Hotel and its associated carpark was visible approximately 50 m east of the site. A small dam was visible approximately 550 m southwest of the site.
1986 (Drawing 5)	Shed structures were constructed in the eastern portion of the site which were likely associated with a radio controlled race car track located immediately adjacent to the northeast. The remainder of the site remained relatively unchanged since the 1975 aerial photograph.	A few additional residential dwellings were constructed in all cardinal directions of the site. A radio controlled race car track affiliated with the NSW Radio Control Racing Car Club (RCRCC) was constructed directly east of the site[2]. A petrol/service station (BP) was present approximately 480 m southwest of the site.
1991 (Drawing 6)	An additional unsealed access track was visible in the central portion of the site, extending southwest of the site.	Additional residential dwellings were identified east of the site, beyond Campbelltown Road. Potential fly-tipping/dumping of refuse material was present 70 m southwest, 180 m west and 300 m west of the site.

[2] Information from https://www.nswrcrcc.org.au/about/#page-content (Last accessed 27 June 2024).

Year	Site	Surrounding Land Use
2005 (Drawing 7)	A commercial warehouse (assumed to be Bunnings Warehouse) was constructed in the central and southern portion of the site. An asphalt/sealed carpark surrounded the building in the western portion of the site. A concrete slab driveway, as well as possible storage buildings/shipping containers were visible in the eastern portion of the site. The shed structures, previously identified in the eastern portion of the site, likely associated with the adjacent RCRCC, had been demolished and removed.	Commercial mixed-use buildings/ warehouses (likely commercial and retail land use) and associated carparks were constructed west and southwest of the site. Significant road construction had occurred including Beech Road and Parkers Farm Lane located to the northwest, west and southwest of the site. Ground disturbance was visible southwest of the site, beyond Beech Road. Bulk earthworks were also visible approximately 330 m southeast of the site. The former track affiliated with the RCRCC was removed (and relocated to Moorebank[2]. The former dam was also filled. Residential subdivisions were also established north and further east of the site.
2016 (Drawing 8)	Most of the site remained relatively unchanged from the 2005 aerial photograph. Nine tarpaulin undercover shaded areas were visible adjacent the warehouse, in the northern portion of the site, likely for the plant nursery for the on-site business.	Additional commercial warehouses and associated carparks were constructed west of the site including Costco and Costco Petrol Station/Costco Fuel Casula (approximately 240 m west of the site). Significant bulk earthworks located south to southwest of the site were present, likely affiliated with the construction of commercial/ industrial warehouses. Another residential subdivision was constructed east to southeast of the site, beyond Campbelltown Road.
2024 (Drawing 9)	The site remained relatively unchanged since the 2016 aerial photograph.	Building extensions were completed at The Crossroads Hotel. An additional warehouse (retail/ commercial land use) was constructed southwest of the site. Additional commercial warehouses (likely for commercial/retail/ industrial land use) and associated carparks were constructed west and further southwest of the site.

5.2 Public registers and planning records

EPA Notices available under Section 58 of the Contaminated Land Management Act (CLM Act) Database searched: 3 May 2024	There were no records of notices for the site or adjacent sites.
Sites notified to EPA under Section 60 of the CLM Act Database searched: 3 May 2024	The site and adjacent sites were not listed as a notified contaminated site.
Licences listed under Section 308 of the Protection of the Environment Operations Act 1997 (POEO Act) Database searched: 3 May 2024	One record was issued to the following adjacent site: Costco Wholesale Australia Pty Ltd – Costco Wholesale Warehouse Service Station, 20 Parkers Farm Place, Casula, NSW 2170 [approximately 240 m west of the site] - Petroleum products and fuel production–- Licence surrendered 20 September 2019.
PFAS Investigation Sites listed on the EPA website	The site was not listed or adjacent to a site listed under: • NSW EPA PFAS Investigation Program[3]; • Defence PFAS Investigation and Management Program[4]; • Airservices Australia National PFAS Management Program[5]; and • NSW Rural Fire Service PFAS Environmental Investigations[6] However, the following known PFAS sites are located within 10 km of the site: • Holsworthy Barracks[1,2] (approximately 6.6 km east of the site); • Austral Rural Fire Service (ARFS; 59 Ninth Avenue, Austral NSW 2179 – approximately 6.7 km north west of the site); and • Hoxton Park Rural Fire Service[4] (HPRFS; 8 First Avenue, Hoxton Park NSW 2171 – approximately 4 km northwest of the site).

[3] https://www.epa.nsw.gov.au/your-environment/contaminated-land/pfas-investigation-program (Last accessed 3 May 2024).
[4] https://www.defence.gov.au/about/locations-property/pfas/pfas-management-sites (Last accessed 3 May 2024) https://engage.airservicesaustralia.com/hub-page/pfas (Last accessed 3 May 2024).
[6] https://www.rfs.nsw.gov.au/news-and-media/pfas-environmental-investigation (Last accessed 3 May 2024)

Review of topographic information (2 m elevation contours) suggests that:

- At Holsworthy Barracks, groundwater and surface water is anticipated to flow towards Harris Creek, a tributary of Williams Creek which drains into the Georges River, away from the site;
- At ARFS, groundwater and surface water is anticipated to flow towards an unnamed tributary of Kemps Creek which drains northeast into the Kemps Creek, away from the site; and
- At HPRFS, groundwater and surface water is anticipated to flow northeast towards Hinchinbrook Creek, away from the site.

Based on review of available topographic information, inferred groundwater direction and Appendix B of the Heads of EPAs (HEPA) *PFAS National Environmental Management Plan Version 2.0* – January 2020 (HEPA, 2020), Douglas considers the potential for PFAS contamination to affect the suitability of the site to be low.

5.3 Safework NSW search for hazardous chemicals

A Site Search for Schedule 11 Hazardous Chemicals on Premises application was lodged with SafeWork NSW on 3 May 2024.

Results of the search are attached in Appendix C, and the identified following records of hazardous chemicals that are stored and/or processed within the warehouse located in the central to eastern portions of the site (Bunnings Warehouse) are summarised in Table 2 below.

Table 2: Hazardous Chemical Storage Identified On-Site

Location	Identified Hazardous Chemicals
Warehouse Storage 'L' (north eastern portion of the site)	• 2000 kg of calcium hypochlorite (granular chlorine; 2X); • 2000 L of hypochlorite solution (liquid chlorine; 2X); • 1000 kg of firelighters solid (firelighters; 3Y); and • 3000 L of combustible liquid (citronella oil).
Warehouse Storage 'G' (central portion of the site)	• 250 L of organophosphate pesticide (pesticide; 3W)
Warehouse Storage 'D' (southern portion of the site)	• 7500 L of paint (or paint related; 3YE); • 2000 L of adhesives (3YE) • 1500 L of turpentine (3Y); • 1000 L of aerosols flammable (spray paint; 2Y); • 600 L of turpentine; • 175 L of resin solution, flammable; • 9920 L of paint;

Location	Identified Hazardous Chemicals
	• 15 L of xylenes; • 120 L of adhesives containing flammable liquid; • 300 L of combustible liquid C1; • 5 L of organic peroxide type D liquid; • 80 L of dichloromethane; • 50 L of phosphoric acid; • 20 kg of environmentally hazardous substance, liquid N.O.S; • 1250 L of aerosol; • 155 L of flammable liquids N.O.S; • 10 L of isopropyl alcohol; • 40 L of petroleum distillates, N.O.S; • 60 L of acetone; and • 395 L of ethanol; • 15 L of turpentine; • 970 L of turpentine substitute; and • 200 L of kerosene;
Warehouse Storage 'T' (south eastern portion of the site)	• 2000 L of hydrochloric acid (2R); • 1000 L of aerosols flammable (degreaser; 2Y); • 500 L of turpentine (3Y); • 250 L of kerosene (3Y); • 2000 L of hydrochloric acid; • 300 L of turpentine; • 140 kg of sodium hydroxide solid; • 90 L of sodium hydroxide solution; • 60 kg of corrosive liquid N.O.S; • 80 kg of cartridges power, device; • 300 L of aerosol; • 20 L of ethanol; • 10 L of flammable liquids N.O.S; • 80 L of paint; • 5 L of turpentine; • 20 L of combustible liquid C1; and 820 L of hydrochloric acid.
Warehouse 'G' Area (central portion of the site)	• 2000 L of hypochlorite solutions; • 970 kg of firelighters, solid; • 10 kg of matches, safety; • 10 kg of naphthalene; • 10 kg of camphor synthetic; • 1610 kg of calcium hypochlorite, hydrated; • 260 kg of trichloroisocyanuric acid, dry; • 90 kg of oxidising solid, corrosive N.O.S; • 20 kg of dichloisocyanuric acid, dry;

Location	Identified Hazardous Chemicals
	• 20 kg of sodium persulphate; • 450 L of aerosol; • 60 L of petroleum distillates, N.O.S; and • 1830 L of combustible liquid C1
Outdoor Storage 'R' (south eastern portion of the site)	• 3750 L of hypochlorite solutions
Cylinder 'A' Area (eastern portion of the site)	• 150 L of acetylene, dissolved.
Cylinder Store 'O' Area (eastern portion of the site)	• 200 L of oxygen, compressed.
Cylinder Store 'WG' Area (eastern portion of the site)	• 160 L of argon, compressed; and • 160 L of compressed gas N.O.S.
'LPG1 – Gas Cylinder Storage' area (central portion of the site):	• 4000 L of petroleum gas liquefied (LPG; 2WE); and • 1000 L of petroleum gases, liquefied.
'LPG2 – Gas Cylinder Storage' area (eastern portion of the site)	• 4000 L of petroleum gas (LPG; 2WE); and • 1000 L of petroleum gases, liquefied.
'LPG3 –Cylinder Store' area (south eastern portion of the site)	• 4000 L of petroleum gases, liquefied.
'FG – Cylinder Store' area (eastern portion of the site)	• 500 L of petroleum gases, liquefied.
'Core gas cylinder storage' area	• 200 L of compressed oxygen (core gas oxygen); and • 150 L of acetylene dissolved (core gas acetylene).

Other hazardous goods recorded to be stored throughout the warehouse comprised liquified petroleum gases, hydrochloric acid, paints, hypochlorite solution, calcium hypochlorite sodium hydroxide solution, oxidising solid, trichloroisocyanuric acid, dichloromethane, and organic toxic liquid.

Refer to Appendix C for further information and mapping locations.

5.4 **Site history integrity assessment**

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

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

5.5 Summary of site history

The site history information suggests that the site was vacant, undeveloped land, likely used for low intensity agriculture or pastoral use, since at least 1947, where by 2005, a commercial warehouse (Bunnings Warehouse) was developed on-site. The site land use is currently commercial/retail with an associated carpark.

6. Site Walkover

A site walkover was undertaken by an Environmental Scientist from Douglas on 23 May 2024. The general site topography was consistent with that described in Section 4. The site layout appears to have remained unchanged from the 2024 aerial photograph. The following key site features pertinent to the PSI were observed (refer to Drawing 10, Appendix A and photographs in Appendix D).

- A single-storey commercial retail warehouse (Bunnings Warehouse) was present in the central to eastern portions of the site (Photograph 1);
- Most of the carpark area located in the western portion of the site comprised sealed asphalt/bitumen (Photographs 2);
- Some areas in the north western portion of the site and the area in the eastern to south eastern portions of the site comprised sealed concrete (Photograph 3);
- Multiple garden beds were observed throughout the carpark area. The garden beds generally comprised trees/shrubs/hedges with woodchips (mulch) and silty clay fill/topsoil (Photographs 4 and 5);
- Fly-tipping of refuse material comprising cement sheeting and/or concrete, was observed in the north western portion of the site (a sample of the material [PACM1] was collected – Photographs 6);
- Liquid petroleum gas (LPG) bottle storage was observed in the south eastern portion of the site (Photograph 7);
- The eastern to southern portions of the site were utilised as loading docks/storage of various hardware items/outdoor aisles with goods (timbers, metals, gravels, sand etc.) for sale with high truck and forklift activity (Photographs 8, 9 and 10);
- A pad-mounted transformer was identified west of the boundary (Photograph 11); and
- Two petrol/service stations – BP (located approximately 480 m southwest of the site and Costco Petrol Station (also known as Costco Fuel Casula, located approximately 240 west of the site) – were observed to be operational at the time of inspection.

7. Preliminary Conceptual Site Model

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

Based on the current investigation, the following potential sources of contamination and associated contaminants of potential concern (CoPC) have been identified and summarised in Table 3.

Table 3: Summary of potential sources

Potential sources and associated CoPC
On site sources
S1: Fill: Associated with levelling, bulk earthworks and construction of buildings, garden beds, and ground disturbances identified in historical aerial photography review. CoPC include metals, TRH, BTEX, PAH, PCB, OCP, phenols and asbestos. **S2:** Historical low intensity agricultural and pastoral use: Potential historical pesticide and/or fertiliser usage. CoPC include OCP, OPP and PCB. **S3:** Fly-tipped refuse material. CoPC include asbestos. **S4:** Former Shed Structures in the eastern portion of the site. CoPC include asbestos, lead, OCPs and PCBs
Off-site sources
S5: Adjacent service stations (considered to present a low risk of site contamination). CoPC include metals, TRH, BTEX and PAH.

Given that the current site building structures were constructed sometime between the mid-1990s and 2003, and that the structures at the site are constructed upon a concrete slab, the potential for hazardous building materials relating to site structures, and potential leaks and spills from improper storage of hazardous chemicals, to be present in soil at the site, is considered to be low. Therefore, current site structures and on-site storage of low volume of packaged chemicals were not considered to be a potential source of on-site contamination.

Whilst electrical transformers were observed adjacent the western boundary of the site, given that they were likely constructed sometime between the mid-1990s and 2003, after the period of PCB phase out in the early-1980's, and were constructed upon a concrete slab, the transformers were not considered to be a potential source of on-site contamination.

The site walkover and review of historical aerial photographs identified that a BP petrol/service station, located approximately 480 m southwest of the site, has been operational since the 1980s, and Costco Petrol Station/Costco Fuel Casula, located approximately 240 m west of the site, has been operational since the mid-2010s.

COPC commonly associated with service stations include TRH, BTEX, PAHs and metals.

The BP petrol/service station is considered to present a low risk to site contamination given the following:

- The relative distance is greater than 400 m of the BP petrol/service station to the site. Contamination plumes in groundwater associated with service stations will generally attenuate to concentrations well below health risk levels for vapour inhalation within 70 m of a source site; and
- The cross-gradient location of the BP petrol/service station

Costco Petrol Station/Costco Fuel Casula is also considered to present a low risk to site contamination given the following:

- The relatively young (<15 years old) age of the service station;
- The likelihood that the underground storage tanks (USTs) at the service station property are double walled fibreglass tanks commonly installed on new service stations which are less susceptible to corrosion and leakage; and
- The likelihood that the service station has a network of groundwater monitoring wells and an implemented Statistical Inventory Reconciliation Analysis (SIRA) to detect any loss of product to satisfy the requirements of the *Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulations 2014*.

The following potential human and environmental receptors, along with relevant potential pathways, have been identified and summarised in Table 4.

Table 4: Summary of potential receptors and pathways

Potential human receptors
HR1: Current users [commercial land use] **HR2:** Construction and maintenance workers, employees and customers **HR3:** End users [commercial land use] **HR4**: Adjacent site users [commercial / industrial land use]
Potential environmental receptors
ER1: Surface water [Maxwells Creek] **ER2:** Groundwater **ER3:** Terrestrial ecosystems
Potential pathways to human receptors
HP1: Ingestion and dermal contact **HP2:** Inhalation of dust and/or vapours
Potential pathways to environmental receptors
EP1: Surface water run-off **EP2:** Leaching of contaminants and vertical migration into groundwater **EP3:** Lateral migration of groundwater providing base flow to water bodies **EP4:** Contact with terrestrial ecology

Summary of potentially complete exposure pathways

A 'source–pathway–receptor' approach has been used to assess the potential risks of harm being caused to human or environmental receptors from contamination sources on or in the vicinity of the site, via exposure pathways (potential complete pathways). The possible pathways between the above sources (S1 to S5) and receptors are provided in below Table 5.

Table 5: Summary of potentially complete exposure pathways

Source and CoPC	Exposure pathway	Receptor	Risk Management Action
S1: Fill: metals, PFAS, TRH, BTEX, PAH, PCB, OCP, phenols and asbestos **S2:** Historical low intensity agricultural and pastoral use: OCP, OPP and PCB. **S3:** Fly-tipped refuse material: Asbestos. **S4:** Former shed structures: Asbestos, lead, OCPs and PCBs. **S5:** Adjacent service stations (considered to present a low risk of site contamination): metals, TRH, BTEX and PAH.	**HP1:** Ingestion and dermal contact **HP2:** Inhalation of dust and/or vapours	**HR1:** Current users [commercial land use] **HR2:** Construction and maintenance workers, employees and customers **HR3:** End users [commercial land use]	Given the identified potential contaminant sources, the initial fate (lay down mechanism) of most of the potential contaminants is likely to be expressed firstly in surface and fill soils. An intrusive investigation is recommended to assess possible contamination including testing of the soils. (A further assessment of deeper soils and groundwater may be deemed necessary should significant contamination be identified in surface soils).
	HP2: Inhalation of dust and/or vapours	**HR4:** Adjacent site users [commercial /industrial land use]	
	EP1: Surface water run-off **EP3:** Lateral migration of groundwater providing base flow to water bodies	**ER1:** Surface water	
	EP2: Leaching of contaminants and vertical migration into groundwater	**ER2:** Groundwater	
	EP4: Contact with terrestrial ecology	**ER3:** Terrestrial ecosystems	
	HP2: Inhalation of dust and/or vapours	**HR1:** Current users [commercial land use] **HR2:** Construction and maintenance workers, employees and customers **HR3:** End users [commercial/land use]	

8. Sampling and Analysis Quality Plan

8.1 Data quality objectives

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

8.2 Soil sampling rationale

The PSI fieldwork for the site comprised drilling and soil sampling of 15 boreholes and was completed between 2 to 6 June 2024 by a Douglas geotechnical engineer. Drilling was completed by boring with a drill rig fitted with a 150 mm auger for 13 boreholes (BH2A, BH3 to BH10, BH12, BH13, BH14A and BH15) and a 230 mm auger for two boreholes (BH1 and BH11 – which also included the installation of standpipe piezometers). Selected photographs are presented in the Photographic Plates, Appendix D.

To assess the contamination status of soils within the site, the following was completed:

- Drilling of 15 boreholes at broadly spaced locations across the site. The number of locations satisfies 30% of the sampling density of the requirements of the NSW EPA (2022) *Sampling Design Part 1- Application – Contaminated Land Guidelines* for a 3.844 ha site and is considered adequate for the purposes of this PSI due to the low potential for significant or widespread contamination. The following sample locations positioned to target identified potential areas of environmental concern (PAEC), where possible, as well as provide broad coverage across the remainder of the site[7]:
  - Boreholes (BH) 1 and BH12 were positioned in former gulleys and/or drainage lines, as identified in the 1947 aerial photograph;
  - BH2A, BH6, BH9 and BH13 were positioned on, or, near, former unsealed tracks as identified in the 1965, 1975 and 1986 aerial photographs;
  - BH3, BH4 and BH5 were positioned adjacent former shed structures in the eastern portion of the site, as identified in the 1986 aerial photograph; and
  - Remaining boreholes (BH7, BH8, BH10, BH11, BH14A and BH15) were positioned for general broad scale coverage including potential for soil contamination from the placement of fill and historical low intensity agricultural and pastoral use.
- Collection of samples in fill and shallow soils at all borehole locations. Selected samples were variously analysed for the following CoPC associated with the identified PAEC, comprising:
  - Eight metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc);
  - Polycyclic aromatic hydrocarbons (PAH);
  - Total recoverable hydrocarbons (TRH);
  - Benzene, toluene, ethylbenzene and xylenes (BTEX);
  - Organochlorine pesticides (OCP);
  - Organophosphorus pesticides (OCP);

[7] Excavation and sampling was not completed within the footprints of the commercial warehouse building due to access constraints.

- Polychlorinated biphenyls (PCB);
- Total phenols; and
- Asbestos (500 mL).

- Soil samples were generally collected based on field observations including at depths of approximately 0.1 m, 0.5 m, 1.0 m and every 1.0 m thereafter, until at least 0.5 m into natural soils;
- Three selected samples were analysed for physico chemical characteristics including pH, and cation exchange capacity (CEC) to determine appropriate ecological investigation levels; and
- A fragment of potential asbestos-containing material (sample PACM1) was collected during the site walkover and sent for laboratory analysis of asbestos fibres.

The general sampling methods are described in the field work methodology, included in Appendix F.

9. Site Assessment Criteria

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

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

10. Results

10.1 Field work results

The borehole logs for this assessment are included in Appendix I. The logs recorded the following general sub-surface profile:

Concrete Blinding Slab:	In BH01 to BH05, BH14A and BH15 from the surface to 0.25 – 0.34 metres below ground level (m bgl).
ASPHALT:	In BH06 to BH13 from the surface to depths of 0.05 to 0.1 m bgl.
FILL/Silty Clay:	Generally orange-brown identified in BH01, BH08 and BH15 from depths of between 0.25 and 1.0 m bgl.
FILL/Gravelly Clay:	Generally dark brown identified in BH2A, BH03, BH05, BH12 from depths of between 0.06 and 0.60 m bgl.
FILL/Gravelly Sand:	Generally dark brown identified in BH04, BH06, BH07, BH08, BH09 from depths of between 0.05 and 0.60 m bgl.
FILL/Clayey SAND:	Generally brown identified in BH08 from depths of between 0.60 and 1.30 m bgl.

FILL/Gravelly Silt:	Generally brown identified in BH10 from depths of between 0.10 and 0.60 m bgl.
Silty CLAY	Generally orange-brown and pale grey identified in BH01 from a depth of between 2.60 to 5.55 m bgl.
SHALE:	Shale observed from depths of between 0.05 and 5.55 m bgl to termination depth at BH01 to BH09, BH11, BH12, BH13, and BH15.
SANDSTONE:	Sandstone observed from 0.16 m to termination depth at 1.45 m bgl at BH14A.

No visual or olfactory evidence (e.g. staining, odours, free phase product) was observed during the investigations to suggest the presence of contamination within the soils or groundwater at the site.

No free groundwater was observed during drilling of boreholes. It should be noted that groundwater levels are affected by climatic conditions and soil permeability and will therefore vary with time.

10.2 Laboratory analytical results

The results of laboratory analysis are summarised in the following tables in Appendix H:

- Table H1: Summary of Laboratory Results – Priority metals, Priority PAH, Priority TRH and BTEX; and
- Table H2: Summary of Laboratory Results – Priority OCP, Priority OPP, PCB and Asbestos

The laboratory certificate of analysis together with the chain of custody and sample receipt information is provided in Appendix J.

11. Discussion

11.1 Soils

As summarised in Tables H1 and H2, the analytical results for all contaminants tested in all soil samples were below the SAC.

11.2 Material

Asbestos was not detected by the laboratory in the material sample PACM1.

11.3 Data quality assurance and quality control

The data quality assurance and quality control (QA/QC) results are included in Appendix J. Based on the results of the field QA and field and laboratory QC, and evaluation against the data quality indicators (DQI) it is concluded that the field and laboratory test data obtained are reliable and useable for this assessment.

12. Conclusions and Recommendations

The results of the desktop investigation identified that the site and surrounds have a history as undeveloped land which has likely been used for low intensity agricultural and pastoral use, up until the mid-2000s, when a commercial hardware warehouse (Bunnings Warehouse) was developed on-site. The site land use is currently commercial/retail with an associated carpark.

Historical placement of fill was identified as the primary potential source of contamination at the site. Other potential sources of contamination included historical low intensity agricultural and pastoral land use; fly tipping of refuse material and former shed structures in the eastern portion of the site.

As a part of this investigation, shallow soil sampling was completed at 15 boreholes drilled at broadly spaced locations in exterior areas of the site, targeting potential sources of contamination and background areas. Soil samples were sent for analysis of CoPC commonly associated with the identified potential sources of contamination. CoPCs were not detected at concentrations greater than the laboratory limit of reporting or SAC in all soil samples analysed.

From a contamination perspective, based on the findings of this PSI, the potential for widespread gross contamination at the site is considered to be low and the site can likely be made suitable for the proposed warehouse and distribution centre. Notwithstanding this, due to the operational nature of the commercial premises, soil sampling could not be completed within the footprint of the building. Therefore, the potential for contamination within the footprint of the building, whilst considered to be low, cannot be completely ruled out. Further sampling will be required within the building footprint either following the ceasing of commercial operations or following demolition of the building to assess the contamination status of soils.

With respect to site contamination, the recommended further assessment within the building footprint should build on the information provided in this report with reference to National Environment Protection Council (NEPC, 1999) National Environment Protection Council (Assessment of Site Contamination) Measure 1999 (amended 2013) (NEPC, 2013). Further assessment should include intrusive investigations, sampling, analysis and assessment to determine land use suitability. A detailed site investigation, remediation action plan and/or a long term environmental management plan are not considered required for the site at this stage.

13. References

CRC CARE. (2017). *Risk-based Management and Remediation Guidance for Benzo(a)pyrene*. Technical Report no. 39: Cooperative Research Centre for Contamination Assessment and Remediation of the Environment.

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

NSW EPA. (2020). *Guidelines for Consultants Reporting on Contaminated Land*. Contaminated Land Guidelines: NSW Environment Protection Authority.

NSW EPA. (2022). *Contaminated Sites, Sampling Design Guidelines*. NSW Environment Protection Authority.

14. Limitations

Douglas Partners Pty Ltd (Douglas) has prepared this report (or services) for this project at 200 Beech Road, Casula NSW in accordance with Douglas' proposal dated 4 April 2024 and acceptance received from Adam Trent dated 17 April 2024. The work was carried out under Douglas' Engagement Terms. This report is provided for the exclusive use of Perpetual Corporate Trust Limited as Trustee for AM Crossroads Unit Trust for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of Douglas, does so entirely at its own risk and without recourse to Douglas for any loss or damage. In preparing this report Douglas has necessarily relied upon information provided by the client and/or their agents.

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

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

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

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

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

Appendix A

Drawings 1 to 10

NOTE:
1. Drawing projection in GDA2020 / MGA zone 56, adapted from aerial imagery from MetroMap dated 10 March 2024.

Douglas PARTNERS

CLIENT:	Green Point Private Advisory		
OFFICE:	Macarthur	DRAWN BY:	AP
SCALE:	1:3000 @A3	DATE:	03.May.2024

TITLE: **Site Location and Layout**
Preliminary Site Investigation with Limited Sampling
Proposed Warehouse and Distribution Centre
200 Beech Road, Casula NSW

PROJECT:	226958.00
DRAWING No:	1
REVISION:	0

LEGEND

Site Boundary

NOTE:

1. Drawing projection in GDA2020 / MGA zone 56, adapted from aerial imagery from NSW Spatial Services.

0 50 100 150 200 m

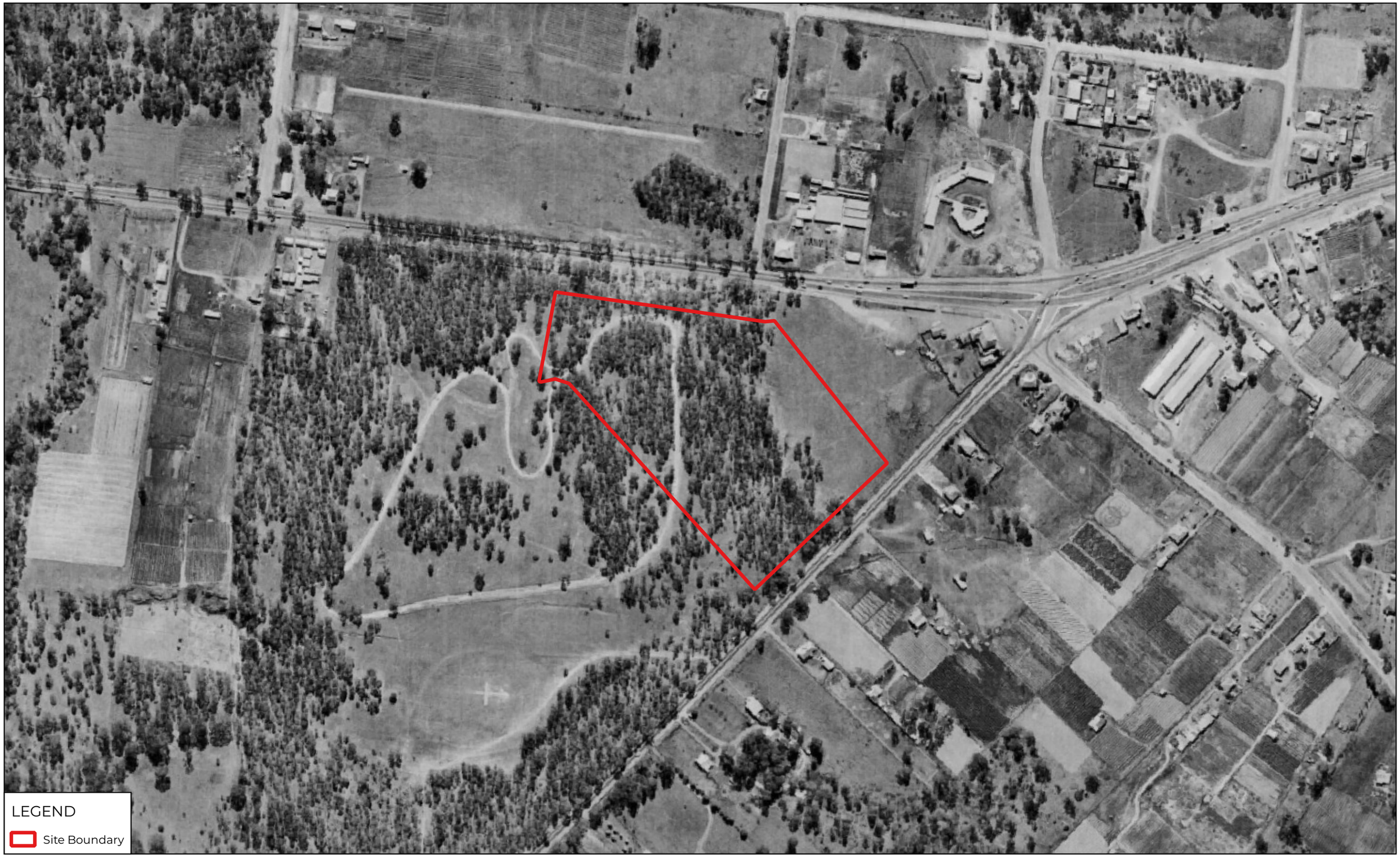
Douglas PARTNERS

CLIENT: Green Point Private Advisory		
OFFICE: Macarthur	DRAWN BY: AP	
SCALE: 1:3000 @A3	DATE: 03.May.2024	

TITLE: **Historical Aerial Photograph - 1947**
Preliminary Site Investigation with Limited Sampling
Proposed Warehouse and Distribution Centre
200 Beech Road, Casula NSW

N

PROJECT:	226958.00
DRAWING No:	2
REVISION:	0



NOTE:
1. Drawing projection in GDA2020 / MGA zone 56, adapted from aerial imagery from NSW Spatial Services.

0 50 100 150 200 m

Douglas PARTNERS

CLIENT: Green Point Private Advisory		
OFFICE: Macarthur	DRAWN BY: AP	
SCALE: 1:3000 @A3	DATE: 03.May.2024	

TITLE: **Historical Aerial Photograph - 1965**
Preliminary Site Investigation with Limited Sampling
Proposed Warehouse and Distribution Centre
200 Beech Road, Casula NSW

N

PROJECT:	226958.00
DRAWING No:	3
REVISION:	0

NOTE:
1. Drawing projection in GDA2020 / MGA zone 56, adapted from aerial imagery from NSW Spatial Services.

0 50 100 150 200 m

Douglas PARTNERS

CLIENT: Green Point Private Advisory		
OFFICE: Macarthur	DRAWN BY: AP	
SCALE: 1:3000 @A3	DATE: 03.May.2024	

TITLE: **Historical Aerial Photograph - 1975**
Preliminary Site Investigation with Limited Sampling
Proposed Warehouse and Distribution Centre
200 Beech Road, Casula NSW

N

PROJECT:	226958.00
DRAWING No:	4
REVISION:	0

NOTE:
1. Drawing projection in GDA2020 / MGA zone 56, adapted from aerial imagery from NSW Spatial Services.

0 50 100 150 200 m

Douglas PARTNERS

CLIENT:	Green Point Private Advisory		
OFFICE:	Macarthur	DRAWN BY:	AP
SCALE:	1:3000 @A3	DATE:	03.May.2024

TITLE: **Historical Aerial Photograph - 1986**
Preliminary Site Investigation with Limited Sampling
Proposed Warehouse and Distribution Centre
200 Beech Road, Casula NSW

N

PROJECT:	226958.00
DRAWING No:	5
REVISION:	0

LEGEND

Site Boundary

NOTE:

1. Drawing projection in GDA2020 / MGA zone 56, adapted from aerial imagery from NSW Spatial Services.

0 50 100 150 200 m

Douglas PARTNERS

CLIENT:	Green Point Private Advisory		
OFFICE:	Macarthur	DRAWN BY:	AP
SCALE:	1:3000 @A3	DATE:	03.May.2024

TITLE: **Historical Aerial Photograph - 1991**
Preliminary Site Investigation with Limited Sampling
Proposed Warehouse and Distribution Centre
200 Beech Road, Casula NSW

N

PROJECT:	226958.00
DRAWING No:	6
REVISION:	0

LEGEND

Site Boundary

NOTE:

1. Drawing projection in GDA2020 / MGA zone 56, adapted from aerial imagery from NSW Spatial Services.

0 50 100 150 200 m

Douglas PARTNERS

CLIENT:	Green Point Private Advisory		
OFFICE:	Macarthur	DRAWN BY:	AP
SCALE:	1:3000 @A3	DATE:	03.May.2024

TITLE: **Historical Aerial Photograph - 2005**
Preliminary Site Investigation with Limited Sampling
Proposed Warehouse and Distribution Centre
200 Beech Road, Casula NSW

N

PROJECT:	226958.00
DRAWING No:	7
REVISION:	0

LEGEND

Site Boundary

NOTE:

1. Drawing projection in GDA2020 / MGA zone 56, adapted from aerial imagery from MetroMap.

0 50 100 150 200 m

Douglas PARTNERS

CLIENT: Green Point Private Advisory		
OFFICE: Macarthur	DRAWN BY: AP	
SCALE: 1:3000 @A3	DATE: 03.May.2024	

TITLE: **Historical Aerial Photograph - 2016**
Preliminary Site Investigation with Limited Sampling
Proposed Warehouse and Distribution Centre
200 Beech Road, Casula NSW

N

PROJECT:	226958.00
DRAWING No:	8
REVISION:	0

LEGEND

Site Boundary

NOTE:

1. Drawing projection in GDA2020 / MGA zone 56, adapted from aerial imagery from MetroMap.

0 50 100 150 200 m

Douglas PARTNERS	CLIENT: Green Point Private Advisory		TITLE: **Historical Aerial Photograph - 2024** **Preliminary Site Investigation with Limited Sampling** **Proposed Warehouse and Distribution Centre** **200 Beech Road, Casula NSW**
	OFFICE: Macarthur	DRAWN BY: AP	
	SCALE: 1:3000 @A3	DATE: 03.May.2024	

N

PROJECT:	226958.00
DRAWING No:	9
REVISION:	0

LEGEND

- Site Boundary
- Part of Bunnings Store
- LPG Gas Storage
- Borehole Location
- Site Walkover Findings

NOTE:
1. Drawing projection in GDA2020 / MGA zone 56, adapted from aerial imagery from MetroMap dated 10 March 2024.

0 50 100 150 200 m

Douglas PARTNERS

CLIENT: Green Point Private Advisory		
OFFICE: Macarthur	DRAWN BY: AP	
SCALE: 1:1200 @A3	DATE: 12.June.2024	

TITLE: **Sample Locations**
Preliminary Site Investigation with Limited Sampling
Proposed Warehouse and Distribution Centre
200 Beech Road, Casula NSW

N

PROJECT:	226958.00
DRAWING No:	10
REVISION:	0

Appendix B

About this Report

About this Report

November 2023

Introduction

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

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

Copyright

Borehole and Test Pit Logs

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

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

Groundwater

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

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;
- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report; and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

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

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

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

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

continued next page

About this Report

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, DP requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

Information for Contractual Purposes

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

Site Inspection

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

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Appendix C

SafeWork NSW Search Results

NOTIFICATION OF DANGEROUS GOODS ON PREMISES FORM **FDG01**

List the dangerous goods that will be stored and/or processed on these premises. Copy this page and attach additional sheets if there is insufficient space.

Identifier	Type of Storage location or process	Class	Maximum Storage Capacity (L,kg,M^3)
L	WAREHOUSE STORAGE	MIXED	8000L

UN Number	Proper Shipping Name	Class	PG (I,II,III)	Product or Common Name	HazChem Symbol	Typical Qty	Unit eg L, kg, M^3
2208	Calcium Hypochlorite	5.1	II	Granular Chlorine	2X	2000	Kg
1791	Hypochlorite Solution						

Identifier	Type of Storage location or process	Class	Maximum Storage Capacity (L,kg,M^3)

UN Number	Proper Shipping Name	Class	PG (I,II,III)	Product or Common Name	HazChem Symbol	Typical Qty	Unit eg L, kg, M^3

Identifier	Type of Storage location or process	Class	Maximum Storage Capacity (L,kg,M^3)

UN Number	Proper Shipping Name	Class	PG (I,II,III)	Product or Common Name	HazChem Symbol	Typical Qty	Unit eg L, kg, M^3

Identifier	Type of Storage location or process	Class	Maximum Storage Capacity (L,kg,M^3)

UN Number	Proper Shipping Name	Class	PG (I,II,III)	Product or Common Name	HazChem Symbol	Typical Qty	Unit eg L, kg, M^3

Identifier	Type of Storage location or process	Class	Maximum Storage Capacity (L,kg,M^3)

UN Number	Proper Shipping Name	Class	PG (I,II,III)	Product or Common Name	HazChem Symbol	Typical Qty	Unit eg L, kg, M^3

List the dangerous goods that will be stored and/or processed on these premises. Copy this page and attach additional sheets if there is insufficient space.

Identifier	Type of Storage location or process	Class	Maximum Storage Capacity (L,kg,M^3)
LPG2	Gas Cylinder Storage	2.1	4000L

UN Number	Proper Shipping Name	Class	PG (I,II,III)	Product or Common Name	HazChem Symbol	Typical Qty	Unit eg L, kg, M^3
1075	Petroleum Gas Gas	2.1	-	LPG	2WE	4000	L

Identifier	Type of Storage location or process	Class	Maximum Storage Capacity (L,kg,M^3)

UN Number	Proper Shipping Name	Class	PG (I,II,III)	Product or Common Name	HazChem Symbol	Typical Qty	Unit eg L, kg, M^3

Identifier	Type of Storage location or process	Class	Maximum Storage Capacity (L,kg,M^3)

UN Number	Proper Shipping Name	Class	PG (I,II,III)	Product or Common Name	HazChem Symbol	Typical Qty	Unit eg L, kg, M^3

Identifier	Type of Storage location or process	Class	Maximum Storage Capacity (L,kg,M^3)

UN Number	Proper Shipping Name	Class	PG (I,II,III)	Product or Common Name	HazChem Symbol	Typical Qty	Unit eg L, kg, M^3

Identifier	Type of Storage location or process	Class	Maximum Storage Capacity (L,kg,M^3)

UN Number	Proper Shipping Name	Class	PG (I,II,III)	Product or Common Name	HazChem Symbol	Typical Qty	Unit eg L, kg, M^3

List the dangerous goods that will be stored and/or processed on these premises. Copy this page and attach additional sheets if there is insufficient space.

Identifier	Type of Storage location or process	Class	Maximum Storage Capacity (L,kg,M³)
L	Warehouse Storage	Mixed	8000L

UN Number	Proper Shipping Name	Class	PG (I,II,III)	Product or Common Name	HazChem Symbol	Typical Qty	Unit eg L, kg, M³
2208	Calcium Hypochlorite	5.1	II	Granular Chlorine	2X	2000	Kg
1791	Hypochlorite Solution	8	III	Liquid Chlorine	2X	2000	L
2623	Firelighters Solid	4.1	III	Firelighters	3Y	1000	Kg
N/A	Combustible Liquid	C1	N/A	Citronella Oil	N/A	3000	L

Identifier	Type of Storage location or process	Class	Maximum Storage Capacity (L,kg,M³)
G	Warehouse Storage	6.1	300L

UN Number	Proper Shipping Name	Class	PG (I,II,III)	Product or Common Name	HazChem Symbol	Typical Qty	Unit eg L, kg, M³
3017	Organophosphate Pesticide	6.1	III	Pesticide	3W	250	L

Identifier	Type of Storage location or process	Class	Maximum Storage Capacity (L,kg,M³)
D	Warehouse Storage	Mixed	12500L

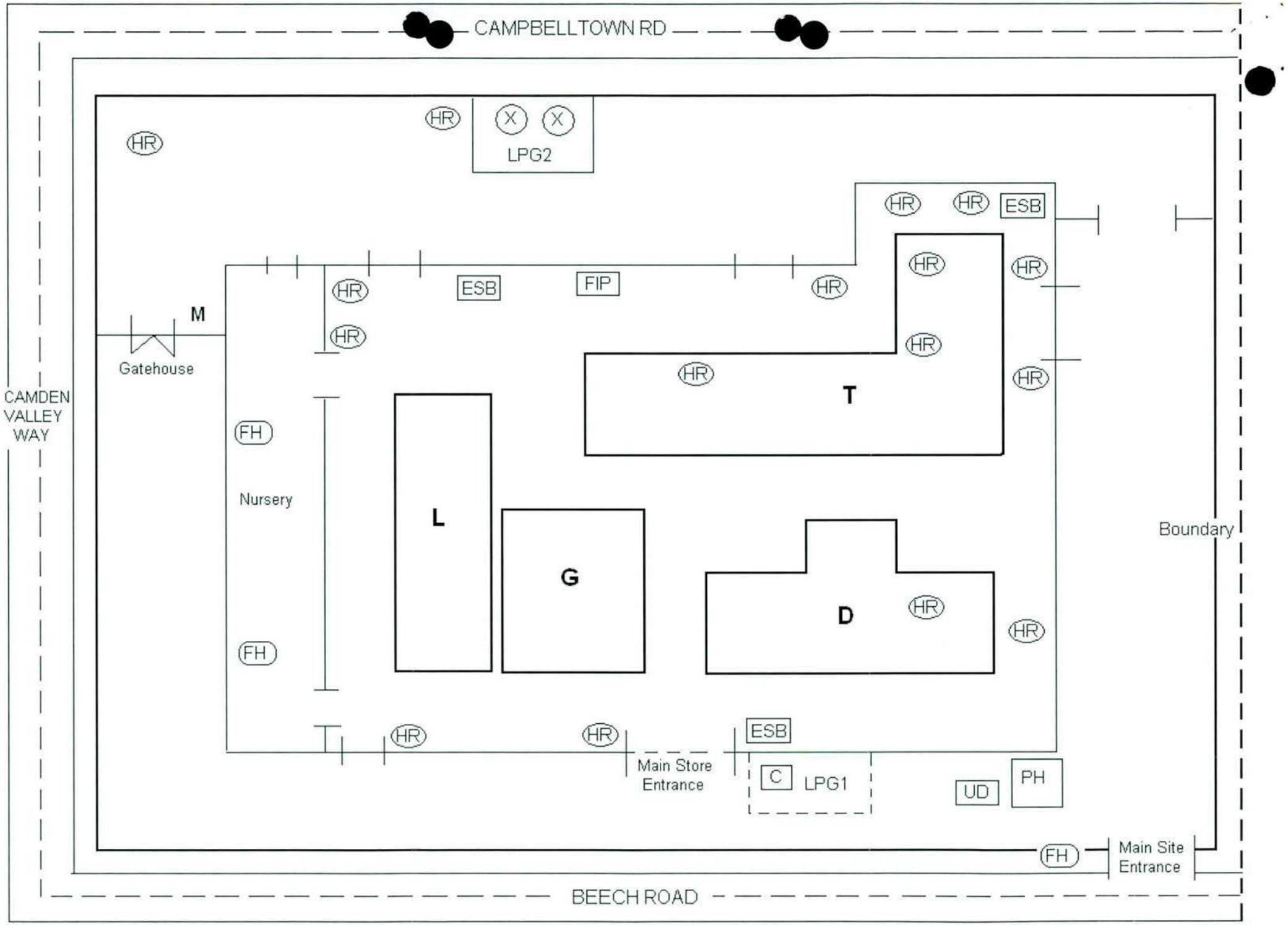
UN Number	Proper Shipping Name	Class	PG (I,II,III)	Product or Common Name	HazChem Symbol	Typical Qty	Unit eg L, kg, M³
1263	Paint or paint related	3	III	Paint	3YE	7500	L
1133	Adhesives	3	III	Adhesive	3YE	2000	L
1299	Turpentine	3	III	Turpentine	3Y	1500	L
1950	Aerosols Flammable	2.1	III	Spray Paint	2Y	1000	L

Identifier	Type of Storage location or process	Class	Maximum Storage Capacity (L,kg,M³)
T	Warehouse Storage	Mixed	4500L

UN Number	Proper Shipping Name	Class	PG (I,II,III)	Product or Common Name	HazChem Symbol	Typical Qty	Unit eg L, kg, M³
1789	Hydrochloric Acid	8	II	Hydrochloric Acid	2R	2000	L
1950	Aerosols Flammable	2.1	III	Degreaser	2Y	1000	L
1299	Turpentine	3	III	Turpentine	3Y	500	L
1223	Kerosene	3	III	Kerosene	3Y	250	L

Identifier	Type of Storage location or process	Class	Maximum Storage Capacity (L,kg,M³)
LPG1	Gas Cylinder Storage	2.1	4000L

UN Number	Proper Shipping Name	Class	PG (I,II,III)	Product or Common Name	HazChem Symbol	Typical Qty	Unit eg L, kg, M³
1075	Petroleum Gas Liquefied	2.1	-	LPG	2WE	4000	L


CAMPBELLTOWN RD
HR
X
X
LPG2
HR
HR
ESB
HR
HR
ESB
FIP
HR
HR
HR
M
HR
HR
Gatehouse
HR
T
CAMDEN
VALLEY
WAY
FH
Nursery
L
G
D
HR
HR
Boundary
FH
HR
HR
ESB
Main Store
Entrance
C
LPG1
UD
PH
FH
Main Site
Entrance
BEECH ROAD

List the dangerous goods that will be stored and/or processed on these premises. Copy this page and attach additional sheets if there is insufficient space.

Identifier	Type of Storage location or process	Class	Maximum Storage Capacity (L,kg,M³)
L	Warehouse Storage	Mixed	8000L

UN Number	Proper Shipping Name	Class	PG (I,II,III)	Product or Common Name	HazChem Symbol	Typical Qty	Unit eg L, kg, M³
2208	Calcium Hypochlorite	5.1	II	Granular Chlorine	2X	2000	Kg
1791	Hypochlorite Solution	8	III	Liquid Chlorine	2X	2000	L
2623	Firelighters Solid	4.1	III	Firelighters	3Y	1000	Kg
N/A	Combustible Liquid	C1	N/A	Citronella Oil	N/A	3000	L

Identifier	Type of Storage location or process	Class	Maximum Storage Capacity (L,kg,M³)
G	Warehouse Storage	6.1	300L

UN Number	Proper Shipping Name	Class	PG (I,II,III)	Product or Common Name	HazChem Symbol	Typical Qty	Unit eg L, kg, M³
3017	Organophosphate Pesticide	6.1	III	Pesticide	3W	250	L

Identifier	Type of Storage location or process	Class	Maximum Storage Capacity (L,kg,M³)
D	Warehouse Storage	Mixed	12500L

UN Number	Proper Shipping Name	Class	PG (I,II,III)	Product or Common Name	HazChem Symbol	Typical Qty	Unit eg L, kg, M³
1263	Paint or paint related	3	III	Paint	3YE	7500	L
1133	Adhesives	3	III	Adhesive	3YE	2000	L
1299	Turpentine	3	III	Turpentine	3Y	1500	L
1950	Aerosols Flammable	2.1	III	Spray Paint	2Y	1000	L

Identifier	Type of Storage location or process	Class	Maximum Storage Capacity (L,kg,M³)
T	Warehouse Storage	Mixed	4500L

UN Number	Proper Shipping Name	Class	PG (I,II,III)	Product or Common Name	HazChem Symbol	Typical Qty	Unit eg L, kg, M³
1789	Hydrochloric Acid	8	II	Hydrochloric Acid	2R	2000	L
1950	Aerosols Flammable	2.1	III	Degreaser	2Y	1000	L
1299	Turpentine	3	III	Turpentine	3Y	500	L
1223	Kerosene	3	III	Kerosene	3Y	250	L

Identifier	Type of Storage location or process	Class	Maximum Storage Capacity (L,kg,M³)
LPG1	Gas Cylinder Storage	2.1	2500L

UN Number	Proper Shipping Name	Class	PG (I,II,III)	Product or Common Name	HazChem Symbol	Typical Qty	Unit eg L, kg, M³
1075	Petroleum Gas Liquefied	2.1	-	LPG	2WE	2500	L

NOTIFICATION OF DANGEROUS GOODS ON PREMISES FORM **FDG01**

List the dangerous goods that will be stored and/or processed on these premises. Copy this page and attach additional sheets if there is insufficient space.

Identifier	Type of Storage location or process	Class	Maximum Storage Capacity (L,kg,M³)
LPG2	Gas Cylinder Storage	2.1	2500L

UN Number	Proper Shipping Name	Class	PG (I,II,III)	Product or Common Name	HazChem Symbol	Typical Qty	Unit eg L, kg, M³
1075	Petroleum Gas Liquefied	2.1	-	LPG	2WE	2500	L

Identifier	Type of Storage location or process	Class	Maximum Storage Capacity (L,kg,M³)

UN Number	Proper Shipping Name	Class	PG (I,II,III)	Product or Common Name	HazChem Symbol	Typical Qty	Unit eg L, kg, M³

Identifier	Type of Storage location or process	Class	Maximum Storage Capacity (L,kg,M³)

UN Number	Proper Shipping Name	Class	PG (I,II,III)	Product or Common Name	HazChem Symbol	Typical Qty	Unit eg L, kg, M³

Identifier	Type of Storage location or process	Class	Maximum Storage Capacity (L,kg,M³)

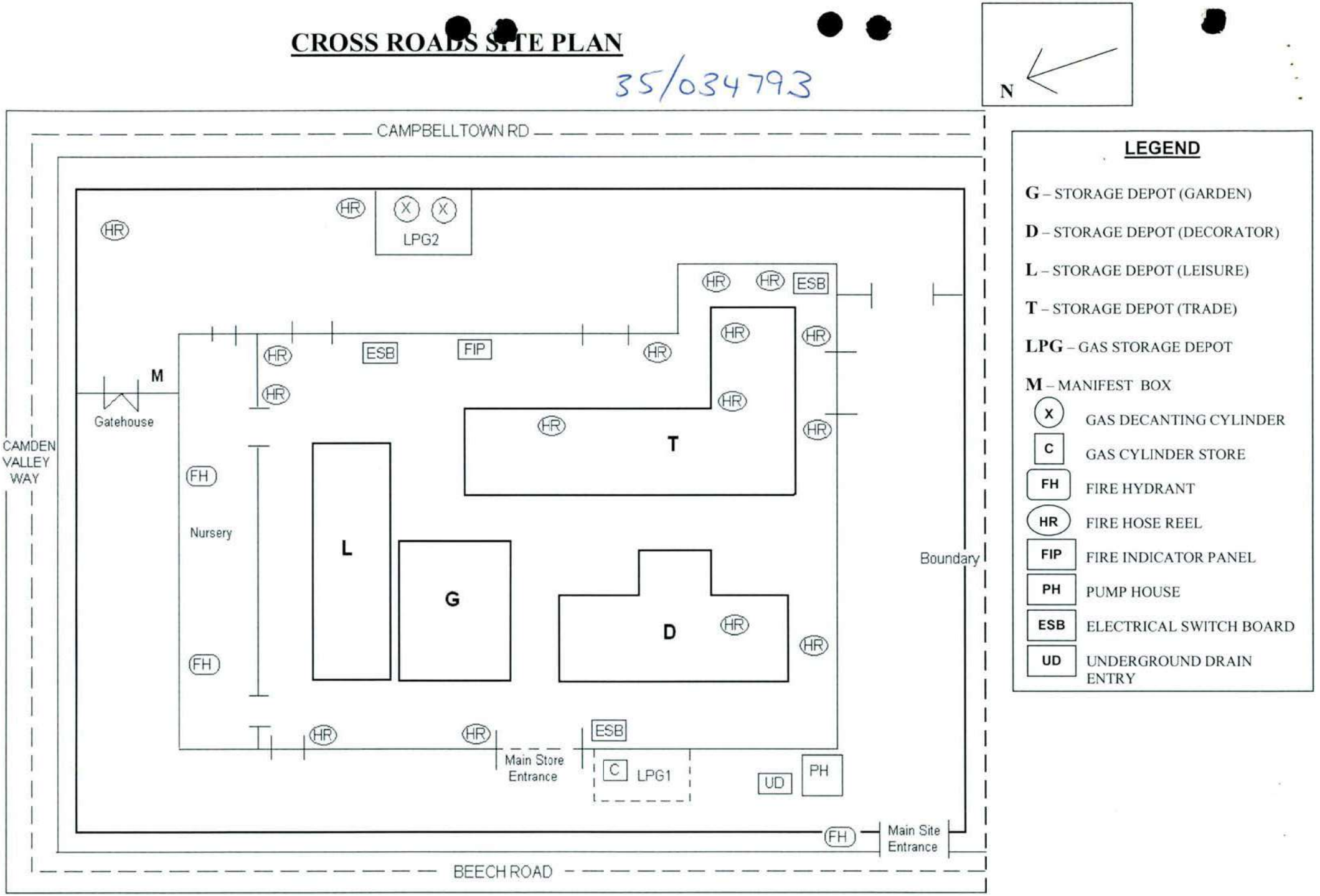
UN Number	Proper Shipping Name	Class	PG (I,II,III)	Product or Common Name	HazChem Symbol	Typical Qty	Unit eg L, kg, M³

Identifier	Type of Storage location or process	Class	Maximum Storage Capacity (L,kg,M³)

UN Number	Proper Shipping Name	Class	PG (I,II,III)	Product or Common Name	HazChem Symbol	Typical Qty	Unit eg L, kg, M³

CROSS ROADS SITE PLAN

35/034793



LEGEND

G – STORAGE DEPOT (GARDEN)

D – STORAGE DEPOT (DECORATOR)

L – STORAGE DEPOT (LEISURE)

T – STORAGE DEPOT (TRADE)

LPG – GAS STORAGE DEPOT

M – MANIFEST BOX

X	GAS DECANTING CYLINDER
C	GAS CYLINDER STORE
FH	FIRE HYDRANT
HR	FIRE HOSE REEL
FIP	FIRE INDICATOR PANEL
PH	PUMP HOUSE
ESB	ELECTRICAL SWITCH BOARD
UD	UNDERGROUND DRAIN ENTRY

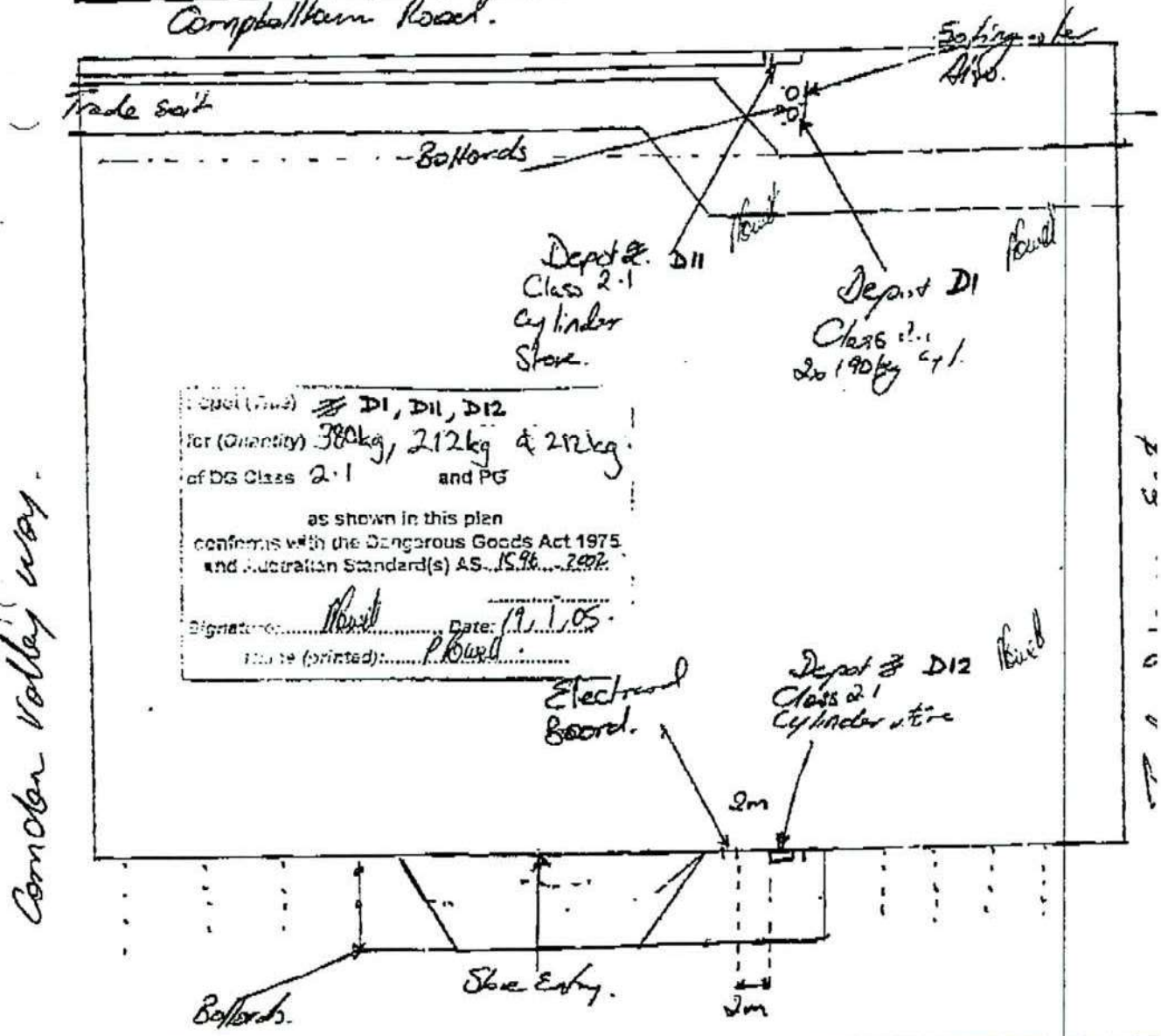
034793

PROPOSED INSTALLATION

CUSTOMER: Bunnings Building Supplies.
LOCATION: On Campbelltown Rd + Camden Valley Way STATE NSW. ROUTE:
DESCRIPTION: LPG New Cage

REFERENCE No:
PAGE OF
BY: Jacob Barnes.
COMPLIES?:
DATE: 18/1/05

STORAGE CAPACITY:
NEW? ☑ CHANGED? ☐ INSTALLATION - CLASSES
SERVICE: VAPOUR ☐ LIQUID ☑ KWIK GAS ☑ BULK/INDUSTRIAL ☐ COMMERCIAL ☐



AJ015FRM

ISSUE DATE: 31/1

WorkCover New South Wales, 400 Kent Street, Sydney 2000. Tel: 9370 5000 Fax: 9370 5999 ALL MAIL TO G.P.O. BOX 5364 SYDNEY 2001

Licence No. 35/034793

APPLICATION FOR RENEWAL

OF LICENCE TO KEEP DANGEROUS GOODS

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

	UN 1479 OXIDIZING SOLID, N.O.S.		600 KG
	UN 2468 TRICHLOROISO CYANURIC ACID, DRY		600 KG
D8	**ROOFED STORE**	**Class 3**	**2000 L**
	UN 1263 PAINT, (ZINC RICH KIT)		2000 L
D9	**ROOFED STORE**	**Class 6.1**	**2000 L**
	UN 1593 DICHLOROMETHANE		1000 L
	UN 2810 TOXIC LIQUID, ORGANIC, N.O.S.,		1000 L

Sketch Tray

WorkCover New South Wales, 400 Kent Street, Sydney 2000. Tel: 9370 5000 Fax: 9370 5999 ALL MAIL TO G.P.O. BOX 5364 SYDNEY 2001

Licence No. 35/034793

APPLICATION FOR RENEWAL

OF LICENCE TO KEEP DANGEROUS GOODS

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

DECLARATION: Please renew licence number 35/034793 to 13/03/2003 . I confirm that all the licence details shown below are correct (amend if necessary).

M Gorman (Signature) for: BBC HARDWARE LIMITED

MARK GOMM (Please print name)

3/4/02 (Date signed)

*THIS **SIGNED** DECLARATION SHOULD BE **RETURNED TO: (please do not fax)***

WorkCover New South Wales
Dangerous Goods Licensing Section
GPO BOX 5364
SYDNEY 2001

Enquiries: ph (02) 9370 5187
fax (02) 9370 6104

Details of licence on 20 February 2002

Licence Number 35/034793 **Expiry Date** 13/03/2002

NEW **Licensee** ~~BBC HARDWARE LIMITED ACN 000 003 378~~ BUNNINGS BUILDING SUPPLIES PTY LTD ABN: 26008672179
~~HARDWARE HOUSE CROSSROADS~~

NEW **Postal Address:** ~~HARDWARE HOUSE CROSSROADS P O BOX 201 EPPING NSW 2121~~ BUNNINGS BUILDING SUPPLIES PTY LTD, LOCKED BAG 20, WELSHPOOL DC 6986 W.A.

NEW **Licensee Contact** ~~SCOTT CORNWELL Ph. 9876 0888 Fax. 9876 8673~~ MARK GOMM PH: 0893651570 FAX: 0893566460

Premises Licensed to Keep Dangerous Goods
BBC HARDWARE LIMITED HARDWARE HOUSE CROSSROADS
CAMDEN VALLY WY CNR CAMPBELLTOWN RD CASULA 2170

Nature of Site DOMESTIC HARDWARE AND HOUSEWARE RETAILING

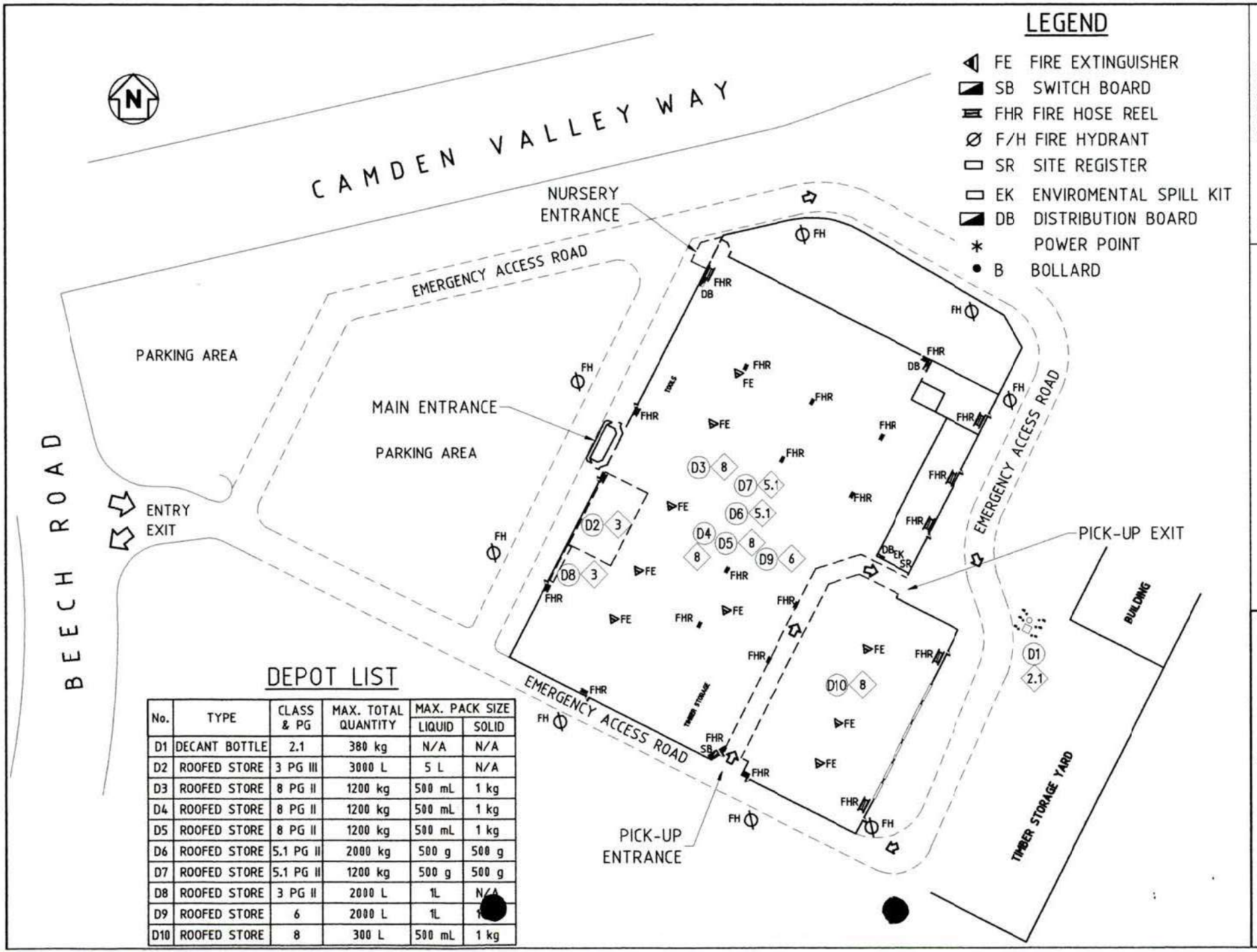
Major Supplier of Dangerous Goods VARIOUS

NEW **Emergency Contact for this Site** ~~DARCY HAGAN~~ Ph. 9820 5643

Site staffing 11 HOURS 7 DAYS COLIN LEEMBRUGGEN

Details of Depots

Depot No.	Depot Type	Goods Stored in Depot	Qty
D1	**DECANTING CYLINDER(S)**	**Class 2.1**	**380 KG**
	UN 1075 PETROLEUM GASES, LIQUEFIED		380 KG
D10	**ROOFED STORE**	**Class 8**	**300 KG**
	UN 1789 HYDROCHLORIC ACID		300 KG
D2	**ROOFED STORE**	**Class 3**	**3000 L**
	UN 1263 PAINT, (ZINC RICH KIT)		2000 L
D3	**ROOFED STORE**	**Class 8**	**1200 KG**
	UN 1789 HYDROCHLORIC ACID		500 KG
	UN 1824 SODIUM HYDROXIDE SOLUTION		500 KG
D4	**ROOFED STORE**	**Class 8**	**1200 KG**
	UN 1791 HYPOCHLORITE SOLUTION		1000 KG
D5	**ROOFED STORE**	**Class 8**	**1200 KG**
	UN 1791 HYPOCHLORITE SOLUTION		1000 KG
D6	**ROOFED STORE**	**Class 5.1**	**2000 KG**
	UN 2880 CALCIUM HYPOCHLORITE, HYDRATED		1800 KG
D7	**ROOFED STORE**	**Class 5.1**	**1200 KG**



LEGEND

- FE FIRE EXTINGUISHER
- SB SWITCH BOARD
- FHR FIRE HOSE REEL
- F/H FIRE HYDRANT
- SR SITE REGISTER
- EK ENVIROMENTAL SPILL KIT
- DB DISTRIBUTION BOARD
- * POWER POINT
- B BOLLARD

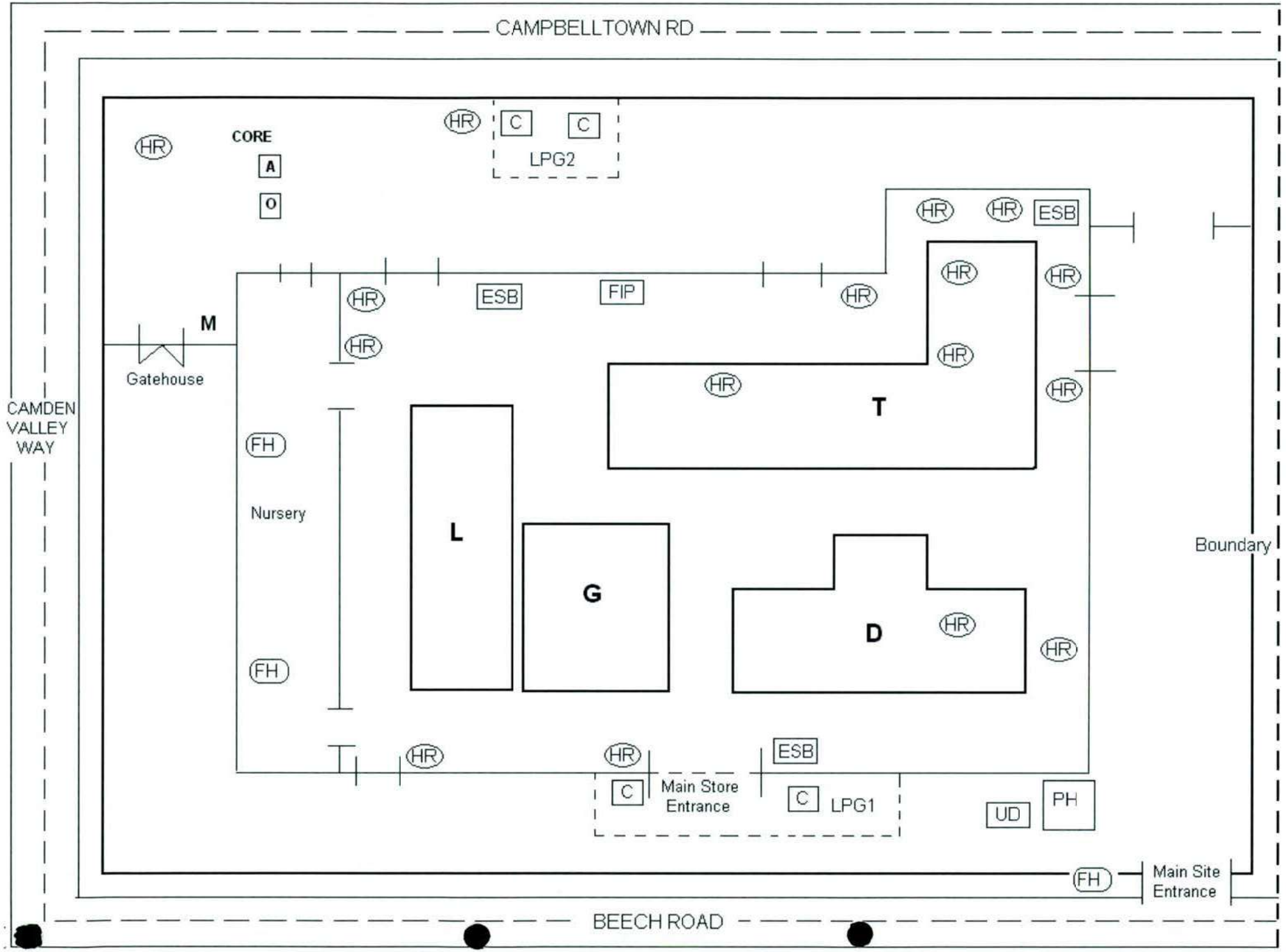
DEPOT LIST

No.	TYPE	CLASS & PG	MAX. TOTAL QUANTITY	MAX. PACK SIZE	
				LIQUID	SOLID
D1	DECANT BOTTLE	2.1	380 kg	N/A	N/A
D2	ROOFED STORE	3 PG III	3000 L	5 L	N/A
D3	ROOFED STORE	8 PG II	1200 kg	500 mL	1 kg
D4	ROOFED STORE	8 PG II	1200 kg	500 mL	1 kg
D5	ROOFED STORE	8 PG II	1200 kg	500 mL	1 kg
D6	ROOFED STORE	5.1 PG II	2000 kg	500 g	500 g
D7	ROOFED STORE	5.1 PG II	1200 kg	500 g	500 g
D8	ROOFED STORE	3 PG II	2000 L	1L	N/A
D9	ROOFED STORE	6	2000 L	1L	1
D10	ROOFED STORE	8	300 L	500 mL	1 kg

DRAWN:	C.BRITTON		
DATE:	NOV'00	SCALE:	NTS
CHECKED:	T.GRAINGER		
DRAWING No:	00171-02	REV:	0

TITLE: BBC HARDWARE HOUSE
CAMDEN VALLEY WAY,
CASULA, NSW
PART "B" SKETCH

T & V GRAINGER (CONSULTANTS)
DANGEROUS GOODS, ENVIRONMENTAL
AUDITING AND WORK PERMIT SERVICES
3 CONIFER PLACE, ENGADINE NSW 2233
FACSIMILE (02) 9548 2229 MOBILE 0408 677 982
EMAIL: tvgrainger@bigpond.com.au


CAMPBELLTOWN RD
CAMDEN VALLEY WAY
BEECH ROAD
CORE
A
O
HR
C
C
LPG2
ESB
FIP
M
Gatehouse
FH
Nursery
L
G
T
D
Boundary
Main Store Entrance
LPG1
UD
PH
Main Site Entrance

Storage facility identifier: T

Type of storage facility: WAREHOUSE STORAGE

Class or division: MIX

Maximum storage capacity: 4500

Unit (L or kg or number): L

UN number	Class or division	Typical quantity	Unit (L or kg or number)	Packing group
1789	8	2000	L	II

Proper shipping name: HYRDOCHLORIC ACID

Product or common name: HYDROCHLORIC ACID

UN number	Class or division	Typical quantity	Unit (L or kg or number)	Packing group
1950	2.1	1000	L	III

Proper shipping name: AEROSOLS FLAMMABLE

Product or common name: DEGREASER

UN number	Class or division	Typical quantity	Unit (L or kg or number)	Packing group
1299	3	300	L	III

Proper shipping name: TURPENTINE

Product or common name: TURPENTINE

UN number	Class or division	Typical quantity	Unit (L or kg or number)	Packing group
1223	3	250	L	III

Proper shipping name: KEROSENE

Product or common name: KEROSENE

Storage facility identifier: D

Type of storage facility: WAREHOUSE STORAGE

Class or division: MIX

Maximum storage capacity: 12500

Unit (L or kg or number): L

UN number	Class or division	Typical quantity	Unit (L or kg or number)	Packing group
1263	3	7500	L	III

Proper shipping name: PAINT OR PAINT RELATED

Product or common name: PAINT

UN number	Class or division	Typical quantity	Unit (L or kg or number)	Packing group
1133	3	2000	L	III

Proper shipping name: ADHESIVES

Product or common name: ADHESIVE

UN number	Class or division	Typical quantity	Unit (L or kg or number)	Packing group
1299	3	600	L	III

Proper shipping name: TURPENTINE

Product or common name: TURPENTINE

UN number	Class or division	Typical quantity	Unit (L or kg or number)	Packing group
1950	2.1	1000	L	III

Proper shipping name: AEROSOLS FLAMMABLE

Product or common name: SPRAY PAINT

Storage facility identifier: G

Type of storage facility: WAREHOUSE STORAGE

Class or division: 6.1

Maximum storage capacity: 300

Unit (L or kg or number): L

UN number	Class or division	Typical quantity	Unit (L or kg or number)	Packing group
3017	6.1	250	L	III

Proper shipping name: ORGANOPHOSPHATE PESTICIDE

Product or common name: PESTICIDE

UN number	Class or division	Typical quantity	Unit (L or kg or number)	Packing group

Proper shipping name

Product or common name

UN number	Class or division	Typical quantity	Unit (L or kg or number)	Packing group

Proper shipping name

Product or common name

UN number	Class or division	Typical quantity	Unit (L or kg or number)	Packing group

Proper shipping name

Product or common name

Storage facility identifier: L

Type of storage facility: WAREHOUSE STORAGE

Class or division: MIX

Maximum storage capacity: 80000 L

Unit (L or kg or number): L

UN number	Class or division	Typical quantity	Unit (L or kg or number)	Packing group
2208	5.1	2000	KG	II

Proper shipping name: CALCIUM HYPOCHLORITE

Product or common name: GRANULAR CHLORINE

UN number	Class or division	Typical quantity	Unit (L or kg or number)	Packing group
1791	8	2000	L	III

Proper shipping name: HYPOCHLORITE SOLUTION

Product or common name: LIQUID CHLORINE

UN number	Class or division	Typical quantity	Unit (L or kg or number)	Packing group
2623	4.1	1000	KG	III

Proper shipping name: FIRELIGHTERS SOLID

Product or common name: FIRELIGHTERS

UN number	Class or division	Typical quantity	Unit (L or kg or number)	Packing group
N/A	C1	3000	L	N/A

Proper shipping name: COMBUSTIBLE LIQUID

Product or common name: CITRONELLA OIL

6. STORAGE DETAILS (must be completed for both new notifications and further notifications)

If space is insufficient please provide details on a separate sheet of paper.

Storage facility identifier: LPG2

Type of storage facility: GAS CYLINDER STORAGE

Class or division: 2.1

Maximum storage capacity: 4000 L

Unit (L or kg or number): L

UN number	Class or division	Typical quantity	Unit (L or kg or number)	Packing group
1075	2.1	4000	L	-

Proper shipping name: PETROLEUM GAS

Product or common name: GAS CYLINDER

UN number	Class or division	Typical quantity	Unit (L or kg or number)	Packing group

Proper shipping name

Product or common name

UN number	Class or division	Typical quantity	Unit (L or kg or number)	Packing group

Proper shipping name

Product or common name

UN number	Class or division	Typical quantity	Unit (L or kg or number)	Packing group

Proper shipping name

Product or common name

Storage facility identifier: LPG1

Type of storage facility: GAS CYLINDER STORAGE

Class or division: 2.1

Maximum storage capacity: 4000

Unit (L or kg or number): L

UN number	Class or division	Typical quantity	Unit (L or kg or number)	Packing group
1075	2.1	4000	L	-

Proper shipping name: PETROLEUM GAS LIQUIFIED

Product or common name: GAS CYLINDERS

UN number	Class or division	Typical quantity	Unit (L or kg or number)	Packing group

Proper shipping name

Product or common name

UN number	Class or division	Typical quantity	Unit (L or kg or number)	Packing group

Proper shipping name

Product or common name

UN number	Class or division	Typical quantity	Unit (L or kg or number)	Packing group

Proper shipping name

Product or common name

6. STORAGE DETAILS (must be completed for both new notifications and renewals)

If space is insufficient please provide details on a separate sheet of paper.

Storage facility identifier: CORE

Type of storage facility: CORE GAS CYLINDER STORAGE

Class or division: 2.2

Maximum storage capacity: 200

Unit (L or kg or number): L

UN number	Class or division	Typical quantity	Unit (L or kg or number)	Packing group
1072	2.2	200	L	

Proper shipping name: OXYGEN COMPRESSED

Product or common name: CORE GAS OXYGEN

UN number	Class or division	Typical quantity	Unit (L or kg or number)	Packing group
1001	2.1	150	L	

Proper shipping name: ACETYLENE DISSOLVED

Product or common name: CORE GAS ACETYLENE

UN number	Class or division	Typical quantity	Unit (L or kg or number)	Packing group

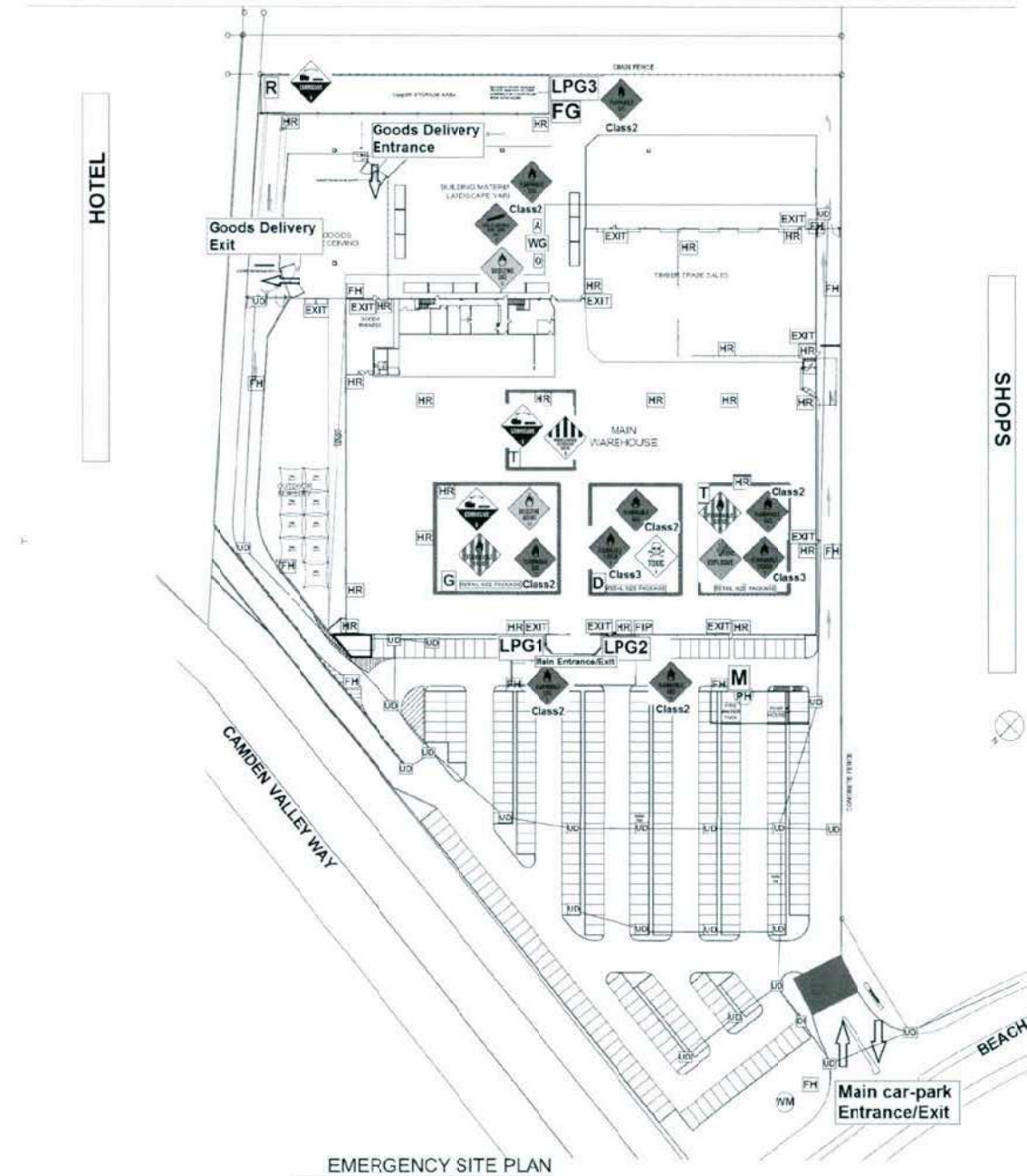
Proper shipping name:

Product or common name:

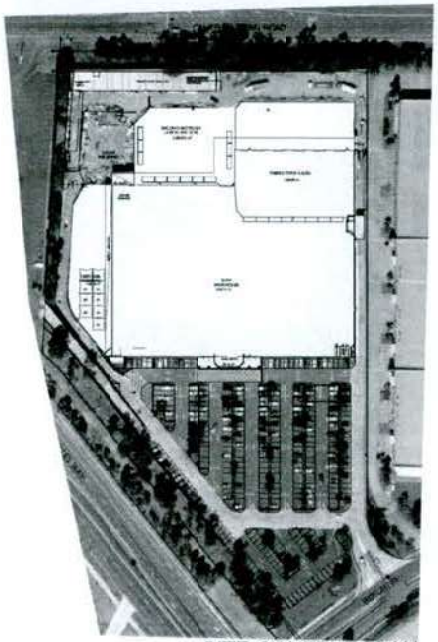
UN number	Class or division	Typical quantity	Unit (L or kg or number)	Packing group

Proper shipping name:

Product or common name:



EMERGENCY SITE PLAN
SCALE: 1:600 @ A3



SITE CONTEXT PLAN
SCALE: 1:1300 @ A3

SITE PLAN LEGEND:

G - Storage Depot (Garden)
D - Storage Depot (Decorator)
T - Storage Depot (Trade)
LPG - Storage Depot (Lp Gas)

WM Water Main Shutoff
UD Underground Drain Entry
DI Drain Intercept
Main Electrical Isolation
Emergency Assembly Area
A Acetylene
O Oxygen
WG Welding Gas Store
FH Fire Hydrant
HR Fire Hose Reel
FIP Fire Indicator Panel
PH Pump House
M Manifest
Water Flow
Direction of Water Flow
FG Forklift Gas
R Storage Depot (Receiving)

ALL DIMENSIONS ARE TO BE CONFIRMED ON SITE PRIOR TO MANUFACTURE AND CONSTRUCTION

STORE TYPE **LARGE**

FOR COMMENT

DATE:	REV:	AMENDMENT:	DWN:
22/05/15	-	INITIAL EMERGENCY SITE PLAN	RF

AUTHORISATION:
CHIEF OPERATING OFFICER: DATE:
GM MARKETING & MERCH: DATE:
NATIONAL MERCH MANAGER: DATE:
VISUAL MERCH MANAGER: DATE:
STORE PLANNING MANAGER: DATE:

BUNNINGS

CAPEX APPROVED
DRAWING NO: CAPEX NO:
DATE ISSUED:

ISSUED FOR CAPEX FEASIBILITY
DATE ISSUED: DRAWING NO:

PROJECT NAME: **CROSSROADS** SERIES NO: **9000**
PROJECT ADDRESS: **CNR CAMPBELLTOWN RD & CAMDEN VALLEY WAY CASULA NSW 2170**
STORE NUMBER: **7181** STORE TYPE: **LARGE**

DRAWING PHASE: **DESIGN**
DRAWING TITLE: **EMERGENCY SITE PLAN**
PLOT DATE: 22/05/2015 2:53 PM
CHECKED BY:

DRAWN: DJB	PROJECT NORTH	DRAWING NO:	REVISION
SCALE: AS SHOWN		EM1_01	-
DATE: 1/06/2313			

T	Warehouse	1823	Sodium Hydroxide, solid	8	II	140 Kg	140 Kg	
T	Warehouse	1824	Sodium Hydroxide solution	8	II	90 L	90 L	
T	Warehouse	1760	Corrosive liquid N.O.S	8	III	60 Kg	60 Kg	
T	Warehouse	0323	Cartridges power, device	1	II	80 Kg	80 Kg	
R	Outdoor Storage	1791	Hypochlorite Solutions	8	III	3750 L	3750 L	

A	Cylinder	1001	Acetylene, Dissolved	2.1		150 L	150 L	
WG	Cylinder Store	1006	Argon, Compressed	2.2		160 L	160 L	
WG	Cylinder Store	1956	Compressed Gas N.O.S	2.2		160 L	160 L	
T	Warehouse	1950	Aerosol	2.1		300 L	300 L	
T	Warehouse	1170	Ethanol	3	II	20 L	20 L	
T	Warehouse	1993	Flammable Liquids N.O.S	3	II	10 L	10 L	
T	Warehouse	1263	Paint	3	III	80 L	80 L	
T	Warehouse	1299	Turpentine	3	III	5 L	5 L	
T	Warehouse		Combustible Liquid C1	C1		20 l	20 L	
T	Warehouse	1789	Hydrochloric acid	8	II	820 L	820 L	

D	Warehouse	1866	Resin Solution, flammable	3	III	175 L	175 L	
D	Warehouse	1263	Paint	3	III	9920 L	9920 L	
D	Warehouse	1307	Xylenes	3	III	15 L	15 L	
D	Warehouse	1133	Adhesives, Containing flammable liquid	3	III	120 L	120 L	
D	Warehouse		Combustible Liquid C1	C1		300 L	300 L	
D	Warehouse	3105	Organic Peroxide type D liquid	5.2		5 L	5 L	
D	Warehouse	1593	Dichloromethane	6.1	III	80 L	80 L	
D	Warehouse	1805	Phosphoric Acid	8	III	50 L	50 L	
D	Warehouse	3082	Environmentally hazardous substance, liquid N.O.S	9	III	20 Kg	20 Kg	
O	Cylinder Store	1072	Oxygen, Compressed	2.2 / 5.1		200 L	200 L	

G	Warehouse	1791	Hypochlorite Solutions	8	III	2000 L	2000 L	
D	Warehouse	1950	Aerosol	2.1		1250 L	1250 L	
D	Warehouse	1993	Flammable Liquids N.O.S	3	II	155 L	155 L	
D	Warehouse	1219	Isopropyl Alcohol	3	II	10 L	10 L	
D	Warehouse	1268	Petroleum Distillates, N.O.S	3	II	40 L	40 L	
D	Warehouse	1090	Acetone	3	II	60 L	60 L	
D	Warehouse	1170	Ethanol	3	II	395 L	395 L	
D	Warehouse	1299	Turpentine	3	III	15 L	15 L	
D	Warehouse	1300	Turpentine Substitute	3	III	970 L	970 L	
D	Warehouse	1223	Kerosene	3	III	200 L	200 L	

Storage identifier	Storage facility type	UN number	Proper shipping name^	Class/ division	Packing group (I, II, III) and flammable liquid cat IV)	Design/ maximum capacity (L/kg)	Typical quantity (L/kg)	Diameter – vertical tanks with fire risk DG (m) meters
G	Warehouse	2623	Firelighters, solid	4.1	III	970 Kg	970 Kg	
G	Warehouse	1944	Matches, safety	4.1	III	10 Kg	10 Kg	
G	Warehouse	1334	Napthalene	4.1	III	10 Kg	10 Kg	
G	Warehouse	2717	Camphor Synthetic	4.1	III	10 Kg	10 Kg	
G	Warehouse	2880	Calcium Hypochlorite, hydrated	5.1	II	1610 Kg	1610 Kg	
G	Warehouse	2468	Trichloroisocyanuric acid, dry	5.1	II	260 Kg	260 Kg	
G	Warehouse	3085	Oxidising solid, corrosive N.O.S	5.1	II	90 Kg	90 Kg	
G	Warehouse	2465	Dichloisocyanuric acid, dry	5.1	II	20 Kg	20 Kg	
G	Warehouse	1505	Sodium Persulphate	5.1	III	20 Kg	20 Kg	

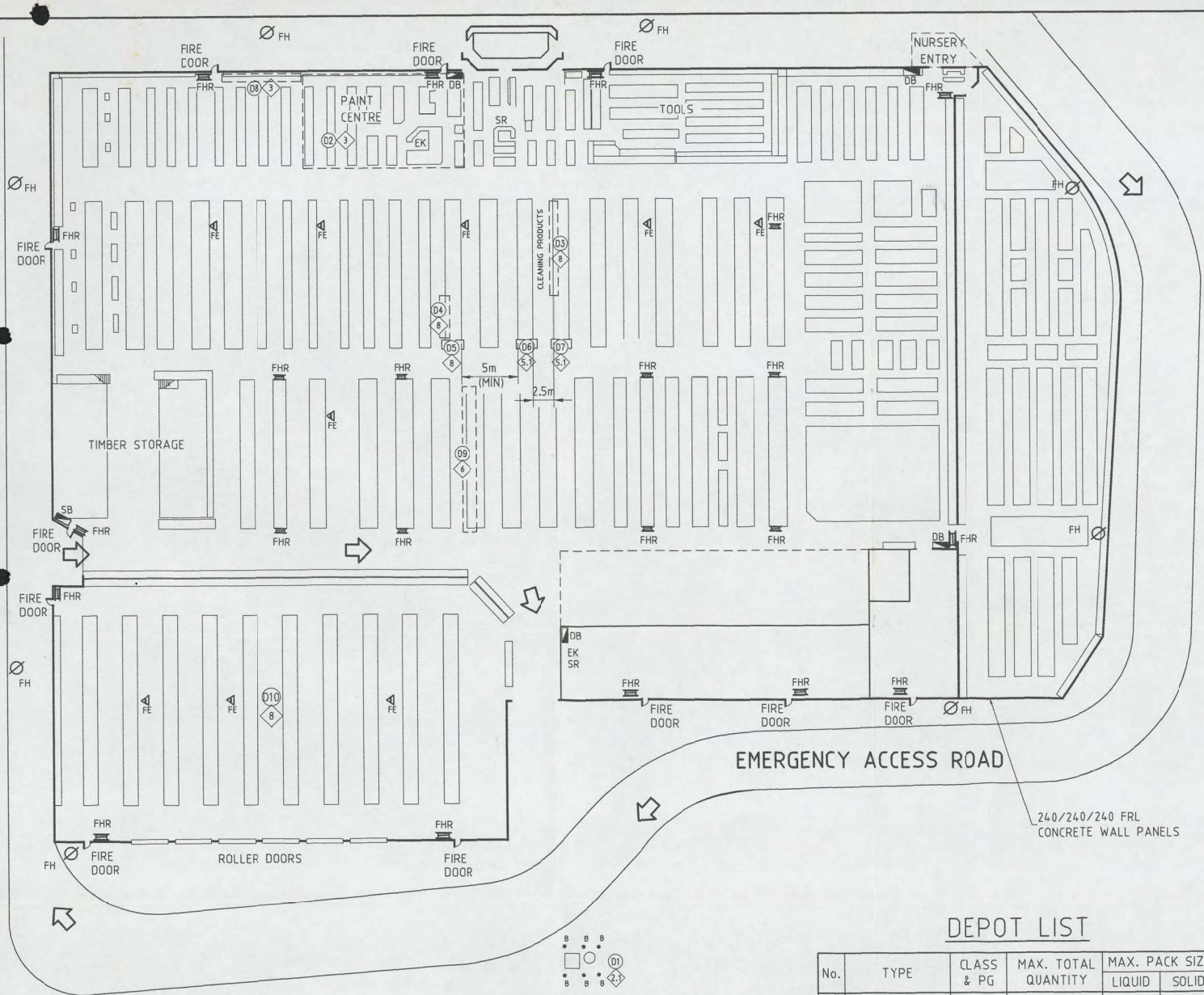
Section 4.4: List of hazardous chemicals used, stored or handled

Please provide details of all hazardous chemicals that are above placard quantities.

Please duplicate this page if more space is required.

^If you are notifying a Combustible Liquid C1, eg Diesel, please write Combustible Liquid C1 in the Proper shipping name field.

Storage identifier	Storage facility type	UN number	Proper shipping name^	Class/ division	Packing group (I, II, III) and flammable liquid cat IV)	Design/ maximum capacity (L/kg)	Typical quantity (L/kg)	Diameter – vertical tanks with fire risk DG (m) meters
LPG 1	Cylinder Store	1075	Petroleum Gases, liquefied	2.1		1000 L	1000 L	
LPG 2	Cylinder Store	1075	Petroleum Gases, Liquefied	2.1		1000 L	1000 L	
LPG 3	Cylinder Store	1075	Petroleum Gases, Liquefied	2.1		4000 L	4000 L	
LPG 4	Cylinder Store	1075	Petroleum Gases, Liquefied	2.1		Nil not storage	Nil	
FG	Cylinder Store	1075	Petroleum Gases, Liquefied	2.1		500 L	500 L	
G	Warehouse	1950	Aerosol	2.1		450 L	450 L	
G	Warehouse	1268	Petroleum Distillates, N.O.S	3	II	60 L	60 L	
G	Warehouse		Combustible Liquid C1	C1		1830 L	1830 L	



DEPOT LIST

No.	TYPE	CLASS & PG	MAX. TOTAL QUANTITY	MAX. PACK SIZE	
				LIQUID	SOLID
D1	DECANT BOTTLE	2.1	380 kg	N/A	N/A
D2	ROOFED STORE	3 PG III	3000 L	5 L	N/A
D3	ROOFED STORE	8 PG II	1200 kg	500 mL	1 kg
D4	ROOFED STORE	8 PG II	1200 kg	500 mL	1 kg
D5	ROOFED STORE	8 PG II	1200 kg	500 mL	1 kg
D6	ROOFED STORE	5.1 PG II	2000 kg	500 g	500 g
D7	ROOFED STORE	5.1 PG II	1200 kg	500 g	500 g
D8	ROOFED STORE	3 PG II	2000 L	1L	N/A
D9	ROOFED STORE	6	2000 L	1L	1 kg
D10	ROOFED STORE	8	300 L	500 mL	1 kg

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Signe

DANGEROUS GOODS GE

1. SB DENOTES SWITCHBOARD.
2. DB DENOTES ELECTRICAL DIS
3. EK DENOTES ENVIRONMENTAL
4. FE DENOTES DRY CHEMICAL
   REFER AS2444 AND AS18
5. FHR DENOTES FIRE HYDRANT
6. SR DENOTES SITE REGISTER
   * SITE LAYOUT PLAN INDIC
   DANGEROUS GOODS STOR
   AND FIRE FIGHTING EQUIP
   * HAZARDOUS AREAS MAP.
   * MATERIAL SAFETY DATA
   HAZARDOUS AND DANGER
   SAFETY PRECAUTIONS AN
   * EMERGENCY MANAGEMENT
   INSTRUCTIONS, SITE CONT
7. DANGEROUS GOODS CLASSES
   PLACARDS TO BE DISPLAYE
8. NO IGNITION SOURCES TO BE
9. SPILLAGE CONTROL SYSTEM
   CLAUSE 3.5.2 DESIGN & CO
10. ALL DANGEROUS GOODS DE
    OF SGHT OF CHECKOUT AN
    WITH FLOOR STAFF AND VI
11. DIFFERENT TYPES OF "POO
    SEPARATED BY AT LEAST
12. MAXIMUM QUANTITIES AND
    FOR DANGEROUS GOODS IN
    TO AS/NZS 3833-1998 TAB
13. MAXIMUM QUANTITY PER P
    COMMODITIES CLASSIFIED AS
    (CLASSES 2, 3, 4, 5, 6 &
    AS/NZS 3833-1998 TABLE

LEGEND

FE FIRE EXTINGUISHER
SB SWITCH BOARD
FHR FIRE HOSE REEL
F/H FIRE HYDRANT
SR SITE REGISTER
EK
DB
*
• B

PROJECT
BBC HARDWARE HOUSE
CAMDEN VALLEY WAY
CASULA, NSW, 2170

T &

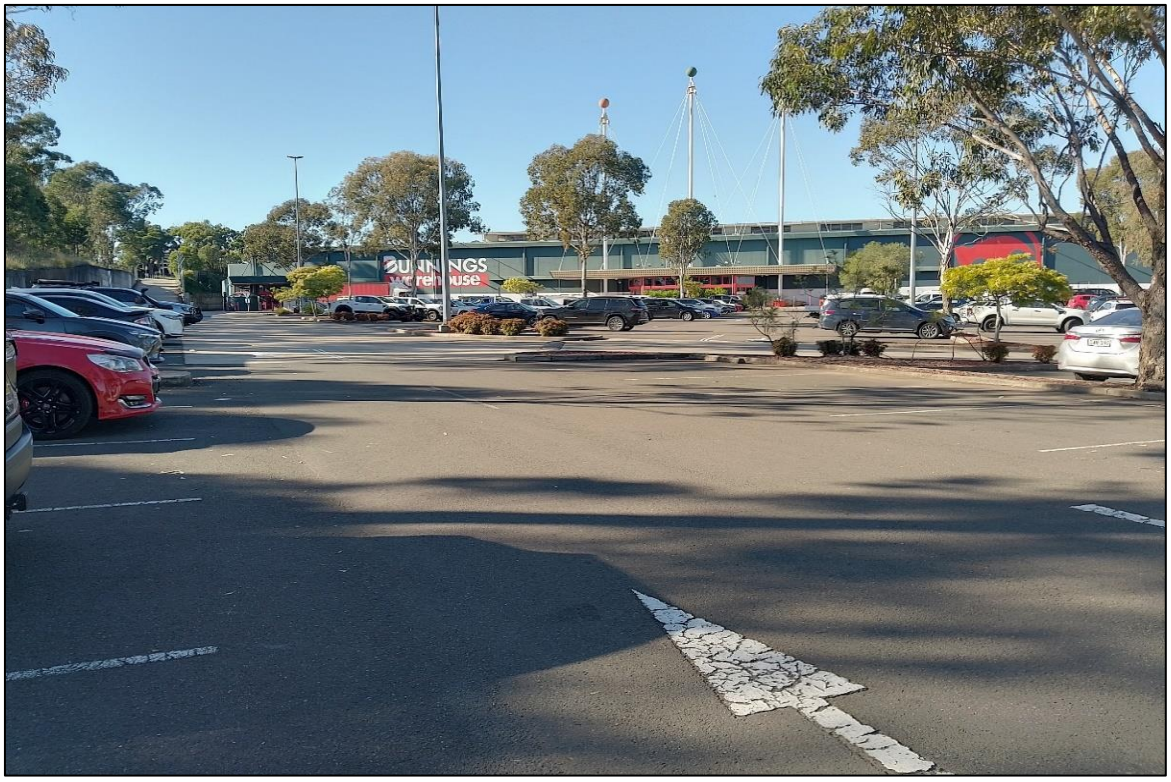
TITLE
DANGEROUS GOODS
SITE LAYOUT PLAN

DRAWN
CHECKE

Appendix D

Photographic Plates

Photograph 1 - General site photograph, showing the single-storey commercial retail warehouse in the central to eastern portions of the site.



Photograph 2 - Asphalt carpark area in the western portion of the site.

Douglas PARTNERS	Site Photographs	PROJECT:	226958.00
	Preliminary Site Investigation	PLATE No:	1
	200 Beech Road, Casula NSW	REV:	0
	CLIENT: Green Point Private Advisory	DATE:	Jun-24

Photograph 3 - Sealed concrete within north western portion of the site.

Photograph 4 - Garden beds in carpark area in north western portions of the site.

Douglas PARTNERS	Site Photographs	PROJECT:	226958.00
	Preliminary Site Investigation	PLATE No:	2
	200 Beech Road, Casula NSW	REV:	0
	CLIENT: Green Point Private Advisory	DATE:	Jun-24

Photograph 5 - Garden beds in carpark area in north western portions of the site.

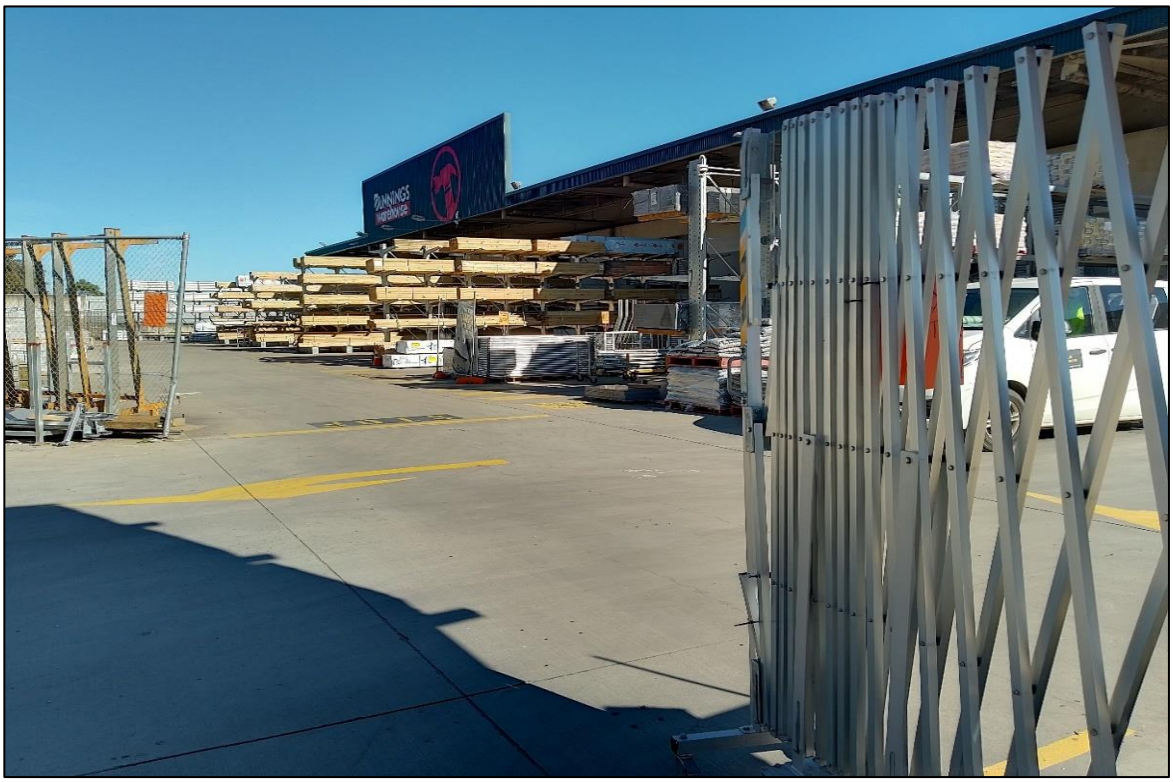
Photograph 6 - Fly-tipping of refuse material comprising cement sheeting and / or concrete observed in the north western portion of the site.

Douglas PARTNERS	Site Photographs	PROJECT:	226958.00
	Preliminary Site Investigation	PLATE No:	3
	200 Beech Road, Casula NSW	REV:	0
	CLIENT: Green Point Private Advisory	DATE:	Jun-24

Photograph 7 - Liquid petroleum gas (LPG) storage observed in the south eastern portion of the site.

Photograph 8 - Loading docks / storage of various hardware items observed in the eastern to southern portions of the site.

Douglas PARTNERS	Site Photographs	PROJECT:	226958.00
	Preliminary Site Investigation	PLATE No:	4
	200 Beech Road, Casula NSW	REV:	0
	CLIENT: Green Point Private Advisory	DATE:	Jun-24



Photograph 9 - Outdoor aisles with goods (timbers, metals, gravels, sand etc.) for sale / storage of various hardware items observed in the eastern to southern portions of the site.

Photograph 10 - Storage of various hardware items observed in the eastern to southern portions of the site.

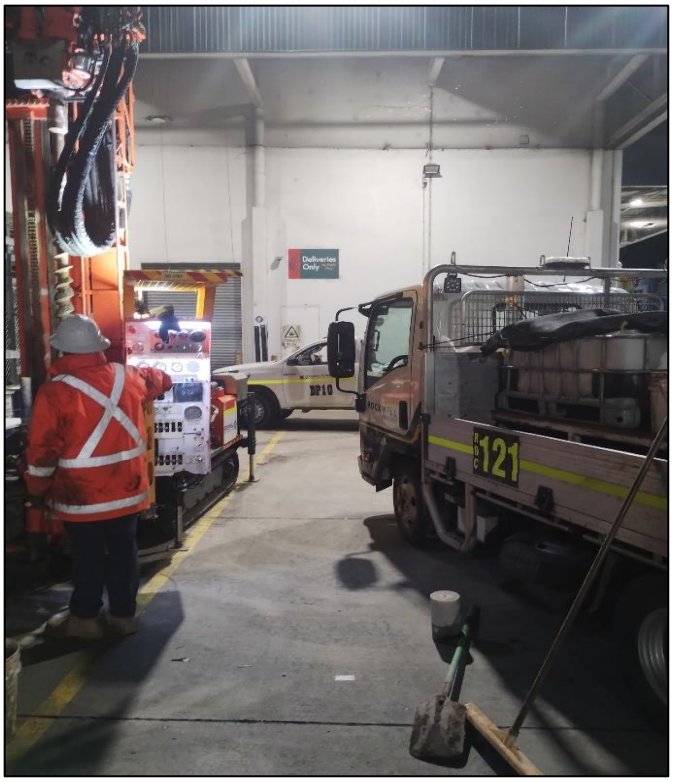
Douglas PARTNERS	Site Photographs	PROJECT:	226958.00
	Preliminary Site Investigation	PLATE No:	5
	200 Beech Road, Casula NSW	REV:	0
	CLIENT: Green Point Private Advisory	DATE:	Jun-24

Photograph 11 - Pad-mounted transformer identified west of the boundary.

Photograph 12 - General site photograph.

Douglas PARTNERS	Site Photographs	PROJECT: 226958.00
	Preliminary Site Investigation	PLATE No: 6
	200 Beech Road, Casula NSW	REV: 0
	CLIENT: Green Point Private Advisory	DATE: Jun-24

Photograph 13 - General vicinity of borehole (BH)1.



Photograph 14 - General vicinity of BH2A.

Douglas PARTNERS	Site Photographs	PROJECT:	226958.00
	Preliminary Site Investigation	PLATE No:	7
	200 Beech Road, Casula NSW	REV:	0
	CLIENT: Green Point Private Advisory	DATE:	Jun-24

Photograph 15 - Gravelly clay fill material observed at BH2A.

Photograph 16 - General vicinity of BH3.

Douglas PARTNERS	Site Photographs	PROJECT:	226958.00
	Preliminary Site Investigation	PLATE No:	8
	200 Beech Road, Casula NSW	REV:	0
	CLIENT: Green Point Private Advisory	DATE:	Jun-24

Photograph 17 - General vicinity of BH4.

Photograph 18 - General vicinity of BH5 (cleared by service locator in pink).

Douglas PARTNERS	Site Photographs	PROJECT:	226958.00
	Preliminary Site Investigation	PLATE No:	9
	200 Beech Road, Casula NSW	REV:	0
	CLIENT: Green Point Private Advisory	DATE:	Jun-24

Photograph 19 - Gravelly clay fill material encountered at BH5.

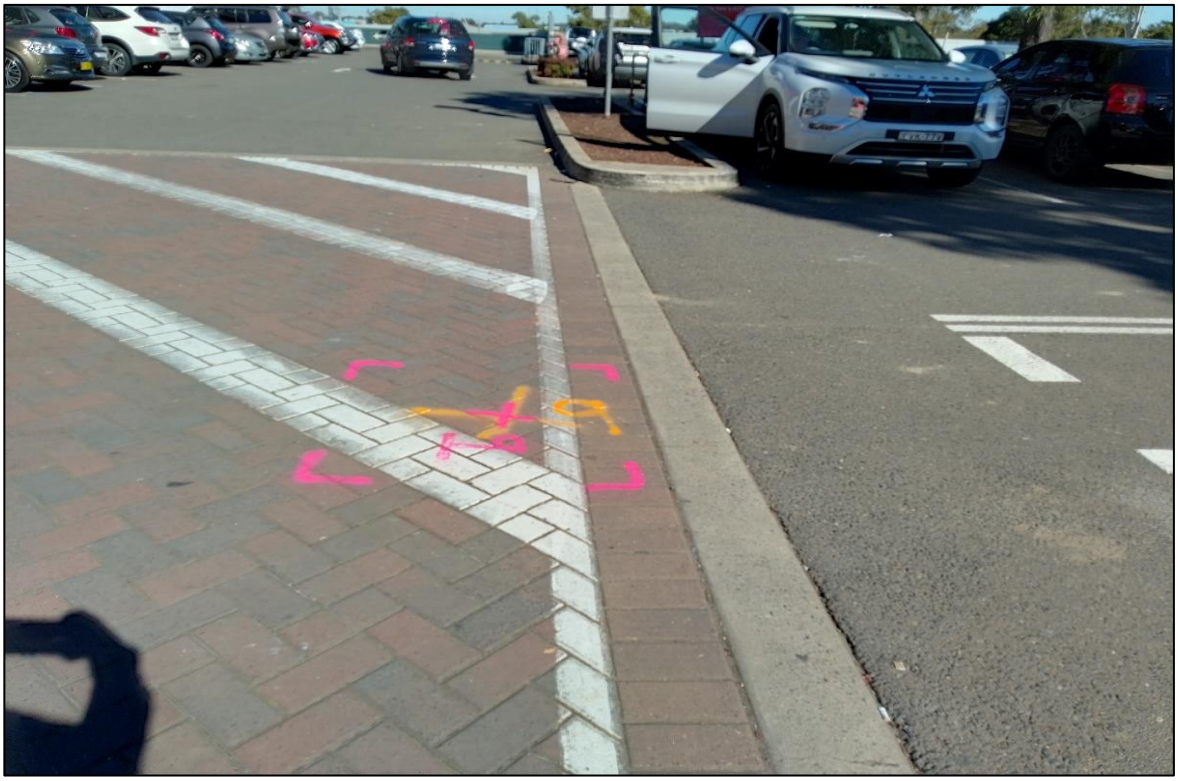
Photograph 20 - General vicinity of BH6.

Douglas PARTNERS	Site Photographs	PROJECT:	226958.00
	Preliminary Site Investigation	PLATE No:	10
	200 Beech Road, Casula NSW	REV:	0
	CLIENT: Green Point Private Advisory	DATE:	Jun-24

Photograph 21 - General vicinity of BH7.

Photograph 22 - General vicinity of BH8.

Douglas PARTNERS	Site Photographs	PROJECT: 226958.00
	Preliminary Site Investigation	PLATE No: 11
	200 Beech Road, Casula NSW	REV: 0
	CLIENT: Green Point Private Advisory	DATE: Jun-24



Photograph 23 - General vicinity of BH9.

Photograph 24 - Gravelly sand material encountered at BH9.

Douglas PARTNERS	Site Photographs	PROJECT: 226958.00
	Preliminary Site Investigation	PLATE No: 12
	200 Beech Road, Casula NSW	REV: 0
	CLIENT: Green Point Private Advisory	DATE: Jun-24

Photograph 25 - General vicinity of BH10.

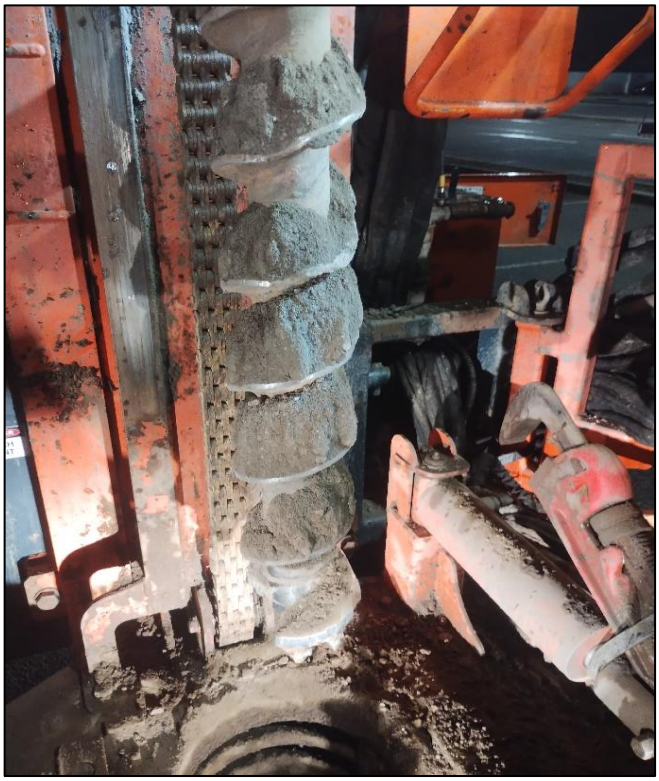
Photograph 26 - General vicinity of BH11.

Douglas PARTNERS	Site Photographs	PROJECT:	226958.00
	Preliminary Site Investigation	PLATE No:	13
	200 Beech Road, Casula NSW	REV:	0
	CLIENT: Green Point Private Advisory	DATE:	Jun-24

Photograph 27 - Shale encountered at BH11.

Photograph 28 - General vicinity of BH12.

Douglas PARTNERS	Site Photographs	PROJECT:	226958.00
	Preliminary Site Investigation	PLATE No:	14
	200 Beech Road, Casula NSW	REV:	0
	CLIENT: Green Point Private Advisory	DATE:	Jun-24



Photograph 29 - Gravelly sand encountered at BH12.

Photograph 30 - General vicinity of BH13.

Douglas PARTNERS	Site Photographs	PROJECT:	226958.00
	Preliminary Site Investigation	PLATE No:	15
	200 Beech Road, Casula NSW	REV:	0
	CLIENT: Green Point Private Advisory	DATE:	Jun-24

Photograph 31 - General vicinity of BH14A.

Photograph 32 - General vicinity of BH15.

Douglas PARTNERS	Site Photographs	PROJECT:	226958.00
	Preliminary Site Investigation	PLATE No:	16
	200 Beech Road, Casula NSW	REV:	0
	CLIENT: Green Point Private Advisory	DATE:	Jun-24

Appendix E

Data Quality Objectives

1. Data Quality Objectives

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

Table 1: Data quality objectives

Step	Summary
1: State the problem	The objective of the investigation is to confirm the contamination status of the site with respect to the proposed land use. The report is being undertaken as the land is to be redeveloped. The requirements of the regulator, Liverpool City Council, will also be considered by consulting their Development Control Plan (DCP), Local Environment Plan (LEP) and any other requirements based on our recent experience with Council on similar sites. A preliminary conceptual site model (CSM) has been prepared (Section 7) for the proposed development. The project team consisted of experienced environmental engineers and scientists working in the roles of Project Principal, Project Reviewer, Project Manager, field staff.
2: Identify the decisions/goal of the study	The site history has identified possible contaminating previous uses which are identified in the CSM (Section 7). The CSM identifies the associated contaminants of potential concern (CoPC) and the likely impacted media. The site assessment criteria (SAC) for each of the CoPC are detailed in Appendix G. The decision is to establish whether or not the results fall below the SAC or whether or not the 95% upper confidence limit of the sample population falls below the SAC. On this basis, an assessment of the site's suitability from a contamination perspective will be derived and a decision made on whether (or not) further assessment and/or remediation will be required.
3: Identify the information inputs	Inputs to the investigation will be the results of analysis of samples to measure the concentrations of CoPC identified in the CSM (Section 7) at the site using National Association of Testing Authorities (NATA) accredited laboratories and methods, where possible. The SAC for each of the CoPC are detailed in Appendix G.
4: Define the study boundaries	The lateral boundaries of the investigation area are shown on Drawing 1, Appendix A. The vertical boundaries are to the extent of contamination impact as determined from the site history assessment and site observations. The assessment is limited to the timeframe over which the field investigation was undertaken. Constraints to the assessment are identified and discussed in the conclusions of the report, Section 13.

Step	Summary
5: Develop the analytical approach (or decision rule)	The decision rule is to compare all analytical results with SAC (Appendix G, based on NEPC (2013)). Where guideline values are absent, other sources of guideline values accepted by NEPC (2013) shall be adopted where possible. Where a sample result exceeds the adopted criterion, a further site-specific assessment will be made as to the risk posed by the presence of that contaminant(s). Initial comparisons will be with individual results then, where required, summary statistics (including mean, standard deviation and 95% upper confidence limit (UCL) of the arithmetic mean (95% UCL)) to assess potential risks posed by the site contamination. Quality control results are to be assessed according to their relative percent difference (RPD) values. For field duplicates, triplicates and laboratory results, RPDs should generally be below 30%; for field blanks and rinsates, results should be at or less than the limits of reporting (NEPC, 2013). The field and laboratory quality assurance assessment is included in Appendix K.
6: Specify the performance or acceptance criteria	Baseline condition: Contaminants at the site (in line with NEPC (2013)) exceed human health and environmental SAC and pose a potentially unacceptable risk to receptors (null hypothesis). Alternative condition: Contaminants at the site (in line with NEPC (2013)) comply with human health and environmental SAC and as such, do not pose a potentially unacceptable risk to receptors (alternative hypothesis). Unless conclusive information from the collected data is sufficient to reject the null hypothesis, it is assumed that the baseline condition is true. Uncertainty that may exist due to the above potential decision errors shall be mitigated as follows: As well as a primary screening exercise, the use of the 95% UCL as per NEPC (2013) may be applied, i.e.: 95% is the defined confidence level associated with the UCL on the geometric mean for contaminant data. The resultant 95% UCL shall subsequently be screened against the corresponding SAC. The statistical assessment will only be able to be applied to certain data-sets, such as those obtained via systematic sampling. Identification of areas for targeted sampling will be via professional judgement and errors will not be able to have a probability assigned to them.
7: Optimise the design for obtaining data	As the purpose of the sampling program is to assess for potential contamination across the site, the sampling program is reliant on professional judgement to identify and sample the potentially affected areas. Further details regarding the proposed sampling plan are presented in Section 8.

2. References

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

Appendix F

Field Work Methodology

1. Guidelines

The following key guidelines were consulted for the field work methodology:

- NEPC *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]* (NEPC, 2013).

2. Soil Sampling

Soil sampling is carried out in accordance with Douglas' standard operating procedures. The general sampling and sample management procedures comprise:

- Collect soil samples directly from the nominated sample depth from the solid flight auger;
- Place samples into laboratory-prepared glass jars with Teflon lined lids, capping immediately and minimising headspace within the sample jar;
- Collect replicate samples in zip-lock bags for photoionisation detector (PID) screening;
- Collect ~500 ml samples in zip-lock bags for fibrous asbestos and asbestos fines (FA and AF) analysis;
- Wear a new disposable nitrile glove for each sample point thereby minimising potential for cross-contamination;
- Collect 10% replicate samples for quality control (QC) purposes;
- Label sample containers with individual and unique identification details, including project number, sample location and sample depth (where applicable);
- Place samples into a cooled, insulated and sealed container for transport to the laboratory; and
- Use chain of custody documentation.

3. References

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

Appendix G

Site Assessment Criteria

1. Introduction

1.1 Guidelines

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

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

1.2 General

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

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

- Land use: commercial/industrial.
    - Corresponding to land use category 'D', commercial/industrial such as shops, offices, factories and industrial sites.
- Soil type: clay.

2. Soils

2.1 Health investigation and screening levels

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

Table 1: Health investigation levels (mg/kg)

Contaminant	HIL-D
Metals	
Arsenic	3000
Cadmium	900
Chromium (VI)	3600
Copper	240 000
Lead	1500
Mercury (inorganic)	730
Nickel	6000
Zinc	400 000
PAH	
B(a)P TEQ	40
Total PAH	4000
OCP	
DDT+DDE+DDD	3600
Aldrin and dieldrin	45
Chlordane	530
Endosulfan	2000
Endrin	100
Heptachlor	50
HCB	80
Methoxychlor	2500
OPP	
Chlorpyrifos	2000
PCB	
PCB	7

Table 2: Health screening levels (mg/kg)

Contaminant	HSL-D	HSL-D	HSL-D	HSL-D
CLAY	**0 m to <1 m**	**1 m to <2 m**	**2 m to <4 m**	**4 m+**
Benzene	4	6	9	20
Toluene	NL	NL	NL	NL
Ethylbenzene	NL	NL	NL	NL
Xylenes	NL	NL	NL	NL
Naphthalene	NL	NL	NL	NL
TRH F1	310	480	NL	NL
TRH F2	NL	NL	NL	NL

Notes: TRH F1 is TRH C_6-C_{10} minus BTEX
TRH F2 is TRH >C_{10}-C_{16} minus naphthalene
The soil saturation concentration (Csat) is defined as the soil concentration at which the porewater phase cannot dissolve any more of an individual chemical. The soil vapour that is in equilibrium with the porewater will be at its maximum. If the derived soil HSL exceeds Csat, a soil vapour source concentration for a petroleum mixture could not exceed a level that would results in the maximum allowable vapour risk for the given scenario. For these scenarios, no HSL is presented for these chemicals and the HSL is shown as 'not limiting' or 'NL'

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

Table 3: Health screening levels for direct contact (mg/kg)

Contaminant	DC HSL-D
Benzene	430
Toluene	99 000
Ethylbenzene	27 000
Xylenes	81 000
Naphthalene	11 000
TRH F1	26 000
TRH F2	20 000
TRH F3	27 000
TRH F4	38 000

Notes: TRH F1 is TRH C_6-C_{10} minus BTEX
TRH F2 is TRH >C_{10}-C_{16} minus naphthalene

2.2 Asbestos in soil

The HSL for asbestos in soil are based on likely exposure levels for different scenarios published in NEPC (2013) for the following forms of asbestos:

- Bonded asbestos containing material (ACM); and
- Fibrous asbestos and asbestos fines (FA and AF).

The HSL are in Table 4.

Table 4: Health screening levels for asbestos

Form of asbestos	HSL-D
ACM	0.05%
FA and AF	0.001%
FA and AF and ACM	No visible asbestos for surface soil *

Notes: Surface soils defined as top 10 cm.
* Based on site observations at the sampling points and the analytical results of surface samples.

2.3 Ecological investigation levels

Ecological investigation levels (EIL) and added contaminant limits (ACL), where appropriate, have been derived in NEPC (2013) for arsenic, copper, chromium (III), nickel, lead, zinc, DDT and naphthalene. The adopted EIL, derived using the interactive (excel) calculation spreadsheet on the NEPM toolbox website are shown in Table 6, with inputs into their derivation shown in Table 5.

Table 5: Inputs to the derivation of the ecological investigation levels

Variable	Input	Rationale
Age of contaminants	"Aged" (>2 years) / "new" (<2 years)	Historic potential contamination sources.
pH	7.83	Average pH calculated from three selected soil samples.
CEC	37.30 $cmol_c/kg$	Average CEC calculated from three selected soil samples.
Clay content	10 %	Assumed for a clay dominant soil.
Traffic volumes	high/low	High
State/Territory	NSW	-

Table 6: Ecological investigation levels (mg/kg)

Contaminant	EIL-D
Metals	
Arsenic	160
Copper	340
Nickel	700
Chromium III	670
Lead	1800
Zinc	1800
PAH	
Naphthalene	370
OCP	
DDT	640

2.4 Ecological screening levels

Ecological screening levels (ESL) are used to assess the risk of selected petroleum hydrocarbon compounds, BTEX and benzo(a)pyrene to terrestrial ecosystems. The adopted ESL are shown in Table 7.

Table 7: Ecological screening levels (mg/kg)

Contaminant	Soil Type	ESL-D
Benzene	Fine	95
Toluene	Fine	135
Ethylbenzene	Fine	185
Xylenes	Fine	95
TRH F1	Coarse/ Fine	215*
TRH F2	Coarse/ Fine	170*
TRH F3	Fine	2500
TRH F4	Fine	6600
B(a)P	Fine	1.4

Notes: ESL are of low reliability except where indicated by * which indicates that the ESL is of moderate reliability
TRH F1 is TRH C_6-C_{10} minus BTEX
TRH F2 is TRH >C_{10}-C_{16} including naphthalene

2.5 Management limits

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

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

The adopted management limits are in Table 8.

Table 8: Management limits (mg/kg)

Contaminant	Soil type	ML-D
TRH F1	Fine	800
TRH F2	Fine	1000
TRH F3	Fine	5000
TRH F4	Fine	10 000

Notes: TRH F1 is TRH C_6-C_{10} including BTEX
TRH F2 is TRH >C_{10}-C_{16} including naphthalene

3. References

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

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

Appendix H

Laboratory Summary Tables H1 and H2

Douglas PARTNERS

Table H1: Summary of Laboratory Results – Priority metals, Priority PAH, Priority TRH and BTEX

			Priority metals								Priority PAH				Priority TRH						BTEX			
			Total Arsenic	Cadmium	Total Chromium	Copper	Lead	Mercury (inorganic)	Nickel	Zinc	Naphthalene [b]	Benzo(a)pyrene (B(a)P)	Benzo(a)pyrene TEQ (B(a)P TEQ)	Total PAH	TRH C6 - C10	TRH >C10-C16	F1 ((C6-C10)-BTEX)	F2 (>C10-C16 less Naphthalene)	F3 (>C16-C34)	F4 (>C34-C40)	Benzene	Toluene	Ethylbenzene	Total Xylenes
		PQL	4	0.4	1	1	1	0.1	1	1	1	0.05	0.5	0.05	25	50	25	50	100	100	0.2	0.5	1	1
Sample ID	Depth	Sample Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
BH1/0.5	0.5	03/06/24	**8**	<0.4	**14**	**20**	**13**	<0.1	**5**	**26**	<1	<0.05	<0.5	<0.05	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1
			3,000 160	900 -	3,600 670	240,000 340	1,500 1,800	730 -	6,000 700	400,000 1,800	NL 370	- 1.4	40 -	4,000 -	- -	- 170	310 215	NL -	- 2,500	- 6,600	4 95	NL 135	NL 185	NL 95
BH2A/0.5	0.5	02/06/24	<4	<0.4	**12**	**43**	**14**	<0.1	**27**	**99**	<1	<0.05	<0.5	<0.05	<25	<50	<25	<50	**220**	**110**	<0.2	<0.5	<1	<1
			3,000 160	900 -	3,600 670	240,000 340	1,500 1,800	730 -	6,000 700	400,000 1,800	NL 370	- 1.4	40 -	4,000 -	- -	- 170	310 215	NL -	- 2,500	- 6,600	4 95	NL 135	NL 185	NL 95
BH3/0.5	0.5	02/06/24	**5**	<0.4	**11**	**31**	**14**	<0.1	**18**	**71**	<1	<0.05	<0.5	<0.05	<25	<50	<25	<50	**140**	**100**	<0.2	<0.5	<1	<1
			3,000 160	900 -	3,600 670	240,000 340	1,500 1,800	730 -	6,000 700	400,000 1,800	NL 370	- 1.4	40 -	4,000 -	- -	- 170	310 215	NL -	- 2,500	- 6,600	4 95	NL 135	NL 185	NL 95
BH4/0.5	0.5	04/06/24	<4	<0.4	**13**	**40**	**12**	<0.1	**12**	**39**	<1	**0.1**	<0.5	**0.52**	<25	<50	<25	<50	**260**	**160**	<0.2	<0.5	<1	<1
			3,000 160	900 -	3,600 670	240,000 340	1,500 1,800	730 -	6,000 700	400,000 1,800	NL 370	- 1.4	40 -	4,000 -	- -	- 170	310 215	NL -	- 2,500	- 6,600	4 95	NL 135	NL 185	NL 95
FD-2	-	04/06/24	**5**	<0.4	**10**	**44**	**15**	<0.1	**11**	**43**	<1	**0.06**	<0.5	**0.4**	<25	<50	<25	<50	**190**	**130**	<0.2	<0.5	<1	<1
			3,000 160	900 -	3,600 670	240,000 340	1,500 1,800	730 -	6,000 700	400,000 1,800	NL 370	- 1.4	40 -	4,000 -	- -	- 170	310 215	NL -	- 2,500	- 6,600	4 95	NL 135	NL 185	NL 95
BH5/0.5	0.5	02/06/24	**15**	<0.4	**11**	**34**	**14**	<0.1	**11**	**34**	<1	**0.06**	<0.5	**0.3**	<25	<50	<25	<50	**150**	**120**	<0.2	<0.5	<1	<1
			3,000 160	900 -	3,600 670	240,000 340	1,500 1,800	730 -	6,000 700	400,000 1,800	NL 370	- 1.4	40 -	4,000 -	- -	- 170	310 215	NL -	- 2,500	- 6,600	4 95	NL 135	NL 185	NL 95
BH6/0.1	0.1	05/06/24	<4	<0.4	**14**	**49**	**7**	<0.1	**62**	**36**	<1	**0.1**	<0.5	**0.5**	<25	<50	<25	<50	**160**	**260**	<0.2	<0.5	<1	<1
			3,000 160	900 -	3,600 670	240,000 340	1,500 1,800	730 -	6,000 700	400,000 1,800	NL 370	- 1.4	40 -	4,000 -	- -	- 170	310 215	NL -	- 2,500	- 6,600	4 95	NL 135	NL 185	NL 95
BH7/0.1	0.1	04/06/24	<4	<0.4	**14**	**34**	**6**	<0.1	**73**	**36**	<1	<0.05	<0.5	<0.05	<25	<50	<25	<50	**120**	**120**	<0.2	<0.5	<1	<1
			3,000 160	900 -	3,600 670	240,000 340	1,500 1,800	730 -	6,000 700	400,000 1,800	NL 370	- 1.4	40 -	4,000 -	- -	- 170	310 215	NL -	- 2,500	- 6,600	4 95	NL 135	NL 185	NL 95
BH8/0.1	0.1	04/06/24	<4	<0.4	**12**	**53**	**4**	<0.1	**73**	**32**	<1	<0.05	<0.5	<0.05	<25	<50	<25	<50	**100**	**160**	<0.2	<0.5	<1	<1
			3,000 160	900 -	3,600 670	240,000 340	1,500 1,800	730 -	6,000 700	400,000 1,800	NL 370	- 1.4	40 -	4,000 -	- -	- 170	310 215	NL -	- 2,500	- 6,600	4 95	NL 135	NL 185	NL 95
BH9/0.1	0.1	05/06/24	<4	<0.4	**17**	**31**	**14**	<0.1	**27**	**60**	<1	**0.1**	<0.5	**1.6**	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1
			3,000 160	900 -	3,600 670	240,000 340	1,500 1,800	730 -	6,000 700	400,000 1,800	NL 370	- 1.4	40 -	4,000 -	- -	- 170	310 215	NL -	- 2,500	- 6,600	4 95	NL 135	NL 185	NL 95
BH10/0.1	0.1	03/06/24	<4	<0.4	**11**	**92**	**7**	<0.1	**18**	**42**	<1	<0.05	<0.5	**0.81**	<25	<50	<25	<50	**320**	**800**	<0.2	<0.5	<1	<1
			3,000 160	900 -	3,600 670	240,000 340	1,500 1,800	730 -	6,000 700	400,000 1,800	NL 370	- 1.4	40 -	4,000 -	- -	- 170	310 215	NL -	- 2,500	- 6,600	4 95	NL 135	NL 185	NL 95
BH11/0.1	0.1	06/06/24	<4	<0.4	**5**	**13**	**10**	<0.1	**15**	**65**	<1	<0.05	<0.5	<0.05	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1
			3,000 160	900 -	3,600 670	240,000 340	1,500 1,800	730 -	6,000 700	400,000 1,800	NL 370	- 1.4	40 -	4,000 -	- -	- 170	310 215	NL -	- 2,500	- 6,600	4 95	NL 135	NL 185	NL 95
BH12/0.1	0.1	03/06/24	<4	<0.4	**16**	**46**	**6**	<0.1	**73**	**37**	<1	<0.05	<0.5	**0.3**	<25	<50	<25	<50	**120**	**140**	<0.2	<0.5	<1	<1
			3,000 160	900 -	3,600 670	240,000 340	1,500 1,800	730 -	6,000 700	400,000 1,800	NL 370	- 1.4	40 -	4,000 -	- -	- 170	310 215	NL -	- 2,500	- 6,600	4 95	NL 135	NL 185	NL 95
BH13/0.1	0.1	03/06/24	**16**	<0.4	**6**	**48**	**18**	<0.1	**13**	**59**	<1	<0.05	<0.5	<0.05	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1
			3,000 160	900 -	3,600 670	240,000 340	1,500 1,800	730 -	6,000 700	400,000 1,800	NL 370	- 1.4	40 -	4,000 -	- -	- 170	310 215	NL -	- 2,500	- 6,600	4 95	NL 135	NL 185	NL 95
BH14A/0.5	0.5	03/06/24	<4	<0.4	**7**	**4**	**14**	<0.1	**5**	**98**	<1	<0.05	<0.5	<0.05	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1
			3,000 160	900 -	3,600 670	240,000 340	1,500 1,800	730 -	6,000 700	400,000 1,800	NL 370	- 1.4	40 -	4,000 -	- -	- 170	310 215	NL -	- 2,500	- 6,600	4 95	NL 135	NL 185	NL 95
BH15/0.5	0.5	02/06/24	<4	<0.4	**16**	**23**	**17**	**0.2**	**12**	**77**	<1	**0.3**	<0.5	**2.5**	<25	<50	<25	<50	**160**	**130**	<0.2	<0.5	<1	<1
			3,000 160	900 -	3,600 670	240,000 340	1,500 1,800	730 -	6,000 700	400,000 1,800	NL 370	- 1.4	40 -	4,000 -	- -	- 170	310 215	NL -	- 2,500	- 6,600	4 95	NL 135	NL 185	NL 95
FD-1	-	02/06/24	**8**	<0.4	**4**	**16**	**7**	<0.1	**2**	**21**	<1	<0.05	<0.5	<0.05	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1
			3,000 160	900 -	3,600 670	240,000 340	1,500 1,800	730 -	6,000 700	400,000 1,800	NL 370	- 1.4	40 -	4,000 -	- -	- 170	310 215	NL -	- 2,500	- 6,600	4 95	NL 135	NL 185	NL 95
PACM1	-	04/06/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -

Lab result
HIL/HSL value EIL/ESL/EGV value

HIL/HSL exceedance EIL/ESL exceedance HIL/HSL and EIL/ESL exceedance ML exceedance ML and HIL/HSL or EIL/ESL exceedance
Indicates that asbestos has been detected by the lab, refer to the lab report **Blue** = DC exceedance **Red** = EGV-indirect exceedance HSL 0-<1 Exceedance
Bold = Lab detections - = Not tested or No HIL/HSL/EIL/ESL (as applicable) or Not applicable NL = Not limiting NAD = No Asbestos detected

HIL = Health investigation level HSL = Health screening level (excluding DC) EIL = Ecological investigation level ESL = Ecological screening level EGV = Environmental Guideline Value ML = Management Limit DC = Direct Contact HSL

Notes:

a QA/QC replicate of sample listed directly below the primary sample
b Naphthalene reported as highest detection from the BTEXN or PAH suite, or if both results <PQL as lowest PQL
c EIL criteria applies to DDT only

Site Assessment Criteria (SAC):

SAC based on generic land use thresholds for Commercial/ industrial D
Refer to the SAC section of report for information of SAC sources and rationale. Summary information as follows:

HIL	HIL-D (NEPC, 2013 or HEPA, 2020 (PFAS only))	EGV	EGV, all land uses, direct exposure (HEPA, 2020)
HSL (vapour intrusion)	HSL-D (NEPC, 2013)	ESL	Commercial and Industrial (NEPC, 2013)
DC	Direct contact HSL D Commercial/Industrial (CRC CARE, 2011)	ML	Commercial and Industrial (NEPC, 2013)
		EGV-Indir	EGV, all land uses, Indirect exposure (HEPA, 2020)

Douglas PARTNERS

Table H2: Summary of Laboratory Results – Priority OCP, Priority OPP, PCB and Asbestos

			Priority OCP									Priority OPP	PCB	Asbestos (FA/AF)				Asbestos, Other						
			DDT+DDE+DDD [c]	Aldrin + Dieldrin	Total Chlordane	Total Endosulfan	Endrin	Heptachlor	Hexachlorobenzene	Methoxychlor	Mirex	Chlorpyriphos	Total PCB	Asb_Sample_mass	ACM >7mm Estimation	FA and AF Estimation	FA and AF Estimation	Trace Analysis (AS)	Asbestos ID in soil >0.1g/kg	Asbestos ID in soil <0.1g/kg	Trace Analysis (NEPC)	Total Asbestos#1	Asbestos ID in materials	Asbestos Summary
		PQL	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1				0.001					0.1		0.1
Sample ID	Depth	Sample Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	g	g	g	%(w/w)	-	-	-	-	g/kg	-	
BH1/0.5	0.5	03/06/24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**455.55**	-	-	<0.001	-	NAD	NAD	NAD	<0.1	-	-
			3,600 640	45 -	530 -	2,000 -	100 -	50 -	80 -	2,500 -	100 -	2,000 -	7 -	- -	- -	- -	0.001 -							
BH2A/0.5	0.5	02/06/24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**0.1**	**439.21**	-	-	<0.001	-	NAD	NAD	NAD	<0.1	-	-
			3,600 640	45 -	530 -	2,000 -	100 -	50 -	80 -	2,500 -	100 -	2,000 -	7 -	- -	- -	- -	0.001 -							
BH3/0.5	0.5	02/06/24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	**480.53**	-	-	<0.001	-	NAD	NAD	NAD	<0.1	-	-
			3,600 640	45 -	530 -	2,000 -	100 -	50 -	80 -	2,500 -	100 -	- -	- -	- -	- -	- -	0.001 -							
BH4/0.5	0.5	04/06/24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	**904.54**	-	-	<0.001	-	NAD	NAD	NAD	<0.1	-	-
			3,600 640	45 -	530 -	2,000 -	100 -	50 -	80 -	2,500 -	100 -	- -	- -	- -	- -	- -	0.001 -							
FD-2	-	04/06/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -							
BH5/0.5	0.5	02/06/24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**333.62**	-	-	<0.001	-	NAD	NAD	NAD	<0.1	-	-
			3,600 640	45 -	530 -	2,000 -	100 -	50 -	80 -	2,500 -	100 -	2,000 -	7 -	- -	- -	- -	0.001 -							
BH6/0.1	0.1	05/06/24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	**788.59**	-	-	<0.001	-	NAD	NAD	NAD	<0.1	-	-
			3,600 640	45 -	530 -	2,000 -	100 -	50 -	80 -	2,500 -	100 -	- -	- -	- -	- -	- -	0.001 -							
BH7/0.1	0.1	04/06/24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	**601.96**	-	-	<0.001	-	NAD	NAD	NAD	<0.1	-	-
			3,600 640	45 -	530 -	2,000 -	100 -	50 -	80 -	2,500 -	100 -	- -	- -	- -	- -	- -	0.001 -							
BH8/0.1	0.1	04/06/24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**825.82**	-	-	<0.001	-	NAD	NAD	NAD	<0.1	-	-
			3,600 640	45 -	530 -	2,000 -	100 -	50 -	80 -	2,500 -	100 -	2,000 -	7 -	- -	- -	- -	0.001 -							
BH9/0.1	0.1	05/06/24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**892.78**	-	-	<0.001	-	NAD	NAD	NAD	<0.1	-	-
			3,600 640	45 -	530 -	2,000 -	100 -	50 -	80 -	2,500 -	100 -	2,000 -	7 -	- -	- -	- -	0.001 -							
BH10/0.1	0.1	03/06/24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**533.1**	-	-	<0.001	-	NAD	NAD	NAD	<0.1	-	-
			3,600 640	45 -	530 -	2,000 -	100 -	50 -	80 -	2,500 -	100 -	2,000 -	7 -	- -	- -	- -	0.001 -							
BH11/0.1	0.1	06/06/24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**432.59**	-	-	<0.001	-	NAD	NAD	NAD	<0.1	-	-
			3,600 640	45 -	530 -	2,000 -	100 -	50 -	80 -	2,500 -	100 -	2,000 -	7 -	- -	- -	- -	0.001 -							
BH12/0.1	0.1	03/06/24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	**665.29**	-	-	<0.001	-	NAD	NAD	NAD	<0.1	-	-
			3,600 640	45 -	530 -	2,000 -	100 -	50 -	80 -	2,500 -	100 -	- -	- -	- -	- -	- -	0.001 -							
BH13/0.1	0.1	03/06/24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**449.68**	-	-	<0.001	-	NAD	NAD	NAD	<0.1	-	-
			3,600 640	45 -	530 -	2,000 -	100 -	50 -	80 -	2,500 -	100 -	2,000 -	7 -	- -	- -	- -	0.001 -							
BH14A/0.5	0.5	03/06/24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**553.76**	-	-	<0.001	-	NAD	NAD	NAD	<0.1	-	-
			3,600 640	45 -	530 -	2,000 -	100 -	50 -	80 -	2,500 -	100 -	2,000 -	7 -	- -	- -	- -	0.001 -							
BH15/0.5	0.5	02/06/24	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**0.2**	**486.13**	-	-	<0.001	-	NAD	NAD	NAD	<0.1	-	-
			3,600 640	45 -	530 -	2,000 -	100 -	50 -	80 -	2,500 -	100 -	2,000 -	7 -	- -	- -	- -	0.001 -							
FD-1	-	02/06/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -							
PACM1	-	04/06/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NAD	-	-	-	-	NAD	-
			- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -							

Lab result
HIL/HSL value EIL/ESL/EGV value

HIL/HSL exceedance EIL/ESL exceedance HIL/HSL and EIL/ESL exceedance ML exceedance ML and HIL/HSL or EIL/ESL exceedance
Indicates that asbestos has been detected by the lab, refer to the lab report **Blue** = DC exceedance **Red** = EGV-indirect exceedance HSL 0-<1 Exceedance
Bold = Lab detections - = Not tested or No HIL/HSL/EIL/ESL (as applicable) or Not applicable NL = Not limiting NAD = No Asbestos detected
HIL = Health investigation level HSL = Health screening level (excluding DC) EIL = Ecological investigation level ESL = Ecological screening level EGV = Environmental Guideline Value ML = Management Limit DC = Direct Contact HSL

Notes:

a QA/QC replicate of sample listed directly below the primary sample
b Naphthalene reported as highest detection from the BTEXN or PAH suite, or if both results <PQL as lowest PQL
c EIL criteria applies to DDT only

Site Assessment Criteria (SAC):

SAC based on generic land use thresholds for Commercial/ industrial D
Refer to the SAC section of report for information of SAC sources and rationale. Summary information as follows:

HIL	HIL-D (NEPC, 2013 or HEPA, 2020 (PFAS only))	EGV	EGV, all land uses, direct exposure (HEPA, 2020)
HSL (vapour intrusion)	HSL-D (NEPC, 2013)	ESL	Commercial and Industrial (NEPC, 2013)
DC	Direct contact HSL D Commercial/Industrial (CRC CARE, 2011)	ML	Commercial and Industrial (NEPC, 2013)
		EGV-Indir	EGV, all land uses, Indirect exposure (HEPA, 2020)

Appendix I

Borehole Logs

BOREHOLE LOG

CLIENT: Perpetual Corporate Trust Limited
PROJECT: Proposed Warehouse and Distribution Centre
LOCATION: 200 Beech Road, Casula, NSW 2170

SURFACE LEVEL: 48.7 AHD
COORDINATE: E:304538.8, N:6240322.1
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: 1
PROJECT No: 226958.00
DATE: 03/06/24
SHEET: 1 of 2

GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	SOIL ORIGIN(#)	SOIL CONSIS.(†) DENSITY.(†)	SOIL MOISTURE	ROCK WEATH.	ROCK DEPTH (m)	ROCK STRENGTH	ROCK RECOVERY (%)	ROCK RQD	ROCK FRACTURE SPACING (m)	ROCK DEFECTS & REMARKS	SAMPLE REMARKS	SAMPLE TYPE	SAMPLE INTERVAL	DEPTH (m)	TESTING TEST TYPE	TESTING RESULTS AND REMARKS	BACKFILL	WELL PIPE
03/06/24 No free groundwater observed whilst augering	48	0.34	FILL / CONCRETE; blinding slab.		FILL		NA									D/ES		0.50				
			FILL / Silty CLAY (CI-CH): orange-brown; medium to high plasticity; with fine to coarse gravel, trace sand.		FILL	NA										D/ES		1.00	SPT	4,5,6 N=11		
	47	1														D		1.50				
		2														D/ES		2.00				
	46	2.60	Silty CLAY (CI-CH): orange-brown and pale grey; medium to high plasticity; with ironstone gravel, trace fine to medium gravel, residual/alluvial.													D/ES		2.50	SPT	3,6,10 N=16		
		3					w<PL									D		3.00			Bentonite	
	45	4			RS	VSt - H										D		3.50				
																D		4.00	SPT	4,10,24 N=34		
	44	5														D		5.00				
		5.50	SHALE: dark grey, clay bands. Bringelly Shale						5.50	VL - L									SPT	25/100 cave-in in sample		
	43	6						MW	5.75	L	100	56		6.00-6.63m: B x10, Fe, Clay				6	PLT	PL(A)=0.21MPa		
																			PLT	PL(A)=0.29MPa		
	42	7						SW - FR	6.92	L - M				6.68m: JT/45°, Fe 6.77m: B, Fe				7				
								SW - FR	7.15 7.18	L - M				7.15-7.18m: DS, CS								
								SW - FR	7.39 7.41	L - M				7.39-7.41m: CS, DS								
	41								7.51					7.47m: JT/45°, Fe 7.51m: B, Fe					PLT	PL(A)=0.49MPa		
		8												8.02-8.06m: B x3, Fe				8	PLT	PL(A)=1.14MPa		
																			PLT	PL(A)=1.42MPa		
	40							SW - FR		M - H	100	95									Gravel	
		9	10.39m-10.40m: low strength band											9.31m: B, INF Clay				9				
	39																		PLT	PL(A)=0.92MPa		

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

Generated with CORE-GS by Geroc - Combined Log

PLANT: Hanjin 8D (Rig 10)
METHOD: SFA to 5.5m, NMLC coring to 10.40m
REMARKS:

OPERATOR: Rockwell

LOGGED: AMS
CASING: HQ to 10.4m

Refer to explanatory notes for symbol and abbreviation definitions

Douglas PARTNERS

BOREHOLE LOG

CLIENT: Perpetual Corporate Trust Limited
PROJECT: Proposed Warehouse and Distribution Centre
LOCATION: 200 Beech Road, Casula, NSW 2170

SURFACE LEVEL: 48.7 AHD
COORDINATE: E:304538.8, N:6240322.1
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: 1
PROJECT No: 226958.00
DATE: 03/06/24
SHEET: 2 of 2

CONDITIONS ENCOUNTERED																		SAMPLE				TESTING			
				SOIL			ROCK																		
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS.(^) DENSITY.(^)	MOISTURE	WEATH.	DEPTH (m)	STRENGTH	RECOVERY (%)	RQD	FRACTURE SPACING (m)	DEFECTS & REMARKS	SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE
			[CONT] SHALE: dark grey, clay bands. Bringelly Shale					SW -	10.39	M H	100	95		10.39m: B, Fe					PLT	PL(A)=0.68MPa		
																			PLT	PL(A)=0.12MPa		
			Borehole discontinued at 10.40m depth. Limit of investigation.																			
		11																				
		12																				
		13																				
		14																				
		15																				
		16																				
		17																				
		18																				
		19																				

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

PLANT: Hanjin 8D (Rig 10)
METHOD: SFA to 5.5m, NMLC coring to 10.40m
REMARKS:

OPERATOR: Rockwell

LOGGED: AMS
CASING: HQ to 10.4m

Refer to explanatory notes for symbol and abbreviation definitions

Generated with CORE-GS by Geroc - Combined Log

CORE PHOTO LOG

CLIENT:	Perpetual Corporate Trust Limited	**SURFACE LEVEL:**	48.7 AHD	**LOCATION ID:**	1
PROJECT:	Proposed Warehouse and Distribution Centre	**COORDINATE:**	E:304538.8, N:6240322.1	**PROJECT No:**	226958.00
LOCATION:	200 Beech Road, Casula, NSW 2170	**DATUM/GRID:**	MGA2020 Zone 56	**DATE:**	03/06/24
		DIP/AZIMUTH:	90°/---°	**SHEET:**	1 of 1

5.50-10.00 m depth

10.00-10.40 m depth

Douglas PARTNERS

BOREHOLE LOG

CLIENT: Perpetual Corporate Trust Limited
PROJECT: Proposed Warehouse and Distribution Centre
LOCATION: 200 Beech Road, Casula, NSW 2170

SURFACE LEVEL: 48.8 AHD
COORDINATE: E:304559.3, N:6240396.0
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: 2A
PROJECT No: 226958.00
DATE: 02/06/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED													SAMPLE				TESTING	
				SOIL			ROCK											
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS.(*) DENSITY.(*)	MOISTURE	WEATH.	DEPTH (m)	STRENGTH VL L M H VH EH			SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
		0.25	FILL / CONCRETE; blinding slab.		FILL	NA	NA											
		0.55	FILL / Gravelly CLAY (CL-CI): dark brown; low to medium plasticity; fine to coarse gravel; trace sand.		FILL		w<PL							D/ES		0.50		
	48	1	SHALE: pale brown and dark grey. Bringelly Shale					HW - MW	0.55	VL - L				D		1.00	SPT	9,20/150 (HB)
02/06/24 No free groundwater observed whilst augering	47	2	Borehole discontinued at 1.30m depth. Refusal on low strength shale.															
	46	3																
	45	4																
	44	5																
	43	6																
	42	7																
	41	8																
	40	9																
	39																	

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

PLANT: Hanjin 8D (Rig 10)
METHOD: SFA to 1.3m
REMARKS:

OPERATOR: Rockwell

LOGGED: AMS
CASING: Uncased

Refer to explanatory notes for symbol and abbreviation definitions

Douglas PARTNERS

Generated with CORE-GS by Geroc - Soil with Simple Rock Log

BOREHOLE LOG

CLIENT: Perpetual Corporate Trust Limited
PROJECT: Proposed Warehouse and Distribution Centre
LOCATION: 200 Beech Road, Casula, NSW 2170

SURFACE LEVEL: 48.8 AHD
COORDINATE: E:304591.7, N:6240405.4
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: 3
PROJECT No: 226958.00
DATE: 02/06/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED													SAMPLE				TESTING	
				SOIL			ROCK											
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS.(*) DENSITY.(*)	MOISTURE	WEATH.	DEPTH (m)	STRENGTH VL L M H VH EH	SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
		0.25	FILL / CONCRETE; blinding slab.		FILL	NA	NA									
		0.55	FILL / Gravelly CLAY (CL-CI): dark brown; low to medium plasticity; fine to coarse gravel; trace sand.		FILL		w<PL					D/ES		0.50		
	48	1	SHALE: pale brown and dark grey. Bringelly Shale					HW - MW	0.55	VL - L		D		1.00	SPT	15/100 (HB)
02/06/24 No free groundwater observed whilst augering	47	2	Borehole discontinued at 1.10m depth. Refusal on low strength shale.													
	46	3														
	45	4														
	44	5														
	43	6														
	42	7														
	41	8														
	40	9														
	39															

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

PLANT: Hanjin 8D (Rig 10)
METHOD: SFA to 1.1m
REMARKS:

OPERATOR: Rockwell

LOGGED: AMS
CASING: Uncased

Refer to explanatory notes for symbol and abbreviation definitions

Douglas PARTNERS

BOREHOLE LOG

CLIENT: Perpetual Corporate Trust Limited
PROJECT: Proposed Warehouse and Distribution Centre
LOCATION: 200 Beech Road, Casula, NSW 2170

SURFACE LEVEL: 48.9 AHD
COORDINATE: E:304575.7, N:6240424.5
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: 4
PROJECT No: 226958.00
DATE: 04/06/24
SHEET: 1 of 1

GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	SOIL ORIGIN(#)	SOIL CONSIS.(*) DENSITY.(*)	SOIL MOISTURE	ROCK WEATH.	ROCK DEPTH (m)	ROCK STRENGTH	ROCK RECOVERY (%)	ROCK RQD	ROCK FRACTURE SPACING (m)	ROCK DEFECTS & REMARKS	SAMPLE REMARKS	SAMPLE TYPE	SAMPLE INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
04/05/24 No free groundwater observed whilst augering	48	0.25	FILL / CONCRETE; blinding slab.		FILL	NA	NA													
		0.60	FILL / Gravelly SAND: brown and dark brown; fine to coarse gravel.		FILL		M									* D/ES		0.50		
	47	1	SHALE: dark grey. Bringelly Shale					MW	1.00	VL - L				1.34m: JT/90°, Fe		D/ES		1.00	SPT	20/50 (HB)
									1.70		100	77							PLT	PL(A)=0.21MPa
	46	2								L - M				2.10-2.41m: B x6, Fe 2.51m: B, Fe 2.59m: JT, INF Clay 2.67m: B				2	PLT	PL(A)=0.42MPa
		3							2.80					3.00m: JT/80°, CBS				3	PLT	PL(A)=0.21MPa
	45	4						MW - SW	3.60	H				3.53m: JT/90° 4.15m: B, Fe				4	PLT	PL(A)=1.75MPa
	44	5							4.80	M	100	98		4.94m: JT/70° 5.12-5.14m: CS, DS				5	PLT	PL(A)=1.81MPa
								MW - SW	5.00					5.31-5.32m: B x2					PLT	PL(A)=0.34MPa
	43	6						SW - FR	5.90	M				5.56m: B, Fe				6	PLT	PL(A)=0.7MPa
			Borehole discontinued at 6.35m depth. Limit of investigation.																	
		7																		
		8																		
		9																		

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

PLANT: Hanjin 8D (Rig 10)
OPERATOR: Rockwell
LOGGED: AMS
METHOD: SFA to 1.0m, NMLC coring to 6.35m
CASING: HQ to 0.6m
REMARKS: * Replicate sample FD-2 collected at 0.5m

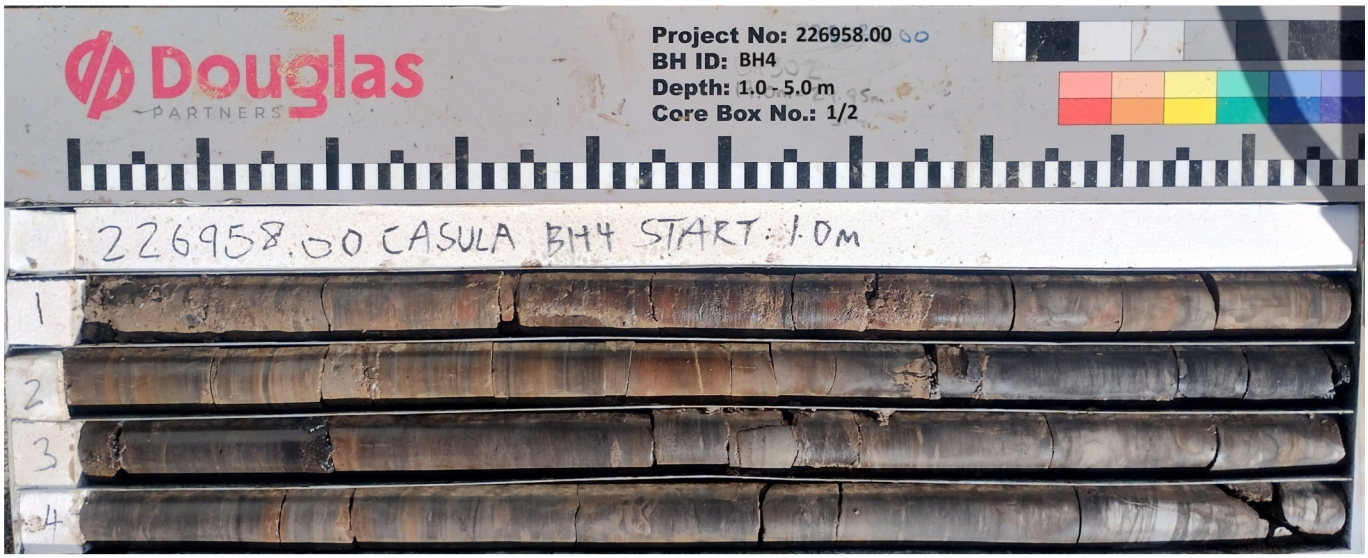
Refer to explanatory notes for symbol and abbreviation definitions

CORE PHOTO LOG

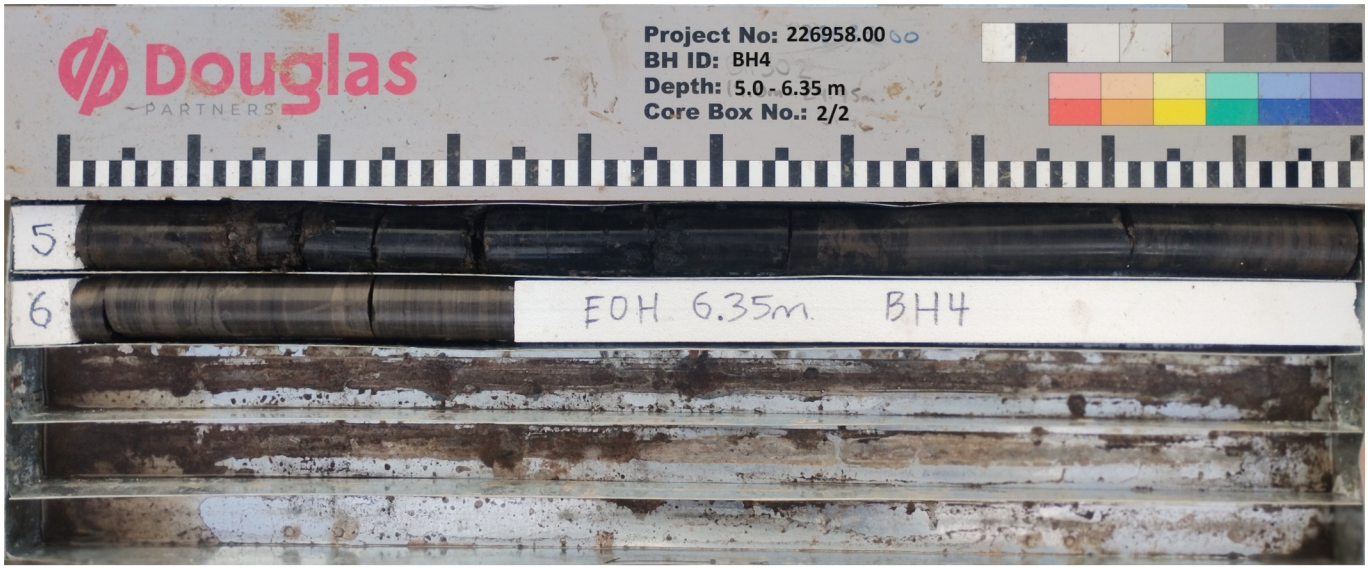
CLIENT: Perpetual Corporate Trust Limited
PROJECT: Proposed Warehouse and Distribution Centre
LOCATION: 200 Beech Road, Casula, NSW 2170

SURFACE LEVEL: 48.9 AHD
COORDINATE: E:304575.7, N:6240424.5
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: 4
PROJECT No: 226958.00
DATE: 04/06/24
SHEET: 1 of 1



1.00-5.00 m depth



5.00-6.35 m depth

Douglas PARTNERS

BOREHOLE LOG

CLIENT: Perpetual Corporate Trust Limited
PROJECT: Proposed Warehouse and Distribution Centre
LOCATION: 200 Beech Road, Casula, NSW 2170

SURFACE LEVEL: 48.9 AHD
COORDINATE: E:304560.1, N:6240442.2
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: 5
PROJECT No: 226958.00
DATE: 02/06/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED												SAMPLE				TESTING	
				SOIL			ROCK										
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS.(*) DENSITY.(*)	MOISTURE	WEATH.	DEPTH (m)	STRENGTH (VL L M H VH EH)		SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
		0.25	FILL / CONCRETE; blinding slab.		FILL	NA	NA										
		0.60	FILL / Gravelly CLAY (CL-CI): dark brown; low to medium plasticity; fine to coarse gravel; trace sand.		FILL		w<PL						D/ES		0.50		
	48	1	SHALE: pale grey and brown. Bringelly Shale					HW - MW	0.60	VL - L			D/ES		1.00	SPT	15/40 (HB)
			Borehole discontinued at 1.04m depth. Refusal on low strength shale.														
	47	2															
	46	3															
	45	4															
	44	5															
	43	6															
	42	7															
	41	8															
	40	9															
	39																

02/06/24 No free groundwater observed whilst augering

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

PLANT: Hanjin 8D (Rig 10)
METHOD: SFA to 1.04m
REMARKS:

OPERATOR: Rockwell

LOGGED: AMS
CASING: Uncased

Refer to explanatory notes for symbol and abbreviation definitions

Douglas PARTNERS

BOREHOLE LOG

CLIENT: Perpetual Corporate Trust Limited
PROJECT: Proposed Warehouse and Distribution Centre
LOCATION: 200 Beech Road, Casula, NSW 2170

SURFACE LEVEL: 48.5 AHD
COORDINATE: E:304441.0, N:6240458.2
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: 6
PROJECT No: 226958.00
DATE: 05/06/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED													SAMPLE			TESTING	
				SOIL			ROCK										
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS.(*) DENSITY.(*)	MOISTURE	WEATH.	DEPTH (m)	STRENGTH	SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
05/06/24 No free groundwater observed whilst augering	48	0.05 0.20	FILL / ASPHALT. FILL / Gravelly SAND: brown; fine to coarse gravel.		FILL	NA			0.20			ES		0.10		
		1	SHALE: pale brown. Bringelly Shale					XW - HW		VL - L		D/ES		0.50		
			Borehole discontinued at 1.07m depth. Refusal on low strength shale.									D		1.00	SPT	25/70 (HB)
	47	2														
	46	3														
	45	4														
	44	5														
	43	6														
	42	7														
	41	8														
	40	9														
	39															

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

PLANT: Hanjin 8D (Rig 10)
METHOD: SFA to 1.07m
REMARKS:

OPERATOR: Rockwell

LOGGED: AMS
CASING: Uncased

Refer to explanatory notes for symbol and abbreviation definitions

Douglas PARTNERS

Generated with CORE-GS by Geroc - Soil with Simple Rock Log

BOREHOLE LOG

CLIENT: Perpetual Corporate Trust Limited
PROJECT: Proposed Warehouse and Distribution Centre
LOCATION: 200 Beech Road, Casula, NSW 2170

SURFACE LEVEL: 48.8 AHD
COORDINATE: E:304485.2, N:6240468.6
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: 7
PROJECT No: 226958.00
DATE: 04/06/24
SHEET: 1 of 1

GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	SOIL ORIGIN(#)	SOIL CONSIS.(*) DENSITY.(*)	SOIL MOISTURE	ROCK WEATH.	ROCK DEPTH (m)	ROCK STRENGTH	SAMPLE REMARKS	SAMPLE TYPE	SAMPLE INTERVAL	SAMPLE DEPTH (m)	TESTING TEST TYPE	TESTING RESULTS AND REMARKS
04/06/24 No free groundwater observed whilst augering	48	0.08	FILL / ASPHALT.		FILL	NA	D - M					ES		0.10		
			FILL / Gravelly SAND: brown; fine to coarse gravel; with clay.									D/ES		0.50		
		0.60	SHALE: pale brown. Bringelly Shale					XW - HW	0.60	VL - L		D/ES		1.00	SPT	13,20,15 N=35
	47	1.70	Borehole discontinued at 1.70m depth. Refusal on low strength shale.									D		1.70		
	46	2														
	45	3														
	44	4														
	43	5														
	42	6														
	41	7														
	40	8														
	39	9														

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

PLANT: Hanjin 8D (Rig 10)
METHOD: SFA to 1.7m
REMARKS:

OPERATOR: Rockwell

LOGGED: AMS
CASING: Uncased

Refer to explanatory notes for symbol and abbreviation definitions

Douglas PARTNERS

BOREHOLE LOG

CLIENT: Perpetual Corporate Trust Limited
PROJECT: Proposed Warehouse and Distribution Centre
LOCATION: 200 Beech Road, Casula, NSW 2170

SURFACE LEVEL: 48.7 AHD
COORDINATE: E:304468.0, N:6240447.5
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: 8
PROJECT No: 226958.00
DATE: 04/06/24
SHEET: 1 of 1

GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	SOIL ORIGIN(#)	SOIL CONSIS.(*) DENSITY.(*)	SOIL MOISTURE	ROCK WEATH.	ROCK DEPTH (m)	ROCK STRENGTH	SAMPLE REMARKS	SAMPLE TYPE	SAMPLE INTERVAL	SAMPLE DEPTH (m)	TESTING TEST TYPE	TESTING RESULTS AND REMARKS
04/06/24 No free groundwater observed whilst augering	48	0.08	FILL / ASPHALT.		FILL	NA	NA					ES		0.10		
		0.40	FILL / Gravelly SAND: brown; fine to coarse gravel.		FILL	NA	M					D/ES		0.50		
		0.60	FILL / Silty CLAY (CI-CH): brown; medium to high plasticity; with fine to coarse gravel.		FILL	NA	w<PL w=PL									
	47	1	FILL / Clayey SAND: brown; with fine gravel.		FILL	NA	D - M					ES/D		1.00	SPT	13,20,15 N=35
		1.30	SHALE: pale brown. Bringelly Shale					XW - HW	1.30	VL - L		D		1.50		
			Borehole discontinued at 1.60m depth. Refusal on low strength shale.									D		1.60		
	46	2														
	45	3														
	44	4														
	43	5														
	42	6														
	41	7														
	40	8														
	39	9														

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

PLANT: Hanjin 8D (Rig 10)
METHOD: SFA to 1.6m
REMARKS:

OPERATOR: Rockwell

LOGGED: AMS
CASING: Uncased

Refer to explanatory notes for symbol and abbreviation definitions

Douglas PARTNERS

BOREHOLE LOG

CLIENT: Perpetual Corporate Trust Limited
PROJECT: Proposed Warehouse and Distribution Centre
LOCATION: 200 Beech Road, Casula, NSW 2170

SURFACE LEVEL: 48.6 AHD
COORDINATE: E:304440.5, N:6240429.8
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: 9
PROJECT No: 226958.00
DATE: 05/06/24
SHEET: 1 of 1

GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	SOIL ORIGIN(#)	SOIL CONSIS.(*) DENSITY.(*)	SOIL MOISTURE	ROCK WEATH.	ROCK DEPTH (m)	ROCK STRENGTH	ROCK RECOVERY (%)	ROCK RQD	ROCK FRACTURE SPACING (m)	ROCK DEFECTS & REMARKS	SAMPLE REMARKS	SAMPLE TYPE	SAMPLE INTERVAL	TESTING DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
05/06/24 No free groundwater observed whilst augering	48	0.05	FILL / ASPHALT.			NA	D - M									ES		0.10		
			Gravelly SAND; fine to coarse; with clay.																	
		0.60	SHALE: pale brown becoming dark grey. Bringelly Shale													D/ES		0.50		
	47	1							1.00	VL - L				1.03-1.42m: JT x5, Fe		ES		1.00	SPT	20/50 (HB)
														1.54m: B					PLT	PL(A)=0.1MPa
									1.75					1.86m: B, CBS, Clay					PLT	PL(A)=0.37MPa
		2						MW			100	80						2		
	46									L - M										
		3												2.92m: B, Fe				3	PLT	PL(A)=0.82MPa
														3.11m: JT, Fe						
		3.40												3.18m: B, Fe						
	45	3.53	Core loss						3.53											
		4												3.94m: B, CBS				4	PLT	PL(A)=0.53MPa
								MW						4.25m: B, CBS						
	44													4.50-4.61m: JT/80°, CBS						
		5								L - M	96	85						5	PLT	PL(A)=0.65MPa
									5.22					5.06-5.22m: JT/90°, Fe						
	43													5.35m: B, CBS					PLT	PL(A)=0.3MPa
		6						SW						5.59-5.65m: B x4, Fe				6		
																			PLT	PL(A)=0.59MPa
		7	Borehole discontinued at 6.40m depth. Limit of investigation.																	
		8																		
		9																		

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

PLANT: Hanjin 8D (Rig 10)
METHOD: SFA to 1.0m, NMLC coring to 6.4m
REMARKS:

OPERATOR: Rockwell

LOGGED: AMS
CASING: HQ to 0.6m

Refer to explanatory notes for symbol and abbreviation definitions

Douglas PARTNERS

CORE PHOTO LOG

CLIENT:	Perpetual Corporate Trust Limited	**SURFACE LEVEL:**	48.6 AHD	**LOCATION ID:**	9
PROJECT:	Proposed Warehouse and Distribution Centre	**COORDINATE:**	E:304440.5, N:6240429.8	**PROJECT No:**	226958.00
LOCATION:	200 Beech Road, Casula, NSW 2170	**DATUM/GRID:**	MGA2020 Zone 56	**DATE:**	05/06/24
		DIP/AZIMUTH:	90°/---°	**SHEET:**	1 of 1

1.00-5.00 m depth

5.00-6.40 m depth

Douglas PARTNERS

BOREHOLE LOG

CLIENT: Perpetual Corporate Trust Limited
PROJECT: Proposed Warehouse and Distribution Centre
LOCATION: 200 Beech Road, Casula, NSW 2170

SURFACE LEVEL: 48.4 AHD
COORDINATE: E:304407.3, N:6240402.3
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: 10
PROJECT No: 226958.00
DATE: 03/06/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED									SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS.(^) DENSITY.(^)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
03/06/24 No free groundwater observed whilst augering	48	0.10	FILL / ASPHALT.		FILL		NA		ES		0.10		
			FILL / Gravelly SILT: brown; fine to coarse gravel.		FILL	NA	D		D/ES		0.50		
	47	1	Borehole discontinued at 0.60m depth. Refusal on possible concrete slab.										
	46	2											
	45	3											
	44	4											
	43	5											
	42	6											
	41	7											
	40	8											
	39	9											

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

PLANT: Hanjin 8D (Rig 10)
METHOD: SFA to 0.6m
REMARKS:

OPERATOR: Rockwell

LOGGED: AMS
CASING: Uncased

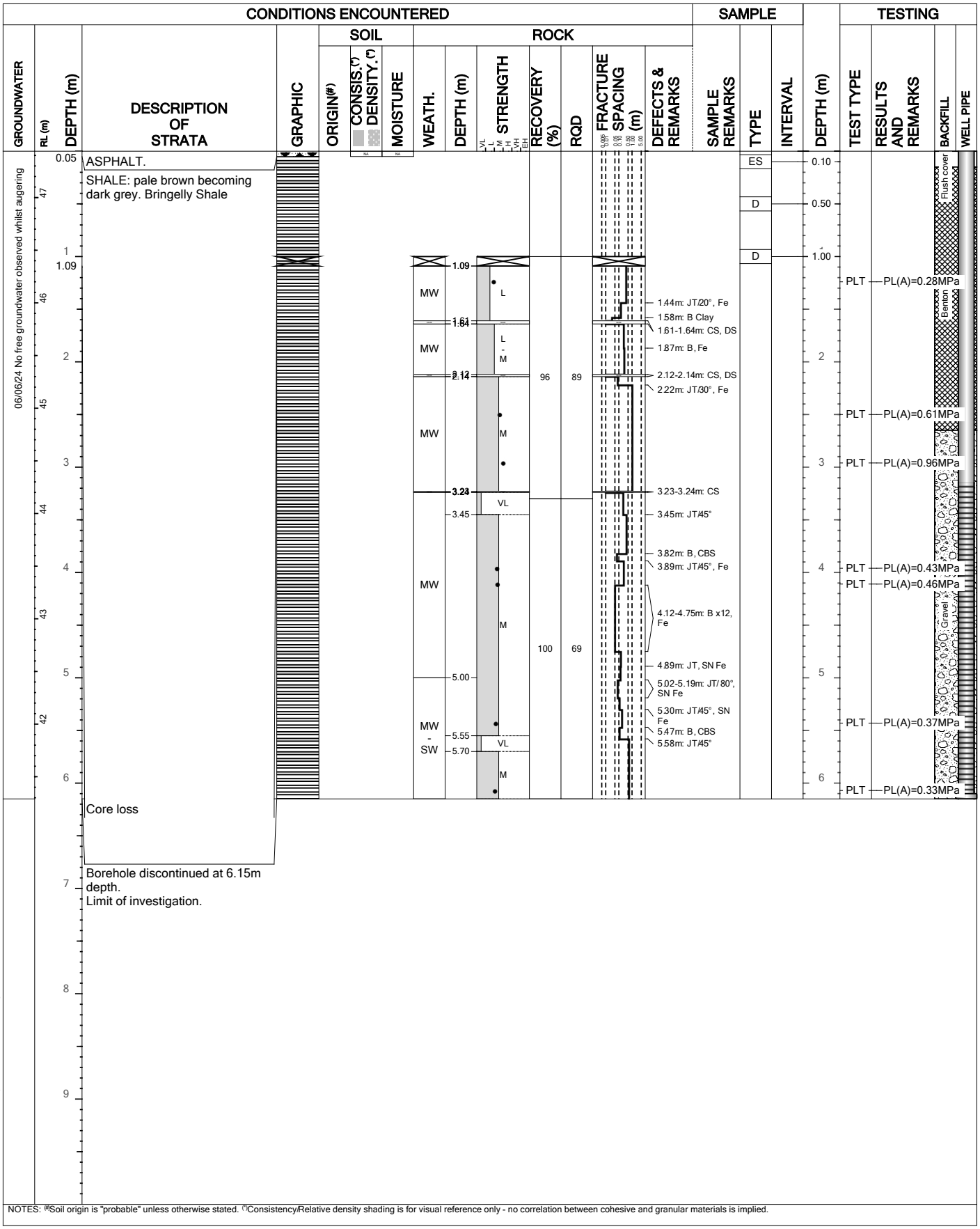
Refer to explanatory notes for symbol and abbreviation definitions

BOREHOLE LOG

CLIENT: Perpetual Corporate Trust Limited
PROJECT: Proposed Warehouse and Distribution Centre
LOCATION: 200 Beech Road, Casula, NSW 2170

SURFACE LEVEL: 47.4 AHD
COORDINATE: E:304380.3, N:6240448.1
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: 11
PROJECT No: 226958.00
DATE: 06/06/24
SHEET: 1 of 1



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

PLANT: Hanjin 8D (Rig 10)
OPERATOR: Rockwell
LOGGED: AMS
METHOD: SFA to 1.0m, NMLC coring to 6.15m
CASING: HQ to 0.05m
REMARKS:

Refer to explanatory notes for symbol and abbreviation definitions

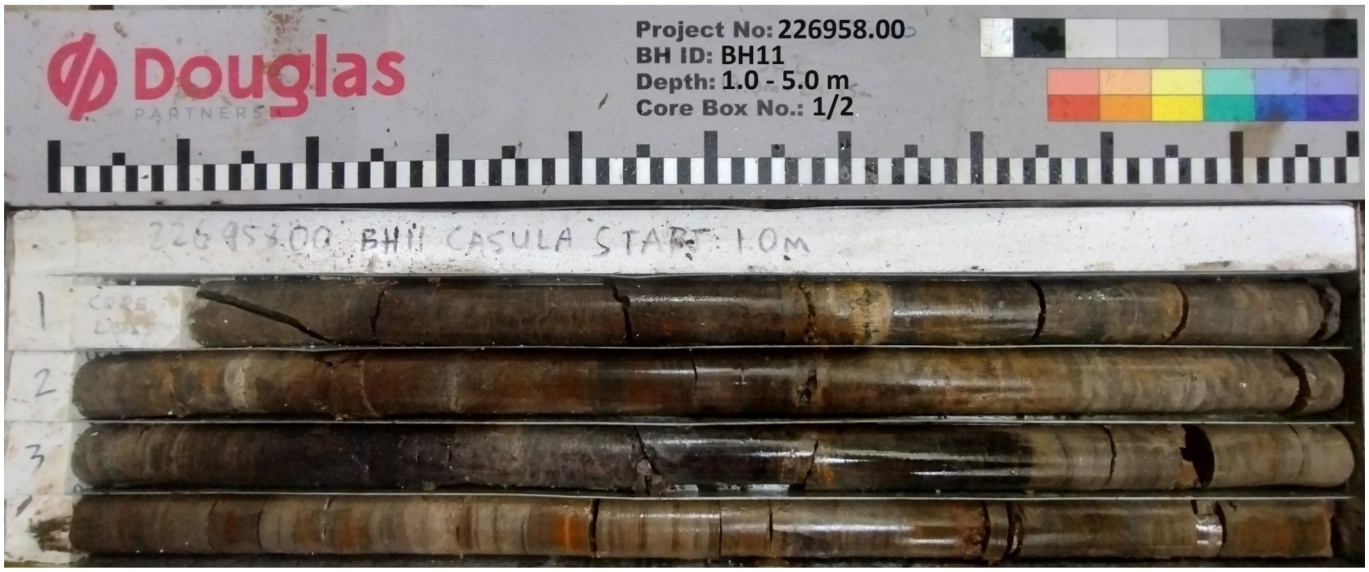
Generated with CORE-GS by Geroc - Combined Log

CORE PHOTO LOG

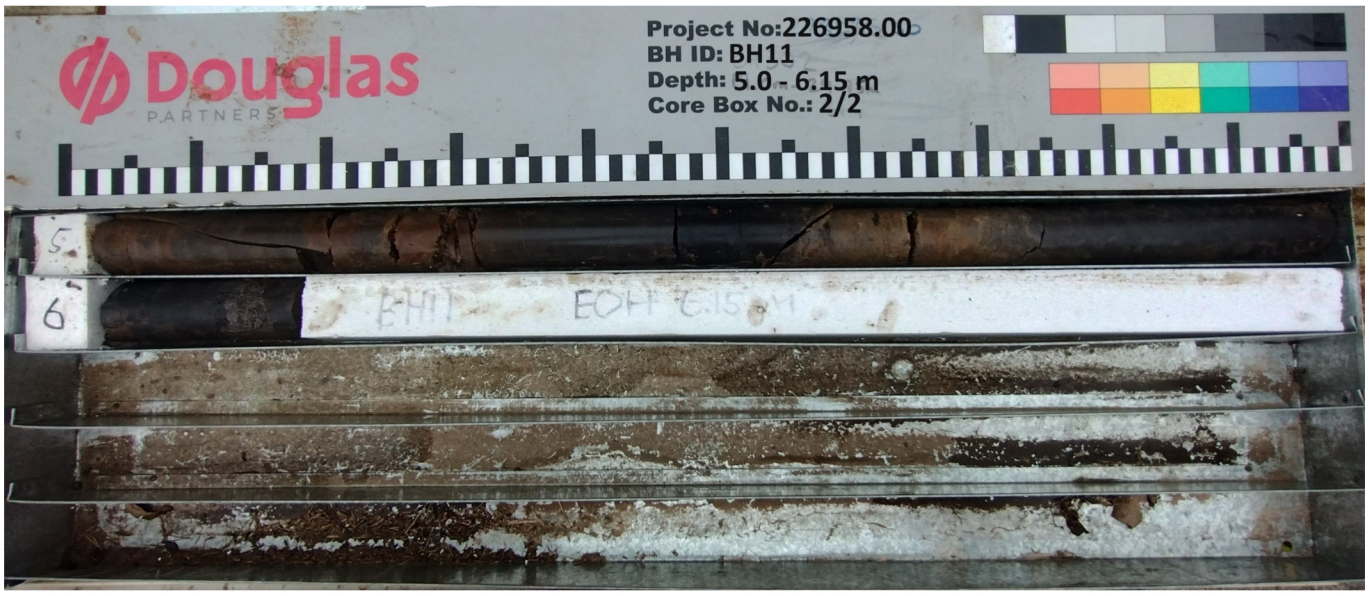
CLIENT: Perpetual Corporate Trust Limited
PROJECT: Proposed Warehouse and Distribution Centre
LOCATION: 200 Beech Road, Casula, NSW 2170

SURFACE LEVEL: 47.4 AHD
COORDINATE: E:304380.3, N:6240448.1
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: 11
PROJECT No: 226958.00
DATE: 06/06/24
SHEET: 1 of 1



1.00-5.00 m depth



5.00-6.15 m depth

Douglas PARTNERS

BOREHOLE LOG

CLIENT: Perpetual Corporate Trust Limited
PROJECT: Proposed Warehouse and Distribution Centre
LOCATION: 200 Beech Road, Casula, NSW 2170

SURFACE LEVEL: 48.4 AHD
COORDINATE: E:304417.6, N:6240476.0
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: 12
PROJECT No: 226958.00
DATE: 05/06/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED											SAMPLE			TESTING	
				SOIL			ROCK								
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS.(*) DENSITY.(*)	MOISTURE	WEATH.	DEPTH (m)	STRENGTH	SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
05/06/24 No free groundwater observed whilst augering	48	0.06	FILL / ASPHALT.		FILL	NA	NA					ES		0.10		
			FILL / Gravelly SAND: brown; fine to coarse gravel.				D - M					D/ES		0.50		
	47	1.00	SHALE: pale brown. Bringelly Shale						1.00			D		1.00	SPT	25 (HB)
			Borehole discontinued at 1.04m depth. Refusal on low strength shale.													
	46	2														
	45	3														
	44	4														
	43	5														
	42	6														
	41	7														
	40	8														
	39	9														

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

PLANT: Hanjin 8D (Rig 10)
METHOD: SFA to 1.04m
REMARKS:

OPERATOR: Rockwell

LOGGED: AMS
CASING: Uncased

Refer to explanatory notes for symbol and abbreviation definitions

Douglas PARTNERS

Generated with CORE-GS by Geroc - Soil with Simple Rock Log

BOREHOLE LOG

CLIENT: Perpetual Corporate Trust Limited
PROJECT: Proposed Warehouse and Distribution Centre
LOCATION: 200 Beech Road, Casula, NSW 2170

SURFACE LEVEL: 48.0 AHD
COORDINATE: E:304357.1, N:6240484.2
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: 13
PROJECT No: 226958.00
DATE: 05/06/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED													SAMPLE			TESTING	
				SOIL				ROCK									
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS.(*) DENSITY.(*)	MOISTURE	WEATH.	DEPTH (m)	STRENGTH (VL L M H VH EH)	SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
		0.05	FILL / ASPHALT.		FILL	NA	NA		0.05			ES		0.10		
			SHALE: pale brown. Bringelly Shale									D/ES		0.50		
	47	1	1.00m: trace tree roots/branch					XW - HW		VL - L		D		1.00	SPT	15,18,18 N=36
05/06/24 No free groundwater observed whilst augering	46	2	Borehole discontinued at 2.00m depth. Refusal on low strength shale.									D		2.00		
	45	3														
	44	4														
	43	5														
	42	6														
	41	7														
	40	8														
	39	9														

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

PLANT: Hanjin 8D (Rig 10)
METHOD: SFA to 1.04m
REMARKS:

OPERATOR: Rockwell

LOGGED: AMS
CASING: Uncased

Refer to explanatory notes for symbol and abbreviation definitions

Douglas PARTNERS

BOREHOLE LOG

CLIENT: Perpetual Corporate Trust Limited
PROJECT: Proposed Warehouse and Distribution Centre
LOCATION: 200 Beech Road, Casula, NSW 2170

SURFACE LEVEL: 48.7 AHD
COORDINATE: E:304509.8, N:6240290.0
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: 14A
PROJECT No: 226958.00
DATE: 03/06/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED													SAMPLE				TESTING	
				SOIL			ROCK											
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS.(*) DENSITY.(*)	MOISTURE	WEATH.	DEPTH (m)	STRENGTH (VL L M H VH EH)			SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
		0.16	FILL / CONCRETE; blinding slab.		FILL	NA	NA		0.16									
			SANDSTONE: pale brown and grey. Bringelly Shale					XW - HW		VL - L				D/ES		0.50		
	48	1												D		1.00	SPT	15,27,8 N=46
03/06/24 No free groundwater observed whilst augering			Borehole discontinued at 1.45m depth. Limit of investigation.															
	47	2																
	46	3																
	45	4																
	44	5																
	43	6																
	42	7																
	41	8																
	40	9																
	39																	

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

PLANT: Hanjin 8D (Rig 10)
METHOD: SFA to 1.45m
REMARKS:

OPERATOR: Rockwell

LOGGED: AMS
CASING: Uncased

Refer to explanatory notes for symbol and abbreviation definitions

Douglas PARTNERS

Generated with CORE-GS by Geroc - Soil with Simple Rock Log

BOREHOLE LOG

CLIENT: Perpetual Corporate Trust Limited
PROJECT: Proposed Warehouse and Distribution Centre
LOCATION: 200 Beech Road, Casula, NSW 2170

SURFACE LEVEL: 48.8 AHD
COORDINATE: E:304582.5, N:6240366.6
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: 15
PROJECT No: 226958.00
DATE: 02/06/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED												SAMPLE				TESTING	
				SOIL			ROCK										
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS.(^) DENSITY.(^)	MOISTURE	WEATH.	DEPTH (m)	STRENGTH (VL L M H VH EH)	SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
	48	0.25	FILL / CONCRETE.		FILL		NA									
			FILL / Silty CLAY (CI-CH): brown, orange-brown and dark brown; medium to high plasticity; with fine to coarse gravel and sand.		FILL	NA	w<PL					* D/ES		0.50		
		1.00	SHALE: pale brown and dark grey. Bringelly Shale					HW	1.00			D/ES		1.00		26/0 (HB)
			Borehole discontinued at 1.15m depth. Refusal on low strength shale.													
	47	2														
	46	3														
	45	4														
	44	5														
	43	6														
	42	7														
	41	8														
	40	9														
	39															

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

PLANT: Hanjin 8D (Rig 10)
METHOD: SFA to 1.15m
REMARKS: * Replicate sample FD-1 collected at 0.5m

OPERATOR: Rockwell

LOGGED: AMS
CASING: Uncased

Refer to explanatory notes for symbol and abbreviation definitions

Douglas PARTNERS

Terminology, Symbols and Abbreviations

November 2023

Introduction to Terminology, Symbols and Abbreviations

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

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

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

Abbreviation Codes

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

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

Data Integrity Codes

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

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

Graphic Symbols

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

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Soil Descriptions

Terminology
Symbols
Abbreviations

March 2024

Introduction

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

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

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

Particle size designation and Behaviour Model

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

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

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

[1] – refer grain size subdivision descriptions below

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

Component proportions

The relative proportion of the dry mass of each particle size fraction is assessed to be a "primary", "secondary", or "minor" component of the soil mixture, depending on its influence over the soil behaviour.

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

[1] As defined in AS1726-2017 6.1.4.4

[2] In the detailed material description, minor components are split into two further sub-categories. Refer "identification of minor components" below.

Composite Materials

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

Classification

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

Soil Name

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

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

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

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

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

Materials of "fill" or "topsoil" origin are generally assigned a name derived from the primary/secondary component (where appropriate). In log descriptions this is preceded by uppercase "FILL" or "TOPSOIL". Origin uncertainty is indicated in the description by the characters (?), with the degree of uncertainty described (using the terms "probably" or "possibly" in the origin column, or at the end of the description).

Identification of minor components

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

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

The terms "with" and "trace" generally apply only to gravel or fine particle fractions. Where cobbles/boulders are encountered in minor proportions (generally less than about 12%) the term "occasional" may be used. This term describes the sporadic distribution of the material within the confines of the investigation excavation only, and there may be considerable variation in proportion over a wider area which is difficult to factually characterise due to the relative size of the particles and the investigation methods.

Soil Composition

Plasticity

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

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

Grain Size

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

Grading

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

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

Soil Condition

Moisture

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

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

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

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

Consistency/Density/Compaction/Cementation/Extremely Weathered Material

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

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

Quantitative engineering performance of these materials may be determined by laboratory testing or estimated by correlated field tests (for example penetration or shear vane testing). In some cases, performance may be assessed by tactile or other subjective methods, in which case investigation logs will show the estimated value enclosed in round brackets, for example (VS).

Consistency (fine grained soils)

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

Relative Density (coarse grained soils)

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

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

Compaction (anthropogenically modified soil)

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

Cementation (natural and anthropogenic)

Cementation Term	Abbreviation Code
Moderately cemented	MOD
Weakly cemented	WEK

Extremely Weathered Material

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

Soil Origin

Term	Description	Abbreviation Code
Residual	Derived from in-situ weathering of the underlying rock	RS
Extremely weathered material	Formed from in-situ weathering of geological formations. Has strength of less than 'very low' as per as1726 but retains the structure or fabric of the parent rock.	XWM
Alluvial	Deposited by streams and rivers	ALV
Fluvial	Deposited by channel fill and overbank (natural levee, crevasse splay or flood basin)	FLV
Estuarine	Deposited in coastal estuaries	EST
Marine	Deposited in a marine environment	MAR
Lacustrine	Deposited in freshwater lakes	LAC
Aeolian	Carried and deposited by wind	AEO
Colluvial	Soil and rock debris transported down slopes by gravity	COL
Slopewash	Thin layers of soil and rock debris gradually and slowly deposited by gravity and possibly water	SW
Topsoil	Mantle of surface soil, often with high levels of organic material	TOP
Fill	Any material which has been moved by man	FILL
Littoral	Deposited on the lake or seashore	LIT
Unidentifiable	Not able to be identified	UID

Cobbles and Boulders

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

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

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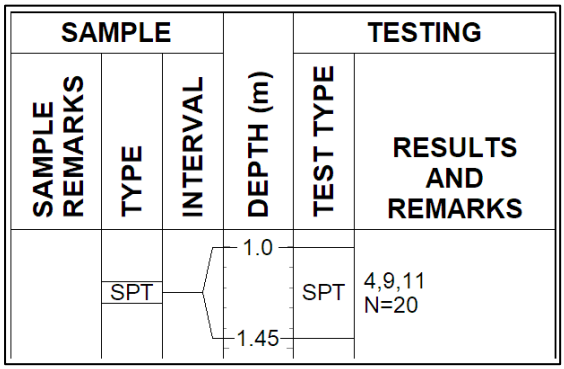
Sampling, Testing and Excavation Methodology

Terminology
Symbols
Abbreviations

March 2024

Sampling and Testing

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



Sampling

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

Sample Type	Code
Auger sample	A
Acid Sulfate sample	ASS
Bulk sample	B
Core sample	C
Disturbed sample	D
Environmental sample	ES
Gas sample	G
Piston sample	P
Sample from SPT test	SPT
Undisturbed tube sample	U[1]
Water sample	W
Material Sample	MT
Core sample for unconfined compressive strength testing	UCS

[1] – numeric suffixes indicate tube diameter/width in mm

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

Field and Laboratory Testing

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

Test Type	Code
Pocket penetrometer (kPa)	PP
Photo ionisation detector (ppm)	PID
Standard Penetration Test x/y =x blows for y mm penetration HB = hammer bouncing HW = fell under weight of hammer	SPT
Shear vane (kPa)	V
Unconfined compressive strength, (MPa)	UCS

Field and laboratory testing (continued)

Test Type	Code
Point load test, (MPa), axial (A), diametric (D), irregular (I)	PLT(_)
Dynamic cone penetrometer, followed by blow count penetration increment in mm (cone tip, generally in accordance with AS1289.6.3.2)	DCP/150
Perth sand penetrometer, followed by blow count penetration increment in mm (flat tip, generally in accordance with AS1289.6.3.3)	PSP/150

Groundwater Observations

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

Drilling or Excavation Methods/Tools

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

Method	Abbreviation Code
Direct Push	DP
Solid flight auger. Suffixes: /T = tungsten carbide tip, /V = v-shaped tip	AD[1]
Air Track	AT
Diatube	DT[1]
Hand auger	HA[1]
Hand tools (unspecified)	HAND
Existing exposure	X
Hollow flight auger	HSA[1]
HQ coring	HQ3
HMLC series coring	HMLC
NMLC series coring	NMLC
NQ coring	NQ3
PQ coring	PQ3
Predrilled	PD
Push tube	PT[1]
Ripping tyne/ripper	R
Rock roller	RR[1]
Rock breaker/hydraulic hammer	EH
Sonic drilling	SON[1]
Mud/blade bucket	MB[1]
Toothed bucket	TB[1]
Vibrocore	VC[1]
Vacuum excavation	VE
Wash bore (unspecified bit type)	WB[1]

[1] – numeric suffixes indicate tool diameter/width in mm

Douglas PARTNERS

Appendix J

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

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 353653

Client Details

Client	Douglas Partners Pty Ltd
Attention	Grant Russell
Address	96 Hermitage Rd, West Ryde, NSW, 2114

Sample Details

Your Reference	**226958.00 Casula**
Number of Samples	34 Soil, 1 Material
Date samples received	12/06/2024
Date completed instructions received	12/06/2024

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	19/06/2024
Date of Issue	19/06/2024

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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: Sneha Shakya
Authorised by Asbestos Approved Signatory: Lucy Zhu

Results Approved By
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Dragana Tomas, Senior Chemist
Giovanni Agosti, Group Technical Manager
Jack Wallis, Chemist (FAS)
Jenny He, Senior Chemist
Lucy Zhu, Asbestos Supervisor
Timothy Toll, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		353653-1	353653-5	353653-6	353653-7	353653-9
Your Reference	UNITS	BH1/0.5	BH2A/0.5	BH3/0.5	BH4/0.5	BH5/0.5
Date Sampled		03/06/2024	02/06/2024	02/06/2024	04/06/2024	02/06/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/06/2024	13/06/2024	13/06/2024	13/06/2024	13/06/2024
Date analysed	-	17/06/2024	17/06/2024	17/06/2024	17/06/2024	17/06/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH 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	%	89	83	84	87	89

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		353653-10	353653-12	353653-15	353653-18	353653-21
Your Reference	UNITS	BH6/0.1	BH7/0.1	BH8/0.1	BH9/0.1	BH10/0.1
Date Sampled		05/06/2024	04/06/2024	04/06/2024	05/06/2024	03/06/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/06/2024	13/06/2024	13/06/2024	13/06/2024	13/06/2024
Date analysed	-	17/06/2024	17/06/2024	17/06/2024	17/06/2024	17/06/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH 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	%	86	87	90	86	87

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		353653-23	353653-24	353653-26	353653-28	353653-29
Your Reference	UNITS	BH11/0.1	BH12/0.1	BH13/0.1	BH14A/0.5	BH15/0.5
Date Sampled		06/06/2024	03/06/2024	03/06/2024	03/06/2024	02/06/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/06/2024	13/06/2024	13/06/2024	13/06/2024	13/06/2024
Date analysed	-	17/06/2024	17/06/2024	17/06/2024	17/06/2024	17/06/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH 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	%	90	90	89	89	89

vTRH(C6-C10)/BTEXN in Soil					
Our Reference		353653-31	353653-32	353653-33	353653-34
Your Reference	UNITS	FD-1	FD-2	TS	TB
Date Sampled		02/06/2024	04/06/2024	04/06/2024	04/06/2024
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	13/06/2024	13/06/2024	13/06/2024	13/06/2024
Date analysed	-	17/06/2024	17/06/2024	17/06/2024	17/06/2024
TRH C_6 - C_9	mg/kg	<25	<25	[NA]	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	[NA]	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	[NA]	<25
Benzene	mg/kg	<0.2	<0.2	102%	<0.2
Toluene	mg/kg	<0.5	<0.5	102%	<0.5
Ethylbenzene	mg/kg	<1	<1	103%	<1
m+p-xylene	mg/kg	<2	<2	104%	<2
o-Xylene	mg/kg	<1	<1	103%	<1
Naphthalene	mg/kg	<1	<1	[NA]	<1
Total +ve Xylenes	mg/kg	<1	<1	[NA]	<1
Surrogate aaa-Trifluorotoluene	%	84	87	103	90

svTRH (C10-C40) in Soil						
Our Reference		353653-1	353653-5	353653-6	353653-7	353653-9
Your Reference	UNITS	BH1/0.5	BH2A/0.5	BH3/0.5	BH4/0.5	BH5/0.5
Date Sampled		03/06/2024	02/06/2024	02/06/2024	04/06/2024	02/06/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/06/2024	13/06/2024	13/06/2024	13/06/2024	13/06/2024
Date analysed	-	18/06/2024	18/06/2024	18/06/2024	18/06/2024	18/06/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	130	<100	130	<100
TRH C_{29} - C_{36}	mg/kg	<100	140	110	190	110
Total +ve TRH (C10-C36)	mg/kg	<50	260	110	320	110
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	220	140	260	150
TRH >C_{34} -C_{40}	mg/kg	<100	110	100	160	120
Total +ve TRH (>C10-C40)	mg/kg	<50	330	250	420	260
Surrogate o-Terphenyl	%	80	92	85	87	89

svTRH (C10-C40) in Soil						
Our Reference		353653-10	353653-12	353653-15	353653-18	353653-21
Your Reference	UNITS	BH6/0.1	BH7/0.1	BH8/0.1	BH9/0.1	BH10/0.1
Date Sampled		05/06/2024	04/06/2024	04/06/2024	05/06/2024	03/06/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/06/2024	13/06/2024	13/06/2024	13/06/2024	13/06/2024
Date analysed	-	18/06/2024	18/06/2024	18/06/2024	18/06/2024	18/06/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	110
TRH C_{29} - C_{36}	mg/kg	150	<100	<100	<100	410
Total +ve TRH (C10-C36)	mg/kg	150	<50	<50	<50	520
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	160	120	100	<100	320
TRH >C_{34} -C_{40}	mg/kg	260	120	160	<100	800
Total +ve TRH (>C10-C40)	mg/kg	420	240	270	<50	1,100
Surrogate o-Terphenyl	%	82	91	84	82	84

svTRH (C10-C40) in Soil						
Our Reference		353653-23	353653-24	353653-26	353653-28	353653-29
Your Reference	UNITS	BH11/0.1	BH12/0.1	BH13/0.1	BH14A/0.5	BH15/0.5
Date Sampled		06/06/2024	03/06/2024	03/06/2024	03/06/2024	02/06/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/06/2024	13/06/2024	13/06/2024	13/06/2024	13/06/2024
Date analysed	-	18/06/2024	18/06/2024	18/06/2024	18/06/2024	18/06/2024
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	110
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	210
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	120	<100	<100	160
TRH >C_{34} -C_{40}	mg/kg	<100	140	<100	<100	130
Total +ve TRH (>C10-C40)	mg/kg	<50	250	<50	<50	300
Surrogate o-Terphenyl	%	84	82	85	82	85

svTRH (C10-C40) in Soil			
Our Reference		353653-31	353653-32
Your Reference	UNITS	FD-1	FD-2
Date Sampled		02/06/2024	04/06/2024
Type of sample		Soil	Soil
Date extracted	-	13/06/2024	13/06/2024
Date analysed	-	18/06/2024	18/06/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	140
Total +ve TRH (C10-C36)	mg/kg	<50	140
TRH >C_{10} -C_{16}	mg/kg	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	190
TRH >C_{34} -C_{40}	mg/kg	<100	130
Total +ve TRH (>C10-C40)	mg/kg	<50	330
Surrogate o-Terphenyl	%	83	87

PAHs in Soil						
Our Reference		353653-1	353653-5	353653-6	353653-7	353653-9
Your Reference	UNITS	BH1/0.5	BH2A/0.5	BH3/0.5	BH4/0.5	BH5/0.5
Date Sampled		03/06/2024	02/06/2024	02/06/2024	04/06/2024	02/06/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/06/2024	13/06/2024	13/06/2024	13/06/2024	13/06/2024
Date analysed	-	14/06/2024	14/06/2024	14/06/2024	14/06/2024	14/06/2024
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	0.1	0.06
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	0.52	0.3
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	%	106	107	107	112	110

PAHs in Soil						
Our Reference		353653-10	353653-12	353653-15	353653-18	353653-21
Your Reference	UNITS	BH6/0.1	BH7/0.1	BH8/0.1	BH9/0.1	BH10/0.1
Date Sampled		05/06/2024	04/06/2024	04/06/2024	05/06/2024	03/06/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/06/2024	13/06/2024	13/06/2024	13/06/2024	13/06/2024
Date analysed	-	14/06/2024	14/06/2024	14/06/2024	14/06/2024	17/06/2024
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	0.2	<0.1	<0.1	0.3	0.2
Pyrene	mg/kg	0.2	<0.1	<0.1	0.4	0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	0.2	<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	0.3	<0.2
Benzo(a)pyrene	mg/kg	0.1	<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
Total +ve PAH's	mg/kg	0.5	<0.05	<0.05	1.6	0.81
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	%	109	108	110	108	104

PAHs in Soil						
Our Reference		353653-23	353653-24	353653-26	353653-28	353653-29
Your Reference	UNITS	BH11/0.1	BH12/0.1	BH13/0.1	BH14A/0.5	BH15/0.5
Date Sampled		06/06/2024	03/06/2024	03/06/2024	03/06/2024	02/06/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/06/2024	13/06/2024	13/06/2024	13/06/2024	13/06/2024
Date analysed	-	14/06/2024	14/06/2024	14/06/2024	14/06/2024	14/06/2024
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	0.4
Pyrene	mg/kg	<0.1	0.1	<0.1	<0.1	0.5
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.3
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	0.4
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	0.3
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	0.3	<0.05	<0.05	2.5
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	%	106	103	104	100	103

PAHs in Soil			
Our Reference		353653-31	353653-32
Your Reference	UNITS	FD-1	FD-2
Date Sampled		02/06/2024	04/06/2024
Type of sample		Soil	Soil
Date extracted	-	13/06/2024	13/06/2024
Date analysed	-	14/06/2024	14/06/2024
Naphthalene	mg/kg	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	0.1
Pyrene	mg/kg	<0.1	0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1
Chrysene	mg/kg	<0.1	0.2
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	0.06
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	0.4
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	107	102

Organochlorine Pesticides in soil						
Our Reference		353653-1	353653-5	353653-6	353653-7	353653-9
Your Reference	UNITS	BH1/0.5	BH2A/0.5	BH3/0.5	BH4/0.5	BH5/0.5
Date Sampled		03/06/2024	02/06/2024	02/06/2024	04/06/2024	02/06/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/06/2024	13/06/2024	13/06/2024	13/06/2024	13/06/2024
Date analysed	-	14/06/2024	14/06/2024	14/06/2024	14/06/2024	14/06/2024
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
Mirex	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 4-Chloro-3-NBTF	%	103	101	101	105	103

Organochlorine Pesticides in soil						
Our Reference		353653-10	353653-12	353653-15	353653-18	353653-21
Your Reference	UNITS	BH6/0.1	BH7/0.1	BH8/0.1	BH9/0.1	BH10/0.1
Date Sampled		05/06/2024	04/06/2024	04/06/2024	05/06/2024	03/06/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/06/2024	13/06/2024	13/06/2024	13/06/2024	13/06/2024
Date analysed	-	14/06/2024	14/06/2024	14/06/2024	14/06/2024	17/06/2024
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
Mirex	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 4-Chloro-3-NBTF	%	104	101	104	102	112

Organochlorine Pesticides in soil						
Our Reference		353653-23	353653-24	353653-26	353653-28	353653-29
Your Reference	UNITS	BH11/0.1	BH12/0.1	BH13/0.1	BH14A/0.5	BH15/0.5
Date Sampled		06/06/2024	03/06/2024	03/06/2024	03/06/2024	02/06/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/06/2024	13/06/2024	13/06/2024	13/06/2024	13/06/2024
Date analysed	-	14/06/2024	14/06/2024	14/06/2024	14/06/2024	14/06/2024
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
Mirex	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 4-Chloro-3-NBTF	%	104	102	103	100	99

Organophosphorus Pesticides in Soil						
Our Reference		353653-1	353653-5	353653-9	353653-15	353653-18
Your Reference	UNITS	BH1/0.5	BH2A/0.5	BH5/0.5	BH8/0.1	BH9/0.1
Date Sampled		03/06/2024	02/06/2024	02/06/2024	04/06/2024	05/06/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/06/2024	13/06/2024	13/06/2024	13/06/2024	13/06/2024
Date analysed	-	14/06/2024	14/06/2024	14/06/2024	14/06/2024	14/06/2024
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mevinphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phorate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Disulfoton	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion-Methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenthion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methidathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenamiphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phosalone	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Coumaphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	103	101	103	104	102

Organophosphorus Pesticides in Soil						
Our Reference		353653-21	353653-23	353653-26	353653-28	353653-29
Your Reference	UNITS	BH10/0.1	BH11/0.1	BH13/0.1	BH14A/0.5	BH15/0.5
Date Sampled		03/06/2024	06/06/2024	03/06/2024	03/06/2024	02/06/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/06/2024	13/06/2024	13/06/2024	13/06/2024	13/06/2024
Date analysed	-	17/06/2024	14/06/2024	14/06/2024	14/06/2024	14/06/2024
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mevinphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phorate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Disulfoton	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion-Methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenthion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methidathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenamiphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phosalone	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Coumaphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	112	104	103	100	99

PCBs in Soil						
Our Reference		353653-1	353653-5	353653-9	353653-15	353653-18
Your Reference	UNITS	BH1/0.5	BH2A/0.5	BH5/0.5	BH8/0.1	BH9/0.1
Date Sampled		03/06/2024	02/06/2024	02/06/2024	04/06/2024	05/06/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/06/2024	13/06/2024	13/06/2024	13/06/2024	13/06/2024
Date analysed	-	14/06/2024	14/06/2024	14/06/2024	14/06/2024	14/06/2024
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 2-Fluorobiphenyl	%	102	100	100	102	101

PCBs in Soil						
Our Reference		353653-21	353653-23	353653-26	353653-28	353653-29
Your Reference	UNITS	BH10/0.1	BH11/0.1	BH13/0.1	BH14A/0.5	BH15/0.5
Date Sampled		03/06/2024	06/06/2024	03/06/2024	03/06/2024	02/06/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/06/2024	13/06/2024	13/06/2024	13/06/2024	13/06/2024
Date analysed	-	17/06/2024	14/06/2024	14/06/2024	14/06/2024	14/06/2024
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	0.2
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	0.2
Surrogate 2-Fluorobiphenyl	%	106	101	101	98	98

Acid Extractable metals in soil						
Our Reference		353653-1	353653-5	353653-6	353653-7	353653-9
Your Reference	UNITS	BH1/0.5	BH2A/0.5	BH3/0.5	BH4/0.5	BH5/0.5
Date Sampled		03/06/2024	02/06/2024	02/06/2024	04/06/2024	02/06/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/06/2024	13/06/2024	13/06/2024	13/06/2024	13/06/2024
Date analysed	-	14/06/2024	14/06/2024	14/06/2024	14/06/2024	14/06/2024
Arsenic	mg/kg	8	<4	5	<4	15
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	14	12	11	13	11
Copper	mg/kg	20	43	31	40	34
Lead	mg/kg	13	14	14	12	14
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	5	27	18	12	11
Zinc	mg/kg	26	99	71	39	34

Acid Extractable metals in soil						
Our Reference		353653-10	353653-12	353653-15	353653-18	353653-21
Your Reference	UNITS	BH6/0.1	BH7/0.1	BH8/0.1	BH9/0.1	BH10/0.1
Date Sampled		05/06/2024	04/06/2024	04/06/2024	05/06/2024	03/06/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/06/2024	13/06/2024	13/06/2024	13/06/2024	13/06/2024
Date analysed	-	14/06/2024	14/06/2024	14/06/2024	14/06/2024	14/06/2024
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	14	14	12	17	11
Copper	mg/kg	49	34	53	31	92
Lead	mg/kg	7	6	4	14	7
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	62	73	73	27	18
Zinc	mg/kg	36	36	32	60	42

Acid Extractable metals in soil						
Our Reference		353653-23	353653-24	353653-26	353653-28	353653-29
Your Reference	UNITS	BH11/0.1	BH12/0.1	BH13/0.1	BH14A/0.5	BH15/0.5
Date Sampled		06/06/2024	03/06/2024	03/06/2024	03/06/2024	02/06/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/06/2024	13/06/2024	13/06/2024	13/06/2024	13/06/2024
Date analysed	-	14/06/2024	14/06/2024	14/06/2024	14/06/2024	14/06/2024
Arsenic	mg/kg	<4	<4	16	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	5	16	6	7	16
Copper	mg/kg	13	46	48	4	23
Lead	mg/kg	10	6	18	14	17
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
Nickel	mg/kg	15	73	13	5	12
Zinc	mg/kg	65	37	59	98	77

Acid Extractable metals in soil			
Our Reference		353653-31	353653-32
Your Reference	UNITS	FD-1	FD-2
Date Sampled		02/06/2024	04/06/2024
Type of sample		Soil	Soil
Date prepared	-	13/06/2024	13/06/2024
Date analysed	-	14/06/2024	14/06/2024
Arsenic	mg/kg	8	5
Cadmium	mg/kg	<0.4	<0.4
Chromium	mg/kg	4	10
Copper	mg/kg	16	44
Lead	mg/kg	7	15
Mercury	mg/kg	<0.1	<0.1
Nickel	mg/kg	2	11
Zinc	mg/kg	21	43

Misc Soil - Inorg			
Our Reference		353653-5	353653-23
Your Reference	UNITS	BH2A/0.5	BH11/0.1
Date Sampled		02/06/2024	06/06/2024
Type of sample		Soil	Soil
Date prepared	-	13/06/2024	13/06/2024
Date analysed	-	13/06/2024	13/06/2024
Total Phenolics (as Phenol)	mg/kg	<5	<5

Moisture						
Our Reference		353653-1	353653-5	353653-6	353653-7	353653-9
Your Reference	UNITS	BH1/0.5	BH2A/0.5	BH3/0.5	BH4/0.5	BH5/0.5
Date Sampled		03/06/2024	02/06/2024	02/06/2024	04/06/2024	02/06/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/06/2024	13/06/2024	13/06/2024	13/06/2024	13/06/2024
Date analysed	-	14/06/2024	14/06/2024	14/06/2024	14/06/2024	14/06/2024
Moisture	%	17	10	8.9	13	9.8

Moisture						
Our Reference		353653-10	353653-12	353653-15	353653-18	353653-21
Your Reference	UNITS	BH6/0.1	BH7/0.1	BH8/0.1	BH9/0.1	BH10/0.1
Date Sampled		05/06/2024	04/06/2024	04/06/2024	05/06/2024	03/06/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/06/2024	13/06/2024	13/06/2024	13/06/2024	13/06/2024
Date analysed	-	14/06/2024	14/06/2024	14/06/2024	14/06/2024	14/06/2024
Moisture	%	7.1	5.6	6.4	11	2.0

Moisture						
Our Reference		353653-23	353653-24	353653-26	353653-28	353653-29
Your Reference	UNITS	BH11/0.1	BH12/0.1	BH13/0.1	BH14A/0.5	BH15/0.5
Date Sampled		06/06/2024	03/06/2024	03/06/2024	03/06/2024	02/06/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/06/2024	13/06/2024	13/06/2024	13/06/2024	13/06/2024
Date analysed	-	14/06/2024	14/06/2024	14/06/2024	14/06/2024	14/06/2024
Moisture	%	5.7	8.3	10	5.7	13

Moisture			
Our Reference		353653-31	353653-32
Your Reference	UNITS	FD-1	FD-2
Date Sampled		02/06/2024	04/06/2024
Type of sample		Soil	Soil
Date prepared	-	13/06/2024	13/06/2024
Date analysed	-	14/06/2024	14/06/2024
Moisture	%	17	15

Asbestos ID - soils NEPM						
Our Reference		353653-1	353653-5	353653-6	353653-7	353653-9
Your Reference	UNITS	BH1/0.5	BH2A/0.5	BH3/0.5	BH4/0.5	BH5/0.5
Date Sampled		03/06/2024	02/06/2024	02/06/2024	04/06/2024	02/06/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	18/06/2024	18/06/2024	18/06/2024	18/06/2024	18/06/2024
Sample mass tested	g	455.55	439.21	480.53	904.54	333.62
Sample Description	-	Red clayey soil & rocks	Grey coarse-grained soil & rocks	Grey coarse-grained soil & rocks	Grey coarse-grained soil & rocks	Grey coarse-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	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
Total Asbestos[#1]	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–	–	–	–
FA and AF Estimation*	g	–	–	–	–	–
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos comments	-	Nil	Nil	Nil	Nil	Nil

Asbestos ID - soils NEPM						
Our Reference		353653-10	353653-12	353653-15	353653-18	353653-21
Your Reference	UNITS	BH6/0.1	BH7/0.1	BH8/0.1	BH9/0.1	BH10/0.1
Date Sampled		05/06/2024	04/06/2024	04/06/2024	05/06/2024	03/06/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	18/06/2024	18/06/2024	18/06/2024	18/06/2024	18/06/2024
Sample mass tested	g	788.59	601.96	825.82	892.78	533.1
Sample Description	-	Grey coarse-grained soil & rocks	Grey coarse-grained soil & rocks	Grey coarse-grained soil & rocks	Grey coarse-grained soil & rocks	Grey coarse-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	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
Total Asbestos[#1]	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–	–	–	–
FA and AF Estimation*	g	–	–	–	–	–
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos comments	-	Nil	Nil	Nil	Nil	Nil

Asbestos ID - soils NEPM						
Our Reference		353653-23	353653-24	353653-26	353653-28	353653-29
Your Reference	UNITS	BH11/0.1	BH12/0.1	BH13/0.1	BH14A/0.5	BH15/0.5
Date Sampled		06/06/2024	03/06/2024	03/06/2024	03/06/2024	02/06/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	18/06/2024	18/06/2024	18/06/2024	18/06/2024	18/06/2024
Sample mass tested	g	432.59	665.29	449.68	553.76	486.13
Sample Description	-	Grey coarse-grained soil & rocks	Grey coarse-grained soil & rocks	Grey coarse-grained soil & rocks	Grey coarse-grained soil & rocks	Grey coarse-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	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
Total Asbestos[#1]	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–	–	–	–
FA and AF Estimation*	g	–	–	–	–	–
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos comments	-	Nil	Nil	Nil	Nil	Nil

Misc Inorg - Soil				
Our Reference		353653-1	353653-12	353653-26
Your Reference	UNITS	BH1/0.5	BH7/0.1	BH13/0.1
Date Sampled		03/06/2024	04/06/2024	03/06/2024
Type of sample		Soil	Soil	Soil
Date prepared	-	12/06/2024	12/06/2024	12/06/2024
Date analysed	-	18/06/2024	18/06/2024	18/06/2024
pH 1:5 soil:water	pH Units	4.9	10.8	7.8

CEC				
Our Reference		353653-1	353653-12	353653-26
Your Reference	UNITS	BH1/0.5	BH7/0.1	BH13/0.1
Date Sampled		03/06/2024	04/06/2024	03/06/2024
Type of sample		Soil	Soil	Soil
Date prepared	-	19/06/2024	19/06/2024	19/06/2024
Date analysed	-	19/06/2024	19/06/2024	19/06/2024
Exchangeable Ca	meq/100g	3.4	66	14
Exchangeable K	meq/100g	0.5	1.0	0.7
Exchangeable Mg	meq/100g	6.9	0.5	7.7
Exchangeable Na	meq/100g	4.3	2.1	4.1
Cation Exchange Capacity	meq/100g	15	70	27

Asbestos ID - materials		
Our Reference		353653-35
Your Reference	UNITS	PACM1
Date Sampled		04/06/2024
Type of sample		Material
Date analysed	-	13/06/2024
Mass / Dimension of Sample	-	57.12g
Sample Description	-	Grey cement material
Asbestos ID in materials	-	No asbestos detected
Trace Analysis	-	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.
ASB-001	Asbestos ID - Identification of asbestos in soil samples using Polarised Light Microscopy and Dispersion Staining Techniques. Minimum 500mL soil sample was analysed as recommended by "National Environment Protection (Assessment of site contamination) Measure, Schedule B1 and "The Guidelines from the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009" with a reporting limit of 0.1g/kg (0.01% w/w) as per Australian Standard AS4964-2004. Results reported denoted with * are outside our scope of NATA accreditation. NOTE#1 Total Asbestos g/kg was analysed and reported as per Australian Standard AS4964 (This is the sum of ACM >7mm, <7mm and FA/AF relative to the sample mass tested) NOTE#2 The screening level of 0.001% w/w asbestos in soil for FA and AF only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres. Estimation = Estimated asbestos weight Results reported with "--" is equivalent to no visible asbestos identified using Polarised Light microscopy and Dispersion Staining Techniques.
Inorg-001	pH - Measured using pH meter and electrode. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Inorg-031	Total Phenolics by segmented flow analyser (in line distillation with colourimetric finish). Solids are extracted in a caustic media prior to analysis.
Metals-020	Determination of various metals by ICP-AES.
Metals-020	Determination of exchangeable cations and cation exchange capacity in soils using 1M Ammonium Chloride exchange and ICP-OES analytical finish.
Metals-021	Determination of Mercury by Cold Vapour AAS.

Method ID	Methodology Summary
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-021/022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD and/or GC-MS/GC-MSMS. 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.
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.

Method ID	Methodology Summary
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. 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-7	353653-5
Date extracted	-			13/06/2024	1	13/06/2024	13/06/2024		13/06/2024	13/06/2024
Date analysed	-			17/06/2024	1	17/06/2024	17/06/2024		17/06/2024	17/06/2024
TRH C_6 - C_9	mg/kg	25	Org-023	<25	1	<25	<25	0	104	108
TRH C_6 - C_{10}	mg/kg	25	Org-023	<25	1	<25	<25	0	104	108
Benzene	mg/kg	0.2	Org-023	<0.2	1	<0.2	<0.2	0	93	97
Toluene	mg/kg	0.5	Org-023	<0.5	1	<0.5	<0.5	0	96	100
Ethylbenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	95	99
m+p-xylene	mg/kg	2	Org-023	<2	1	<2	<2	0	117	122
o-Xylene	mg/kg	1	Org-023	<1	1	<1	<1	0	106	110
Naphthalene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	92	1	89	84	6	91	87

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]	23	13/06/2024	13/06/2024		[NT]	[NT]
Date analysed	-			[NT]	23	17/06/2024	17/06/2024		[NT]	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	23	<25	<25	0	[NT]	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	23	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	23	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	23	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	23	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	23	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	23	<1	<1	0	[NT]	[NT]
Naphthalene	mg/kg	1	Org-023	[NT]	23	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	23	90	89	1	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	353653-5
Date extracted	-			13/06/2024	1	13/06/2024	13/06/2024		13/06/2024	13/06/2024
Date analysed	-			18/06/2024	1	18/06/2024	18/06/2024		18/06/2024	18/06/2024
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	1	<50	<50	0	106	93
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	1	<100	<100	0	100	75
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	1	<100	<100	0	71	#
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	1	<50	<50	0	106	93
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	1	<100	<100	0	100	75
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	1	<100	<100	0	71	#
Surrogate o-Terphenyl	%		Org-020	84	1	80	79	1	87	92

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	23	13/06/2024	13/06/2024		[NT]	[NT]
Date analysed	-			[NT]	23	18/06/2024	18/06/2024		[NT]	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	23	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	23	<100	<100	0	[NT]	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	23	<100	<100	0	[NT]	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	23	<50	<50	0	[NT]	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	23	<100	<100	0	[NT]	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	23	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	23	84	86	2	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	353653-5
Date extracted	-			13/06/2024	1	13/06/2024	13/06/2024		13/06/2024	13/06/2024
Date analysed	-			14/06/2024	1	14/06/2024	14/06/2024		14/06/2024	14/06/2024
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	116	108
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	120	112
Fluorene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	116	108
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	118	108
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	124	111
Pyrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	120	111
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	100	93
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	134	130
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	109	1	106	109	3	104	103

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	[NT]
Date extracted	-			[NT]	23	13/06/2024	13/06/2024		13/06/2024	[NT]
Date analysed	-			[NT]	23	14/06/2024	14/06/2024		14/06/2024	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	111	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	117	[NT]
Fluorene	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	114	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	115	[NT]
Anthracene	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	120	[NT]
Pyrene	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	116	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	99	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	23	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	23	<0.05	<0.05	0	110	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	23	106	103	3	101	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	353653-5
Date extracted	-			13/06/2024	1	13/06/2024	13/06/2024		13/06/2024	13/06/2024
Date analysed	-			14/06/2024	1	14/06/2024	14/06/2024		14/06/2024	14/06/2024
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	122	112
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	124	116
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	116	112
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	124	116
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	136	126
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	120	116
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	130	128
Endrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	136	130
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	138	134
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	140	136
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	104	1	103	106	3	107	103

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	[NT]
Date extracted	-			[NT]	23	13/06/2024	13/06/2024		13/06/2024	[NT]
Date analysed	-			[NT]	23	14/06/2024	14/06/2024		14/06/2024	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	120	[NT]
HCB	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	121	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	114	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	120	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	133	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	118	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	140	[NT]
Endrin	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	131	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	136	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	139	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	23	104	105	1	104	[NT]

QUALITY CONTROL: Organophosphorus Pesticides in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	353653-5
Date extracted	-			13/06/2024	1	13/06/2024	13/06/2024		13/06/2024	13/06/2024
Date analysed	-			14/06/2024	1	14/06/2024	14/06/2024		14/06/2024	14/06/2024
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	134	136
Mevinphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	130	122
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	140	130
Malathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	136	[NT]
Chlorpyriphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	130	128
Fenthion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	130	120
Bromophos-ethyl	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	137	140
Phosalone	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	104	1	103	106	3	107	103

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	[NT]
Date extracted	-			[NT]	23	13/06/2024	13/06/2024		13/06/2024	[NT]
Date analysed	-			[NT]	23	14/06/2024	14/06/2024		14/06/2024	[NT]
Dichlorvos	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	134	[NT]
Mevinphos	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	128	[NT]
Fenitrothion	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	137	[NT]
Malathion	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	136	[NT]
Chlorpyriphos	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	133	[NT]
Fenthion	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	128	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	135	[NT]
Phosalone	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	23	104	105	1	104	[NT]

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	353653-5
Date extracted	-			13/06/2024	1	13/06/2024	13/06/2024		13/06/2024	13/06/2024
Date analysed	-			14/06/2024	1	14/06/2024	14/06/2024		14/06/2024	14/06/2024
Aroclor 1016	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	134	137
Aroclor 1260	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	103	1	102	105	3	104	100

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	[NT]
Date extracted	-			[NT]	23	13/06/2024	13/06/2024		13/06/2024	[NT]
Date analysed	-			[NT]	23	14/06/2024	14/06/2024		14/06/2024	[NT]
Aroclor 1016	mg/kg	0.1	Org-021/022/025	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021/022/025	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021/022/025	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021/022/025	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021/022/025	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021/022/025	[NT]	23	<0.1	<0.1	0	130	[NT]
Aroclor 1260	mg/kg	0.1	Org-021/022/025	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	[NT]	23	101	103	2	101	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	353653-5
Date prepared	-			13/06/2024	1	13/06/2024	13/06/2024		13/06/2024	13/06/2024
Date analysed	-			14/06/2024	1	14/06/2024	14/06/2024		14/06/2024	14/06/2024
Arsenic	mg/kg	4	Metals-020	<4	1	8	8	0	97	90
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	<0.4	<0.4	0	97	86
Chromium	mg/kg	1	Metals-020	<1	1	14	13	7	94	83
Copper	mg/kg	1	Metals-020	<1	1	20	20	0	94	81
Lead	mg/kg	1	Metals-020	<1	1	13	12	8	95	87
Mercury	mg/kg	0.1	Metals-021	<0.1	1	<0.1	<0.1	0	87	89
Nickel	mg/kg	1	Metals-020	<1	1	5	5	0	94	92
Zinc	mg/kg	1	Metals-020	<1	1	26	26	0	93	111

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	[NT]
Date prepared	-			[NT]	23	13/06/2024	13/06/2024		13/06/2024	[NT]
Date analysed	-			[NT]	23	14/06/2024	14/06/2024		14/06/2024	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	23	<4	5	22	96	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	23	<0.4	<0.4	0	96	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	23	5	5	0	97	[NT]
Copper	mg/kg	1	Metals-020	[NT]	23	13	14	7	93	[NT]
Lead	mg/kg	1	Metals-020	[NT]	23	10	10	0	98	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	23	<0.1	<0.1	0	95	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	23	15	19	24	93	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	23	65	76	16	98	[NT]

QUALITY CONTROL: Misc Soil - Inorg					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			13/06/2024	[NT]	[NT]	[NT]	[NT]	13/06/2024	[NT]
Date analysed	-			13/06/2024	[NT]	[NT]	[NT]	[NT]	13/06/2024	[NT]
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	<5	[NT]	[NT]	[NT]	[NT]	99	[NT]

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			12/06/2024	[NT]	[NT]	[NT]	[NT]	12/06/2024	[NT]
Date analysed	-			18/06/2024	[NT]	[NT]	[NT]	[NT]	18/06/2024	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	[NT]	[NT]	[NT]	[NT]	99	[NT]

QUALITY CONTROL: CEC						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	353653-12
Date prepared	-			19/06/2024	1	19/06/2024	19/06/2024		19/06/2024	19/06/2024
Date analysed	-			19/06/2024	1	19/06/2024	19/06/2024		19/06/2024	19/06/2024
Exchangeable Ca	meq/100g	0.1	Metals-020	<0.1	1	3.4	3.4	0	98	#
Exchangeable K	meq/100g	0.1	Metals-020	<0.1	1	0.5	0.6	18	107	90
Exchangeable Mg	meq/100g	0.1	Metals-020	<0.1	1	6.9	7.4	7	97	99
Exchangeable Na	meq/100g	0.1	Metals-020	<0.1	1	4.3	4.4	2	111	98

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.

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

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

TRH Soil C10-C40 NEPM - # Percent recovery for the matrix spike is not possible to report as the high concentration of analytes in sample 353653-5ms have caused interference.

Asbestos-ID in soil: NEPM
This report is consistent with the reporting recommendations in the National Environment Protection (Assessment of Site Contamination) Measure, Schedule B1, May 2013. This is reported outside our scope of NATA accreditation.

Note: All samples analysed as received. However, sample 353653-9 was below the minimum recommended 500mL sample volume as per National Environment Protection (Assessment of Site Contamination) Measure, Schedule B1, May 2013.

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

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

CONTAM

CHAIN OF CUSTODY DESPATCH SHEET

Project No:	226958.00	**Suburb:**	CASULA	**To:**	EnviroLab Services
Project Manager:	GAR	**Order Number:**		**Sampler:**	AS	12 Ashley St, Chatswood NSW 2067
Email:	Grant.Russell@douglaspartners.com.au; Ashika.Perrin@douglaspartners.com.au			**Attn:**	Simon Song
Turnaround time:	☑ Standard ☐ 72 hour ☐ 48 hour ☐ 24 hour ☐ Same day				(02) 9910 6200
Prior Storage	☑ Fridge ☐ Freezer ☐ Esky ☐ Shelf	**Do samples contain 'potential' HBM?**	☐ No	☑ Yes (If YES, handle, transport, store in accordance with FPM HAZID)	

Lab ID	Sample ID: Location / Other ID	Depth From	Depth To	Date Sampled	Sample Type: S - soil W - water M - Material	Container Type: G - glass P - plastic	Analytes: 8 Metals	PAH	TRH & BTEX	OCP	OPP & PCB	Total phenols	Asbestos (NEPM - 500 Ml)	pH & CEC	Asbestos - ID		ON HOLD	Notes/ Preservation/ Additional Requirements
1	BH1/0.5			3.6.24	S	G & P	x	x	x	x	x		x	x				Combo 6AN
2	BH1/1.0			3.6.24	S	G & P											x	hold
3	BH1/2.0			3.6.24	S	G & P											x	hold
4	BH1/2.5			3.6.24	S	G & P											x	hold
5	BH2A/0.5			2.6.24	S	G & P	x	x	x	x	x	x	x					Combo 8AN
6	BH3/0.5			2.6.24	S	G & P	x	x	x	x			x					Combo 11AN
7	BH4/0.5			4.6.24	S	G & P	x	x	x	x			x					Combo 11AN
8	BH4/1.0			4.6.24	S	G & P											x	hold
9	BH5/0.5			2.6.24	S	G & P	x	x	x	x	x		x					Combo 6AN
10	BH6/0.1			5.6.24	S	G & P	x	x	x	x			x					Combo 11AN
11	BH6/0.5			5.6.24	S	G & P											x	hold
12	BH7/0.1			4.6.24	S	G & P	x	x	x	x			x	x				Combo 11AN
13	BH7/0.5			4.6.24	S	G & P											x	hold
14	BH7/1.0			4.6.24	S	G & P											x	hold

ENVIROLAB services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 353655

Metals to analyse:

Number of samples in container:		**Transported to laboratory by:**	
Send results to:	Douglas Partners Pty Ltd		
Address:		**Phone:**	
Relinquished by:	AP	**Date:** 12.6.24	**Signed:**

LAB RECEIPT

Lab Ref. No:	Date Received: 12/6/24
Received by:	Time Received: 1315
Date & Time	Received By: CW
Signed:	Temp: Cool/Ambient
	Cooling: Ice/Icepack
	Security: Intact/Broken/None

Douglas PARTNERS

CHAIN OF CUSTODY DESPATCH SHEET

Project No: 226958.00	**Suburb:** CASULA		**To:** EnviroLab Services
Project Manager: GAR			**Dispatch date:**

Lab ID	Sample ID: Location / Other ID	Depth From	Depth To	Date Sampled	Sample Type: S - soil W - water M -	Container Type: G - glass P - plastic	Analytes: 8 Metals	PAH	TRH & BTEX	OCP	OPP & PCB	Total phenols	Asbestos (NEPM -	pH & CEC	Asbestos - ID		ON HOLD	Notes/ Preservation/ Additional Requirements
15	BH8/0.1			4.6.24	S	G & P	x	x	x	x	x		x					Combo 6AN
16	BH8/0.5			4.6.24	S	G & P			-								x	hold
17	BH8/1.0			4.6.24	S	G & P											x	hold
18	BH9/0.1			5.6.24	S	G & P	x	x	x	x	x		x					Combo 6AN
19	BH9/0.5			5.6.24	S	G & P											x	hold
20	BH9/1.0			5.6.24	S	G & P											x	hold
21	BH10/0.1			3.6.24	S	G & P	x	x	x	x	x		x					Combo 6AN
22	BH10/0.5			3.6.24	S	G & P											x	hold
23	BH11/0.1			6.6.24	S	G & P	x	x	x	x	x	x	x					Combo 8AN
24	BH12/0.1			5.6.24	S	G & P	x	x	x	x			x					Combo 11AN
25	BH12/0.5			5.6.24	S	G & P											x	hold
26	BH13/0.1			5.6.24	S	G & P	x	x	x	x	x		x	x				Combo 6AN
27	BH13/0.5			5.6.24	S	G & P											x	hold
28	BH14A/0.5			3.6.24	S	G & P	x	x	x	x	x		x					Combo 6AN
29	BH15/0.5			2.6.24	S	G & P	x	x	x	x	x		x					Combo 6AN
30	BH15/1.0			2.6.24	S	G & P											x	hold
31	FD-1			2.6.24	S	G	x	x	x									Combo 3
32	FD-2			4.6.24	S	G	x	x	x									Combo 3

#353653

Douglas PARTNERS

CHAIN OF CUSTODY DESPATCH SHEET

Project No: 226958.00	**Suburb:** CASULA		**To:** EnviroLab Services
Project Manager: GAR			**Dispatch date:**

Lab ID	Sample ID: Location / Other ID	Sample ID: Depth From	Sample ID: Depth To	Date Sampled	Sample Type: S - soil W - water M -	Container Type: G - glass P - plastic	Analytes: 8 Metals	PAH	TRH & BTEX	OCP	OPP & PCB	Total phenols	Asbestos (NEPM -	pH & CEC	Asbestos - ID		ON HOLD	Notes/ Preservation/ Additional Requirements
33	TS				S	G			x									
34	TB				S	G			x									
35	PACM1				M	P									x			

353653

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	Douglas Partners Pty Ltd
Attention	Grant Russell

Sample Login Details

Your reference	226958.00 Casula
Envirolab Reference	353653
Date Sample Received	12/06/2024
Date Instructions Received	12/06/2024
Date Results Expected to be Reported	19/06/2024

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	34 Soil, 1 Material
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	11
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

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

Analysis Underway, details on the following page:

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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBs in Soil	Acid Extractable metalsin soil	Misc Soil - Inorg	Asbestos ID - soils NEPM	Misc Inorg - Soil	CEC	Asbestos ID - materials	On Hold
BH1/0.5	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓		
BH1/1													✓
BH1/2													✓
BH1/2.5													✓
BH2A/0.5	✓	✓	✓	✓	✓	✓	✓	✓	✓				
BH3/0.5	✓	✓	✓	✓			✓		✓				
BH4/0.5	✓	✓	✓	✓			✓		✓				
BH4/1													✓
BH5/0.5	✓	✓	✓	✓	✓	✓	✓		✓				
BH6/0.1	✓	✓	✓	✓			✓		✓				
BH6/0.5													✓
BH7/0.1	✓	✓	✓	✓			✓		✓	✓	✓		
BH7/0.5													✓
BH7/1													✓
BH8/0.1	✓	✓	✓	✓	✓	✓	✓		✓				
BH8/0.5													✓
BH8/1													✓
BH9/0.1	✓	✓	✓	✓	✓	✓	✓		✓				
BH9/0.5													✓
BH9/1													✓
BH10/0.1	✓	✓	✓	✓	✓	✓	✓		✓				
BH10/0.5													✓
BH11/0.1	✓	✓	✓	✓	✓	✓	✓	✓	✓				
BH12/0.1	✓	✓	✓	✓			✓		✓				
BH12/0.5													✓
BH13/0.1	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓		
BH13/0.5													✓
BH14A/0.5	✓	✓	✓	✓	✓	✓	✓		✓				
BH15/0.5	✓	✓	✓	✓	✓	✓	✓		✓				
BH15/1													✓
FD-1	✓	✓	✓				✓						
FD-2	✓	✓	✓				✓						

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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBs in Soil	Acid Extractable metalsin soil	Misc Soil - Inorg	Asbestos ID - soils NEPM	Misc Inorg - Soil	CEC	Asbestos ID - materials	On Hold
TS	✓												
TB	✓												
PACM1												✓	

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

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.
TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

Appendix K

Data Quality Assurance and Quality Control

1. Field and Laboratory Data Quality Assurance and Quality Control

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

Table 1: Field and laboratory quality control

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

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

The RPD results were all within the acceptable range, with the exception of those indicated in Table QA1 (results in bold). The exceedances are not, however, considered to be of concern given that:

- The actual differences in the concentrations of the replicate pairs where RPD exceedances occurred were typically low;
- The replicate pairs were collected from fill soils which by its nature are heterogeneous;
- Replicates, rather than homogenised duplicates, were used to minimise risk of volatile loss, hence greater analytical variability between replicate pairs can be expected;
- Most of the recorded concentrations were relatively close to the PQL;

- The majority of RPD results from a replicate pair were within the acceptable limits; and
- All other QA/QC parameters met the data quality indicators.

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

2. Data Quality Indicators

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

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

Table 2: Data quality indicators

Data quality indicator	Method(s) of achievement
Completeness	Systematic and selected target locations sampled.
	Preparation of borehole logs, sample location plan and chain of custody records.
	Laboratory sample receipt information received confirming receipt of samples intact and appropriateness of the chain of custody.
	Samples analysed for contaminants of potential concern (COPC) identified in the conceptual site model (CSM).
	Completion of chain of custody (COC) documentation.
	NATA accredited laboratory results certificates provided by the laboratory.
	Satisfactory frequency and results for field and laboratory quality control (QC) samples as discussed in Section 1.
Comparability	Using appropriate techniques for sample recovery, storage and transportation, which were the same for the duration of the project.
	Experienced sampler(s) used.
	Use of NATA registered laboratories, with test methods the same or similar between laboratories.
	Satisfactory results for field and laboratory QC samples.

Data quality indicator	Method(s) of achievement
Representativeness	Target media sampled.
	Sample numbers recovered and analysed are considered to be representative of the target media and complying with DQO.
	Samples were extracted and analysed within holding times.
	Samples were analysed in accordance with the COC.
Precision	Field staff followed standard operating procedures.
	Acceptable RPD between original samples and replicates.
	Satisfactory results for all other field and laboratory QC samples.
Accuracy	Field staff followed standard operating procedures.
	Satisfactory results for all field and laboratory QC samples.

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

3. Conclusion

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

4. References

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

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Table QA1: Relative Percentage Difference Results – Soil Sampling

Lab Report No	Sample ID	Depth	Sample Date	Sample Type	Units	Priority metals								Priority PAH				PAH												
						Total Arsenic	Cadmium	Total Chromium	Copper	Lead	Mercury (inorganic)	Nickel	Zinc	Naphthalene [b]	Benzo(a)pyrene (B(a)P)	Benzo(a)pyrene TEQ (B(a)P TEQ)	Total PAH	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(g,h,i)perylene	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene
353653	BH4/0.5	0 m	04/06/24	Soil	mg/kg	<4	<0.4	**13**	**40**	**12**	<0.1	**12**	**39**	<1	**0.1**	<0.5	**0.52**	<0.1	<0.1	<0.1	<0.1	<0.1	**0.1**	<0.1	**0.1**	<0.1	<0.1	<0.1	**0.1**
353653	FD-2	0 m	04/06/24	Soil	mg/kg	**5**	<0.4	**10**	**44**	**15**	<0.1	**11**	**43**	<1	**0.06**	<0.5	**0.4**	<0.1	<0.1	<0.1	<0.1	<0.1	**0.2**	<0.1	**0.1**	<0.1	<0.1	<0.1	**0.1**
			Difference		mg/kg	1	0	3	4	3	0	1	4	0	0.04	0	0.12	0	0	0	0	0	0.1	0	0	0	0	0	0
			RPD		%	22%	0%	26%	10%	22%	0%	9%	10%	0%	**50%**	0%	26%	0%	0%	0%	0%	0%	**67%**	0%	0%	0%	0%	0%	0%
353653	BH15/0.5	0 m	02/06/24	Soil	mg/kg	<4	<0.4	**16**	**23**	**17**	**0.2**	**12**	**77**	<1	**0.3**	<0.5	**2.5**	<0.1	<0.1	<0.1	**0.3**	**0.1**	**0.2**	<0.1	**0.4**	<0.1	**0.1**	**0.1**	**0.5**
353653	FD-1	0 m	02/06/24	Soil	mg/kg	**8**	<0.4	**4**	**16**	**7**	<0.1	**2**	**21**	<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	<0.1	<0.1
			Difference		mg/kg	4	0	12	7	10	0.1	10	56	0	0.25	0	2.45	0	0	0	0.2	0	0.1	0	0.3	0	0	0	0.4
			RPD		%	**67%**	0%	**120%**	**36%**	**83%**	**67%**	**143%**	**114%**	0%	**143%**	0%	**192%**	0%	0%	0%	**100%**	0%	**67%**	0%	**120%**	0%	0%	0%	**133%**

Douglas PARTNERS

Table QA1: Relative Percentage Difference Results –

Lab Report No	Sample ID	Depth	Sample Date	Sample Type	Units	Priority TRH						TRH		BTEX				Additional PhysChem
						TRH C6 - C10	TRH >C10-C16	F1 ((C6-C10)-BTEX)	F2 (>C10-C16 less Naphthalene)	F3 (>C16-C34)	F4 (>C34-C40)	TRH C6 - C9	TRH C10-C36	Benzene	Toluene	Ethylbenzene	Total Xylenes	Moisture
353653	BH4/0.5	0 m	04/06/24	Soil	mg/kg	<25	<50	<25	<50	**260**	**160**	<25	**320**	<0.2	<0.5	<1	<1	**130,000**
353653	FD-2	0 m	04/06/24	Soil	mg/kg	<25	<50	<25	<50	**190**	**130**	<25	**140**	<0.2	<0.5	<1	<1	**150,000**
			Difference		mg/kg	0	0	0	0	70	30	0	180	0	0	0	0	20,000
			RPD		%	0%	0%	0%	0%	**31%**	21%	0%	**78%**	0%	0%	0%	0%	14%
353653	BH15/0.5	0 m	02/06/24	Soil	mg/kg	<25	<50	<25	<50	**160**	**130**	<25	**210**	<0.2	<0.5	<1	<1	**130,000**
353653	FD-1	0 m	02/06/24	Soil	mg/kg	<25	<50	<25	<50	<100	<100	<25	<50	<0.2	<0.5	<1	<1	**170,000**
			Difference		mg/kg	0	0	0	0	60	30	0	160	0	0	0	0	40,000
			RPD		%	0%	0%	0%	0%	**46%**	26%	0%	**123%**	0%	0%	0%	0%	27%

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Table QA2: Trip Blank Results - Soil Sampling

Sample ID	Sample Date	Media Being Sampled	Sample Type	Units	Priority PAH	Priority TRH		TRH	BTEX				Lab Report No
					Naphthalene [b]	TRH C6 - C10	F1 ((C6-C10)-BTEX)	TRH C6 - C9	Benzene	Toluene	Ethylbenzene	Total Xylenes	
TB	04/06/24	Soil	Soil	mg/kg	<1	<25	<25	<25	<0.2	<0.5	<1	<1	353653

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Table QA3: Trip Spike Results – Soil Sampling (% Recovery)

Sample ID	Sample Date	Media Being Sampled	Sample Type	Benzene	Toluene	Ethylbenzene	o-Xylene	m+p-Xylene	Lab Report No
TS	04/06/24	Soil	Soil	102	102	103	103	104	353653