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Project 71645.13
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KDP:mm

Attention: Mr Robert Lewis

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Dear Sirs

Contamination Synthesis Report
Stage 1B & Stage 2 Marrickville Metro Shopping Centre
Smidmore Street, Marrickville

1. Introduction

This Contamination Synthesis Report is prepared on behalf of Marrickville Metro Pty Limited as trustee of the Marrickville Metro Trust (the Owner) and AMP Capital Investors Limited (AMP Capital) in support of a Section 75W Modification Application of the Major Project Approval MP09_0191, for the expansion of the Marrickville Metro Shopping Centre (the site). This report presents a summary of the previous contamination investigations undertaken by Douglas Partners Pty Ltd (DP) as they relate to the proposed Stage 1B and Stage 2 redevelopment works (Major Project).

The Major Project was granted approval by the Minister of Planning on 19 March 2012 for the carrying out of the following development:

- Demolition of existing warehouse buildings and associated structures on the Edinburgh Road site;
- Refurbishments and construction of a first-floor addition to the existing retail building on the Victoria Road site and the construction of a new building with two levels of retail on Edinburgh Road site comprising:
- A discount department store (5,000 sqm), supermarket (4,500 sqm), mini-major (1,791 sqm) and speciality retail (4,464sqm) [as amended];
- An additional 21,780 sqm GFA (16,767sqm GLFA) to provide a total of 50,705 sqm GFA (39,700 sqm GLFA); and
- Authorise the use of 1606 car parking spaces comprising 1100 existing spaces and 506 additional car parking spaces [as amended].

The content of this report responds to the Secretary's Environmental Assessment Requirements (SEARs), and is intended to assist with the assessment of the modification proposal against the relevant considerations under of the Environmental Planning and Assessment Act 1979 (EP&A Act).

Stage 1B comprises the new building on the Edinburgh Road site (currently owned by the Owner), which will become an extension of the existing Marrickville Metro Shopping Centre to the south, and alterations to the portion of the existing building on or near Smidmore Street, as this area has a physical relationship with and provides the pedestrian connection to the new shopping centre extension. Stage 2 continues to be the balance of the work proposed for the redevelopment of the existing shopping centre building, including an additional retail floor at first floor level and additional rooftop car parking.

The objective of this report is to inform the reader of the extent of contamination investigations undertaken by DP in Stages 1B and 2, the risks posed by identified contamination, and the proposed management strategy to mitigate those risks.

2. Proposed Development

The general layout of the proposed development (Stages 1B and 2) is shown on Drawing EA106, Attachment 2.

AMP Capital is the manager of the Shopping Centre and 13-55 Edinburgh Road on behalf of the Owners.

Smidmore Street which bisects the two properties, is a public road vested in Inner West Council as the local road authority. The reason that this land forms part of the proposal as there proposed modifications to the road layout and street activation, whilst a new pedestrian bridge is proposed to span the road to connect the two parts of the shopping centre.

The proposed modifications to the original development application (subject of the Section 75W Modification Application) will comprise the following:

- A revised retail layout within the new shopping centre building proposed under Stage 1B (Edinburgh Road site), including amended travellator locations, new food and beverage uses at ground level, reconfigured shop units and alterations to the upper floor parking layout;
- Alterations to the building façade on Smidmore Street, amendments to materials used in elevations and minor increase in height of the new shopping centre building to facilitate upper floor parking, along with rooftop plant and equipment;
- Extending operating hours for a limited number of shops on the ground floor to encourage night time activation for the food and beverage shops;
- Erection of a new pedestrian bridge linking Level one of the new shopping centre building to the existing shopping centre;
- An amended road alignment and modification to the vehicular route on Smidmore Street to implement a new one-way access off Murray Street;
- Introduction of a right-hand entry into the new building from Edinburgh Road;

- Redistribution of car space provisions across the development without increasing the overall permitted car parking numbers;
- Introduction of paid parking across the site;
- Redistribution of the GFA across the site without increasing the overall permitted GFA; and
- Introduction of signage / signage zones on the development along with a potential zone for mural(s) on the frontage.

3. Site Description

The site subject to this modification application comprises three principal land parcels:

1. Marrickville Metro Shopping Centre located at 34 Victoria Road, Marrickville. This land has an area of approximately 3.57 hectares (Lot 100 DP 715231).
2. 13-55 Edinburgh Road, which has an area of approximately 8,800sqm and is located to the south of Marrickville Metro, with frontages to Smidmore Street, Murray Street and Edinburgh Road. An industrial warehouse development currently occupies this land and this is the site of the approved shopping centre expansion (Lot 1 DP 612551).
3. The section of Smidmore Street immediately to the south of Marrickville Metro, between Murray Street to the east and Edinburgh Road to the west. This is located between the existing shopping centre and the expansion site.

The three areas noted above are shown on Drawing 1, Attachment 2.

Marrickville Metro is a subregional shopping centre, approximately 7 km from the Sydney CBD. The shopping centre consists of the major tenants of Kmart, Woolworths and Aldi and a range of speciality stores. The shopping centre is the largest retail shopping centre in the local region and attracts in the order of five million visitations per annum.

The current shopping centre is a substantially enclosed and internalised with pedestrian entries from Victoria Road to the north and Smidmore Street to the south. Pedestrian access is also provided from the rooftop car parking areas down into the centre. Existing open loading dock areas exist along the frontage of Murray Street and from Smidmore Street. Two vehicle access ramps accessed off Smidmore and Murray Street provide car access to the roof top parking.

Located on site adjoining the shopping centre is the “Mill House”, which is a listed heritage item and currently used as the Centre Management Office. In addition, remnants of the ‘Old Vickers Mill’ façade remain along the Victoria Road frontage of the site.

The industrial property at 13 – 55 Edinburgh Road comprises two warehouse buildings, including a packaging company, and party warehouse supplies. A main parking area is located to the west of the buildings. The site is covered by building footprints, concrete paving and concrete building slabs with minimal landscaping along the site boundary. An old underground storage tank (UST) fill point is

located on the footpath of Murray Street, at the eastern boundary of the area, which appears to have been filled with concrete. It is thought that the fuel point has previously been connected to a UST located inside the warehouse. The tank is thought to have been decommissioned and either buried below the existing concrete floor or been removed off site. A culvert is located beneath the warehouse building, thought to extend to the Cooks River. The culvert runs in from the north eastern to south western corners of the property.

4. Previous Reports

DP has undertaken a number of investigations at the site, with the subsequent reports (in relation to know or potential contamination) listed as follows:

- *Report on Stage 1 Contamination Assessment, Marrickville Metro Shopping Centre, 34 Victoria Road and 13 – 55 Edinburgh Road, Marrickville*. November 2010 (Project 71645 Rev 1) [DP, 2010a];
- *Report on Limited Stage 2 Contamination Assessment, Marrickville Metro Shopping Centre, 34 Victoria Road and 13 – 55 Edinburgh Road, Marrickville.* November 2010 (Project 71645 Rev 1) [DP, 2010b];
- *Report on Detailed Site Investigation, Stage 1A – Marrickville Metro, 34 Victoria Road and 13 – 55 Edinburgh Road, Marrickville NSW*. November 2015 (Project 71645.02) [DP, 2015];
- Report 71645.03.R.002. *Indoor Air and Sewer Investigation, Marrickville Metro Shopping Centre,* dated 11 November 2015 (DP 2015a);
- Report 71645.03.R.001, *Supplementary Indoor Air and Sewer Investigation, Marrickville Metro Shopping Centre* dated 3 December 2015 (DP 2015b);
- Report 71645.03.R.002. *Report on Soil Vapour Investigation, Marrickville Metro Shopping Centre*, dated 18 February 2016 (DP 2016a);
- Report 71645.03.R.002. *Report on Soil Vapour and Groundwater Investigation, Dry Cleaner Marrickville Metro Shopping Centre*, dated 15 March 2016 (DP 2016b);
- Report 71645.04.R.001. *Report on Environmental Management Plan, Dry Cleaner & Loading Dock, Marrickville Metro Shopping Centre, Smidmore Street, Marrickville*, June 2016 (EMP);
- Report 71645.04.R002. *Report on July 2016 Environmental Monitoring, Marrickville Metro Shopping Centre, Smidmore Street, Marrickville*, dated August 2016 (DP 2016c);
- Report 71645.06.R001. *Report on October 2016 Environmental Monitoring, Marrickville Metro Shopping Centre, Smidmore Street, Marrickville*, dated August 2016 (DP 2016d);
- Report 71645.08.R001. *Report on January 2017 Environmental Monitoring, Marrickville Metro Shopping Centre, Smidmore Street, Marrickville*, dated February 2017 (DP 2017a);
- Report 71645.10.R01. *Report on April 2017 Environmental Monitoring, Marrickville Metro Shopping Centre, Smidmore Street, Marrickville*, dated May 2017 (DP 2017b);

- Report 71645.11.R001.Rev0. *Former Dry Cleaner Surface Swab Test Report No 2, Marrickville Metro Shopping Centre* dated 25 July 2017 (DP 2017c); and
- Report 71645.11.R.002. *Report on July 2017 Environmental Monitoring, Marrickville Metro Shopping Centre, Smidmore Street, Marrickville* dated 21 August 2017 (DP 2017d).

A synopsis of the results and recommendations of the previous investigations is presented in Section 8 of this report.

5. Site History

The Stage 1 assessment (DP, 2010a) was prepared for the whole of the proposed development of Marrickville Metro and included a site walkover, a review of site history and a groundwater bore search. Pertinent outcomes were as follows:

- Based on the historical title deeds, it appears that most of the northern section of the site had residential use prior to 1942 when it was purchased by John Vicars & Co, Wool Manufacturers. This section of the site was owned by G J Coles & Coy Limited in the period between 1984 and 1986. Subsequently it was owned by Pedome Pty Ltd (1986-1997) and DeVillesta Pty Ltd (1997-2004). AMP Marrickville Pty Ltd purchased the site in 2004;
- The south-western corner of the site was owned by the wool manufacturing company prior to 1927 when it became a sub-station and property of The Municipal Council of Sydney (now Energy Australia);
- The majority of the western section of 13-55 Edinburgh Road, Marrickville was used mainly for residential purposes from at least 1908 (the year of the records obtained) to 1957. The site was owned by Perpetual Trustee Company (Limited) from 1957 to 1965 with most probably a commercial land use (Perpetual Trustee Company is a financial services company). This section of the site was occupied by Marrickville Margarine Pty Ltd (1965 -1971) most likely for the production of margarine. Subsequently it was owned by Associated Products & Distribution (1971-1980) and Leda Holdings (1980 -1989) when it was used for commercial purposes (Leda Holdings is a property development company);
- Most of the eastern section of 13-55 Edinburgh Road was used mainly for residential purposes from at least 1914 (the start year for the records obtained) to 1934. This section of the site was most probably used for cordial production (owned by Shelley & Sons Cordial Factory Limited) from 1934 to 1980. Leda Holdings Pty Ltd owned this section of the site in the period between 1980 and 1989 (most likely as a commercial land use);
- The current proprietor of the site (Marrickville Metro Pty Limited) purchased the site in 2004;
- The cottage at the northern end of the site (referred as the 'Mill House') was built between July and November 1839. In July 1863 the property was purchased by Robert Koll who set up a tannery on the site. In 1893 the property was forfeited to the London Chartered Bank and was purchased by John Vicars & Co, Wool Manufacturers. A number of large warehouses and smaller industrial and storage buildings were constructed in the period between 1895 and the factory closure in 1978. A building associated with wool scouring and carbonising was apparently

situated at the north-western portion of the site adjacent to the 'Mill House'. G J Coles & Co Limited purchased the property in June 1982. Subsequently the Marrickville Shopping Centre was constructed on the northern section of the site. The 'Mill House' was given protection in 1980 under Section 130 of the NSW Heritage Act 1977. The 'Mill House' was refurbished again in 2006 and is currently used as the Centre Management offices;

- Numerous development applications were noted from 1987 onwards relating to the individual retail outlets at the shopping centre. Those indicate potentially contamination activities are summarised below:
  - Kmart outlet at Shop M1, including garden shop, restaurant, auto car repair and associated amenities, staff office and preparation area (DA215D/1986);
  - Film and photograph processing outlet at Shop 63 from 1987 to 1990 (DA562/1987 and DA497/1990);
  - Dry cleaning tenancy at Shop 3B from 1992 to mid-2017 (DA208/1992); and
  - Valet car wash at roof top car parking (DA634/1995).

Apart from the Kmart outlet, the other outlets have since ceased operation.

- Potentially contaminating activities identified within the proposed development area included the auto repair service (Kmart Oil) on the eastern portion of Marrickville Metro and the former dry cleaner located near the Smidmore Street entrance to the centre. The primary contaminants of concern related to the dry cleaner tenancy included tetrachloroethene (PCE) and its breakdown products trichloroethene (TCE), dichloroethene (DCE, various isomers) and vinyl chloride (VC);
- Three USTs were formerly located on the southern portion of the proposed development area (Edinburgh Road property), but were since decommissioned. A disused fuel point was noted on the footpath of Murray Street, possibly associated with a UST in the eastern portion of the warehouse; and
- An electricity sub-station was noted at the corner of Smidmore and Murray Streets, known to be constructed in 2006. There may have been an electricity sub-station on this part of the proposed development area prior to 2006 and as such PCBs may be present.

Intrusive investigations were undertaken to assess the existence of and risks associated with the potential contamination sources identified in the report. These are discussed in Section 8.

6. Geology and Hydrogeology

Reference to the Sydney 1:100,000 Series Landscape Sheet indicates that the site is underlain by soil of the Blacktown landscape area which typically comprises highly plastic and relatively impermeable residual soils. The mapping also suggests that the south-western portion of Marrickville Metro may be underlain by deep podzolic alluvial soils.

Reference to the Sydney 1:100,000 Geology Series Sheet indicates that the site is located on Triassic aged shale of the Wianamatta Group, comprising black to dark grey shale and laminite. The south western portion of the site may be underlain by Quaternary aged alluvial and estuarine sediments.

The mapped geology was generally confirmed by the test bores undertaken at the site as part of the investigations by DP. The bores generally encountered filling and soil to a depth of (typically) 5 m to 9 m below ground level (bgl) over a deeply weathered rock sequence. Filling and stiff to very stiff clay were initially encountered overlying hard shaly clay, extremely low and very low strength siltstone, low to medium strength laminite and then medium strength laminite. The levels of and depths to the interfaces between the different strata varied. Test bore logs from some of the previous investigations are provided in Attachment 3. The locations of previous test bores are shown on Drawings 2 and 3, Attachment 2.

Groundwater levels measured in groundwater monitoring wells installed at the site by DP varied typically between (approx.) 2 m to 4 m bgl. Based on the measured groundwater levels the inferred direction of groundwater flow below the shopping centre is to the south shifting to the south east below the Edinburgh Road site. The Groundwater Contour Plan is presented in Drawing 5, Attachment 2.

Groundwater is perched in the clays and shaley clays. A secondary groundwater seepage zone is present in the underlying fractured siltstone and laminite along joints and fractures in the bedrock.

7. Guidelines

The following guidelines were referenced in the previous investigations.

Soil Testing / Soil Vapour Testing

- *National Environment Protection (Assessment of Site Contamination) Measure 1999* (Amended 2013, published by National Environmental Protection Council (2013), (NEPC 2013).

Indoor Air Testing

- The Hazardous Substances Information System (HSIS), available on the Safe Work Australia web site, was used to develop screening levels. The HSIS is an internet resource that allows you to find information on substances that have been classified in accordance with the *Approved Criteria for Classifying Hazardous Substances* [NOHSC:1008(2004] *3rd Edition* and/or have National Exposure Standards declared under the *Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment* [NOHSC:1003(1995)]; and
- Air Quality Guidelines for Europe Second Edition 2000. World Health Organization Regional Office for Europe, Copenhagen (WHO 2000).

Groundwater Testing

- *National Environment Protection (Assessment of Site Contamination) Measure 1999* (Amended 2013, published by National Environmental Protection Council (2013), (NEPC 2013);

- Australian Water Quality Guidelines 2000 (AWQG);
- Australian Drinking Water Guidelines 2011 (ADWG); and
- National water quality management strategy. Australia and New Zealand Guidelines for Fresh and Marine Water Quality 2000 (ANZECC and ARMCANZ).

Where appropriate the guidelines for commercial / industrial land use were applied. Details of the rationale are provided in the previous reports listed in Section 4. The relevant guideline concentrations are provided in the attached results tables in Attachment 4.

8. Results of Previous Investigations

8.1 Southern End of Marrickville Metro

The southern end of the Marrickville Metro Shopping Centre incorporates the former dry cleaner tenancy and adjoining loading dock (refer Drawing 4, Attachment 2). Whilst the initial investigations were intended to broadly assess any contamination issues associated with the whole of the southern end of the shopping centre and the proposed minor redevelopment works (i.e. borehole BH4, BH106, BH107, and BH108; Drawing 2), subsequent investigations targeted the contamination identified in the vicinity of the former dry cleaner tenancy and adjacent loading dock, with the following sampling locations (refer to Drawing 2):

- Groundwater monitoring wells BH4 (already installed), BH106 (already installed) and BH118;
- Soil vapour wells SV1 to SV5; and
- Indoor air sampling locations A1 to A4.

Subsequent to the installations noted above, periodic monitoring of groundwater, soil vapour and indoor ambient air was undertaken between July 2016 and July 2017.

8.1.1 Soil Testing

A limited programme of soil testing has been undertaken in Stage 1B. Soil samples were tested for heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc), total recoverable hydrocarbons (TRH), monocyclic aromatic hydrocarbons (BTEX: benzene, ethylbenzene, toluene, total xylene), polycyclic aromatic hydrocarbons (PAH), total phenols, volatile organic compounds (VOC), polychlorinated biphenyls (PCB), organochlorine pesticides (OCP), organophosphorus pesticides (OPP), and asbestos in soil. The results are presented on Table 1, Attachment 4.

The concentrations of the contaminants analysed were within the adopted health investigation and screening levels, suggesting a low risk to human health. There were reported environmental investigation and screening level exceedances as follows:

- The benzo(a)pyrene environmental screening level (ESL) of 1.4 mg/kg was exceeded at location BH106/1.0-1.1 m.

The reported ESL exceedance was not considered to be significant given the nature of the proposed development (i.e. commercial) with full hardstand.

A trace level of PCE was detected in the soil test bore in the loading dock (bore BH106) at a depth of 1 to 1.1 m bgl. The concentration detected was 1 mg/kg. While this confirms the presence of PCE in soil in the loading dock it is unlikely that this the maximum concentration present in soil in the vicinity of the former dry cleaner tenancy and loading dock. Based on the groundwater and soil vapour testing it is inferred that elevated concentration of PCE would be present in soil below the former dry cleaner, presumably in close proximity to the PVC sewer pipes located below the tenancy.

8.1.2 Groundwater Testing

Several rounds of groundwater testing have been undertaken in the loading dock (Bores BH106 and BH4) and in one groundwater well on the southern side of Smidmore Street (BH118) which was installed to assess the potential for the identified groundwater contaminant plume to migrate off-site in the direction of groundwater flow.

The primary focus of the groundwater testing was to assess the concentration of PCE and its breakdown products (DCE, TCE and VC) in groundwater. The test results are presented on Table 2, Attachment 4. The results of the course of the monitoring period, to July 2017, indicate the following:

- The PCE concentration in BH106 (5 m deep borehole installed into clay in the loading dock) ranged between 1700 to 3900 µg/L which was consistently above the guideline level of 70 µg/L. There was no significant variation in the PCE concentration during the course of the monitoring programme. The concentrations of the breakdown/daughter products TCE, DCE, and VC were only present at trace levels indicating the degree of natural attenuation by reductive dechlorination that has occurred is minimal;
- The PCE concentration in BH4 (11 m deep borehole installed into siltstone in the loading dock) had a PCE concentration that ranged from 1.5 to 7 µg/L. The results indicate that the vertical migration of the contaminated groundwater plume into the underlying siltstone (deeper aquifer) was minimal and that the plume is largely confined to the perched water table (shallow aquifer) in the overlying clay; and
- The PCE concentration in BH118 (located on the southern side of Smidmore Street) was below the laboratory detection in all the monitoring rounds indicating that the contaminated groundwater plume has not expanded to the southern side of Smidmore Street.

It is also noted that a number of the samples also had heavy metals concentrations that exceeded the adopted investigation levels. The elevated metals concentrations were considered to be a regional rather than site specific issue and were therefore not considered to be significant.

Groundwater testing at the site has also included assessment for the potential for natural attenuation of the groundwater plume via deduction dechlorination. The results have indicated that the potential for significant reductive dechlorination at the site is limited.

8.1.3 Soil Vapour Testing

Several rounds of soil vapour testing have been undertaken in at five locations, SV1 (located on the southern side of Smidmore Street), SV2 to SV4 (located in the loading dock) and SV5 (located in the shopping centre). The results are presented in Table 3, Attachment 4. The results of soil vapour monitoring are summarised below:

- The concentration of PCE in SV1 ranged between 51 and 90 µg/m^3 (which was well below the assessment criteria of 8000 µg/m^3). The concentrations of breakdown products (TCE, DCE and VC) were also well below the adopted guidelines;
- The concentration of PCE in SV2 ranged between 270,000 and 12,000,000 µg/m^3 (which was well in excess of assessment criteria of 8000 µg/m^3). The concentration of TCE ranged between 250 µg/m^3 and 1,100 µg/m^3 (in excess of the adopted guideline, 80 µg/m^3). Other breakdown products were below the adopted assessment criteria;
- The concentration of PCE in SV3 ranged between 6,200 and 390,000 µg/m^3 (which exceeded the assessment criteria of 8000 µg/m^3 in five of the six monitoring events). The concentration of TCE ranged between <75 µg/m^3 and 270 µg/m^3 (in excess of the adopted guideline, 80 µg/m^3 in four of the six monitoring rounds). Other breakdown products were below the adopted assessment criteria with the exception of Cis, 1,2 DCE in December 2015 monitoring round (730 µg/m^3 which exceeded the assessment criteria of 300 µg/m^3);
- The concentration of PCE in SV4 ranged between 3,800 and 24,000 µg/m^3 (which exceeded the assessment criteria of 8000 µg/m^3 in one of the six monitoring rounds). The concentration of TCE ranged between 97 µg/m^3 and 200 µg/m^3 (in excess of the adopted guideline, 80 µg/m^3). Other breakdown products were below the adopted assessment criteria; and
- The concentration of PCE in SV5 ranged between 80 and 470 µg/m^3 (which was well below the assessment criteria of 8000 µg/m^3). The concentrations of breakdown products (TCE, DCE and VC) were also well below the adopted guidelines.

Based on the results of the soil vapour testing it is considered that there is a potential risk of vapour intrusion into the former dry cleaner tenancy. Therefore a human health risk assessment will be undertaken to assess any current exposure risks and to determine appropriate site specific targets for any monitoring (or remediation) works proposed.

8.1.4 Indoor Air Testing

Indoor air testing has been undertaken at the centre in four locations (A1 to A4, refer to Drawing 2). The results are presented in Table 4, Attachment 4.

Elevated concentrations of PCE were detected in ambient air within the former dry-cleaner, particularly while the dry cleaner still occupied the tenancy (refer to Table 4).

Following the end of the lease the dry cleaner vacated the tenancy and the concentration of PCE in the former dry-cleaner had significantly reduced (a greater than 90% reduction), however the concentration persisted at a level that marginally exceeds the WHO (2000) screening levels (i.e. concentrations of 0.53 to 0.81 mg/m^3 compared to the screening level of 0.3 mg/m^3). It has been

recommended that further works (sealing any intrusions in the floor) be undertaken with the aim of reducing the indoor air levels of PCE to a level that is less than the WHO (2000) screening levels unless otherwise indicated by a site specific risk assessment. These works have since been completed and a follow up round of indoor air monitoring has been scheduled as part of additional investigations to assess its effectiveness.

Low levels of PCE were detected in indoor air in the shopping centre (samples A2, A3 and A4) during and immediately following the operation of the dry-cleaner at the site. The concentration of PCE in all three test locations within the shopping centre were below detection in the most recent monitoring round (July 2017), suggesting that the previous detections in these locations were likely the result of re-circulation of air from the dry-cleaner tenancy via the air conditioning system into the centre, and not vapour intrusion.

8.1.5 Swab Testing

Surface swab testing at the dry cleaner was undertaken in three stages to identify the mode of contaminant release and the presence or otherwise of residual PCE on the surfaces within the dry cleaner.

The first round of testing including swab tests from the internal pipework and the PVC sewer pipes running below the dry cleaner. The results, presented in Table 5, Attachment 4, confirmed that the mode of release was from improper disposal of spent dry-cleaning fluid into the sewer and subsequent leaking from these pipes.

The second and third rounds of swab testing were undertaken to determine if residual PCE was present on the surface (walls, ceiling and floor) of the tenancy following the dry cleaner vacating the premises. The results are also presented on Table 5, Attachment 4. Trace levels were detected in the initial (second) round of testing, however following professional cleaning of the surfaces PCE was below detection limits. The broader aim of this testing was to determine if persistent low levels of PCE detected in air in the former dry-cleaner tenancy are the result of vapour intrusions. Further works have since been undertaken seal the former floor intrusions (sewer pipes etc.). A follow up round on indoor air testing is scheduled to be undertaken to further assess the current risk of vapour intrusion following on from these works.

8.1.6 Trend Analysis

A further assessment of the PCE data in the vicinity of the dry cleaner / loading dock was completed following the July 2017 round of monitoring using the GSI Mann Kendall ToolKit (GSI Environmental Inc). The results of the analysis are provided in Table 9 below.

Table 9: Mann-Kendall Trend Analysis Results

Media	Sampling Point	Concentration Trend	Confidence Factor
Groundwater	BH106	No trend	70.3%
	BH4	No Trend	80.9%
	BH118	Stable	39.3%
	DPMW01	No Trend	83.3%
Soil Vapour	SV1	No Trend	86.4%
	SV2	No Trend	86.4%
	SV3	No Trend	76.5%
	SV4	Stable	64.0%
	SV5	**Decreasing**	97.2%
Indoor Air	A1	Probably decreasing	93.2%
	A2	**Decreasing**	96.5%
	A3	**Decreasing**	99.5%
	A4	**Decreasing**	99.5%

In regards to soil vapour 'No Trend' was noted in SV1, SV2 and SV3. In regards to SV4 the trend analysis indicated that the PCE results are stable while the results for SV5 are 'decreasing'.

The trend analysis of PCE in groundwater indicated that there was 'no trend' or that levels were "stable' over the monitoring programme.

In regards to indoor air the trend analysis indicates that the concentration at A2, A3 and A4 is 'decreasing' while at A1, the concentration is 'probably decreasing'. While the concentration of PCE in A1 has significantly reduced following the expiration of the dry cleaner lease and subsequent vacation, further reductions may occur and will be monitored through additional indoor air sampling now that the surfaces have been sealed.

8.1.7 Conceptual Site Model

A conceptual site model (CSM) was prepared for the vicinity of the former dry cleaner which is reproduced in this section.

The combined data set indicates that used solvents from the dry cleaning operations have escaped primarily via the drain behind the dry cleaning unit. Lower levels of PCE were also detected in the sink pipe during the previous round of testing which indicates that this is also a mode of release but it would appear to be to a lesser extent, possibly a result of incidental releases from washing hands etc.

It is likely that the majority of the contamination observed in the groundwater is the result of historic contaminating incidents.

It is likely that the primary point of contamination in the environment is below the drain at the rear of the dry cleaner with secondary release points at the joints in the pipe where there was some evidence of displacement and erosion of the glue and rubber joiners.

It is likely that PCE contaminated soil/clay is primarily present below the drain and that secondary sources are present at joints in the sewer pipe. Following release of the solvent into the environment the solvent would typically have migrated vertically until it reached the groundwater table with DNAPL (dense non-aqueous phase liquid) present within the clay soils and small pockets of DNAPL in the rock fractures and weathered seams within the rock matrix and as ganglia within the pore spaces. Upon entering groundwater, the dissolved phase contaminant may spread both laterally and vertically, although the vertical extent of the plume generally appears to be limited to the saturated zone above the siltstone and the horizontal extent generally appears to be limited to the vicinity of the dry cleaner and loading bay.

PCE is present in soil vapour in the saturated zone, which appears to have a greater lateral extent than the observed groundwater plume, presumably due to preferential migration pathways such as service conduits.

The CSM will be updated following the completion of additional investigations currently being undertaken (refer Section 8.1.10).

8.1.8 Environmental Management Plan (EMP)

The EMP was prepared by DP for the area containing and surrounding the former dry cleaner and the loading dock on Smidmore Street. The EMP was prepared to inform the management of potential impacts associated with contaminated groundwater and soil vapour identified locally in the vicinity of the dry cleaner and loading dock.

This EMP provides information on identified environmental issues, roles and responsibilities, groundwater, soil vapour and indoor air monitoring requirements, intrusive works management protocols, contingency measures, and reporting procedures considered appropriate to manage potential risks associated with the identified groundwater and soil vapour contamination.

The EMP is an active document that will be updated regularly when new information, monitoring results, changes to structure, and/or changes to guidelines and regulations occur.

8.1.9 EPA Declaration

The NSW EPA was formerly notified under the Duty to Report under Section 60 of the Contaminated Land Management Act (1997) in regards to the PCE contamination identified.

The NSW EPA has recently declared the "former dry cleaning premises identified as shop 96 and adjacent loading dock" to be significantly contaminated land under the *Contaminated Land Management Act* 1997 (Declaration Number 20171103; Area Number (3408)).

The EPA has considered the matters in section 12 of the Act and for the following reasons has determined that the land is contaminated and that the contamination is significant enough to warrant regulation under the Act:

- PCE is reported in groundwater at two locations at concentrations exceeding ANZECC criterion;
- PCE and TCE are reported in soil vapour at concentrations exceed the NEPM commercial/industrial criteria;
- The extent of and exposure pathways to the groundwater contamination require further assessment; and
- While an EMP has been prepared for persons working in confined spaces on the site and immediately surrounding land, there may be risks to workers if the former dry cleaning premises is reoccupied.

In response to the declaration, the Owner proposes to submit a Voluntary Management Proposal (VMP) to the EPA for consideration and approval. The proposed VMP declaration area is shown on Drawing 4, Attachment 2.

8.1.10 Conclusions and Recommendations

Based on the results of testing in the southern portion of Marrickville Metro it appears that elevated (above the relevant assessment criteria) levels of PCE will remain in groundwater and soil vapour, in the absence of active remediation, for the medium to long term. Therefore, if no active remediation is undertaken, it is recommended that:

- A human health risk assessment be undertaken to determine if the current levels of contamination will pose a unacceptable risk to human health; and/or
- Monitoring be continued at a reduced frequency to monitor long-term trends;
- The physical barrier to the identified contamination remain in place (i.e. sound concrete slabs); and
- The EMP remain in force in perpetuity, with updates as required.

In response to the declaration by the NSW EPA, the following additional recommendations will be enacted:

- Preparation of a VMP;
- Additional investigations designed to delineate the extent of groundwater and soil vapour contamination and further investigate potential exposure pathways; and
- Updating the EMP to incorporate the results of the additional investigations.

8.2 13-55 Edinburgh Road

The 13-55 Edinburgh Road site was investigated in several stages to broadly assess contamination issues associated with the whole of the property. Bores were also positioned to target apparent locations of former USTs. The bore and groundwater monitoring well locations were as follows (refer to Drawing 3, Attachment 2):

- Groundwater monitoring wells BH6, BH7, BH109, BH110, BH112, BH113 and BH118; and
- Bores BH5, BH8, BH9, BH111, BH114 to BH117.

8.2.1 Soil Testing

The laboratory results of soil testing (Table 7, Attachment 4) indicated that all contaminant concentrations in the soil samples analysed were within the adopted health investigation and screening levels, suggesting a low risk to human health. There were reported environmental investigation and screening level exceedances as follows:

- The copper EIL of 95 mg/kg was exceeded at BH114/0.25-0.3 m and its duplicate (290 mg/kg and 170 mg/kg respectively);
- The zinc EIL of 330 mg/kg was exceeded at locations BH112/0.9-1.0 m (710 mg/kg) and BH113/0.2-0.3 m (960 mg/kg); and
- The B(a)P ESL of 1.4 mg/kg was exceeded at locations BH106/1.0-1.1, BH109/0.9-1.0 m, BH111/0.9-1.0 m, BH113/0.2-0.3 m, BH116/0.2-0.3, BH116/0.5 m, BH117/0.4-0.5 m, duplicates BD8, BH7/0.4-0.5, BH7/2.8-3.0 and BH8/0.4-0.5 at concentrations between 1.2 mg/kg to 20 mg/kg.

A fragment of chrysotile and amosite asbestos was found in the fill at BH114/0.25-0.3 m.

The reported EIL and ESL exceedances are not considered to be significant given the nature of the proposed development (i.e. commercial) with full hardstand.

Given the presence of asbestos in one of the bores, it was recommended that all civil and construction works will need to be undertaken under an unexpected finds protocol (UFP) to be incorporated into the works methods. The UFP will need to spell out the actions to be taken should asbestos be found during civil and construction works.

8.2.2 Groundwater Testing

The laboratory results (Table 8, Attachment 4) indicated that contaminant concentrations in the groundwater samples were generally within the adopted threshold levels with the exception of the following:

- The groundwater sample at BH6 which reported a copper concentration of 6 µg/L (GIL 1.4 µg/L) and zinc concentration of 21 µg/L (8 µg/L);

- The groundwater sample BH109 which reported a copper concentration of 2 µg/L (GIL 1.4 µg/L) and zinc concentration of 21 µg/L (GIL 8 µg/L;
- The groundwater sample at BH110 with an aluminium concentration of 80 µg/L (GIL 55 µg/L), a copper concentration of 2 µg/L (GIL 1.4 µg/L) and zinc concentration of 66 µg/L (GIL 8 µg/L);
- The groundwater sample BH112 with an aluminium concentration of 100 µg/L (GIL 55 µg/L), a copper concentration of 4 µg/L (GIL 1.4 µg/L), a lead concentration of 7 µg/L (GIL 3.4 µg/L) and a zinc concentration of 66 µg/L (GIL 8 µg/L; and
- The groundwater sample BH113 with a silver concentration of 2 µg/L (GIL 0.05 µg/L) and zinc concentration of 25 µg/L (GIL 8 µg/L).

The metals concentrations reported above appear to be present generally across the site and are likely to be regional rather than site specific, given the general similarities in concentrations (i.e. no obvious down gradient increases).

It is noted that the concentrations of chlorinated ethenes (PCE, TCE, DCE and VC) detected in the groundwater and soil vapour in the vicinity of the former dry cleaner tenancy were all below the laboratory detection limits in groundwater within the wells at the Edinburgh Road site. This indicates that the probability that the chlorinated ethene contamination identified in the vicinity of the dry cleaner tenancy has migrated to the Edinburgh Road site is extremely low.

8.2.3 Conclusions and Recommendations

Based on the findings of the previous investigations it is considered that the Edinburgh Road site is suitable, from an environmental perspective, for the proposed shopping centre redevelopment, subject to the following:

- Prior to the demolition of any existing buildings, the buildings should be assessed for the presence of hazardous building materials (e.g. asbestos) and such materials removed and disposed off site in accordance with current legislation and guidelines;
- Whilst the proposed development does not include any basement excavation, there is a potential for footings (including piles) and service trenches to intercept potential acid sulphate soil (ASS). It is therefore recommended that an acid sulphate soil management plan (ASSMP) be prepared to address the monitoring and management of ASS during the construction phase;
- An unexpected finds protocol must form part of any demolition and excavation contractor's standard work method statements / construction management plans such that there is a plan of action to deal with finds of potential contamination not encountered by the current investigations. The UFP must include methods for identifying, investigating and managing asbestos on site if found; and
- If any soils are proposed to be removed from the site as part of the redevelopment, a waste classification assessment must be initially conducted by an experienced environmental consultant. No soil should be removed from the site until an assessment has been conducted.

The elevated EILs and ESLs do not present a human health risk, but can potentially present an adverse impact to the ecology. The impact of the concentrations should be considered in any future landscaping plans for the site if the soil in these areas of the site are to be retained.

9. Limitations

Douglas Partners (DP) has prepared this report for this project at Marrickville Metro at the request of Robert Lewis of AMP Capital. The work was carried out as a variation to the Consultancy Agreement. This report is provided for the exclusive use of the Owner and AMP Capital 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 DP, does so entirely at its own risk and without recourse to DP for any loss or damage. In preparing this report DP 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 DP's field testing has been completed.

DP's advice is based upon the conditions encountered during this investigation. The accuracy of the advice provided by DP 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.

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. DP 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 DP. This is because this report has been written as advice and opinion rather than instructions for construction.

The contents of this report do not constitute formal design components such as are required, by the Health and Safety Legislation and Regulations, to be included in a Safety Report specifying the hazards likely to be encountered during construction and the controls required to mitigate risk. This design process requires risk assessment to be undertaken, with such assessment being dependent upon factors relating to likelihood of occurrence and consequences of damage to property and to life. This, in turn, requires project data and analysis presently beyond the knowledge and project role respectively of DP. DP may be able, however, to assist the client in carrying out a risk assessment of potential hazards contained in the Comments section of this report, as an extension to the current scope of works, if so requested, and provided that suitable additional information is made available to

DP. Any such risk assessment would, however, be necessarily restricted to the (geotechnical / environmental / groundwater) components set out in this report and to their application by the project designers to project design, construction, maintenance and demolition.

Please contact the undersigned if you have any questions on this matter.

Yours faithfully
Douglas Partners Pty Ltd

Kurt Plambeck
Senior Associate

Reviewed by

Paul Gorman
Principal

Attachment 1: About this Report
Attachment 2: Drawings
Attachment 3: Test Bore Logs
Attachment 4: Tables of Results

About this Report

Douglas Partners

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.

About this Report

Site Anomalies

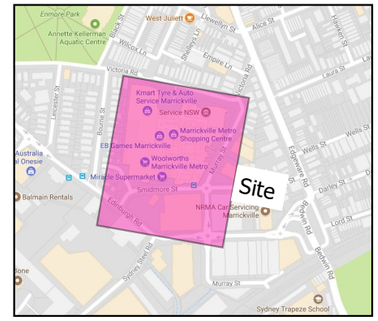
In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, DP requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later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



Locality Plan

Legend

- Marrickville Metro
- 13 - 55 Edinburgh Road

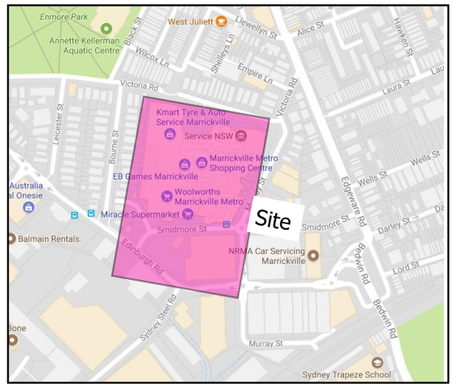
Douglas Partners
Geotechnics / Environment / Groundwater

CLIENT:	AMP Capital Shopping Centres		
OFFICE:	Sydney	DRAWN BY:	CB
SCALE:	1:1500 @ A3	DATE:	19.09.2017

TITLE: **Site Overview**
Contamination Synthesis Report
Marrickville Metro, Marrickville

N

PROJECT No:	71645.13
DRAWING No:	1
REVISION:	1



Locality Plan

Legend

- Soil Vapour Well
- Soil Bore
- Indoor Air Sampling Location
- Groundwater Well

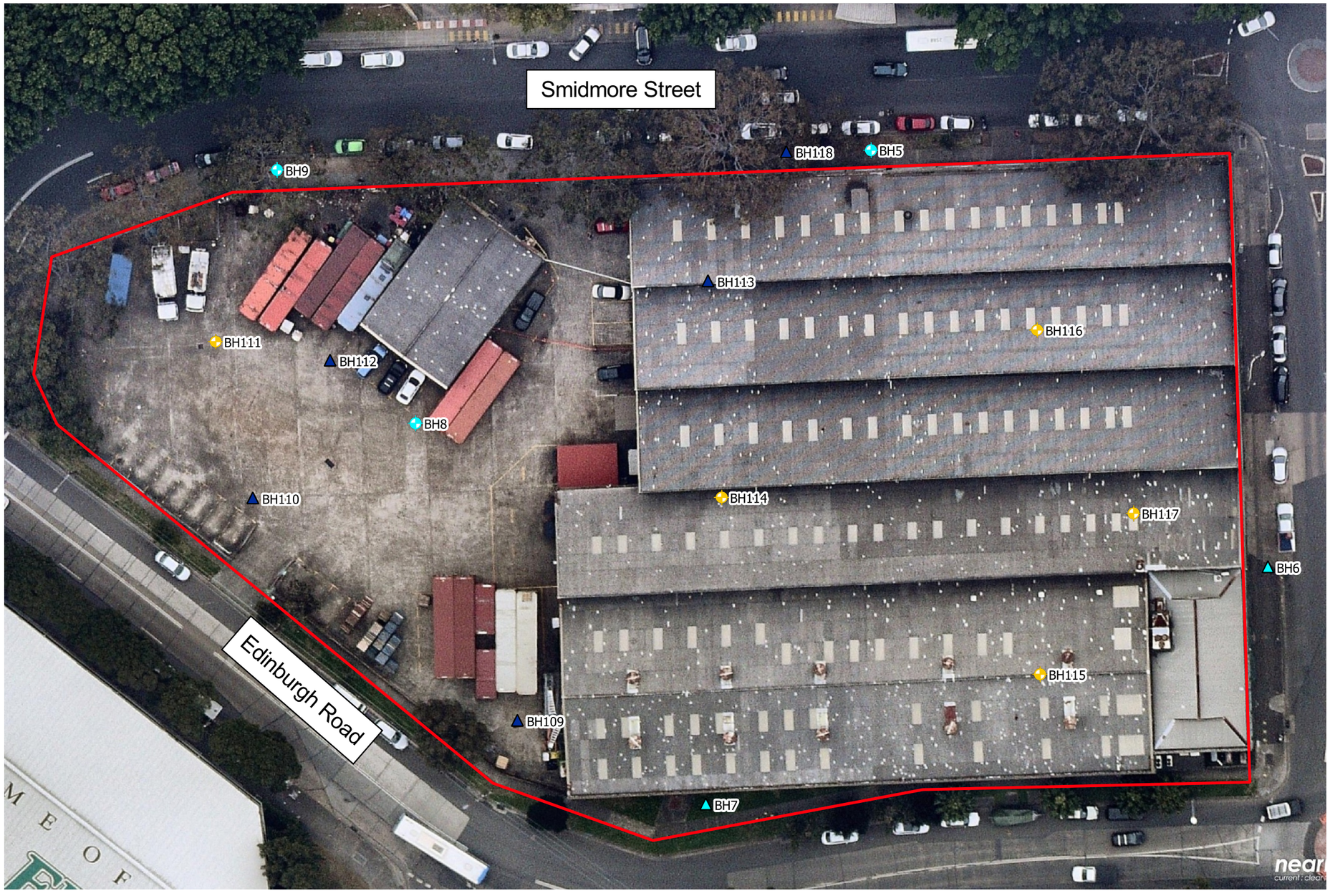
Douglas Partners
Geotechnics / Environment / Groundwater

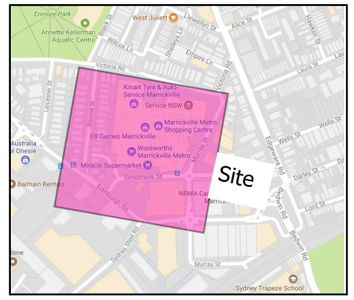
CLIENT:	AMP Capital Shopping Centres		
OFFICE:	Sydney	DRAWN BY:	CB
SCALE:	1:4000 @ A3	DATE:	19.09.2017

TITLE: **Previous Sampling Locations**
Contamination Synthesis Report
Marrickville Metro, Marrickville

N

PROJECT No:	71645.13
DRAWING No:	2
REVISION:	2





Locality Plan

Legend

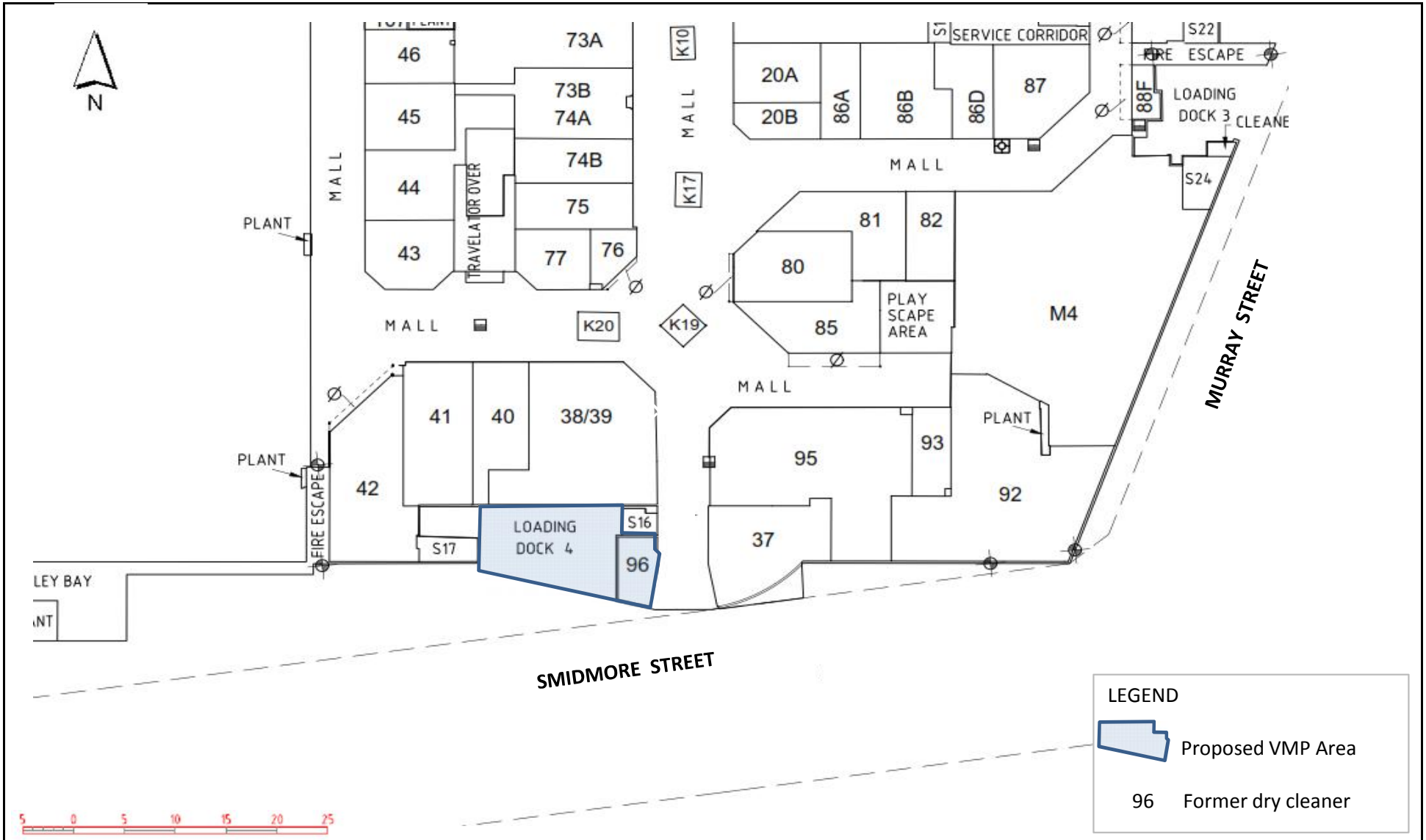
- Borehole Locations
- Groundwater Wells
- Previous Boreholes
- Previous Ground Water Well Locations
- 13 - 55 Edinburgh Road

Douglas Partners
Geotechnics / Environment / Groundwater

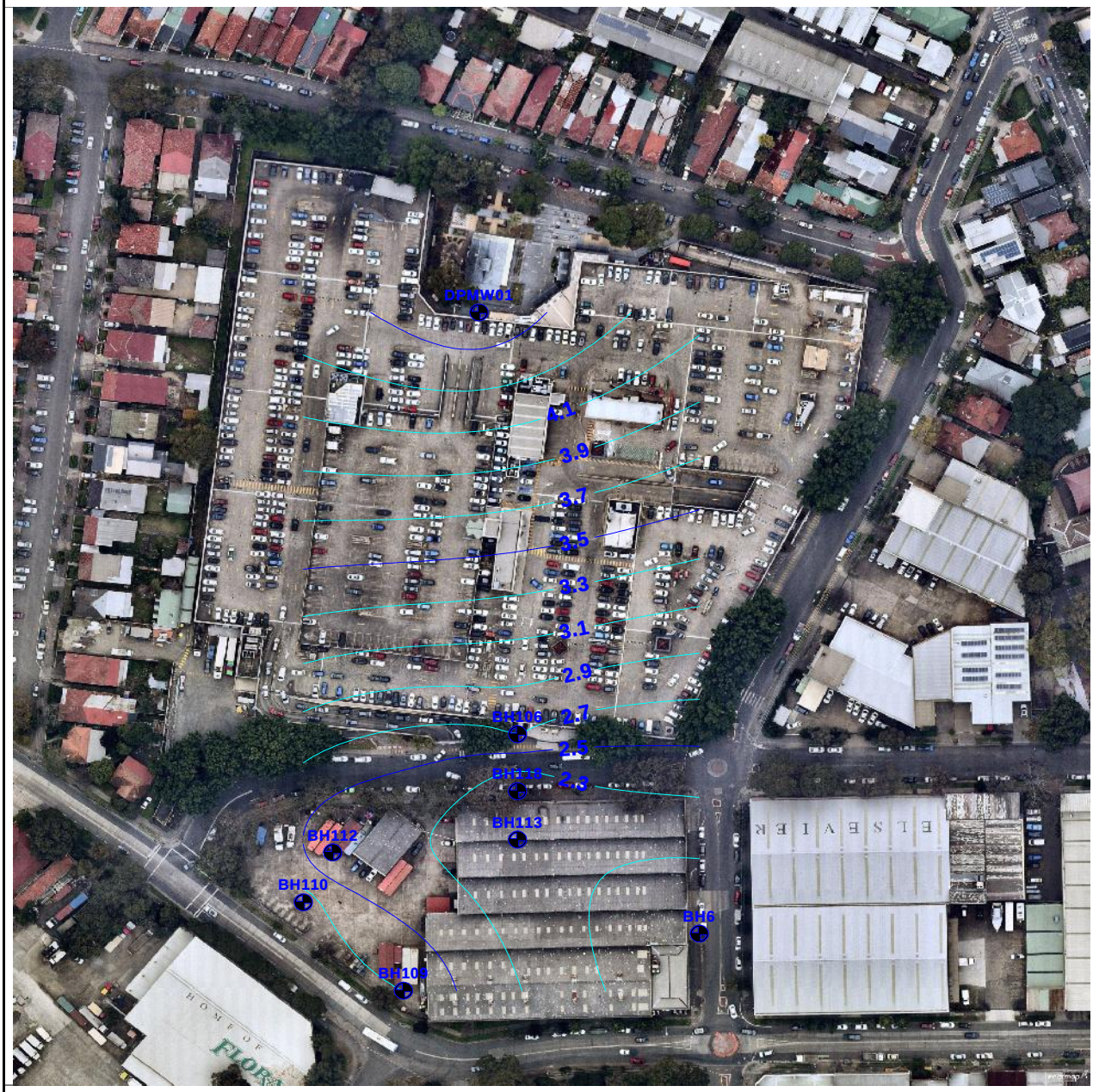
CLIENT:	AMP Capital Shopping Centres		
OFFICE:	Sydney	DRAWN BY:	CB
SCALE:	1:7000 @ A3	DATE:	19.09.2017

TITLE: **Previous Sampling Locations**
Contamination Synthesis Report
Marrickville Metro, Marrickville

PROJECT No:	71645.13
DRAWING No:	3
REVISION:	1



Douglas Partners Geotechnics / Environment / Groundwater	CLIENT: AMP Capital Shopping Centres	**Proposed VMP Area**	PROJECT No: 71645.13
	OFFICE: Sydney	**Contamination Synthesis Report**	DRAWING 4
	DATE: 18 Sep 2017	**Marrickville Metro**	REVISION: 0



Douglas Partners Geotechnics / Environment / Groundwater	**Marrickville Metro Inferred Groundwater Elevation**	PROJECT: 71645.13
		DWG No: 5
		REV:
	CLIENT: AMP Capital Shopping Centres	DATE: 12-Sep-17

Sampling Methods

Douglas Partners

Sampling

Sampling is carried out during drilling or test pitting to allow engineering examination (and laboratory testing where required) of the soil or rock.

Disturbed samples taken during drilling provide information on colour, type, inclusions and, depending upon the degree of disturbance, some information on strength and structure.

Undisturbed samples are taken by pushing a thin-walled sample tube into the soil and withdrawing it to obtain a sample of the soil in a relatively undisturbed state. Such samples yield information on structure and strength, and are necessary for laboratory determination of shear strength and compressibility. Undisturbed sampling is generally effective only in cohesive soils.

Test Pits

Test pits are usually excavated with a backhoe or an excavator, allowing close examination of the in-situ soil if it is safe to enter into the pit. The depth of excavation is limited to about 3 m for a backhoe and up to 6 m for a large excavator. A potential disadvantage of this investigation method is the larger area of disturbance to the site.

Large Diameter Augers

Boreholes can be drilled using a rotating plate or short spiral auger, generally 300 mm or larger in diameter commonly mounted on a standard piling rig. The cuttings are returned to the surface at intervals (generally not more than 0.5 m) and are disturbed but usually unchanged in moisture content. Identification of soil strata is generally much more reliable than with continuous spiral flight augers, and is usually supplemented by occasional undisturbed tube samples.

Continuous Spiral Flight Augers

The borehole is advanced using 90-115 mm diameter continuous spiral flight augers which are withdrawn at intervals to allow sampling or in-situ testing. This is a relatively economical means of drilling in clays and sands above the water table. Samples are returned to the surface, or may be collected after withdrawal of the auger flights, but they are disturbed and may be mixed with soils from the sides of the hole. Information from the drilling (as distinct from specific sampling by SPTs or undisturbed samples) is of relatively low reliability, due to the remoulding, possible mixing or softening of samples by groundwater.

Non-core Rotary Drilling

The borehole is advanced using a rotary bit, with water or drilling mud being pumped down the drill rods and returned up the annulus, carrying the drill cuttings. Only major changes in stratification can be determined from the cuttings, together with some information from the rate of penetration. Where drilling mud is used this can mask the cuttings and reliable identification is only possible from separate sampling such as SPTs.

Continuous Core Drilling

A continuous core sample can be obtained using a diamond tipped core barrel, usually with a 50 mm internal diameter. Provided full core recovery is achieved (which is not always possible in weak rocks and granular soils), this technique provides a very reliable method of investigation.

Standard Penetration Tests

Standard penetration tests (SPT) are used as a means of estimating the density or strength of soils and also of obtaining a relatively undisturbed sample. The test procedure is described in Australian Standard 1289, Methods of Testing Soils for Engineering Purposes - Test 6.3.1.

The test is carried out in a borehole by driving a 50 mm diameter split sample tube under the impact of a 63 kg hammer with a free fall of 760 mm. It is normal for the tube to be driven in three successive 150 mm increments and the 'N' value is taken as the number of blows for the last 300 mm. In dense sands, very hard clays or weak rock, the full 450 mm penetration may not be practicable and the test is discontinued.

The test results are reported in the following form.

- In the case where full penetration is obtained with successive blow counts for each 150 mm of, say, 4, 6 and 7 as:

  4,6,7
  N=13

- In the case where the test is discontinued before the full penetration depth, say after 15 blows for the first 150 mm and 30 blows for the next 40 mm as:

  15, 30/40 mm

The results of the SPT tests can be related empirically to the engineering properties of the soils.

Dynamic Cone Penetrometer Tests / Perth Sand Penetrometer Tests

Dynamic penetrometer tests (DCP or PSP) are carried out by driving a steel rod into the ground using a standard weight of hammer falling a specified distance. As the rod penetrates the soil the number of blows required to penetrate each successive 150 mm depth are recorded. Normally there is a depth limitation of 1.2 m, but this may be extended in certain conditions by the use of extension rods. Two types of penetrometer are commonly used.

- Perth sand penetrometer - a 16 mm diameter flat ended rod is driven using a 9 kg hammer dropping 600 mm (AS 1289, Test 6.3.3). This test was developed for testing the density of sands and is mainly used in granular soils and filling.
- Cone penetrometer - a 16 mm diameter rod with a 20 mm diameter cone end is driven using a 9 kg hammer dropping 510 mm (AS 1289, Test 6.3.2). This test was developed initially for pavement subgrade investigations, and correlations of the test results with California Bearing Ratio have been published by various road authorities.

Soil Descriptions

Douglas Partners

Description and Classification Methods

The methods of description and classification of soils and rocks used in this report are based on Australian Standard AS 1726-1993, Geotechnical Site Investigations Code. In general, the descriptions include strength or density, colour, structure, soil or rock type and inclusions.

Soil Types

Soil types are described according to the predominant particle size, qualified by the grading of other particles present:

Type	Particle size (mm)
Boulder	>200
Cobble	63 - 200
Gravel	2.36 - 63
Sand	0.075 - 2.36
Silt	0.002 - 0.075
Clay	<0.002

The sand and gravel sizes can be further subdivided as follows:

Type	Particle size (mm)
Coarse gravel	20 - 63
Medium gravel	6 - 20
Fine gravel	2.36 - 6
Coarse sand	0.6 - 2.36
Medium sand	0.2 - 0.6
Fine sand	0.075 - 0.2

The proportions of secondary constituents of soils are described as:

Term	Proportion	Example
And	Specify	Clay (60%) and Sand (40%)
Adjective	20 - 35%	Sandy Clay
Slightly	12 - 20%	Slightly Sandy Clay
With some	5 - 12%	Clay with some sand
With a trace of	0 - 5%	Clay with a trace of sand

Definitions of grading terms used are:

- Well graded - a good representation of all particle sizes
- Poorly graded - an excess or deficiency of particular sizes within the specified range
- Uniformly graded - an excess of a particular particle size
- Gap graded - a deficiency of a particular particle size with the range

Cohesive Soils

Cohesive soils, such as clays, are classified on the basis of undrained shear strength. The strength may be measured by laboratory testing, or estimated by field tests or engineering examination. The strength terms are defined as follows:

Description	Abbreviation	Undrained shear strength (kPa)
Very soft	vs	<12
Soft	s	12 - 25
Firm	f	25 - 50
Stiff	st	50 - 100
Very stiff	vst	100 - 200
Hard	h	>200

Cohesionless Soils

Cohesionless soils, such as clean sands, are classified on the basis of relative density, generally from the results of standard penetration tests (SPT), cone penetration tests (CPT) or dynamic penetrometers (PSP). The relative density terms are given below:

Relative Density	Abbreviation	SPT N value	CPT qc value (MPa)
Very loose	vl	<4	<2
Loose	l	4 - 10	2 -5
Medium dense	md	10 - 30	5 - 15
Dense	d	30 - 50	15 - 25
Very dense	vd	>50	>25

Soil Descriptions

Soil Origin

It is often difficult to accurately determine the origin of a soil. Soils can generally be classified as:

- Residual soil - derived from in-situ weathering of the underlying rock;
- Transported soils - formed somewhere else and transported by nature to the site; or
- Filling - moved by man.

Transported soils may be further subdivided into:

- Alluvium - river deposits
- Lacustrine - lake deposits
- Aeolian - wind deposits
- Littoral - beach deposits
- Estuarine - tidal river deposits
- Talus - scree or coarse colluvium
- Slopewash or Colluvium - transported downslope by gravity assisted by water. Often includes angular rock fragments and boulders.

Rock Strength

Rock strength is defined by the Point Load Strength Index ($Is_{(50)}$) and refers to the strength of the rock substance and not the strength of the overall rock mass, which may be considerably weaker due to defects. The test procedure is described by Australian Standard 4133.4.1 - 2007. The terms used to describe rock strength are as follows:

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

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

Degree of Weathering

The degree of weathering of rock is classified as follows:

Term	Abbreviation	Description
Extremely weathered	EW	Rock substance has soil properties, i.e. it can be remoulded and classified as a soil but the texture of the original rock is still evident.
Highly weathered	HW	Limonite staining or bleaching affects whole of rock substance and other signs of decomposition are evident. Porosity and strength may be altered as a result of iron leaching or deposition. Colour and strength of original fresh rock is not recognisable
Moderately weathered	MW	Staining and discolouration of rock substance has taken place
Slightly weathered	SW	Rock substance is slightly discoloured but shows little or no change of strength from fresh rock
Fresh stained	Fs	Rock substance unaffected by weathering but staining visible along defects
Fresh	Fr	No signs of decomposition or staining

Degree of Fracturing

The following classification applies to the spacing of natural fractures in diamond drill cores. It includes bedding plane partings, joints and other defects, but excludes drilling breaks.

Term	Description
Fragmented	Fragments of <20 mm
Highly Fractured	Core lengths of 20-40 mm with some fragments
Fractured	Core lengths of 40-200 mm with some shorter and longer sections
Slightly Fractured	Core lengths of 200-1000 mm with some shorter and longer sections
Unbroken	Core lengths mostly > 1000 mm

Rock Descriptions

Rock Quality Designation

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

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

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

Stratification Spacing

For sedimentary rocks the following terms may be used to describe the spacing of bedding partings:

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

Symbols & Abbreviations

Introduction

These notes summarise abbreviations commonly used on borehole logs and test pit reports.

Drilling or Excavation Methods

C	Core drilling
R	Rotary drilling
SFA	Spiral flight augers
NMLC	Diamond core - 52 mm dia
NQ	Diamond core - 47 mm dia
HQ	Diamond core - 63 mm dia
PQ	Diamond core - 81 mm dia

Water

▷	Water seep
▽	Water level

Sampling and Testing

A	Auger sample
B	Bulk sample
D	Disturbed sample
E	Environmental sample
U_{50}	Undisturbed tube sample (50mm)
W	Water sample
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
PL	Point load strength Is(50) MPa
S	Standard Penetration Test
V	Shear vane (kPa)

Description of Defects in Rock

The abbreviated descriptions of the defects should be in the following order: Depth, Type, Orientation, Coating, Shape, Roughness and Other. Drilling and handling breaks are not usually included on the logs.

Defect Type

B	Bedding plane
Cs	Clay seam
Cv	Cleavage
Cz	Crushed zone
Ds	Decomposed seam
F	Fault
J	Joint
Lam	Lamination
Pt	Parting
Sz	Sheared Zone
V	Vein

Orientation

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

h	horizontal
v	vertical
sh	sub-horizontal
sv	sub-vertical

Coating or Infilling Term

cln	clean
co	coating
he	healed
inf	infilled
stn	stained
ti	tight
vn	veneer

Coating Descriptor

ca	calcite
cbs	carbonaceous
cly	clay
fe	iron oxide
mn	manganese
slt	silty

Shape

cu	curved
ir	irregular
pl	planar
st	stepped
un	undulating

Roughness

po	polished
ro	rough
sl	slickensided
sm	smooth
vr	very rough

Other

fg	fragmented
bnd	band
qtz	quartz

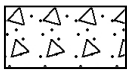
Symbols & Abbreviations

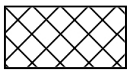
Graphic Symbols for Soil and Rock

General

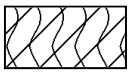

Asphalt

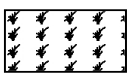

Road base

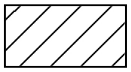

Concrete

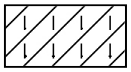

Filling

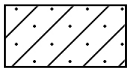
Soils


Topsoil

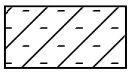

Peat

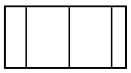

Clay

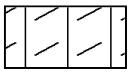

Silty clay

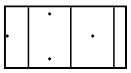

Sandy clay

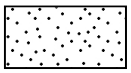

Gravelly clay

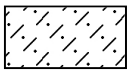

Shaly clay

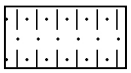

Silt


Clayey silt


Sandy silt

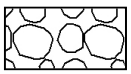

Sand

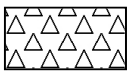

Clayey sand


Silty sand


Gravel

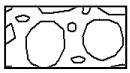

Sandy gravel


Cobbles, boulders

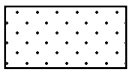

Talus

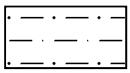
Sedimentary Rocks

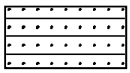

Boulder conglomerate

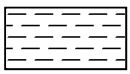

Conglomerate


Conglomeratic sandstone

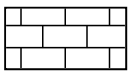

Sandstone


Siltstone

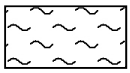

Laminite

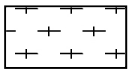

Mudstone, claystone, shale

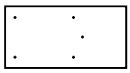

Coal


Limestone

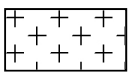
Metamorphic Rocks

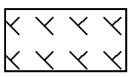

Slate, phyllite, schist

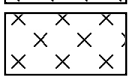

Gneiss

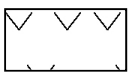

Quartzite

Igneous Rocks


Granite


Dolerite, basalt, andesite


Dacite, epidote


Tuff, breccia


Porphyry

BOREHOLE LOG

CLIENT: AMP Capital Shopping Centres
PROJECT: Marrickville Metro DSI
LOCATION: 34 Victoria Rd, 13-55 Edinburgh Rd, Marrickville

SURFACE LEVEL: 6.5 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 101
PROJECT No: 71645.02
DATE: 18/8/2015
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.11	CONCRETE SLAB							Gatic cover
	0.3	FILLING - dark brown, sandy silt filling with some ripped sandstone, damp		A/E	0.3 0.4		PID<1		Backfill 0.0-0.5m
		FILLING - light brown, slightly silty, fine to medium grained sand filling with some fine gravel and clay, humid		A/E	0.9 1.0		PID<1		Bentonite 0.5-1.5m
	1.05	CLAY - dark red-brown and orange-brown, clay with trace ironstone gravel, humid							
	1.4	SILTY CLAY - dark red and grey, silty clay with trace ironstone gravel, humid		A/E	2.0 2.1		PID<1		
		- orange-brown and light grey mottled below 3.5m							Gravel 1.5-10.0m
		- possible extremely low strength shale/siltstone below 6.5m							Machine slotted PVC screen 2.0-10.0m
	10.0	Bore discontinued at 10.0m - target depth reached							End cap

RIG: Bobcat **DRILLER:** SY **LOGGED:** MP **CASING:** HW to 2.5m

TYPE OF BORING: Diacore to 0.11m; Solid flight auger to 2.5m; Rotary to 10.0m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: Standpipe installed to 10.0m (screened 2.0-10.0m; gravel 1.5-10.0m; bentonite 0.5-1.5m; gatic cover)

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: AMP Capital Shopping Centres
PROJECT: Marrickville Metro DSI
LOCATION: 34 Victoria Rd, 13-55 Edinburgh Rd, Marrickville

SURFACE LEVEL: 6.8 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 102
PROJECT No: 71645.02
DATE: 18/8/2015
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
		FILLING - dark brown, sandy silt filling with some mulch and rootlets, humid		A/E	0.3		PID<1		
	0.4	FILLING - orange-brown and dark brown, sandy clay filling, humid (reworked)			0.4				
	0.55	SILTY CLAY - red-brown and light grey, silty clay with trace ironstone gravel, humid		A/E	0.9		PID<1		
	1.0				1.0				
	1.5	Bore discontinued at 1.5m - target depth reached							

RIG: Bobcat **DRILLER:** SY **LOGGED:** MP **CASING:** Uncased

TYPE OF BORING: Solid flight auger to 1.5m

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: AMP Capital Shopping Centres
PROJECT: Marrickville Metro DSI
LOCATION: 34 Victoria Rd, 13-55 Edinburgh Rd, Marrickville

SURFACE LEVEL: 7.5 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 103
PROJECT No: 71645.02
DATE: 18/8/2015
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
7	0.12	TOPSOIL - dark brown, sandy silt with trace rootlets, damp							
		FILLING - dark brown, brown and light grey, sandy clay filling with trace ironstone and ripped sandstone gravel, damp		A/E	0.3 0.4	BDR1 BDR2	PID<1		
	0.55	FILLING - dark brown, clayey silt filling with some sand and trace fine igneous gravel, damp		A/E	0.9 1.0		PID<1		
6	1.5	- light orange mottled and less silty below 1.2m CLAY - orange-brown, clay with some fine ironstone gravel, humid							
	1.85	SILTY CLAY - orange-brown and light grey mottled, silty clay with trace fine ironstone gravel, humid		A/E	2.0 2.1		PID<1		
5	2.5	Bore discontinued at 2.5m - target depth reached							
4									
3									

RIG: Bobcat **DRILLER:** SY **LOGGED:** MP **CASING:** Uncased

TYPE OF BORING: Solid flight auger to 2.5m

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: AMP Capital Shopping Centres
PROJECT: Marrickville Metro DSI
LOCATION: 34 Victoria Rd, 13-55 Edinburgh Rd, Marrickville

SURFACE LEVEL: 6.9 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 104
PROJECT No: 71645.02
DATE: 19/8/2015
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
		FILLING - dark brown, sandy silt filling with trace fine gravel and rootlets, humid		A/E	0.2 0.3		PID<1		
	0.35	FILLING - brown and grey-brown, clayey silt with trace fine gravel, humid							
	0.55	FILLING - dark grey to black, silty sand with some mulch and wood fragments, damp		A/E	0.9 1.0		PID<1		
		- becoming slightly clayey at 1.10m							
	1.25	FILLING - grey-brown and dark brown, clay with some silt, damp (reworked or possibly natural)							
	1.65	SILTY CLAY - orange-brown and light grey mottled, silty clay with trace ironstone gravel, humid		A/E	2.0 2.1		PID<1		
	2.65	Bore discontinued at 2.65m - target depth reached							

RIG: Bobcat **DRILLER:** SY **LOGGED:** MP **CASING:** Uncased

TYPE OF BORING: Solid flight auger to 2.65m

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: AMP Capital Shopping Centres
PROJECT: Marrickville Metro DSI
LOCATION: 34 Victoria Rd, 13-55 Edinburgh Rd, Marrickville

SURFACE LEVEL: 5.6 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 106
PROJECT No: 71645.02
DATE: 19/8/2015
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
		CONCRETE SLAB							Gatic cover
	0.26								
		FILLING - red-brown, grey and dark brown, silty clay filling with some fine gravel, humid		A/E	0.3		PID<1		
	0.4				0.4				
		FILLING - dark grey-brown, sandy clay filling with some silt and trace fine igneous gravel, humid							Backfill 0.0-1.0m
	1			A/E	1.0		PID<1		
					1.1				
									Bentonite 1.0-2.0m
	1.65								
		SILTY CLAY - red-brown and light grey, silty clay with trace ironstone gravel, humid							
				A/E	1.9		PID<1		
	2				2.0				
									Gravel 2.5-5.0m
	3								
									Machine slotted PVC screen 2.0-5.0m
	4								
	5.0								End cap

Bore discontinued at 5.0m
- target depth reached

RIG: Bobcat **DRILLER:** SY **LOGGED:** MP **CASING:** Uncased

TYPE OF BORING: Diacore to 0.26m; Solid flight auger to 2.5m; Rotary to 5.0m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: Standpipe installed to 5.0m (screened 2.5-5.0m; gravel 2.0-5.0m; bentonite 1.0-2.0m; gatic cover)

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: AMP Capital Shopping Centres
PROJECT: Marrickville Metro DSI
LOCATION: 34 Victoria Rd, 13-55 Edinburgh Rd, Marrickville

SURFACE LEVEL: 5.7 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 107
PROJECT No: 71645.02
DATE: 19/8/2015
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
		FILLING - brown, sandy silt filling with some fine igneous gravel and tree roots, humid		A/E	0.3 0.4	BDR3 BDR4	PID<1		
	0.65	FILLING - dark grey, sandy clay filling with some fine igneous gravel, damp		A/E	1.0 1.1		PID<1		
	1.55	FILLING - light brown, sandy clay filling, damp (possibly natural)							
	1.65	CLAY - yellow-brown and grey mottled, silty clay with trace fine ironstone gravel, humid							
	1.8	SILTY CLAY - orange-brown and grey mottled, silty clay with trace fine ironstone gravel, humid		A/E	2.0 2.1		PID<1		
	2.5	Bore discontinued at 2.5m - target depth reached							

RIG: Bobcat **DRILLER:** SY **LOGGED:** MP **CASING:** Uncased

TYPE OF BORING: Solid flight auger to 2.5m

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: AMP Capital Shopping Centres
PROJECT: Marrickville Metro DSI
LOCATION: 34 Victoria Rd, 13-55 Edinburgh Rd, Marrickville

SURFACE LEVEL: 5.8 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 108
PROJECT No: 71645.02
DATE: 20/8/2015
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
		FILLING - dark brown-grey, silty, fine grained sand with trace roots, humid (topsoil)							
	0.3	FILLING - dark brown, silty, fine grained sand with some fine to medium grained gravel, humid (gravel are concrete, ripped sandstone and ironstone 20mm-100mm)		A/E	0.4 0.5		PID<1		
	0.65	- ripped sandstone cobbles below 0.6m Bore discontinued at 0.65m - auger refusal on ripped sandstone cobbles							

RIG: Hand tools **DRILLER:** MP **LOGGED:** MP **CASING:** Uncased
TYPE OF BORING: Hand auger to 0.65m
WATER OBSERVATIONS: No free groundwater observed
REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: AMP Capital Shopping Centres
PROJECT: Marrickville Metro DSI
LOCATION: 34 Victoria Rd, 13-55 Edinburgh Rd, Marrickville

SURFACE LEVEL: 5.0 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 109
PROJECT No: 71645.02
DATE: 19/8/2015
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.18	CONCRETE SLAB							Gatic cover
		FILLING - light grey and grey, clayey, fine to coarse sand filling with some ripped sandstone gravel, damp		A/E	0.3 0.4		PID<1		Backfill 0.0-0.5m
	0.6	FILLING - dark grey, sandy clay filling with some fine gravel, moist (gravels are ironstone and sandstone)		A/E	0.9 1.0		PID<1		Bentonite 0.5-1.5m
	1.6	CLAY - yellow-brown, clay with trace ironstone gravel,							
	1.85	damp SILTY CLAY - red-brown and grey, silty clay with some ironstone gravel, humid		A/E	1.9 2.0		PID<1		
		- possible laminite or shale at approximately 8.0m							Gravel 1.5-10.0m
									Machine slotted PVC screen 2.5-10.0m
	10.1	Bore discontinued at 10.1m - target depth reached							End cap

RIG: Bobcat **DRILLER:** SY **LOGGED:** MP **CASING:** HW to 2.5m

TYPE OF BORING: Diacore to 0.18m; Solid flight auger to 2.5m; Rotary to 10.1m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: Standpipe installed to 10.0m (screened 2.5-10.0m; gravel 1.5-10.0m; bentonite 0.5-1.5m; gatic cover)

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: AMP Capital Shopping Centres
PROJECT: Marrickville Metro DSI
LOCATION: 34 Victoria Rd, 13-55 Edinburgh Rd, Marrickville

SURFACE LEVEL: 4.9 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 110
PROJECT No: 71645.02
DATE: 21/8/2015
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
		CONCRETE SLAB							Gatic cover
	0.28	FILLING - dark grey to black, sandy, fine gravel filling, moist, gravel igneous		A/E	0.3 0.4	BD7 BD8	PID<1		Backfill 0.0-0.5m
	0.95	FILLING - grey-brown, slightly sandy clay filling with some igneous gravel, damp		A/E	0.9 1.0		PID<1		Bentonite 0.5-1.5m
	1.45	CLAY - yellow-brown and grey, slightly silty clay with trace ironstone gravel, damp		A/E	1.9 2.0		PID<1		
	2.7	SILTY CLAY - red-brown and grey, silty clay with trace ironstone gravel, humid							Gravel 1.5-10.0m
		- possible laminite or shale at approximately 8.5m							Machine slotted PVC screen 2.5-10.0m
	10.1	Bore discontinued at 10.1m - target depth reached							End cap

RIG: Bobcat **DRILLER:** SY **LOGGED:** MP **CASING:** HW to 2.5m

TYPE OF BORING: Diacore to 0.28m; Solid flight auger to 2.5m; Rotary to 10.1m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: Standpipe installed to 10.0m (screened 2.5-10.0m; gravel 1.5-10.0m; bentonite 0.5-1.5m; gatic cover)

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: AMP Capital Shopping Centres
PROJECT: Marrickville Metro DSI
LOCATION: 34 Victoria Rd, 13-55 Edinburgh Rd, Marrickville

SURFACE LEVEL: 5.0 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 111
PROJECT No: 71645.02
DATE: 19/8/2015
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
5		CONCRETE SLAB							
	0.2	FILLING - brown-grey, light brown and purple, clayey, fine to coarse sand filling with some ripped sandstone gravel		A/E	0.3		PID<1		
	0.35	FILLING - grey and dark grey, sandy clay filling with some igneous gravel			0.4				
4	1			A/E	0.9		PID<1		1
					1.0				
	1.65	CLAY - yellow-brown, clay with trace ironstone gravel, damp							
3	1.9	SILTY CLAY - orange-brown and grey, silty clay with trace ironstone gravel, humid		A/E	1.9		PID<1		
	2				2.0				2
	2.5	Bore discontinued at 2.5m - target depth reached							
2	3								3
1	4								4

RIG: Bobcat **DRILLER:** SY **LOGGED:** MP **CASING:** Uncased

TYPE OF BORING: Diacore to 0.2m; Solid flight auger to 2.5m

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: AMP Capital Shopping Centres
PROJECT: Marrickville Metro DSI
LOCATION: 34 Victoria Rd, 13-55 Edinburgh Rd, Marrickville

SURFACE LEVEL: 4.9 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 112
PROJECT No: 71645.02
DATE: 20/8/2015
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
		CONCRETE SLAB							Gatic cover
	0.35	FILLING - dark grey and grey, sandy clay filling with some ripped sandstone gravel, brick fragments, nails and building rubble, moist		A/E	0.35 0.45		PID<1		Backfill 0.0-0.5m
				A/E	0.9 1.0	BD5 BD6	PID<1		
	1.5	CLAY - yellow-brown, slightly silty clay with trace fine ironstone gravel, damp							Bentonite 0.5-1.5m
	1.65	SILTY CLAY - red-brown and grey, silty clay with trace ironstone gravel, humid		A/E	1.9 2.0		PID<1		
		- possible laminite below 8.0m							Gravel 1.5-10.0m
	9.65	SILTSTONE/SHALE - probable depth of extremely low strength siltstone/shale							Machine slotted PVC screen 2.5-10.0m
	10.1	Bore discontinued at 10.1m - target depth reached							End cap

RIG: Bobcat **DRILLER:** SY **LOGGED:** MP **CASING:** HW to 2.5m

TYPE OF BORING: Diacore to 0.35m; Solid flight auger to 2.5m; Rotary to 10.1m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: Standpipe installed to 10.0m (screened 2.5-10.0m; gravel 2.0-10.0m; bentonite 1.0-2.0m; gatic cover)

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: AMP Capital Shopping Centres
PROJECT: Marrickville Metro DSI
LOCATION: 34 Victoria Rd, 13-55 Edinburgh Rd, Marrickville

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 113
PROJECT No: 71645.02
DATE: 29/8/2015
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.18	CONCRETE							Gatic cover Charcoal mix 0.0-0.2m Gravel 0.2-0.25m
	0.3	FILLING - dark brown, silty sand filling with some sandstone gravel		A/E/AS	0.2 0.3		PID<1		
				A/E/AS	0.4 0.5		PID<1		
	0.6	FILLING - red-brown, sandstone cobble/boulder filling			0.8				
		FILLING - brown, clayey silt filling		A/E/AS	1.0		PID<1		Bentonite 0.25-1.5m
1	1.1	CLAY - stiff, yellow-brown clay			1.3				
				A/E/AS	1.5		PID<1		
		1.8m: becoming very stiff, red-brown clay		A/E/AS	2.0 2.1		PID<1		
2		2.0m: becoming hard, red-brown clay							
3		3.5m: becoming grey clay with ironstone bands							Gravel 1.5-10.0m
				S/AS	3.7 4.0		4,13 refusal		
4									
5				S/AS	5.3 5.5		8,14,20/120mm refusal		
6									Machine slotted PVC screen 2.0-10.0m
7									
				S/AS	7.8 8.0		5,14,13 N = 27		
8									
9	9.0	SILTSTONE/LAMINITE							
	10.0	Bore discontinued at 10.0m - target depth reached							End cap

RIG: Bobcat **DRILLER:** SS **LOGGED:** W Yuan **CASING:** HW to 2.5m; HQ to 10.0m

TYPE OF BORING: Diatube to 0.18m; Solid flight auger to 2.5m; Rotary to 10.0m incorporating SPT's

WATER OBSERVATIONS: No free groundwater observed due to rotary drilling

REMARKS: AS = Acid sulphate soil sample. Became too hard to auger - changed to rotary at 2.5m incorporating SPT's

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: AMP Capital Shopping Centres
PROJECT: Marrickville Metro DSI
LOCATION: 34 Victoria Rd, 13-55 Edinburgh Rd, Marrickville

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 114
PROJECT No: 71645.02
DATE: 29/8/2015
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.25	CONCRETE			0.25				
		FILLING - dark brown-black, silty sand with some clinker, concrete fragments and potential ACM fragments		A*/E	0.3				
				A/E	0.5		PID<1		
	0.7	CLAY - soft, dark yellow-brown clay			0.7				
	1			A/E	1.0		PID<1		
					1.5				
	1.7			A**/E	1.7		PID<1		
		Bore discontinued at 1.7m - target depth reached							

RIG: DT250 **DRILLER:** SS **LOGGED:** W Yuan **CASING:** HW

TYPE OF BORING: Diatube to 0.25m; Solid flight auger to 1.7m

WATER OBSERVATIONS: No free groundwater observed

REMARKS: *BD1-290815 taken at 0.25-0.3m; **BD2-1090818 taken at 1.5-1.7m; ACM fragment sampled at 0.25-0.3m

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: AMP Capital Shopping Centres
PROJECT: Marrickville Metro DSI
LOCATION: 34 Victoria Rd, 13-55 Edinburgh Rd, Marrickville

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 115
PROJECT No: 71645.02
DATE: 29/8/2015
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.18	CONCRETE							
	0.3	FILLING - sand filling with concrete fragments		A/E	0.2 0.3		PID<1		
		FILLING - dark brown-black, silty sand filling with some clinker and sandstone gravel		A/E	0.4 0.5		PID<1		
	0.65	Bore discontinued at 0.65m - refusal on concrete (possibly services or concrete fragment)							

RIG: DT250 **DRILLER:** SS **LOGGED:** W Yuan **CASING:** HW

TYPE OF BORING: Diatube to 0.18m; Solid flight auger to 0.65m

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: AMP Capital Shopping Centres
PROJECT: Marrickville Metro DSI
LOCATION: 34 Victoria Rd, 13-55 Edinburgh Rd, Marrickville

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 116
PROJECT No: 71645.02
DATE: 29/8/2015
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.11	CONCRETE							
		FILLING - crushed red-orange sandstone and brick/tile		A/E/AS	0.2 0.3		PID<1		
	0.5	FILLING - dark brown-black, silty sand filling with crushed brick/tile		A/E/AS	0.5		PID<1		
	0.8				0.8				
	0.9	CLAY - soft, dark grey clay (possibly filling), moist		A/E/AS	1.0		PID<1		
1		CLAY - stiff, brown clay, humid							1
				A/E/AS	1.3 1.4		PID<1		
		1.5m: becoming red-brown mottled grey clay							
				A/E/AS	1.8		PID<1		
2	2.0	Bore discontinued at 2.0m - in clay			2.0				2
3									3
4									4
5									5
6									6
7									7
8									8
9									9

RIG: DT250 **DRILLER:** SS **LOGGED:** W Yuan **CASING:** HW

TYPE OF BORING: Diatube to 0.11m; Solid flight auger to 2.0m

WATER OBSERVATIONS: No free groundwater observed

REMARKS: AS = Acid sulphate soil sample

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: AMP Capital Shopping Centres
PROJECT: Marrickville Metro DSI
LOCATION: 34 Victoria Rd, 13-55 Edinburgh Rd, Marrickville

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 117
PROJECT No: 71645.02
DATE: 29/8/2015
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.15	CONCRETE							
	0.3	FILLING - orange-brown, sand filling with some concrete fragments		A/E/AS	0.2 0.3		PID<1		
	0.5	FILLING - dark brown-black, silty sand filling with some clinker		A/E/AS	0.4 0.5		PID<1		
	1	CLAY - soft, yellow-brown clay, moist		A/E/AS	0.8 1.0		PID<1		
		1.2m: becoming stiff, yellow-brown clay, humid		A/E/AS	1.3		PID<1		
	1.5	Bore discontinued at 1.5m - in clay			1.5				

RIG: DT250 **DRILLER:** SS **LOGGED:** W Yuan **CASING:** HW

TYPE OF BORING: Diatube to 0.15m; Solid flight auger to 1.5m

WATER OBSERVATIONS: No free groundwater observed

REMARKS: AS = Acid sulphate soil sample

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: AMP Capital Shopping Centres
PROJECT: Marrickville Metro DSI
LOCATION: 34 Victoria Rd, 13-55 Edinburgh Rd, Marrickville

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 118
PROJECT No: 71645.02
DATE: 11/12/2016
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.0	FILLING - light brown, silty sand filling with trace subangular and angular igneous gravel							Gatic cover
	0.5	FILLING - light brown, fine to medium sand filling							Backfill 0.0-0.3m
	1.2	SILTY SANDY CLAY - light brown and orange, silty sandy clay							Casing 0.2-2.5m
		2.7m: grey, silty sandy clay with trace ironstone gravel							Bentonite 1.0-2.0mm
	3.5	SILTY CLAY - grey and pink mottled orange, silty clay with trace ironstone gravel							Gravel 2.0-8.5m
		5.3m: red, silty clay with trace ironstone gravel							Machine slotted PVC screen 2.5-8.5m
	8.5	Bore discontinued at 8.5m - target depth reached							End cap

RIG: Bobcat **DRILLER:** GM **LOGGED:** RJL **CASING:** Uncased

TYPE OF BORING: Solid flight auger to. 8.5m

WATER OBSERVATIONS: Free groundwater observed at 6.5m

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Bovis Lend Lease
PROJECT: Stage 2 Contamination Assessment
LOCATION: Marrickville Metro, Marrickville

SURFACE LEVEL: 8.4 m AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: BH1
PROJECT No: 71645
DATE: 12 Mar 10
SHEET 1 OF 2

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low, Very Low, Low, Medium, High, Very High, Ex High)	Water	Fracture Spacing (m) (0.01, 0.05, 0.10, 0.50, 1.00)	Discontinuities (B - Bedding J - Joint S - Shear D - Drill Break)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
8	0.1	FILLING - brown, sandy silt with some woodchips, rootlets filling							A/E*			PID=3.7ppm
		FILLING - grey brown silt with some fine to medium grained sand and fine grained gravel filling							A/E			PID=2.3ppm
	0.6	SILTY CLAY - dark grey to brown, silty clay, moist (possible filling)										pp = 360kPa
7	1.0	CLAY - stiff, mottled red brown and grey clay with a trace of ironstone gravel, moist							A/E			PID=2.6ppm
									S			2,5,4 N = 9
6	2.0	CLAY - very stiff, mottled red and light grey clay, moist							A/E			PID=2.0ppm
									S			3,7,11 N = 18
5									A/E			PID=2.1ppm
4	3.8	CLAY - very stiff to hard, red brown and light grey clay with ironstone bands, damp							E			PID=2.2ppm
									S			4,15,25/130mm refusal
3	5.0	SHALY CLAY - hard, light grey, shaly clay, damp							S			10,18,25/110mm refusal
2	5.91	SILTSTONE - extremely low then very low strength, dark grey siltstone						Note: Unless otherwise stated, rock is fractured along rough planar bedding dipping 0°- 10° and joints	S			25/100mm refusal
1	7.1	SILTSTONE/LAMINITE - extremely low then extremely low to very low strength, extremely to highly weathered, grey siltstone/laminite. Some low strength bands							C	100	0	pp = 310kPa
0	8								C	100	0	pp = 370kPa
-1	9	9.6-10.72m: some fine grained sandstone laminations							C	100	0	

RIG: Bobcat **DRILLER:** SS **LOGGED:** CF/SI **CASING:** HW to 4.0m

TYPE OF BORING: Solid flight auger to 4.0m; Rotary to 7.1m; NMLC-Coring to 14.5m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: *Denotes field replicate sample BD1/12032010 collected. E = Environmental sample

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U_x	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials:
Date:

Douglas Partners
Geotechnics · Environment · Groundwater

BOREHOLE LOG

CLIENT: Bovis Lend Lease
PROJECT: Stage 2 Contamination Assessment
LOCATION: Marrickville Metro, Marrickville

SURFACE LEVEL: 8.4 m AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: BH1
PROJECT No: 71645
DATE: 12 Mar 10
SHEET 2 OF 2

RL	Depth (m)	Description of Strata	Degree of Weathering	Graphic Log	Rock Strength	Water	Fracture Spacing (m)	Discontinuities (B - Bedding J - Joint S - Shear D - Drill Break)	Type	Core Rec. %	RQD %	Test Results & Comments
		SILTSTONE/LAMINITE - see previous page	EW HW MW SW FS FR		Ex Low Very Low Low Medium High Very High Ex High		0.01 0.05 0.10 0.50 1.00		C	100	0	pp = 390kPa
-2	10.72							10.72m: CORE LOSS: 480mm	C	52	0	
	11											
	11.2	LAMINITE - very low to low strength, highly weathered, fragmented, light grey to grey laminite with approximately 30% fine grained sandstone laminations						11.2-13.0m: very low to low strength, rock fragmented into 0.01mm intervals	C	100	0	
-3	12											
-4	12.65	LAMINITE - medium strength, slightly weathered, fragmented to fractured, light grey to grey laminite with approximately 30% fine grained sandstone laminations. Very low to low strength bands from 13.33-13.48m										PL(A) = 0.8MPa
	13							13.08m: J20°, rough				
-5	13.5	LAMINITE - medium to high strength, fresh, slightly fractured, light grey to grey laminite with approximately 20% fine grained sandstone laminations						13.08-13.21m: fragmented into 0.01mm intervals 13.21m: J30°, smooth 13.21-13.33m: fragmented in to 0.02mm intervals 13.6m: J35°, rough 13.85m: J65°, ironstained & crushed rock fragments 14.3m: J40°, undulating, rough	C	100	67	PL(A) = 0.9MPa
	14											
-6	14.5	Bore discontinued at 14.5m										PL(A) = 1.5MPa
	15											
-7												
	16											
-8												
	17											
-9												
	18											
-10												
	19											
-11												

RIG: Bobcat **DRILLER:** SS **LOGGED:** CF/SI **CASING:** HW to 4.0m

TYPE OF BORING: Solid flight auger to 4.0m; Rotary to 7.1m; NMLC-Coring to 14.5m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: *Denotes field replicate sample BD1/12032010 collected. E = Environmental sample

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U_x	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials:
Date:

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BOREHOLE LOG

CLIENT: Bovis Lend Lease
PROJECT: Stage 2 Contamination Assessment
LOCATION: Marrickville Metro, Marrickville

SURFACE LEVEL: 6.4 m AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: BH2
PROJECT No: 71645
DATE: 18 Mar 10
SHEET 1 OF 2

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low, Very Low, Low, Medium, High, Very High, Ex High)	Water	Fracture Spacing (m) (0.01, 0.05, 0.10, 0.50, 1.00)	Discontinuities (B - Bedding, J - Joint, S - Shear, D - Drill Break)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
		CONCRETE										
	0.18	FILLING - grey brown, silty clay and fine grained sand with some concrete gravel filling							A/E			PID=0.5ppm
									A/E*			PID=1.4ppm
	0.6	SILTY CLAY - orange brown to red brown, silty clay with trace of ironstone gravel, moist (possible filling)										
	1.0	CLAY - stiff, mottled orange brown and light grey clay with trace of ironstone gravel, moist							S			4,4,5 N = 9
									A/E			PID=1.4ppm
									E			PID=1.2ppm
	2.65	CLAY - very stiff and hard, mottled red brown and light grey clay with some ironstone gravel, moist							S A/E			3,5,6 N = 11 PID=1.3ppm
									S			5,14,18 N = 32
									S			5,13,16 N = 29
	7.1	SHALY CLAY - very stiff to hard, mottled red brown and grey shaly clay, damp to moist							S			8,13,18 N = 31
									S			8,12,16 N = 28
	9.9											

RIG: DT 100 **DRILLER:** RKE **LOGGED:** CF/SI **CASING:** HW to 2.5m; HQ to 10.1m

TYPE OF BORING: Solid flight auger to 2.5m; Rotary to 10.1m; NMLC-Coring to 14.15m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: *Denotes field duplicate/triplicate sample taken. E = Environmental sample

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U_x	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials:
Date:

Douglas Partners
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BOREHOLE LOG

CLIENT: Bovis Lend Lease
PROJECT: Stage 2 Contamination Assessment
LOCATION: Marrickville Metro, Marrickville

SURFACE LEVEL: 6.4 m AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: BH2
PROJECT No: 71645
DATE: 18 Mar 10
SHEET 2 OF 2

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low, Very Low, Low, Medium, High, Very High, Ex High)	Water	Fracture Spacing (m) (0.01, 0.05, 0.10, 0.50, 1.00)	Discontinuities (B - Bedding J - Joint S - Shear D - Drill Break)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
-4	10.1	SILTSTONE/LAMINITE - very low to low strength, red brown siltstone/laminite with ironstone band *(continued)*						Note: Unless otherwise stated, rock is fractured along rough planar bedding dipping at 0°-10° or joints	S			20/100mm refusal
-5	11 11.0	LAMINITE - low strength, highly to moderately and slightly weathered, fractured to slightly fractured, grey brown laminite. Some very low strength bands						10.14-10.33m: (x4) B0°, ironstained 10.58m: B0°- 5°, 15mm clay, ironstained 10.63m: J20°, ironstained, rough 10.65m: B0°, ironstained	C	100	37	PL(A) = 0.2MPa PL(A) = 2.5MPa
-6	12	LAMINITE - high strength, fresh stained, fractured to slightly fractured, light grey to grey laminite with approximately 40% fine grained sandstone laminations. Some very low and very low strength bands						11.0-11.25m: (x4) B0°, 2-3mm clay 11.36-13.06m: (x4) B0°, clay veneer/smear				PL(A) = 1.4MPa PL(A) = 1.3MPa
-7	13								C	100	82	PL(A) = 2.3MPa
-8	14							13.39m: J50°, rough 13.43m: J30°- 50°, curved, ironstained, rough 13.56m: J45°, rough				PL(A) = 2.3MPa
	14.15	Bore discontinued at 14.15m						13.78-13.84m: (x2) B0°, clay smear 13.95m: J35°- 90°, curved, ironstained, rough				
-9	15											
-10	16											
-11	17											
-12	18											
-13	19											

RIG: DT 100 **DRILLER:** RKE **LOGGED:** CF/SI **CASING:** HW to 2.5m; HQ to 10.1m

TYPE OF BORING: Solid flight auger to 2.5m; Rotary to 10.1m; NMLC-Coring to 14.15m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: *Denotes field duplicate/triplicate sample taken. E = Environmental sample

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U_x	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials:
Date:

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BOREHOLE LOG

CLIENT: Bovis Lend Lease
PROJECT: Stage 2 Contamination Assessment
LOCATION: Marrickville Metro, Marrickville

SURFACE LEVEL: 5.6 m AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: BH3
PROJECT No: 71645
DATE: 23 Mar 10
SHEET 1 OF 2

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low, Very Low, Low, Medium, High, Very High, Ex High)	Water	Fracture Spacing (m) (0.01, 0.05, 0.10, 0.50, 1.00)	Discontinuities (B - Bedding, J - Joint, S - Shear, D - Drill Break)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
	0.3	FILLING - brown, silty sand filling with some roots							E			PID=0.5ppm
		FILLING - light brown, sandy gravel filling (gravel is sandstone fragments 20-40mm)							E			PID=1.0ppm
	0.7	FILLING - brown, gravelly sand filling (gravel is sandstone and basalt 4-20mm)							E*			PID=0.9ppm
	1.3	SILTY CLAY - stiff, red brown mottled grey, silty clay with some fine grained ironstone gravel							S			4,5,8 N = 13
									E			PID=0.7ppm
		- grey from about 2.3m										
									E			PID=0.8ppm
									S			4,5,7 N = 12
		- some dark red brown staining from 3.4m				▼						
	4.4	CLAY - very stiff, grey and red brown, slightly silty clay							S			5,8,14 N = 22
									S			8,11,13 N = 24
	7.1	CLAY - hard, grey clay with ironstone bands							E			PID=1.8ppm
									S			7,12,18 N = 30
	8.8	SILTSTONE - extremely low strength, extremely weathered, grey and yellow brown, siltstone with 10% fine grained grey sandstone laminae						Note: Unless otherwise stated, rock is fractured along rough planar bedding dipping at 0°-10° or joints	S			11,30 refusal
	9.3	LAMINITE - see next page						9.5m: J25°, ironstained 9.53-9.83m: (x4) B5°-10°, ironstained	C	100	0	pp = 290kPa

RIG: Multi-Drill **DRILLER:** Traccess **LOGGED:** BOK/SI **CASING:** NW to 9.0m

TYPE OF BORING: 110mm diameter solid flight auger with TC-bit to 9.0m; Rotary to 9.3m; NMLC-Coring to 14.8m

WATER OBSERVATIONS: Free groundwater observed at 4.1m

REMARKS: *Denotes field replicate sample BD(A) collected. E = Environmental sample

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U_x	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials:
Date:

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BOREHOLE LOG

CLIENT: Bovis Lend Lease
PROJECT: Stage 2 Contamination Assessment
LOCATION: Marrickville Metro, Marrickville

SURFACE LEVEL: 5.6 m AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: BH3
PROJECT No: 71645
DATE: 23 Mar 10
SHEET 2 OF 2

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low, Very Low, Low, Medium, High, Very High, Ex High)	Water	Fracture Spacing (m) (0.01, 0.05, 0.10, 0.50, 1.00)	Discontinuities (B - Bedding J - Joint S - Shear D - Drill Break)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
-5	11	LAMINITE - extremely to very low and very low to low strength, extremely and highly weathered, light grey to grey laminite with approximately 30% fine grained sandstone laminations. Some low strength bands *(continued)*						10.22m: B10°m, ironstained 10.47m: J25°, ironstained 10.58m: B5°, ironstained	C	100	71	pp = 360kPa PL(A) = 0.2MPa
-6	11.95											
-7	12	LAMINITE - medium to high strength, fresh, highly fractured to fractured, light grey to grey laminite with approximately 30% fine grained sandstone laminations						11.43m: J50°, clay smear 11.54m: J55°, clay band 11.65m: J, subvertical 11.76m: J50°, smooth, clay smear 12.18m: J30°, smooth 12.26-12.60m: (x6) J30°- 45°, rough 12.35m: J45°, smooth, slickensided 12.64-13.30m: fragmented into 0.01 to 0.05mm intervals	C	100	8	PL(A) = 0.4MPa PL(A) = 1.1MPa
-8	13	13.0-13.15m: very low strength band										
-9	13.3	LAMINITE - high strength, fresh, slightly fractured, light grey to grey laminite with approximately 20% fine grained sandstone laminations						12.95-13.0m: J, subvertical, rough 13.5m: J85°, rough 13.65-13.95m: (x3) J20°- 25°, rough 14.08m: J, subvertical, undulating, rough 14.21m: B0°, clay smear 14.48-14.70m: (x3) J25°- 35°, rough	C	100	95	PL(A) = 1.2MPa PL(A) = 2.1MPa
-10	14											
-11	14.8	Bore discontinued at 14.8m - limit of investigation										
-12	15											
-13	16											
-14	17											
	18											
	19											

RIG: Multi-Drill **DRILLER:** Traccess **LOGGED:** BOK/SI **CASING:** NW to 9.0m

TYPE OF BORING: 110mm diameter solid flight auger with TC-bit to 9.0m; Rotary to 9.3m; NMLC-Coring to 14.8m

WATER OBSERVATIONS: Free groundwater observed at 4.1m

REMARKS: *Denotes field replicate sample BD(A) collected. E = Environmental sample

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U_x	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials:
Date:

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BOREHOLE LOG

CLIENT: Bovis Lend Lease
PROJECT: Stage 2 Contamination Assessment
LOCATION: Marrickville Metro, Marrickville

SURFACE LEVEL: 5.6 m AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: BH4
PROJECT No: 71645
DATE: 23 Mar 10
SHEET 1 OF 2

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low, Very Low, Low, Medium, High, Very High, Ex High)	Water	Fracture Spacing (m) (0.01, 0.05, 0.10, 0.50, 1.00)	Discontinuities (B - Bedding, J - Joint, S - Shear, D - Drill Break)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
5.6	0.16	CONCRETE										
		FILLING - red brown and brown clay with some gravel filling							E			PID=0.5ppm
									E			PID=0.5ppm
5	0.6	FILLING - dark grey to grey slightly silty clay filling							E			BD(A) BD(B) BD(C)
	1.1	CLAY - firm, yellow and red brown clay										
4									S			2,2,4 N = 6
	2								E			PID=1.1ppm
3	2.4	CLAY - very stiff, grey and yellow brown from about 2.8m							E			PID=1.0ppm
	3								S			4,6,10 N = 16
2	3.7	CLAY - very stiff, grey and dark red brown clay with some ironstone gravel							E			PID=1.0ppm
	4								S			5,7,12 N = 19
1	5											
	5.3	CLAY - very stiff to hard, grey clay, some red brown staining							E			PID=0.5ppm
0	6								S			8,12,14 N = 26 (no sample)
-1	7											
									E			PID=0.7ppm
-2	8								S			6,10,15 N = 25
-3	8.7	SILTSTONE - extremely weathered, extremely low strength, light grey and yellow brown siltstone				▼			E			PID=0.6ppm
	9								S			8,19,21 N = 40
-4												

RIG: Multi-Drill **DRILLER:** Traccess **LOGGED:** BOK **CASING:** Uncased

TYPE OF BORING: Diatube to 0.16m; 110mm diameter solid flight auger (TC-bit) to 11.0m

WATER OBSERVATIONS: Free groundwater observed at 8.8m

REMARKS: Piezometer installed to 11.0m; Screened 11.0 to 5.0m; Gravel from 4.5 to 11.0m; Bentonite from 3.5 to 4.5m

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U_x	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials:
Date:

Douglas Partners
Geotechnics · Environment · Groundwater

BOREHOLE LOG

CLIENT: Bovis Lend Lease
PROJECT: Stage 2 Contamination Assessment
LOCATION: Marrickville Metro, Marrickville

SURFACE LEVEL: 5.6 m AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: BH4
PROJECT No: 71645
DATE: 23 Mar 10
SHEET 2 OF 2

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low, Very Low, Low, Medium, High, Very High, Ex High)	Water	Fracture Spacing (m) (0.01, 0.05, 0.10, 0.50, 1.00)	Discontinuities (B - Bedding J - Joint S - Shear D - Drill Break)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
-5		SILTSTONE - extremely weathered, extremely low strength, light grey and yellow brown siltstone *(continued)*							E			PID=0.5ppm
	11 11.0								E			PID=0.6ppm
-6		Bore discontinued at 11.0m - limit of investigation										
	12											
-7												
	13											
-8												
	14											
-9												
	15											
-10												
	16											
-11												
	17											
-12												
	18											
-13												
	19											
-14												

RIG: Multi-Drill **DRILLER:** Traccess **LOGGED:** BOK **CASING:** Uncased

TYPE OF BORING: Diatube to 0.16m; 110mm diameter solid flight auger (TC-bit) to 11.0m

WATER OBSERVATIONS: Free groundwater observed at 8.8m

REMARKS: Piezometer installed to 11.0m; Screened 11.0 to 5.0m; Gravel from 4.5 to 11.0m; Bentonite from 3.5 to 4.5m

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U_x	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials:
Date:

Douglas Partners
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BOREHOLE LOG

CLIENT: Bovis Lend Lease
PROJECT: Stage 2 Contamination Assessment
LOCATION: Marrickville Metro, Marrickville

SURFACE LEVEL: 5.2 m AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: BH5
PROJECT No: 71645
DATE: 17 Mar 10
SHEET 1 OF 2

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low, Very Low, Low, Medium, High, Very High, Ex High)	Water	Fracture Spacing (m) (0.01, 0.05, 0.10, 0.50, 1.00)	Discontinuities (B - Bedding, J - Joint, S - Shear, D - Drill Break)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
5	0.05	BITUMINOUS CONCRETE							A			PID=0.6ppm
		FILLING - grey sandy gravel filling (gravel is basalt)							A/E			PID=0.7ppm
	0.8	FILLING - grey, silty clay with trace of fine gravel filling, moist							A/E			PID=0.9ppm
4	1.2	CLAY - stiff, mottled orange, light grey clay with trace of silt and ironstone gravel, damp to moist							S			3,5,8 N = 13
									A/E			PID=1.2ppm
	1.8	CLAY - very stiff, light grey clay with trace of ironstone gravel, damp							A/E			PID=1.2ppm
3	2.7	CLAY - very stiff, red brown and grey clay with ironstone bands, moist							S			6,8,10 N = 18
						▼			A/E			PID=1.8ppm
2									S			10,10,15 N = 25
	5.1	CLAY - very stiff, light grey and red brown clay with some ironstone gravel, moist							S			9,13,15 N = 28
1	6.7	SHALY CLAY - very stiff to hard, light grey shaly clay, moist							S			7,11,22 N = 33
									S			6,9,16 N = 25
0												
-1												
-2												
-3												
-4												

RIG: DT 100 **DRILLER:** RKE/GH **LOGGED:** CF **CASING:** HQ to 4.2m

TYPE OF BORING: Solid flight auger to 4.0m; Rotary to 10.2m

WATER OBSERVATIONS: Free groundwater observed at 3.8m whilst augering

REMARKS: *Denotes field replicate sample BD1/17032010 collected. E = Environmental sample

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U_x	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials:
Date:

Douglas Partners
Geotechnics · Environment · Groundwater

BOREHOLE LOG

CLIENT: Bovis Lend Lease
PROJECT: Stage 2 Contamination Assessment
LOCATION: Marrickville Metro, Marrickville

SURFACE LEVEL: 5.2 m AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: BH5
PROJECT No: 71645
DATE: 17 Mar 10
SHEET 2 OF 2

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low, Very Low, Low, Medium, High, Very High, Ex High)	Water	Fracture Spacing (m) (0.01, 0.05, 0.10, 0.50, 1.00)	Discontinuities (B - Bedding J - Joint S - Shear D - Drill Break)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
	10.05	SHALE - extremely low to very low strength, light grey and red brown shale with ironstone bands							S			24,10/50mm refusal
-5	10.2	Bore discontinued at 10.2m										
-6	11											
-7	12											
-8	13											
-9	14											
-10	15											
-11	16											
-12	17											
-13	18											
-14	19											

RIG: DT 100 **DRILLER:** RKE/GH **LOGGED:** CF **CASING:** HQ to 4.2m

TYPE OF BORING: Solid flight auger to 4.0m; Rotary to 10.2m

WATER OBSERVATIONS: Free groundwater observed at 3.8m whilst augering

REMARKS: *Denotes field replicate sample BD1/17032010 collected. E = Environmental sample

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U_x	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials:
Date:

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BOREHOLE LOG

CLIENT: Bovis Lend Lease
PROJECT: Stage 2 Contamination Assessment
LOCATION: Marrickville Metro, Marrickville

SURFACE LEVEL: 4.46 m AHD **BORE No:** BH6
EASTING: **PROJECT No:** 71645
NORTHING: **DATE:** 16 Mar 10
DIP/AZIMUTH: 90°/-- **SHEET** 1 OF 1

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low, Very Low, Low, Medium, High, Very High, Ex High)	Water	Fracture Spacing (m) (0.01, 0.05, 0.10, 0.50, 1.00)	Discontinuities (B - Bedding, J - Joint, S - Shear, D - Drill Break)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
	0.15	BITUMINOUS CONCRETE							A/E			PID=1.7ppm
	0.3	FILLING - grey sandy gravel (roadbase)							A/E*			PID=1.8ppm
	0.4	FILLING - dark grey brown silty clay filling, moist										
	0.8	CLAY - light brown clay with trace of silt, moist							A/E			PID=2.3ppm
	1	CLAY - stiff, mottled orange brown and light grey clay with some ironstone gravel, moist							S			4,4,6 N = 10
	2.0	CLAY - very stiff, mottled orange light grey clay, damp to moist							A/E			PID=2.6ppm
	3								S E			5,7,9 N = 16 PID=2.0ppm
	4.0	CLAY - hard, red brown and light grey clay with some ironstone bands, moist							S			9,11,18 N = 29
	5											
	6								S			12,14,20 N = 34
	6.5	SHALY CLAY - very stiff to hard, light grey mottled orange shaly clay with trace of ironstone gravel, moist										
	7								S			6,13,17 N = 30
	8											
	8.5	SHALE - extremely low strength, light grey and red brown shale with ironstone bands							S			13,24,20/100mm refusal
	9											
	10.0	Bore discontinued at 10.0m										

RIG: Bobcat **DRILLER:** SY/GH **LOGGED:** CF **CASING:** HW to 4.0m

TYPE OF BORING: Solid flight auger to 4.0m; Rotary to 10.0m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: *Denotes field replicate sample BD1/16032010 collected. E = Environmental sample

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U_x	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials:
Date:

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BOREHOLE LOG

CLIENT: Bovis Lend Lease
PROJECT: Stage 2 Contamination Assessment
LOCATION: Marrickville Metro, Marrickville

SURFACE LEVEL: 4.91 m AHD **BORE No:** BH7
EASTING: **PROJECT No:** 71645
NORTHING: **DATE:** 23 Mar 10
DIP/AZIMUTH: 90°/-- **SHEET** 1 OF 2

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low, Very Low, Low, Medium, High, Very High, Ex High)	Water	Fracture Spacing (m) (0.01, 0.05, 0.10, 0.50, 1.00)	Discontinuities (B - Bedding J - Joint S - Shear D - Drill Break)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
4	1	FILLING - light grey to grey orange brown, clay filling with some ironstone gravel, shale fragments, moist							A/E			
									A			
									A			
	1.0	FILLING - grey brown, fine to medium grained, clayey sand filling, moist							S			1,2,0 N = 2
3	1.5	FILLING - light grey to grey orange brown, clay filling with some shale fragments and ironstone gravel, moist										
	2											
2	2.8	CLAY - very stiff, mottled orange light grey to grey, clay with some carbonised organic matter and weak ironstone, moist							S			1,1,1 N = 2
	3											
1	4								S			3,7,10 N = 17
	5											
0	6								S			4,10,15 N = 25
	6.0	CLAY - very stiff then very stiff to hard, mottled red brown and grey clay with ironstone bands, moist										
-1	7								S			7,11,17 N = 28
	8											
-2	9								S			10,14,16 N = 30
	9.0	SHALY CLAY - hard, mottled red brown light grey shaly clay with ironstone bands, damp										
-3												
-4												
-5												

RIG: DT 100 **DRILLER:** Steve Y **LOGGED:** SI/CF **CASING:** HW to 4.0m; HQ to 11.6m

TYPE OF BORING: Hand auger to 1.3m; Solid flight auger to 2.5m; Rotary to 11.6m; NMLC-Coring to 14.5m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: 100% water loss from 4.0m; Standpipe installed to 12.0m
*Denotes field replicate sample BD1/23032010 collected

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U_x	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials:
Date:

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BOREHOLE LOG

CLIENT: Bovis Lend Lease
PROJECT: Stage 2 Contamination Assessment
LOCATION: Marrickville Metro, Marrickville

SURFACE LEVEL: 4.91 m AHD **BORE No:** BH7
EASTING: **PROJECT No:** 71645
NORTHING: **DATE:** 23 Mar 10
DIP/AZIMUTH: 90°/-- **SHEET** 2 OF 2

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low, Very Low, Low, Medium, High, Very High, Ex High)	Water	Fracture Spacing (m) (0.01, 0.05, 0.10, 0.50, 1.00)	Discontinuities (B - Bedding J - Joint S - Shear D - Drill Break)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
-6	11	SHALY CLAY - hard, mottled red brown light grey shaly clay with ironstone bands, damp *(continued)*						Note: Unless otherwise stated, rock is fractured along rough planar bedding dipping at 0°-10° or joints	S			9,14,20 N = 34
	11.0	SILTSTONE/LAMINITE - very low to low strength, grey brown siltstone/laminite with ironstone bands										
	11.6								S			25/100mm refusal
-7	12	LAMINITE - medium strength, moderately weathered then fresh stained, fragmented to fractured, light grey brown to grey, laminite with approximately 40% fine grained sandstone laminations						11.6-11.82m: fragmented & ironstained 11.66m: J75°, rough 11.82-11.94m: J85°, ironstained, rough 11.94-12.14m: (x4) B0°, ironstained 12.2m: J85°, rough, ironstained 12.34m: J75°, ironstained 12.42m: J70°, rough, ironstained 12.62m: J50°, rough 13.04-13.38m: (x2) J, subvertical, parallel, rough & rock fragmented into 0.05mm intervals 13.44m: J90°, rough, ironstained 13.63m: J70°- 80°, steeped, rough 13.81-14.05m: J, subvertical, ironstained & fragmented into 0.03mm intervals 14.13-14.29m: J75°,-80°, rough, fragmented into 0.02mm intervals 14.29m: J70°, rough	C	100	40	PL(A) = 0.8MPa PL(A) = 0.6MPa PL(A) = 1.3MPa
-8	12.65											
	13	LAMINITE - high then medium strength, fresh, highly fractured to fractured and slightly fractured, light grey to grey, laminite with approximately 30% fine grained sandstone laminations							C	100	40	PL(A) = 1.3MPa PL(A) = 0.5MPa
-9	14											
	14.5	Bore discontinued at 14.5m										
-10	15											
-11	16											
-12	17											
-13	18											
-14	19											
-15												

RIG: DT 100 **DRILLER:** Steve Y **LOGGED:** SI/CF **CASING:** HW to 4.0m; HQ to 11.6m

TYPE OF BORING: Hand auger to 1.3m; Solid flight auger to 2.5m; Rotary to 11.6m; NMLC-Coring to 14.5m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: 100% water loss from 4.0m; Standpipe installed to 12.0m
*Denotes field replicate sample BD1/23032010 collected

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U_x	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

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Initials:
Date:

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BOREHOLE LOG

CLIENT: Bovis Lend Lease
PROJECT: Stage 2 Contamination Assessment
LOCATION: Marrickville Metro, Marrickville

SURFACE LEVEL: 4.91 m AHD **BORE No:** BH7A
EASTING: **PROJECT No:** 71645
NORTHING: **DATE:** 22-24/03/2010
DIP/AZIMUTH: 90°/-- **SHEET** 1 OF 1

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low, Very Low, Low, Medium, High, Very High, Ex High)	Water	Fracture Spacing (m) (0.01, 0.05, 0.10, 0.50, 1.00)	Discontinuities (B - Bedding J - Joint S - Shear D - Drill Break)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
4	0.0	FILLING - light grey and orange brown, silty clay with some ironstone gravel filling							A/E			
									A/E			
	1.0								A/E			
3		FILLING - light brown to orange brown, silty sand filling							S			1,2,0 N = 2
	1.4	FILLING - brown clay filling							E			
2												
	2.3	FILLING - crushed sandstone/concrete filling							S			1,1,1 N = 2
2	3.0	Bore discontinued at 3.0m - auger refused on crushed sandstone/concrete							E			
1												
0												
-1												
-2												
-3												
-4												
-5												

RIG: DT 100 **DRILLER:** Steve Y **LOGGED:** SI/CF **CASING:** Uncased

TYPE OF BORING: Hand auger to 1.3m; Solid flight auger to 3.0m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: E = Environmental sample. No sample/refer to driller's log

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U_x	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

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Initials:
Date:

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BOREHOLE LOG

CLIENT: Bovis Lend Lease
PROJECT: Stage 2 Contamination Assessment
LOCATION: Marrickville Metro, Marrickville

SURFACE LEVEL: 4.8 m AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: BH8
PROJECT No: 71645
DATE: 23-24/03/2010
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low, Very Low, Low, Medium, High, Very High, Ex High)	Water	Fracture Spacing (m) (0.01, 0.05, 0.10, 0.50, 1.00)	Discontinuities (B - Bedding, J - Joint, S - Shear, D - Drill Break)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
4	0.14	CONCRETE							A/E			
		FILLING - grey sandy gravel filling							A/E			PID=3.0ppm
	0.6	FILLING - dark grey, sandy silty clay with some concrete gravel filling, moist							A/E			PID=2.7ppm
3	1								A/E			
	1.25	SILTY CLAY - firm, light brown silty clay, moist							A/E			PID=2.1ppm
									S			1,2,2 N = 4
2	2.0	CLAY - stiff, grey clay with trace of silt and gravel, moist							E			PID=1.6ppm
									E			
									E			PID=2.3ppm
									E			
									S			4,4,7 N = 11
1	3	CLAY - very stiff, mottled orange brown and light grey clay with some ironstone gravel, moist							E			PID=2.5ppm
	4								S			7,10,11 N = 21
0	5	CLAY - hard, mottled orange grey clay with some ironstone gravel, moist							S			8,13,22 N = 35
-1	6											
	7								S			6,13,20 N = 33
-2	8											
	8.5	CLAYEY GRAVEL - hard, red brown, clayey gravel (ironstone), damp							S			19,25/150mm refusal
-3	9											
	9.4	Bore discontinued at 9.4m - refusal on possible weathered rock										
-4												
-5												

RIG: DT 100 **DRILLER:** Steve Y **LOGGED:** SI/CF **CASING:** HQ to 4.0m

TYPE OF BORING: Diatube to 0.14m; Solid flight auger to 4.0m; Rotary to 9.4m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: E = Environmental sample. *Denotes field replicate sample BD1 collected

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U_x	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials:
Date:

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BOREHOLE LOG

CLIENT: Bovis Lend Lease
PROJECT: Stage 2 Contamination Assessment
LOCATION: Marrickville Metro, Marrickville

SURFACE LEVEL: 4.5 m AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: BH9
PROJECT No: 71645
DATE: 22 Mar 10
SHEET 1 OF 2

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low, Very Low, Low, Medium, High, Very High, Ex High)	Water	Fracture Spacing (m) (0.01, 0.05, 0.10, 0.50, 1.00)	Discontinuities (B - Bedding J - Joint S - Shear D - Drill Break)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
	0.0	FILLING - grey brown, fine to medium grained sand with some concrete gravel filling							A			
									E			PID=2.4ppm
	0.4	SILTY CLAY - grey brown silty clay with trace of fine grained sand, moist (possible filling)							A/E			PID=3.1ppm
	0.8	SILTY CLAY - stiff, mottled orange brown and light grey silty clay with trace of ironstone gravel, moist							E			PID=1.2ppm
									E			
									A			5,8,7
	1.4	CLAY - stiff, mottled orange brown and light grey clay with some ironstone gravel, moist							S			N = 15
									A/E*			PID=2.4ppm
									E			PID=0.2ppm
									A/E			PID=3.8ppm
	2.8	CLAY - very stiff, red brown and light grey clay with some ironstone bands, moist							S			5,6,7 N = 13
	5.0	SHALY CLAY - hard, light grey shaly clay, damp							S			5,8,13 N = 21
									S			8,15,20 N = 35
	7.2	SILTSTONE/LAMINITE - extremely low to very low strength, light grey siltstone/laminite						Note: Unless otherwise stated, rock is fractured along rough planar bedding dipping at 0°-10° or joints	S			12,20,10/50mm refusal
	8.0	LAMINITE - low and low to medium strength, slightly weathered then fresh, fractured and slightly fractured, light grey brown and grey, laminite with approximately 30% fine grained sandstone laminations. Some very low strength bands						8m: CORE LOSS: 70mm 8.11-8.31m: (x3) B0°, ironstained, clay veneer 8.37m: B0°, 15mm crushed rock fragments 8.47m: J35°, 5mm clay, ironstained 8.53m: B0°, ironstained 8.54m: B10°, ironstained 8.61m: J45°, healed, ironstained 8.66m: B0°, 50mm clay band, ironstained	C	93	37	PL(A) = 0.3MPa PL(A) = 0.2MPa PL(A) = 0.3MPa
	9.11											

RIG: DT 100 **DRILLER:** Rhett **LOGGED:** CF/SI **CASING:** HW to 2.6m; HQ to 8.0m

TYPE OF BORING: Solid flight auger to 2.5m; Rotary to 8.0m; NMLC-Coring to 12.0m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: *Denotes field replicate sample BD1/220300 collected

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U_x	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials:
Date:

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BOREHOLE LOG

CLIENT: Bovis Lend Lease
PROJECT: Stage 2 Contamination Assessment
LOCATION: Marrickville Metro, Marrickville

SURFACE LEVEL: 4.5 m AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: BH9
PROJECT No: 71645
DATE: 22 Mar 10
SHEET 2 OF 2

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low, Very Low, Low, Medium, High, Very High, Ex High)	Water	Fracture Spacing (m) (0.01, 0.05, 0.10, 0.50, 1.00)	Discontinuities (B - Bedding J - Joint S - Shear D - Drill Break)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
-6	10.4	LAMINITE - see previous page						8.74m: B0°, ironstained 9.04m: J45°, rough 9.11m: CORE LOSS: 70mm 9.36m: J20°, clayey 9.26-9.34m: crushed rock, possible shear zone 9.42m: B10°, clay 9.47m: J30°, healed 9.5m: F35°, micro fault 9.55m: J45°, ironstained 9.66m: J25°, clay smear 9.73m: J45°, rough 10.09 & 10.26m: (x2) B0°, clay smear 10.31-10.34m: (x2) J35°, parallel 10.45-10.65m: (x4) B0°, clay smear 10.85m: J50°, smooth 11.14m: J50°, smooth 11.39-11.96m: (x5) B0°, clay smear				
-7	11	LAMINITE - medium strength, fresh, slightly fractured, light grey to grey laminite with approximately 20% fine grained, sandstone laminations. Some extremely and very low strength bands							C	100	77	PL(A) = 0.4MPa PL(A) = 0.6MPa
-8	12 12.0	Bore discontinued at 12.0m										
-9	13											
-10	14											
-11	15											
-12	16											
-13	17											
-14	18											
-15	19											

RIG: DT 100 **DRILLER:** Rhett **LOGGED:** CF/SI **CASING:** HW to 2.6m; HQ to 8.0m

TYPE OF BORING: Solid flight auger to 2.5m; Rotary to 8.0m; NMLC-Coring to 12.0m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: *Denotes field replicate sample BD1/220300 collected

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U_x	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

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Table 1. Stage 1B Soil Results

	BTEX							Lead	Metals								OCP/OPP										
	Benzene	Ethylbenzene	Toluene	Xylene (m & p)	Xylene (o)	Xylene Total	C6-C10 less BTEX (F1)	Lead	Arsenic	Cadmium	Chromium (III+VI)	Copper	Manganese	Mercury	Nickel	Zinc	Aldrin + Dieldrin	DDT+DDE+DDD	Endrin	Endosulfan (total)	Heptachlor	HCB	Methoxychlor	Chlordane	Chlorpyrifos	Benzo(a) pyrene	Benzo(a) pyrene TEQ
	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	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
PQL	0.2	1	0.5	2	1		25	1	4	0.4	1	1		0.1	1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.05
NEPM (2013) Table 1A(1) HILs Commercial/Industrial D Soil								1500	3000	900	3600	240,000	60,000	730	6000	400,000	45	3600	100	2000	50	80	2500	530	2000		40
NEPM (2013) Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay 0-1m	3	NL	NL			NL	260																				
NEPM (2013) Direct Contact HSL Comm/Ind D	430	27,000	99,000			81,000	26,000																				
NEPM (2013) Direct Contact HSL Intrusive Maintenance Worker	1100	85,000	120,000			130,000	82,000																				
NEPM (2013) Table 1B(7) Management Limits Commercial/Industrial, Coarse Soil																											
Soil-specific Contaminant Limits - EILs[a]								1800	160		530	280			290	620		640									
ESLs - Commercial and Industrial (Coarse)	75	165	135			180																				1.4	
Current Assessment (DP 2015)																											
Test Bore Location	**Sample Depth**	**Sample Date**																									
106	0.3-0.4	19/08/2015	<0.2	<1	<0.5	<2	<1	<1	<25	24	5	<0.4	21	<1	-	<0.1	1	3	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5
106	1.0-1.1	19/08/2015	<0.2	<1	<0.5	<2	<1	<1	<25	130	6	<0.4	18	28	64	0.6	5	110	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	5.9	8.6
107	0.3-0.4	19/08/2015	<0.2	<1	<0.5	<2	<1	<1	<25	76	<4	<0.4	18	18	52	0.2	5	67	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1.2	1.8
BDR3-19082015	107/0.3-0.4	19/08/2015	<0.2	<1	<0.5	<2	<1	<1	<25	67	<4	<0.4	16	20	-	0.2	5	62	-	-	-	-	-	-	-	-	1.6	2.2
108	0.4-0.5	20/08/2015	<0.2	<1	<0.5	<2	<1	<1	<25	38	4	<0.4	8	18	130	<0.1	8	66	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.97	1.4
Previous Assessment (DP 2010)																											
Test Bore Location	**Sample Depth**	**Sample Date**																									
BH4	0.5	23/03/2010	<0.5	<0.5	<1	-	-	<3	-	38	6	<0.5	29	24	-	0.2	10	48	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	-
BH4	5.8-6.0	23/03/2010	<0.5	<0.5	<1	-	-	<3	-	9	<4	<0.5	5	10	-	<0.1	1	3	-	-	-	-	-	-	-	-	<0.05	-

Notes:

BTEX	Benzene, Toluene, Ethylbenzene and Xylene	PAH	Polycyclic Aromatic Hydrocarbon		Exceeds HIL/HSL
CRC CARE	Cooperative Research Centre for Contamination Assessment and Remediation of t	PQL	Practical Quantiation Limit		Exceeds EIL/ESL
HIL	Health Investigation Level	TEQ	Toxicity Equivalence Quotient	-	Not Analysed/Not Applicable/Not Available
HSL	Health Screening Level	TRH	Total Recoverable Hydrocarbon	a	Based on CEC of 2.5 meq/100g, pH 9.0
NAD	No Asbestos Detected at Reporting Limit of 0.1g/kg	VOC	Volatile Organic Compounds	*	Tetrachloroethene (PCE)
NEPM	National Environmental Protection Measure 1999 as amended (2013)	EIL	Environmental Investigation Level	CH/AM	Chrysotile and Amosite Asbestos Detected
OCP/OPP	Organochlorine Pesticides/Organophosphorus Pesticides	ESL	Environmental Screening Level		
PCB	Polychlorinated Biphenyls				

Table 1. Stage 1B Soil Results

			PAH			PCB	TPH										Asbestos	VOC
			Naphthalene	PAHs (Sum of total)	Phenolics Total		C10-C16	C16-C34	C34-C40	F2-NAPHTHALENE	C6 - C9	C10 - C14	C15 - C28	C29-C36	+C10 - C36 (Sum of total)	C6-C10		
			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
PQL			0.1		5	0.1	50	100	100	50	25	50	100	100	250	25	NAD	-
NEPM (2013) Table 1A(1) HILs Commercial/Industrial D Soil				4000	240,000	7												
NEPM (2013) Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay 0-1m			NL															
NEPM (2013) Direct Contact HSL Comm/Ind D			11,000				20,000	27,000	38,000									
NEPM (2013) Direct Contact HSL Intrusive Maintenance Worker			29,000				62,000	85,000	120,000									
NEPM (2013) Table 1B(7) Management Limits Commercial/Industrial, Coarse Soil							1000	3500	10,000							700		
Soil-specific Contaminant Limits - EILs[a]			370															
ESLs - Commercial and Industrial (Coarse)							170	1700	3300							215		
Current Assessment (DP 2015)																		
Test Bore Location	Sample Depth	Sample Date																
106	0.3-0.4	19/08/2015	<0.1	<PQL	-	<0.1	-	<100	<100	<50	<25	<50	<100	<100	<250	<25	-	-
106	1.0-1.1	19/08/2015	0.3	73	<5	<0.1	<50	280	<100	<50	<25	<50	180	140	320	<25	NAD	1*
107	0.3-0.4	19/08/2015	<0.1	12	<5	<0.1	<50	<100	<100	<50	<25	<50	<100	<100	<250	<25	NAD	<PQL
BDR3-19082015	107/0.3-0.4	19/08/2015	<0.1	16	-	-	<50	<100	<100	<50	<25	<50	<100	<100	<250	<25	-	-
108	0.4-0.5	20/08/2015	<0.1	8.1	<5	<0.1	<50	<100	<100	<50	<25	<50	<100	<100	<250	<25	NAD	<PQL
Previous Assessment (DP 2010)																		
Test Bore Location	Sample Depth	Sample Date																
BH4	0.5	23/03/2010	-	1.6	<5	<0.1	-	-	-	-	<25	-	-	-	<250	-	NAD	<PQL
BH4	5.8-6.0	23/03/2010	-	<1	<5	-	-	-	-	-	<25	-	-	-	<250	-	-	<PQL

Table 2. Stage 1B Groundwater Results

							Field_ID	BH101	BH106	BH106	BH106	BH106	BH106	BH106	BH106	BH118	BH118	BH118	BH118	BH118	BH118	BH4
							LocCode	BH101	BH106	BH106	BH106	BH106	BH106	BH106	BH106	BH118	BH118	BH118	BH118	BH118	BH118	BH4
							WellCode															
							Sampled_Date-Time	29-Sep-15	29-Sep-15	17-Dec-15	14-Jul-16	19-Oct-16	20-Jan-17	27-Apr-17	12-Jul-17	17-Dec-15	14-Jul-16	19-Oct-16	20-Jan-17	27-Apr-17	12-Jul-17	30-Mar-10
				ANZECC 2000 LOW RELIABILITY FW	NEPM 2013 Table 1A(4) Comm/Ind HSL D GW	ANZECC 2000 GILs, Fresh Waters	Drinking Water															
Chem_Group	**ChemName**	**Units**	**EQL**		2-4m																	
	Formaldehyde	mg/L	0.1				0.5	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Inorganics	Ammonia	mg/L	0.005			0.9		<0.005	0.66	-	0.11	-	0.059	-	0.028	-	0.03	-	0.025	-	0.022	-
	Chloride	mg/L	1					-	-	-	93	-	90	-	64	-	310	-	300	-	240	-
	Ferrous Iron	mg/L	0.05					-	-	-	2.5	-	2.3	-	0.13	-	6.2	-	5	-	1.8	-
	Nitrate (as N)	mg/L	0.005					-	-	-	0.52	-	-	-	0.04	-	0.006	-	-	-	0.005	-
	Nitrite (as N)	mg/L	0.005					-	-	-	<0.005	-	-	-	<0.005	-	<0.005	-	-	-	<0.005	-
	Sulphate	mg/L	1				500	-	-	-	140	-	200	-	160	-	280	-	250	-	220	-
	Sulphide	mg/L	0.5					-	-	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-
Organic	Ethane	mg/L	0.005					-	-	-	<0.005	-	<0.005	-	<0.005	-	<0.005	-	<0.005	-	<0.005	-
	Ethene	mg/L	0.005					-	-	-	<0.005	-	<0.005	-	<0.005	-	<0.005	-	<0.005	-	<0.005	-
	Methane	mg/L	0.005					-	-	-	<0.005	-	<0.005	-	<0.005	-	0.024	-	0.023	-	0.018	-
Cyanides	Cyanide Total	mg/L	0.004			0.007	0.08	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Metals	Aluminium (Filtered)	mg/L	0.01			0.055		0.1	0.26	-	-	-	-	-	-	-	-	-	-	-	-	-
	Arsenic (Filtered)	mg/L	0.001				0.01	<0.001	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	<0.001
	Cadmium (Filtered)	mg/L	0.0001			0.0002	0.002	<0.0001	<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	0.0001
	Calcium (Filtered)	mg/L	0.5					2.5	-	-	-	-	-	-	-	-	-	-	-	-	-	5.8
	Chromium (III+VI) (Filtered)	mg/L	0.001					<0.001	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	0.001
	Copper (Filtered)	mg/L	0.001			0.0014	2	0.002	0.006	-	-	-	-	-	-	-	-	-	-	-	-	0.007
	Ferric Iron	mg/L	0.05					-	-	-	0.13	-	0.26	-	<0.05	-	<0.05	-	3.6	-	<0.05	-
	Iron (Filtered)	mg/L	0.01					-	-	-	2.2	-	2.5	-	0.14	-	5.5	-	8.6	-	1.7	-
	Lead (Filtered)	mg/L	0.001			0.0034	0.01	<0.001	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	<0.001
	Magnesium (Filtered)	mg/L	0.5					6.2	-	-	-	-	-	-	-	-	-	-	-	-	-	36
	Manganese (Filtered)	mg/L	0.005			1.9	0.5	0.01	0.053	-	0.029	-	0.035	-	0.026	-	0.1	-	0.12	-	0.13	-
	Mercury (Filtered)	mg/L	0.00005			0.00006	0.001	<0.00005	<0.00005	-	-	-	-	-	-	-	-	-	-	-	-	<0.0005
	Nickel (Filtered)	mg/L	0.001			0.011	0.02	0.001	0.004	-	-	-	-	-	-	-	-	-	-	-	-	0.019
	Silver (Filtered)	mg/L	0.001			0.00005	0.1	-	0.005	-	-	-	-	-	-	-	-	-	-	-	-	-
	Zinc (Filtered)	mg/L	0.001			0.008		0.008	0.04	-	-	-	-	-	-	-	-	-	-	-	-	0.082
TPH	C10-C16	mg/L	0.05					<0.05	<0.05	0.084	-	-	-	-	-	<0.05	-	-	-	-	-	-
	C16-C34	mg/L	0.1					<0.1	0.14	0.11	-	-	-	-	-	<0.1	-	-	-	-	-	-
	C34-C40	mg/L	0.1					<0.1	<0.1	<0.1	-	-	-	-	-	<0.1	-	-	-	-	-	-
	F2-NAPHTHALENE	mg/L	0.05		NL			<0.05	<0.05	0.084	-	-	-	-	-	<0.05	-	-	-	-	-	-
	C6 - C9	mg/L	0.01					<0.01	2.7	3.6	-	-	-	-	-	0.028	-	-	-	-	-	<0.01
	C10 - C14	mg/L	0.05					<0.05	<0.05	<0.05	-	-	-	-	-	<0.05	-	-	-	-	-	<0.05
	C15 - C28	mg/L	0.1					<0.1	0.11	0.14	-	-	-	-	-	<0.1	-	-	-	-	-	<0.1
	C29-C36	mg/L	0.1					<0.1	<0.1	<0.1	-	-	-	-	-	<0.1	-	-	-	-	-	<0.1
	C6-C10 less BTEX (F1)	mg/L	0.01		NL|6			<0.01	2.7	3.6	-	-	-	-	-	0.028	-	-	-	-	-	-
	C6-C10	mg/L	0.01					<0.01	2.7	3.6	-	-	-	-	-	0.028	-	-	-	-	-	-
BTEX	Benzene	mg/L	0.001		5|30	0.95	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Ethylbenzene	mg/L	0.001		NL		0.3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Toluene	mg/L	0.001		NL		0.8	<0.001	0.043	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Xylene (m & p)	mg/L	0.002					<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
	Xylene (o)	mg/L	0.001			0.35		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MAH	1,2,4-trimethylbenzene	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,3,5-trimethylbenzene	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Isopropylbenzene	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	n-butylbenzene	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	n-propylbenzene	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	p-isopropyltoluene	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	sec-butylbenzene	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Styrene	mg/L	0.001				0.03	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	tert-butylbenzene	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chlorinated Hydrocarbons	1,1,1,2-tetrachloroethane	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,1,1-trichloroethane	mg/L	0.001	0.27				<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,1,2,2-tetrachloroethane	mg/L	0.001	0.4				<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,1,2-trichloroethane	mg/L	0.001	1.9		6.5		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,1-dichloroethane	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,1-dichloroethene	mg/L	0.001				0.03	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,1-dichloropropene	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,2,3-trichloropropane	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,2-dibromo-3-chloropropane	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,2-dichloroethane	mg/L	0.001	1.9			0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,2-dichloropropane	mg/L	0.001	0.9				<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,3-dichloropropane	mg/L	0.001	1.1				<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	2,2-dichloropropane	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Bromochloromethane	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Bromodichloromethane	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Bromoform	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Carbon tetrachloride	mg/L	0.001	0.24			0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Chem_Group	ChemName	Units	EQL	ANZECC 2000 LOW RELIABILITY FW	NEPM 2013 Table 1A(4) Comm/Ind HSL D GW 2-4m	ANZECC 2000 GILs, Fresh Waters	Drinking Water	BH101	BH106	BH106	BH106	BH106	BH106	BH106	BH106	BH118	BH118	BH118	BH118	BH118	BH118	BH4
							LocCode	BH101	BH106	BH106	BH106	BH106	BH106	BH106	BH106	BH118	BH118	BH118	BH118	BH118	BH118	BH4
							WellCode															
							Sampled_Date-Time	29-Sep-15	29-Sep-15	17-Dec-15	14-Jul-16	19-Oct-16	20-Jan-17	27-Apr-17	12-Jul-17	17-Dec-15	14-Jul-16	19-Oct-16	20-Jan-17	27-Apr-17	12-Jul-17	30-Mar-10
	Chlorodibromomethane	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Chloroethane	mg/L	0.01					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Chloroform	mg/L	0.001	0.37				<0.001	0.001	<0.001	<0.001	0.002	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Chloromethane	mg/L	0.01					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	cis-1,2-dichloroethene	mg/L	0.001					<0.001	0.004	0.004	0.006	0.005	0.006	0.006	0.006	0.036	0.043	0.05	0.04	0.011	0.053	0.0045
	cis-1,3-dichloropropene	mg/L	0.001	0.0008				<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Dibromomethane	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Hexachlorobutadiene	mg/L	0.001				0.0007	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Trichloroethene	mg/L	0.001	0.33				<0.001	0.071	0.08	0.091	0.067	0.067	0.073	0.088	0.003	0.004	0.005	0.003	<0.001	0.005	0.0014
	Tetrachloroethene	mg/L	0.001	0.07			0.05	<0.001	2.1	2.4	3.9	1.7	2	2.5	2.7	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0015
	trans-1,2-dichloroethene	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001
	trans-1,3-dichloropropene	mg/L	0.001	0.0008				<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Vinyl chloride	mg/L	0.01				0.0003	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Halogenated Hydrocarbons	1,2-dibromoethane	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Bromomethane	mg/L	0.01				0.001	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Dichlorodifluoromethane	mg/L	0.01					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Trichlorofluoromethane	mg/L	0.01					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Halogenated Benzenes	1,2,3-trichlorobenzene	mg/L	0.001	0.003		0.003	0.03	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,2,4-trichlorobenzene	mg/L	0.001			0.085	0.03	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,2-dichlorobenzene	mg/L	0.001	0.16		0.16	1.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,3-dichlorobenzene	mg/L	0.001	0.26		0.26		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,4-dichlorobenzene	mg/L	0.001	0.06		0.06	0.04	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	2-chlorotoluene	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	4-chlorotoluene	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Bromobenzene	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Chlorobenzene	mg/L	0.001				0.3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Hexachlorobenzene	mg/L	0.00001					<0.00001	<0.00001	-	-	-	-	-	-	-	-	-	-	-	-	-
Solvents	Cyclohexane	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
PAH/Phenols	2,4-dimethylphenol	mg/L	0.001					<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2,4-dinitrophenol	mg/L	0.02			0.045		<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2-methylphenol	mg/L	0.001					<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2-nitrophenol	mg/L	0.001					<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3-&4-methylphenol	mg/L	0.002					<0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4,6-Dinitro-2-methylphenol	mg/L	0.01					<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4-chloro-3-methylphenol	mg/L	0.005					<0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4-nitrophenol	mg/L	0.02					<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Acenaphthene	mg/L	0.0001					<0.0001	<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	<0.001
	Acenaphthylene	mg/L	0.0001					<0.0001	<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	<0.001
	Anthracene	mg/L	0.0001					<0.0001	<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	<0.001
	Benz(a)anthracene	mg/L	0.0001					<0.0001	<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	<0.001
	Benzo(a) pyrene	mg/L	0.0001				0.00001	<0.0001	<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	<0.001
	Benzo(b)&(k)fluoranthene	mg/L	0.0002					<0.0002	<0.0002	-	-	-	-	-	-	-	-	-	-	-	-	<0.002
	Benzo(g,h,i)perylene	mg/L	0.0001					<0.0001	<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	<0.001
	Benzo(k)fluoranthene	mg/L	0.002					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Chrysene	mg/L	0.0001					<0.0001	<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	<0.001
	Dibenz(a,h)anthracene	mg/L	0.0001					<0.0001	<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	<0.001
	Fluoranthene	mg/L	0.0001					<0.0001	<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	<0.001
	Fluorene	mg/L	0.0001					<0.0001	<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	<0.001
	Indeno(1,2,3-c,d)pyrene	mg/L	0.0001					<0.0001	<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	<0.001
	Naphthalene	mg/L	0.0002		NL	0.016		<0.0002	<0.0002	<0.001	-	-	-	-	-	<0.001	-	-	-	-	-	<0.001
	Phenanthrene	mg/L	0.0001					<0.0001	<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	<0.001
	Phenol	mg/L	0.001			0.32		<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Phenolics Total	mg/L	0.05					<0.05	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
	Pyrene	mg/L	0.0001					<0.0001	<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	<0.001
Halogenated Phenols	2,3,4,6-tetrachlorophenol	mg/L	0.001			0.01		<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2,4,5-trichlorophenol	mg/L	0.001					<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2,4,6-trichlorophenol	mg/L	0.001			0.003	0.02	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2,4-dichlorophenol	mg/L	0.001			0.12	0.2	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2,6-dichlorophenol	mg/L	0.001					<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2-chlorophenol	mg/L	0.001			0.34	0.3	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Pentachlorophenol	mg/L	0.005			0.0036	0.01	<0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Polychlorinated Biphenyls	Arochlor 1016	mg/L	0.0001	0.000009				<0.0001	<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-
	Arochlor 1221	mg/L	0.0001	0.001				<0.0001	<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-
	Arochlor 1232	mg/L	0.0001	0.0003				<0.0001	<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-
	Arochlor 1242	mg/L	0.0001	0.0006		0.0003		<0.0001	<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-
	Arochlor 1248	mg/L	0.0001	0.00003				<0.0001	<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-
	Arochlor 1254	mg/L	0.0001	0.00003		0.00001		<0.0001	<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-
	Arochlor 1260	mg/L	0.0001	0.025				<0.0001	<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-

Chem_Group	ChemName	Units	EQL	ANZECC 2000 LOW RELIABILITY FW	NEPM 2013 Table 1A(4) Comm/Ind HSL D GW 2-4m	ANZECC 2000 GILs, Fresh Waters	Drinking Water	BH101	BH106	BH106	BH106	BH106	BH106	BH106	BH106	BH118	BH118	BH118	BH118	BH118	BH118	BH4
							LocCode	BH101	BH106	BH106	BH106	BH106	BH106	BH106	BH106	BH118	BH118	BH118	BH118	BH118	BH118	BH4
							WellCode															
							Sampled_Date-Time	29-Sep-15	29-Sep-15	17-Dec-15	14-Jul-16	19-Oct-16	20-Jan-17	27-Apr-17	12-Jul-17	17-Dec-15	14-Jul-16	19-Oct-16	20-Jan-17	27-Apr-17	12-Jul-17	30-Mar-10
Organochlorine Pesticides	4,4-DDE	mg/L	0.00001					<0.00001	<0.00001	-	-	-	-	-	-	-	-	-	-	-	-	-
	a-BHC	mg/L	0.00001					<0.00001	<0.00001	-	-	-	-	-	-	-	-	-	-	-	-	-
	Aldrin	mg/L	0.00001					<0.00001	<0.00001	-	-	-	-	-	-	-	-	-	-	-	-	-
	b-BHC	mg/L	0.00001					<0.00001	<0.00001	-	-	-	-	-	-	-	-	-	-	-	-	-
	Chlordane (cis)	mg/L	0.00001					<0.00001	<0.00001	-	-	-	-	-	-	-	-	-	-	-	-	-
	Chlordane (trans)	mg/L	0.00001					<0.00001	<0.00001	-	-	-	-	-	-	-	-	-	-	-	-	-
	d-BHC	mg/L	0.00001					<0.00001	<0.00001	-	-	-	-	-	-	-	-	-	-	-	-	-
	DDD	mg/L	0.00001					<0.00001	<0.00001	-	-	-	-	-	-	-	-	-	-	-	-	-
	DDT	mg/L	0.000006			0.000006	0.009	<0.000006	<0.000006	-	-	-	-	-	-	-	-	-	-	-	-	-
	Dieldrin	mg/L	0.00001					<0.00001	0.00001	-	-	-	-	-	-	-	-	-	-	-	-	-
	Endosulfan I	mg/L	0.00001					<0.00001	<0.00001	-	-	-	-	-	-	-	-	-	-	-	-	-
	Endosulfan II	mg/L	0.00001					<0.00001	<0.00001	-	-	-	-	-	-	-	-	-	-	-	-	-
	Endosulfan sulphate	mg/L	0.00001					<0.00001	<0.00001	-	-	-	-	-	-	-	-	-	-	-	-	-
	Endrin	mg/L	0.00001			0.00001		<0.00001	<0.00001	-	-	-	-	-	-	-	-	-	-	-	-	-
	Endrin aldehyde	mg/L	0.00001					<0.00001	<0.00001	-	-	-	-	-	-	-	-	-	-	-	-	-
	g-BHC (Lindane)	mg/L	0.00001			0.0002	0.01	<0.00001	<0.00001	-	-	-	-	-	-	-	-	-	-	-	-	-
	Heptachlor	mg/L	0.00001			0.00001		<0.00001	<0.00001	-	-	-	-	-	-	-	-	-	-	-	-	-
	Heptachlor epoxide	mg/L	0.00001				0.0003	<0.00001	<0.00001	-	-	-	-	-	-	-	-	-	-	-	-	-
	Methoxychlor	mg/L	0.00001					<0.00001	<0.00001	-	-	-	-	-	-	-	-	-	-	-	-	-
Organophosphorous Pesticides	Azinophos methyl	mg/L	0.00002				0.03	<0.00002	<0.00002	-	-	-	-	-	-	-	-	-	-	-	-	-
	Bromophos-ethyl	mg/L	0.00001					<0.00001	<0.00001	-	-	-	-	-	-	-	-	-	-	-	-	-
	Chlorpyrifos	mg/L	0.00001			0.00001	0.01	<0.00001	<0.00001	-	-	-	-	-	-	-	-	-	-	-	-	-
	Chlorpyrifos-methyl	mg/L	0.00001					<0.00001	<0.00001	-	-	-	-	-	-	-	-	-	-	-	-	-
	Diazinon	mg/L	0.01			0.00001	0.004	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-
	Dichlorvos	mg/L	0.00001				0.005	<0.00001	<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-
	Dimethoate	mg/L	0.00001			0.00015	0.007	<0.00001	<0.00001	-	-	-	-	-	-	-	-	-	-	-	-	-
	Ethion	mg/L	0.00001				0.004	<0.00001	<0.00001	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fenitrothion	mg/L	0.00001			0.0002	0.007	<0.00001	<0.00001	-	-	-	-	-	-	-	-	-	-	-	-	-
	Malathion	mg/L	0.00005			0.00005	0.07	<0.00005	<0.00005	-	-	-	-	-	-	-	-	-	-	-	-	-
	Ronnel	mg/L	0.00001					<0.00001	<0.00001	-	-	-	-	-	-	-	-	-	-	-	-	-
Pesticides	Bifenthrin	mg/L	0.0005					<0.0005	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Parathion	mg/L	0.00001			0.000004	0.02	<0.00001	<0.00001	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:

ANZECC 2000 Freah Water — National water quality management strategy. Australia and New Zealand Guidelines for Fresh and Marine Water Quality 2000 (ANZECC and ARMCANZ). Moderate Reliability Investigation Levels for the protection of 95% of species

NEPM 2013 — National Environment Protection (Assessment of Site Contamination) Measure 1999 (Amended 2013, published by National Environmental Protection Council (2013), (NEPC 2013). NEPC (2013), HSL for clay soil, 2-4 m bgl, commercial / industrial landuse

Drinking Water — Australian Drinking Water Guidelines 2011 (ADWG)

ANZECC 2000 LOW RELIABILITY FW — National water quality management strategy. Australia and New Zealand Guidelines for Fresh and Marine Water Quality 2000 (ANZECC and ARMCANZ). Low reliability investigation levels for fresh water

							Field_ID	BH4	BH4	BH4	BH4	BH4	BH4	BH4	DPMW01	DPMW01	DPMW01	DPMW01	DPMW01	DPMW02	DPMW02	DPMW02
							LocCode	BH4	BH4	BH4	BH4	BH4	BH4	BH4	DPMW01	DPMW01	DPMW01	DPMW01	DPMW01	DPMW02	DPMW02	DPMW02
							WellCode															
							Sampled_Date-Time	29-Sep-15	17-Dec-15	14-Jul-16	19-Oct-16	20-Jan-17	27-Apr-17	12-Jul-17	07-Nov-16	20-Jan-17	27-Apr-17	17-May-17	12-Jul-17	07-Nov-16	17-May-17	12-Jul-17
				ANZECC 2000 LOW RELIABILITY FW	NEPM 2013 Table 1A(4) Comm/Ind HSL D GW	ANZECC 2000 GILs, Fresh Waters	Drinking Water																
Chem_Group	**ChemName**	**Units**	**EQL**		2-4m																		
	Formaldehyde	mg/L	0.1				0.5	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Inorganics	Ammonia	mg/L	0.005			0.9		0.055	-	0.081	-	0.13	-	0.079	-	0.008	-	-	-	-	-	-	-
	Chloride	mg/L	1					-	-	670	-	800	-	500	-	110	-	-	-	-	-	-	-
	Ferrous Iron	mg/L	0.05					-	-	16	-	15	-	9.2	-	1.4	-	-	-	-	-	-	-
	Nitrate (as N)	mg/L	0.005					-	-	<0.005	-	-	-	<0.005	-	-	-	-	-	-	-	-	-
	Nitrite (as N)	mg/L	0.005					-	-	<0.005	-	-	-	<0.005	-	-	-	-	-	-	-	-	-
	Sulphate	mg/L	1				500	-	-	510	-	490	-	360	-	150	-	-	-	-	-	-	-
	Sulphide	mg/L	0.5					-	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	-	-	-	-	-	-
Organic	Ethane	mg/L	0.005					-	-	<0.005	-	<0.005	-	<0.005	-	<0.005	-	-	-	-	-	-	-
	Ethene	mg/L	0.005					-	-	<0.005	-	<0.005	-	<0.005	-	<0.005	-	-	-	-	-	-	-
	Methane	mg/L	0.005					-	-	0.009	-	<0.005	-	0.008	-	0.011	-	-	-	-	-	-	-
Cyanides	Cyanide Total	mg/L	0.004			0.007	0.08	<0.004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Metals	Aluminium (Filtered)	mg/L	0.01			0.055		0.72	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Arsenic (Filtered)	mg/L	0.001				0.01	<0.001	-	-	-	-	-	-	<0.001	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Cadmium (Filtered)	mg/L	0.0001			0.0002	0.002	0.0001	-	-	-	-	-	-	0.0002	-	-	<0.0001	<0.0001	0.0002	<0.0001	<0.0001	<0.0001
	Calcium (Filtered)	mg/L	0.5					5.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Chromium (III+VI) (Filtered)	mg/L	0.001					<0.001	-	-	-	-	-	-	<0.001	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Copper (Filtered)	mg/L	0.001			0.0014	2	0.016	-	-	-	-	-	-	0.008	-	-	0.006	0.014	0.03	0.012	0.032	
	Ferric Iron	mg/L	0.05					-	-	0.19	-	<0.05	-	<0.05	-	2.4	-	-	-	-	-	-	-
	Iron (Filtered)	mg/L	0.01					-	-	14	-	12	-	9.1	-	3.8	-	-	-	-	-	-	-
	Lead (Filtered)	mg/L	0.001			0.0034	0.01	<0.001	-	-	-	-	-	-	<0.001	-	-	0.003	<0.001	<0.001	0.001	0.002	
	Magnesium (Filtered)	mg/L	0.5					40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Manganese (Filtered)	mg/L	0.005			1.9	0.5	0.45	-	0.47	-	0.57	-	0.47	-	0.061	-	-	-	-	-	-	-
	Mercury (Filtered)	mg/L	0.00005			0.00006	0.001	<0.00005	-	-	-	-	-	-	<0.00005	-	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Nickel (Filtered)	mg/L	0.001			0.011	0.02	0.014	-	-	-	-	-	-	0.006	-	-	0.004	0.004	0.011	0.008	0.007	
	Silver (Filtered)	mg/L	0.001			0.00005	0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Zinc (Filtered)	mg/L	0.001			0.008		0.071	-	-	-	-	-	-	0.13	-	-	0.037	0.029	0.11	0.046	0.035	
TPH	C10-C16	mg/L	0.05					<0.05	<0.05	-	-	-	-	-	<0.05	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	
	C16-C34	mg/L	0.1					<0.1	<0.1	-	-	-	-	-	<0.1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	
	C34-C40	mg/L	0.1					<0.1	<0.1	-	-	-	-	-	<0.1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	
	F2-NAPHTHALENE	mg/L	0.05		NL			<0.05	<0.05	-	-	-	-	-	<0.05	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	
	C6 - C9	mg/L	0.01					0.011	<0.01	-	-	-	-	-	0.025	-	-	0.018	0.031	<0.01	<0.01	0.012	
	C10 - C14	mg/L	0.05					0.073	<0.05	-	-	-	-	-	<0.05	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	
	C15 - C28	mg/L	0.1					<0.1	<0.1	-	-	-	-	-	<0.1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	
	C29-C36	mg/L	0.1					<0.1	<0.1	-	-	-	-	-	<0.1	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	
	C6-C10 less BTEX (F1)	mg/L	0.01		NL|6			0.011	<0.01	-	-	-	-	-	0.028	-	-	0.022	0.031	<0.01	<0.01	0.012	
	C6-C10	mg/L	0.01					0.011	<0.01	-	-	-	-	-	0.029	-	-	0.022	0.031	<0.01	<0.01	0.012	
BTEX	Benzene	mg/L	0.001		5|30	0.95	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Ethylbenzene	mg/L	0.001		NL		0.3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Toluene	mg/L	0.001		NL		0.8	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Xylene (m & p)	mg/L	0.002					<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
	Xylene (o)	mg/L	0.001			0.35		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MAH	1,2,4-trimethylbenzene	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001	
	1,3,5-trimethylbenzene	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001	
	Isopropylbenzene	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001	
	n-butylbenzene	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001	
	n-propylbenzene	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001	
	p-isopropyltoluene	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001	
	sec-butylbenzene	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001	
	Styrene	mg/L	0.001				0.03	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001	
	tert-butylbenzene	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001	
Chlorinated Hydrocarbons	1,1,1,2-tetrachloroethane	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001	
	1,1,1-trichloroethane	mg/L	0.001	0.27				<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001	
	1,1,2,2-tetrachloroethane	mg/L	0.001	0.4				<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001	
	1,1,2-trichloroethane	mg/L	0.001	1.9		6.5		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001	
	1,1-dichloroethane	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001	
	1,1-dichloroethene	mg/L	0.001				0.03	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001	
	1,1-dichloropropene	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001	
	1,2,3-trichloropropane	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001	
	1,2-dibromo-3-chloropropane	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001	
	1,2-dichloroethane	mg/L	0.001	1.9			0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001	
	1,2-dichloropropane	mg/L	0.001	0.9				<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001	
	1,3-dichloropropane	mg/L	0.001	1.1				<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001	
	2,2-dichloropropane	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001	
	Bromochloromethane	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001	
	Bromodichloromethane	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001	
	Bromoform	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001	
	Carbon tetrachloride	mg/L	0.001	0.24			0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001	

							Field_ID	BH4	BH4	BH4	BH4	BH4	BH4	BH4	DPMW01	DPMW01	DPMW01	DPMW01	DPMW01	DPMW02	DPMW02	DPMW02
							LocCode	BH4	BH4	BH4	BH4	BH4	BH4	BH4	DPMW01	DPMW01	DPMW01	DPMW01	DPMW01	DPMW02	DPMW02	DPMW02
							WellCode															
							Sampled_Date-Time	29-Sep-15	17-Dec-15	14-Jul-16	19-Oct-16	20-Jan-17	27-Apr-17	12-Jul-17	07-Nov-16	20-Jan-17	27-Apr-17	17-May-17	12-Jul-17	07-Nov-16	17-May-17	12-Jul-17
				ANZECC 2000 LOW RELIABILITY FW	NEPM 2013 Table 1A(4) Comm/Ind HSL D GW	ANZECC 2000 GILs, Fresh Waters	Drinking Water															
Chem_Group	**ChemName**	**Units**	**EQL**		2-4m																	
	Chlorodibromomethane	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001
	Chloroethane	mg/L	0.01					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01
	Chloroform	mg/L	0.001	0.37				<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001
	Chloromethane	mg/L	0.01					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01
	cis-1,2-dichloroethene	mg/L	0.001					0.004	0.003	0.002	0.003	0.002	0.004	0.004	<0.001	<0.001	0.001	<0.001	0.001	-	<0.001	<0.001
	cis-1,3-dichloropropene	mg/L	0.001	0.0008				<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001
	Dibromomethane	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001
	Hexachlorobutadiene	mg/L	0.001				0.0007	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001
	Trichloroethene	mg/L	0.001	0.33				0.002	0.002	<0.001	0.001	<0.001	0.002	0.002	0.008	0.001	0.012	0.013	0.014	-	0.001	0.003
	Tetrachloroethene	mg/L	0.001	0.07			0.05	0.006	0.004	0.001	0.002	0.007	0.002	0.004	0.006	0.002	0.01	0.011	0.011	-	0.004	0.009
	trans-1,2-dichloroethene	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001
	trans-1,3-dichloropropene	mg/L	0.001	0.0008				<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001
	Vinyl chloride	mg/L	0.01				0.0003	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01
Halogenated Hydrocarbons	1,2-dibromoethane	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001
	Bromomethane	mg/L	0.01				0.001	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01
	Dichlorodifluoromethane	mg/L	0.01					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01
	Trichlorofluoromethane	mg/L	0.01					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01
Halogenated Benzenes	1,2,3-trichlorobenzene	mg/L	0.001	0.003		0.003	0.03	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001
	1,2,4-trichlorobenzene	mg/L	0.001			0.085	0.03	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001
	1,2-dichlorobenzene	mg/L	0.001	0.16		0.16	1.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001
	1,3-dichlorobenzene	mg/L	0.001	0.26		0.26		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001
	1,4-dichlorobenzene	mg/L	0.001	0.06		0.06	0.04	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001
	2-chlorotoluene	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001
	4-chlorotoluene	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001
	Bromobenzene	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001
	Chlorobenzene	mg/L	0.001				0.3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001
	Hexachlorobenzene	mg/L	0.00001					<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Solvents	Cyclohexane	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001
PAH/Phenols	2,4-dimethylphenol	mg/L	0.001					<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2,4-dinitrophenol	mg/L	0.02			0.045		<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2-methylphenol	mg/L	0.001					<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2-nitrophenol	mg/L	0.001					<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3-&4-methylphenol	mg/L	0.002					<0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4,6-Dinitro-2-methylphenol	mg/L	0.01					<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4-chloro-3-methylphenol	mg/L	0.005					<0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4-nitrophenol	mg/L	0.02					<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Acenaphthene	mg/L	0.0001					<0.0001	-	-	-	-	-	-	<0.001	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
	Acenaphthylene	mg/L	0.0001					<0.0001	-	-	-	-	-	-	<0.001	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
	Anthracene	mg/L	0.0001					<0.0001	-	-	-	-	-	-	<0.001	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
	Benz(a)anthracene	mg/L	0.0001					<0.0001	-	-	-	-	-	-	<0.001	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
	Benzo(a) pyrene	mg/L	0.0001				0.00001	<0.0001	-	-	-	-	-	-	<0.001	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
	Benzo(b)&(k)fluoranthene	mg/L	0.0002					<0.0002	-	-	-	-	-	-	<0.002	-	-	-	<0.002	<0.002	-	<0.002
	Benzo(g,h,i)perylene	mg/L	0.0001					<0.0001	-	-	-	-	-	-	<0.001	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
	Benzo(k)fluoranthene	mg/L	0.002					-	-	-	-	-	-	-	-	-	-	<0.002	-	-	<0.002	-
	Chrysene	mg/L	0.0001					<0.0001	-	-	-	-	-	-	<0.001	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
	Dibenz(a,h)anthracene	mg/L	0.0001					<0.0001	-	-	-	-	-	-	<0.001	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
	Fluoranthene	mg/L	0.0001					<0.0001	-	-	-	-	-	-	<0.001	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
	Fluorene	mg/L	0.0001					<0.0001	-	-	-	-	-	-	<0.001	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
	Indeno(1,2,3-c,d)pyrene	mg/L	0.0001					<0.0001	-	-	-	-	-	-	<0.001	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
	Naphthalene	mg/L	0.0002		NL	0.016		<0.0002	<0.001	-	-	-	-	-	<0.001	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
	Phenanthrene	mg/L	0.0001					<0.0001	-	-	-	-	-	-	<0.001	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
	Phenol	mg/L	0.001			0.32		<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Phenolics Total	mg/L	0.05					<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Pyrene	mg/L	0.0001					<0.0001	-	-	-	-	-	-	<0.001	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
Halogenated Phenols	2,3,4,6-tetrachlorophenol	mg/L	0.001			0.01		<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2,4,5-trichlorophenol	mg/L	0.001					<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2,4,6-trichlorophenol	mg/L	0.001			0.003	0.02	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2,4-dichlorophenol	mg/L	0.001			0.12	0.2	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2,6-dichlorophenol	mg/L	0.001					<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2-chlorophenol	mg/L	0.001			0.34	0.3	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Pentachlorophenol	mg/L	0.005			0.0036	0.01	<0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Polychlorinated Biphenyls	Arochlor 1016	mg/L	0.0001	0.000009				<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Arochlor 1221	mg/L	0.0001	0.001				<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Arochlor 1232	mg/L	0.0001	0.0003				<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Arochlor 1242	mg/L	0.0001	0.0006		0.0003		<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Arochlor 1248	mg/L	0.0001	0.00003				<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Arochlor 1254	mg/L	0.0001	0.00003		0.00001		<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Arochlor 1260	mg/L	0.0001	0.025				<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 2. Stage 1B Groundwater Results

								Field_ID	BH4	BH4	BH4	BH4	BH4	BH4	BH4	DPMW01	DPMW01	DPMW01	DPMW01	DPMW01	DPMW02	DPMW02	DPMW02
								LocCode	BH4	BH4	BH4	BH4	BH4	BH4	BH4	DPMW01	DPMW01	DPMW01	DPMW01	DPMW01	DPMW02	DPMW02	DPMW02
								WellCode																
								Sampled_Date-Time	29-Sep-15	17-Dec-15	14-Jul-16	19-Oct-16	20-Jan-17	27-Apr-17	12-Jul-17	07-Nov-16	20-Jan-17	27-Apr-17	17-May-17	12-Jul-17	07-Nov-16	17-May-17	12-Jul-17
				ANZECC 2000 LOW RELIABILITY FW	NEPM 2013 Table 1A(4) Comm/Ind HSL D GW	ANZECC 2000 GILs, Fresh Waters	Drinking Water																		
Chem_Group	**ChemName**	**Units**	**EQL**		2-4m																			
Organochlorine Pesticides	4,4-DDE	mg/L	0.00001					<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	a-BHC	mg/L	0.00001					<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Aldrin	mg/L	0.00001					<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	b-BHC	mg/L	0.00001					<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Chlordane (cis)	mg/L	0.00001					<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Chlordane (trans)	mg/L	0.00001					<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	d-BHC	mg/L	0.00001					<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	DDD	mg/L	0.00001					<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	DDT	mg/L	0.000006			0.000006	0.009	<0.00006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Dieldrin	mg/L	0.00001					<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Endosulfan I	mg/L	0.00001					<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Endosulfan II	mg/L	0.00001					<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Endosulfan sulphate	mg/L	0.00001					<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Endrin	mg/L	0.00001			0.00001		<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Endrin aldehyde	mg/L	0.00001					<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	g-BHC (Lindane)	mg/L	0.00001			0.0002	0.01	<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Heptachlor	mg/L	0.00001			0.00001		<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Heptachlor epoxide	mg/L	0.00001				0.0003	<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Methoxychlor	mg/L	0.00001					<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Organophosphorous Pesticides	Azinophos methyl	mg/L	0.00002				0.03	<0.0002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Bromophos-ethyl	mg/L	0.00001					<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Chlorpyrifos	mg/L	0.00001			0.00001	0.01	<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Chlorpyrifos-methyl	mg/L	0.00001					<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Diazinon	mg/L	0.01			0.00001	0.004	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Dichlorvos	mg/L	0.00001				0.005	<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Dimethoate	mg/L	0.00001			0.00015	0.007	<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Ethion	mg/L	0.00001				0.004	<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fenitrothion	mg/L	0.00001			0.0002	0.007	<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Malathion	mg/L	0.00005			0.00005	0.07	<0.0005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Ronnel	mg/L	0.00001					<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pesticides	Bifenthrin	mg/L	0.0005					<0.0005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Parathion	mg/L	0.00001			0.000004	0.02	<0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:

ANZECC 2000 Freah Water	National water quality management strategy. Australia and New Zealand Guidelines for Fresh and Marine Water Quality 2000 (ANZECC and ARMCANZ). Moderate Reliability Investigation Levels for the protection of 95% of species
NEPM 2013	National Environment Protection (Assessment of Site Contamination) Measure 1999 (Amended 2013, published by National Environmental Protection Council (2013), (NEPC 2013). NEPC (2013), HSL for clay soil, 2-4 m bgl, commercial / industrial landuse
Drinking Water	Australian Drinking Water Guidelines 2011 (ADWG)
ANZECC 2000 LOW RELIABILITY FW	National water quality management strategy. Australia and New Zealand Guidelines for Fresh and Marine Water Quality 2000 (ANZECC and ARMCANZ). Low reliability investigation levels for fresh water

				Field_ID																
				LocCode																
				WellCode																
				Sampled_Date-Time																
				ANZECC 2000 LOW RELIABILITY FW	NEPM 2013 Table 1A(4) Comm/Ind HSL D GW	ANZECC 2000 GILs, Fresh Waters	Drinking Water	Statistical Summary												
Chem_Group	**ChemName**	**Units**	**EQL**		2-4m			Number of	Number of	Minimum	Minimum	Maximum	Maximum	Average	Median	Standard	Number of	Number of
	Formaldehyde	mg/L	0.1				0.5	2	1	<0.1	0.1	0.1	0.1		0.075		0	0
Inorganics	Ammonia	mg/L	0.005			0.9		13	12	<0.005	0.008	0.66	0.66	0.099	0.055	0.17	0	0
	Chloride	mg/L	1					10	10	64	64	800	800	318	270	260	0	0
	Ferrous Iron	mg/L	0.05					10	10	0.13	0.13	16	16	6	3.75	5.7	0	0
	Nitrate (as N)	mg/L	0.005					6	4	<0.005	0.005	0.52	0.52	0.096	0.0055	0.21	0	0
	Nitrite (as N)	mg/L	0.005					6	0	<0.005	ND	<0.005	ND	0.0025	0.0025	0	0	0
	Sulphate	mg/L	1				500	10	10	140	140	510	510	276	235	135	1	1
	Sulphide	mg/L	0.5					10	0	<0.5	ND	<0.5	ND	0.25	0.25	0	0	0
Organic	Ethane	mg/L	0.005					10	0	<0.005	ND	<0.005	ND	0.0025	0.0025	0	0	0
	Ethene	mg/L	0.005					10	0	<0.005	ND	<0.005	ND	0.0025	0.0025	0	0	0
	Methane	mg/L	0.005					10	6	<0.005	0.008	0.024	0.024	0.01	0.0085	0.0086	0	0
Cyanides	Cyanide Total	mg/L	0.004			0.007	0.08	1	0	<0.004	ND	<0.004	ND		0.002		0	0
Metals	Aluminium (Filtered)	mg/L	0.01			0.055		3	3	0.1	0.1	0.72	0.72	0.36	0.26	0.32	3	3
	Arsenic (Filtered)	mg/L	0.001				0.01	10	0	<0.001	ND	<0.001	ND	0.0005	0.0005	0	0	0
	Cadmium (Filtered)	mg/L	0.0001			0.0002	0.002	10	4	<0.0001	0.0001	0.0002	0.0002	0.00009	0.00005	0.000061	0	0
	Calcium (Filtered)	mg/L	0.5					3	3	2.5	2.5	5.8	5.8	4.6	5.5	1.8	0	0
	Chromium (III+VI) (Filtered)	mg/L	0.001					10	1	<0.001	0.001	0.001	0.001	0.00055	0.0005	0.00016	0	0
	Copper (Filtered)	mg/L	0.001			0.0014	2	10	10	0.002	0.002	0.032	0.032	0.013	0.01	0.01	10	10
	Ferric Iron	mg/L	0.05					10	5	<0.05	0.13	3.6	3.6	0.67	0.0775	1.3	0	0
	Iron (Filtered)	mg/L	0.01					10	10	0.14	0.14	14	14	6	4.65	4.7	0	0
	Lead (Filtered)	mg/L	0.001			0.0034	0.01	10	3	<0.001	0.001	0.003	0.003	0.00095	0.0005	0.00086	0	0
	Magnesium (Filtered)	mg/L	0.5					3	3	6.2	6.2	40	40	27	36	18	0	0
	Manganese (Filtered)	mg/L	0.005			1.9	0.5	13	13	0.01	0.01	0.57	0.57	0.19	0.1	0.21	1	1
	Mercury (Filtered)	mg/L	0.00005			0.00006	0.001	10	0	<0.00005	ND	<0.0005	ND	0.000048	0.000025	0.000071	1	0
	Nickel (Filtered)	mg/L	0.001			0.011	0.02	10	10	0.001	0.001	0.019	0.019	0.0078	0.0065	0.0055	2	2
	Silver (Filtered)	mg/L	0.001			0.00005	0.1	2	1	<0.001	0.005	0.005	0.005		0.00275		2	1
	Zinc (Filtered)	mg/L	0.001			0.008		10	10	0.008	0.008	0.13	0.13	0.059	0.043	0.039	9	9
TPH	C10-C16	mg/L	0.05					12	1	<0.05	0.084	0.084	0.084	0.03	0.025	0.017	0	0
	C16-C34	mg/L	0.1					12	2	<0.1	0.11	0.14	0.14	0.063	0.05	0.03	0	0
	C34-C40	mg/L	0.1					12	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0
	F2-NAPHTHALENE	mg/L	0.05		NL			12	1	<0.05	0.084	0.084	0.084	0.03	0.025	0.017	12	12
	C6 - C9	mg/L	0.01					13	8	<0.01	0.011	3.6	3.6	0.5	0.012	1.2	0	0
	C10 - C14	mg/L	0.05					13	1	<0.05	0.073	0.073	0.073	0.029	0.025	0.013	0	0
	C15 - C28	mg/L	0.1					13	2	<0.1	0.11	0.14	0.14	0.062	0.05	0.029	0	0
	C29-C36	mg/L	0.1					13	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0
	C6-C10 less BTEX (F1)	mg/L	0.01		NL|6			12	8	<0.01	0.011	3.6	3.6	0.54	0.017	1.2	0	0
	C6-C10	mg/L	0.01					12	8	<0.01	0.011	3.6	3.6	0.54	0.017	1.2	0	0
BTEX	Benzene	mg/L	0.001		5|30	0.95	0.001	30	0	<0.001	ND	<0.001	ND	0.0005	0.0005	0	0	0
	Ethylbenzene	mg/L	0.001		NL		0.3	30	0	<0.001	ND	<0.001	ND	0.0005	0.0005	0	0	0
	Toluene	mg/L	0.001		NL		0.8	30	1	<0.001	0.043	0.043	0.043	0.0019	0.0005	0.0078	0	0
	Xylene (m & p)	mg/L	0.002					30	0	<0.002	ND	<0.002	ND	0.001	0.001	0	0	0
	Xylene (o)	mg/L	0.001			0.35		30	2	<0.001	0.001	0.004	0.004	0.00063	0.0005	0.00064	0	0
MAH	1,2,4-trimethylbenzene	mg/L	0.001					29	0	<0.001	ND	<0.001	ND	0.0005	0.0005	0	0	0
	1,3,5-trimethylbenzene	mg/L	0.001					29	0	<0.001	ND	<0.001	ND	0.0005	0.0005	0	0	0
	Isopropylbenzene	mg/L	0.001					29	0	<0.001	ND	<0.001	ND	0.0005	0.0005	0	0	0
	n-butylbenzene	mg/L	0.001					29	0	<0.001	ND	<0.001	ND	0.0005	0.0005	0	0	0
	n-propylbenzene	mg/L	0.001					29	0	<0.001	ND	<0.001	ND	0.0005	0.0005	0	0	0
	p-isopropyltoluene	mg/L	0.001					29	0	<0.001	ND	<0.001	ND	0.0005	0.0005	0	0	0
	sec-butylbenzene	mg/L	0.001					29	0	<0.001	ND	<0.001	ND	0.0005	0.0005	0	0	0
	Styrene	mg/L	0.001				0.03	29	0	<0.001	ND	<0.001	ND	0.0005	0.0005	0	0	0
	tert-butylbenzene	mg/L	0.001					29	0	<0.001	ND	<0.001	ND	0.0005	0.0005	0	0	0
Chlorinated Hydrocarbons	1,1,1,2-tetrachloroethane	mg/L	0.001					29	0	<0.001	ND	<0.001	ND	0.0005	0.0005	0	0	0
	1,1,1-trichloroethane	mg/L	0.001	0.27				29	0	<0.001	ND	<0.001	ND	0.0005	0.0005	0	0	0
	1,1,2,2-tetrachloroethane	mg/L	0.001	0.4				29	0	<0.001	ND	<0.001	ND	0.0005	0.0005	0	0	0
	1,1,2-trichloroethane	mg/L	0.001	1.9		6.5		29	0	<0.001	ND	<0.001	ND	0.0005	0.0005	0	0	0
	1,1-dichloroethane	mg/L	0.001					29	0	<0.001	ND	<0.001	ND	0.0005	0.0005	0	0	0
	1,1-dichloroethene	mg/L	0.001				0.03	29	0	<0.001	ND	<0.001	ND	0.0005	0.0005	0	0	0
	1,1-dichloropropene	mg/L	0.001					29	0	<0.001	ND	<0.001	ND	0.0005	0.0005	0	0	0
	1,2,3-trichloropropane	mg/L	0.001					29	0	<0.001	ND	<0.001	ND	0.0005	0.0005	0	0	0
	1,2-dibromo-3-chloropropane	mg/L	0.001					29	0	<0.001	ND	<0.001	ND	0.0005	0.0005	0	0	0
	1,2-dichloroethane	mg/L	0.001	1.9			0.003	29	0	<0.001	ND	<0.001	ND	0.0005	0.0005	0	0	0
	1,2-dichloropropane	mg/L	0.001	0.9				29	0	<0.001	ND	<0.001	ND	0.0005	0.0005	0	0	0
	1,3-dichloropropane	mg/L	0.001	1.1				29	0	<0.001	ND	<0.001	ND	0.0005	0.0005	0	0	0
	2,2-dichloropropane	mg/L	0.001					29	0	<0.001	ND	<0.001	ND	0.0005	0.0005	0	0	0
	Bromochloromethane	mg/L	0.001					29	0	<0.001	ND	<0.001	ND	0.0005	0.0005	0	0	0
	Bromodichloromethane	mg/L	0.001					29	0	<0.001	ND	<0.001	ND	0.0005	0.0005	0	0	0
	Bromoform	mg/L	0.001					29	0	<0.001	ND	<0.001	ND	0.0005	0.0005	0	0	0
	Carbon tetrachloride	mg/L	0.001	0.24			0.003	29	0	<0.001	ND	<0.001	ND	0.0005	0.0005	0	0	0

				Field_ID																
				LocCode																
				WellCode																
				Sampled_Date-Time																
				ANZECC 2000 LOW RELIABILITY FW	NEPM 2013 Table 1A(4) Comm/Ind HSL D GW	ANZECC 2000 GILs, Fresh Waters	Drinking Water	Statistical Summary											
Chem_Group	**ChemName**	**Units**	**EQL**		2-4m			Number of	Number of	Minimum	Minimum	Maximum	Maximum	Average	Median	Standard	Number of	Number of
	Chlorodibromomethane	mg/L	0.001					29	0	<0.001	ND	<0.001	ND	0.0005	0.0005	0	0	0
	Chloroethane	mg/L	0.01					29	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0	0
	Chloroform	mg/L	0.001	0.37				29	5	<0.001	0.001	0.002	0.002	0.00062	0.0005	0.00032	0	0
	Chloromethane	mg/L	0.01					29	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0	0
	cis-1,2-dichloroethene	mg/L	0.001					29	23	<0.001	0.001	0.053	0.053	0.01	0.004	0.016	0	0
	cis-1,3-dichloropropene	mg/L	0.001	0.0008				29	0	<0.001	ND	<0.001	ND	0.0005	0.0005	0	29	0
	Dibromomethane	mg/L	0.001					29	0	<0.001	ND	<0.001	ND	0.0005	0.0005	0	0	0
	Hexachlorobutadiene	mg/L	0.001				0.0007	29	0	<0.001	ND	<0.001	ND	0.0005	0.0005	0	29	0
	Trichloroethene	mg/L	0.001	0.33				29	25	<0.001	0.001	0.091	0.091	0.021	0.003	0.032	0	0
	Tetrachloroethene	mg/L	0.001	0.07			0.05	29	22	<0.001	0.001	3.9	3.9	0.6	0.004	1.1	7	7
	trans-1,2-dichloroethene	mg/L	0.001					29	1	<0.001	0.001	0.001	0.001	0.00052	0.0005	0.000093	0	0
	trans-1,3-dichloropropene	mg/L	0.001	0.0008				29	0	<0.001	ND	<0.001	ND	0.0005	0.0005	0	29	0
	Vinyl chloride	mg/L	0.01				0.0003	29	0	<0.01	ND	<0.01	ND	0.005	0.005	0	29	0
Halogenated Hydrocarbons	1,2-dibromoethane	mg/L	0.001					29	0	<0.001	ND	<0.001	ND	0.0005	0.0005	0	0	0
	Bromomethane	mg/L	0.01				0.001	29	0	<0.01	ND	<0.01	ND	0.005	0.005	0	29	0
	Dichlorodifluoromethane	mg/L	0.01					29	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0	0
	Trichlorofluoromethane	mg/L	0.01					29	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0	0
Halogenated Benzenes	1,2,3-trichlorobenzene	mg/L	0.001	0.003		0.003	0.03	29	0	<0.001	ND	<0.001	ND	0.0005	0.0005	0	0	0
	1,2,4-trichlorobenzene	mg/L	0.001			0.085	0.03	29	0	<0.001	ND	<0.001	ND	0.0005	0.0005	0	0	0
	1,2-dichlorobenzene	mg/L	0.001	0.16		0.16	1.5	29	0	<0.001	ND	<0.001	ND	0.0005	0.0005	0	0	0
	1,3-dichlorobenzene	mg/L	0.001	0.26		0.26		29	0	<0.001	ND	<0.001	ND	0.0005	0.0005	0	0	0
	1,4-dichlorobenzene	mg/L	0.001	0.06		0.06	0.04	29	0	<0.001	ND	<0.001	ND	0.0005	0.0005	0	0	0
	2-chlorotoluene	mg/L	0.001					29	0	<0.001	ND	<0.001	ND	0.0005	0.0005	0	0	0
	4-chlorotoluene	mg/L	0.001					29	0	<0.001	ND	<0.001	ND	0.0005	0.0005	0	0	0
	Bromobenzene	mg/L	0.001					29	0	<0.001	ND	<0.001	ND	0.0005	0.0005	0	0	0
	Chlorobenzene	mg/L	0.001				0.3	29	0	<0.001	ND	<0.001	ND	0.0005	0.0005	0	0	0
	Hexachlorobenzene	mg/L	0.00001					3	0	<0.00001	ND	<0.0001	ND	0.00002	0.000005	0.000026	0	0
Solvents	Cyclohexane	mg/L	0.001					29	0	<0.001	ND	<0.001	ND	0.0005	0.0005	0	0	0
PAH/Phenols	2,4-dimethylphenol	mg/L	0.001					2	0	<0.001	ND	<0.001	ND		0.0005		0	0
	2,4-dinitrophenol	mg/L	0.02			0.045		2	0	<0.02	ND	<0.02	ND		0.01		0	0
	2-methylphenol	mg/L	0.001					2	0	<0.001	ND	<0.001	ND		0.0005		0	0
	2-nitrophenol	mg/L	0.001					2	0	<0.001	ND	<0.001	ND		0.0005		0	0
	3-&4-methylphenol	mg/L	0.002					2	0	<0.002	ND	<0.002	ND		0.001		0	0
	4,6-Dinitro-2-methylphenol	mg/L	0.01					2	0	<0.01	ND	<0.01	ND		0.005		0	0
	4-chloro-3-methylphenol	mg/L	0.005					2	0	<0.005	ND	<0.005	ND		0.0025		0	0
	4-nitrophenol	mg/L	0.02					2	0	<0.02	ND	<0.02	ND		0.01		0	0
	Acenaphthene	mg/L	0.0001					10	0	<0.0001	ND	<0.001	ND	0.00037	0.0005	0.00022	0	0
	Acenaphthylene	mg/L	0.0001					10	0	<0.0001	ND	<0.001	ND	0.00037	0.0005	0.00022	0	0
	Anthracene	mg/L	0.0001					10	0	<0.0001	ND	<0.001	ND	0.00037	0.0005	0.00022	0	0
	Benz(a)anthracene	mg/L	0.0001					10	0	<0.0001	ND	<0.001	ND	0.00037	0.0005	0.00022	0	0
	Benzo(a) pyrene	mg/L	0.0001				0.00001	10	0	<0.0001	ND	<0.001	ND	0.00037	0.0005	0.00022	10	0
	Benzo(b)&(k)fluoranthene	mg/L	0.0002					8	0	<0.0002	ND	<0.002	ND	0.00066	0.001	0.00047	0	0
	Benzo(g,h,i)perylene	mg/L	0.0001					10	0	<0.0001	ND	<0.001	ND	0.00037	0.0005	0.00022	0	0
	Benzo(k)fluoranthene	mg/L	0.002					2	0	<0.002	ND	<0.002	ND		0.001		0	0
	Chrysene	mg/L	0.0001					10	0	<0.0001	ND	<0.001	ND	0.00037	0.0005	0.00022	0	0
	Dibenz(a,h)anthracene	mg/L	0.0001					10	0	<0.0001	ND	<0.001	ND	0.00037	0.0005	0.00022	0	0
	Fluoranthene	mg/L	0.0001					10	0	<0.0001	ND	<0.001	ND	0.00037	0.0005	0.00022	0	0
	Fluorene	mg/L	0.0001					10	0	<0.0001	ND	<0.001	ND	0.00037	0.0005	0.00022	0	0
	Indeno(1,2,3-c,d)pyrene	mg/L	0.0001					10	0	<0.0001	ND	<0.001	ND	0.00037	0.0005	0.00022	0	0
	Naphthalene	mg/L	0.0002		NL	0.016		13	0	<0.0002	ND	<0.001	ND	0.00041	0.0005	0.00018	0	0
	Phenanthrene	mg/L	0.0001					10	0	<0.0001	ND	<0.001	ND	0.00037	0.0005	0.00022	0	0
	Phenol	mg/L	0.001			0.32		2	0	<0.001	ND	<0.001	ND		0.0005		0	0
	Phenolics Total	mg/L	0.05					3	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0	0
	Pyrene	mg/L	0.0001					10	0	<0.0001	ND	<0.001	ND	0.00037	0.0005	0.00022	0	0
Halogenated Phenols	2,3,4,6-tetrachlorophenol	mg/L	0.001			0.01		2	0	<0.001	ND	<0.001	ND		0.0005		0	0
	2,4,5-trichlorophenol	mg/L	0.001					2	0	<0.001	ND	<0.001	ND		0.0005		0	0
	2,4,6-trichlorophenol	mg/L	0.001			0.003	0.02	2	0	<0.001	ND	<0.001	ND		0.0005		0	0
	2,4-dichlorophenol	mg/L	0.001			0.12	0.2	2	0	<0.001	ND	<0.001	ND		0.0005		0	0
	2,6-dichlorophenol	mg/L	0.001					2	0	<0.001	ND	<0.001	ND		0.0005		0	0
	2-chlorophenol	mg/L	0.001			0.34	0.3	2	0	<0.001	ND	<0.001	ND		0.0005		0	0
	Pentachlorophenol	mg/L	0.005			0.0036	0.01	2	0	<0.005	ND	<0.005	ND		0.0025		2	0
Polychlorinated Biphenyls	Arochlor 1016	mg/L	0.0001	0.000009				3	0	<0.0001	ND	<0.001	ND	0.0002	0.00005	0.00026	3	0
	Arochlor 1221	mg/L	0.0001	0.001				3	0	<0.0001	ND	<0.001	ND	0.0002	0.00005	0.00026	0	0
	Arochlor 1232	mg/L	0.0001	0.0003				3	0	<0.0001	ND	<0.001	ND	0.0002	0.00005	0.00026	1	0
	Arochlor 1242	mg/L	0.0001	0.0006		0.0003		3	0	<0.0001	ND	<0.001	ND	0.0002	0.00005	0.00026	1	0
	Arochlor 1248	mg/L	0.0001	0.00003				3	0	<0.0001	ND	<0.001	ND	0.0002	0.00005	0.00026	3	0
	Arochlor 1254	mg/L	0.0001	0.00003		0.00001		3	0	<0.0001	ND	<0.001	ND	0.0002	0.00005	0.00026	3	0
	Arochlor 1260	mg/L	0.0001	0.025				3	0	<0.0001	ND	<0.001	ND	0.0002	0.00005	0.00026	0	0

Table 2. Stage 1B Groundwater Results

							Field_ID															
							LocCode															
							WellCode															
							Sampled_Date-Time															
				ANZECC 2000 LOW RELIABILITY FW	NEPM 2013 Table 1A(4) Comm/Ind HSL D GW	ANZECC 2000 GILs, Fresh Waters	Drinking Water	Statistical Summary													
Chem_Group	ChemName	Units	EQL		2-4m			Number of	Number of	Minimum	Minimum	Maximum	Maximum	Average	Median	Standard	Number of	Number of
Organochlorine Pesticides	4,4-DDE	mg/L	0.00001					3	0	<0.00001	ND	<0.0001	ND	0.00002	0.000005	0.000026	0	0
	a-BHC	mg/L	0.00001					3	0	<0.00001	ND	<0.0001	ND	0.00002	0.000005	0.000026	0	0
	Aldrin	mg/L	0.00001					3	0	<0.00001	ND	<0.0001	ND	0.00002	0.000005	0.000026	0	0
	b-BHC	mg/L	0.00001					3	0	<0.00001	ND	<0.0001	ND	0.00002	0.000005	0.000026	0	0
	Chlordane (cis)	mg/L	0.00001					3	0	<0.00001	ND	<0.0001	ND	0.00002	0.000005	0.000026	0	0
	Chlordane (trans)	mg/L	0.00001					3	0	<0.00001	ND	<0.0001	ND	0.00002	0.000005	0.000026	0	0
	d-BHC	mg/L	0.00001					3	0	<0.00001	ND	<0.0001	ND	0.00002	0.000005	0.000026	0	0
	DDD	mg/L	0.00001					3	0	<0.00001	ND	<0.0001	ND	0.00002	0.000005	0.000026	0	0
	DDT	mg/L	0.000006			0.000006	0.009	3	0	<0.000006	ND	<0.00006	ND	0.000012	0.000003	0.000016	1	0
	Dieldrin	mg/L	0.00001					3	1	<0.00001	0.00001	<0.0001	0.00001	0.000022	0.00001	0.000025	0	0
	Endosulfan I	mg/L	0.00001					3	0	<0.00001	ND	<0.0001	ND	0.00002	0.000005	0.000026	0	0
	Endosulfan II	mg/L	0.00001					3	0	<0.00001	ND	<0.0001	ND	0.00002	0.000005	0.000026	0	0
	Endosulfan sulphate	mg/L	0.00001					3	0	<0.00001	ND	<0.0001	ND	0.00002	0.000005	0.000026	0	0
	Endrin	mg/L	0.00001			0.00001		3	0	<0.00001	ND	<0.0001	ND	0.00002	0.000005	0.000026	1	0
	Endrin aldehyde	mg/L	0.00001					3	0	<0.00001	ND	<0.0001	ND	0.00002	0.000005	0.000026	0	0
	g-BHC (Lindane)	mg/L	0.00001			0.0002	0.01	3	0	<0.00001	ND	<0.0001	ND	0.00002	0.000005	0.000026	0	0
	Heptachlor	mg/L	0.00001			0.00001		3	0	<0.00001	ND	<0.0001	ND	0.00002	0.000005	0.000026	1	0
	Heptachlor epoxide	mg/L	0.00001				0.0003	3	0	<0.00001	ND	<0.0001	ND	0.00002	0.000005	0.000026	0	0
	Methoxychlor	mg/L	0.00001					3	0	<0.00001	ND	<0.0001	ND	0.00002	0.000005	0.000026	0	0
Organophosphorous Pesticides	Azinophos methyl	mg/L	0.00002				0.03	3	0	<0.00002	ND	<0.0002	ND	0.00004	0.00001	0.000052	0	0
	Bromophos-ethyl	mg/L	0.00001					3	0	<0.00001	ND	<0.0001	ND	0.00002	0.000005	0.000026	0	0
	Chlorpyrifos	mg/L	0.00001			0.00001	0.01	3	0	<0.00001	ND	<0.0001	ND	0.00002	0.000005	0.000026	1	0
	Chlorpyrifos-methyl	mg/L	0.00001					3	0	<0.00001	ND	<0.0001	ND	0.00002	0.000005	0.000026	0	0
	Diazinon	mg/L	0.01			0.00001	0.004	3	0	<0.01	ND	<0.1	ND	0.02	0.005	0.026	3	0
	Dichlorvos	mg/L	0.00001				0.005	3	0	<0.00001	ND	<0.0001	ND	0.000035	0.00005	0.000026	0	0
	Dimethoate	mg/L	0.00001			0.00015	0.007	3	0	<0.00001	ND	<0.0001	ND	0.00002	0.000005	0.000026	0	0
	Ethion	mg/L	0.00001				0.004	3	0	<0.00001	ND	<0.0001	ND	0.00002	0.000005	0.000026	0	0
	Fenitrothion	mg/L	0.00001			0.0002	0.007	3	0	<0.00001	ND	<0.0001	ND	0.00002	0.000005	0.000026	0	0
	Malathion	mg/L	0.00005			0.00005	0.07	3	0	<0.00005	ND	<0.0005	ND	0.0001	0.000025	0.00013	1	0
	Ronnel	mg/L	0.00001					3	0	<0.00001	ND	<0.0001	ND	0.00002	0.000005	0.000026	0	0
Pesticides	Bifenthrin	mg/L	0.0005					2	0	<0.0005	ND	<0.0005	ND		0.00025		0	0
	Parathion	mg/L	0.00001			0.000004	0.02	3	0	<0.00001	ND	<0.0001	ND	0.00002	0.000005	0.000026	3	0

Notes:

ANZECC 2000 Freah Water	National water quality management strategy. Australia and New Zealand Guidelines for Fresh and Marine Water Quality 2000 (ANZECC and ARMCANZ). Moderate Reliability Investigation Levels for the protection of 95% of species
NEPM 2013	National Environment Protection (Assessment of Site Contamination) Measure 1999 (Amended 2013, published by National Environmental Protection Council (2013), (NEPC 2013). NEPC (2013), HSL for clay soil, 2-4 m bgl, commercial / industrial landuse
Drinking Water	Australian Drinking Water Guidelines 2011 (ADWG)
ANZECC 2000 LOW RELIABILITY FW	National water quality management strategy. Australia and New Zealand Guidelines for Fresh and Marine Water Quality 2000 (ANZECC and ARMCANZ). Low reliability investigation levels for fresh water

Table 3. Soil Vapour Results - Stage 1B

						Field_ID	SV1	SV1	SV1	SV1	SV1 - can	SV1 can	SV2	SV2	SV2	SV2	SV2 - can	SV2 can	SV3	SV3	SV3	SV3	SV3 - can	SV3 can	SV4	SV4	SV4	SV4
						LocCode	SV1	SV1	SV1	SV1	SV1	SV1	SV2	SV2	SV2	SV2	SV2	SV2	SV3	SV3	SV3	SV3	SV3	SV3	SV4	SV4	SV4	SV4
						WellCode																						
						Sampled_Date-Time	17-Dec-15	14-Jul-16	19-Oct-16	20-Jan-17	27-Apr-17	12-Jul-17	17-Dec-15	14-Jul-16	19-Oct-16	20-Jan-17	27-Apr-17	12-Jul-17	17-Dec-15	14-Jul-16	19-Oct-16	20-Jan-17	27-Apr-17	12-Jul-17	17-Dec-15	14-Jul-16	19-Oct-16	20-Jan-17
				NEPM 2013 Table 1A(5) Comm/Ind D Soil Vapour HSL for Vapour Intrusion, Clay		NEPM 2013 Table 1A(2) Comm/Ind D Soil Vap VOCC HILs																							
Chem_Group	ChemName	Units	EQL	0-1m	1-2m																							
	Freon 113	µg/m3	3.8				<3.8	8	<3.8	<3.8	4	4	<107	<107	<200	<200	<200	<200	<107	<107	<200	<200	<107	<3.8	<3.8	<3.8	<32	<32
	2-Propanol	µg/m3	1.2				<1.2	<1.2	120	54	110	44	420	<34	130	<60	2400	<60	<34	<34	<60	1000	190	23	240	5	380	<10
	Propene	µg/m3	0.9				<4500	<0.9	<0.9	<0.9	<0.9	<0.9	<24	<24	<43	<43	<45	<43	<24	<24	<43	<43	<25	<0.9	34	<0.9	<7	<7
TO15 in Canisters ug/m3	1,2-Dichlorotetrafluoroethane	µg/m3	2.5				<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<69	<69	<120	<120	<120	<120	<69	<69	<120	<120	<69	<2.5	<2.5	<2.5	<21	<21
	Vacuum before Analysis	Hg"					-3	-5	-6	-6	-7	-4	-6	-5	-6	-5	-6	-5	-5	-5	-6	-4	-7	-6	-4	-6	-3	-5	-7
	Vacuum before Shipment	Hg"					-28	-30	-30	-29	-30	-29	-28	-30	-30	-29	-30	-29	-28	-29	-29	-29	-30	-29	-28	-30	-30	-29
BTEX	Benzene	µg/m3	1.6	5000	80000		16	<1.6	<1.6	<1.6	<1.6	4	<45	<45	<80	<80	<80	<80	<45	<45	<80	<80	<45	<1.6	<1.6	<1.6	<13	<13
	Ethylbenzene	µg/m3	2.2	1800000	31000000		10	<2.2	<2.2	5	9	<2.2	<61	<61	<110	<110	<110	<110	<61	<61	<110	<110	71	<2.2	<2.2	<2.2	<18	<18
	Toluene	µg/m3	1.9	6500000	100000000		31	3	4	23	43	5	<53	<53	<90	<90	<90	<90	<53	<53	<90	<90	<53	4	3	<1.9	<16	20
	Xylene (m & p)	µg/m3	4.3				10	<4.3	5	10	30	<4.3	<122	<122	<220	<220	180	<220	<122	<122	<220	<220	160	<4.3	<4.3	<4.3	<36	<36
	Xylene (o)	µg/m3	2.2				7	<2.2	<2.2	4	7	<2.2	<61	<61	<110	<110	<110	<110	<61	<61	<110	<110	<61	<2.2	<2.2	<2.2	<18	<18
MAH	1,2,4-trimethylbenzene	µg/m3	2.5				3	<2.5	<2.5	4	4	3	<69	<69	<120	<120	<120	<120	<69	<69	<120	<120	<69	<2.5	<2.5	<2.5	<20	<20
	1,3,5-trimethylbenzene	µg/m3	2.5				<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<69	<69	<120	<120	<120	<120	<69	<69	<120	<120	<69	<2.5	<2.5	<2.5	<20	<20
	1-methyl-4 ethyl benzene	µg/m3	2.5				<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<69	<69	<120	<120	<120	<120	<69	<69	<120	<120	<69	<2.5	<2.5	<2.5	<20	<20
	Styrene	µg/m3	2.1				<2.1	4	4	10	10	<2.1	<60	<60	<110	<110	<110	<110	<60	<60	<110	<110	<60	<2.1	<2.1	<2.1	<18	<18
Chlorinated Hydrocarbons	1,1,1-trichloroethane	µg/m3	2.7			230000	<2.7	5	4	3	5	4	<76	<76	<140	<140	<140	<140	<76	<76	<140	<140	<76	<2.7	<2.7	<2.7	<23	<23
	1,1,2,2-tetrachloroethane	µg/m3	3.4				<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<96	<96	<170	<170	<170	<170	<96	<96	<170	<170	<96	<3.4	<3.4	<3.4	<29	<29
	1,1,2-trichloroethane	µg/m3	2.7				<2.7	<2.7	<2.7	<2.7	<2.7	<2.7	<76	<76	<140	<140	<140	<140	<76	<76	<140	<140	<76	<2.7	<2.7	<2.7	<23	<23
	1,1-dichloroethane	µg/m3	2				<2	<2	<2	<2	<2	<2	<57	<57	<100	<100	<100	<100	<57	<57	<100	<100	<57	<2	<2	<2	<17	<17
	1,1-dichloroethene	µg/m3	2				<2	<2	<2	<2	<2	<2	<56	<56	<100	<100	<100	<100	<56	<56	<100	<100	<56	<2	4	<2	<17	<17
	1,2-dichloroethane	µg/m3	2				<2	<2	<2	<2	<2	<2	<57	<57	<100	<100	<100	<100	<57	<57	<100	<100	<57	<2	<2	<2	<17	<17
	1,2-dichloropropane	µg/m3	2.3				<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<65	<65	<120	<120	<120	<120	<65	<65	<120	<120	<65	<2.3	<2.3	<2.3	<19	<19
	Benzyl chloride	ug/m3	2.6				<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<72	<72	<130	<130	<130	<130	<72	<72	<130	<130	<72	<2.6	<2.6	<2.6	<22	<22
	Bromodichloromethane	µg/m3	3.4				<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<94	<94	<170	<170	<170	<170	<94	<94	<170	<170	<94	<3.4	<3.4	<3.4	<28	<28
	Bromoform	µg/m3	5.2				<5.2	<5.2	<5.2	<5.2	<5.2	<5.2	<145	<145	<260	<260	<260	<260	<145	<145	<260	<260	<145	<5.2	<5.2	<5.2	<43	<43
	Carbon tetrachloride	µg/m3	3.1				<3.1	<3.1	<3.1	<3.1	<3.1	<3.1	<88	<88	<160	<160	<160	<160	<88	<88	<160	<160	<88	<3.1	<3.1	6	<26	<26
	Chlorodibromomethane	µg/m3	1.6				<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<46	<46	<80	<80	<80	<80	<46	<46	<80	<80	<46	<1.6	<1.6	<1.6	<14	<14
	Chloroethane	µg/m3	1.3				<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<37	<37	<70	<70	<70	<70	<37	<37	<70	<70	<37	<1.3	<1.3	<1.3	<11	<11
	Chloroform	µg/m3	2.4				32	<2.4	<2.4	<2.4	<2.4	<2.4	<68	<68	<120	<120	<120	<120	190	<68	<120	<120	<68	<2.4	20	10	20	<20
	Chloromethane	µg/m3	1				<1	<1	<1	<10	<1	<1	<1	<29	<29	<50	<50	<50	<50	<29	<29	<50	<50	<29	<1	<1	<1	<9	<9
	cis-1,2-dichloroethene	µg/m3	2			300	<2	<2	<2	<2	<2	<2	<56	<56	<100	<100	<100	<100	730	<56	<100	<100	<56	10	46	<2	<17	<17
	cis-1,3-dichloropropene	µg/m3	2.3				<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<64	<64	<110	<110	<110	<110	<64	<64	<110	<110	<64	<2.3	<2.3	<2.3	<19	<19
	Dichloromethane	µg/m3	20				-	<20	<20	<20	<20	<20	-	<480	<860	<860	<860	<860	-	<480	<860	<860	<480	<20	-	<20	<143	<143
	Hexachlorobutadiene	µg/m3	5.3				<5.3	<5.3	<5.3	<5.3	<5.3	<5.3	<149	<149	<270	<270	<270	<270	<149	<149	<270	<270	<149	<5.3	<5.3	<5.3	<44	<44
	Trichloroethene	µg/m3	2.7			80	7	4	4	<2.7	3	<2.7	650	250	830	1000	670	600	1100	<75	<130	270	110	60	110	97	120	200
	Tetrachloroethene	µg/m3	3.4			8000	43	51	68	90	60	62	270,000	310,000	970,000	12,000,000	1,200,000	950,000	75,000	27,000	45,000	390,000	31,000	6200	24,000	4100	4300	7900
	trans-1,2-dichloroethene	µg/m3	2				<2	<2	<2	<2	<2	<2	<56	<56	<100	<100	<100	<100	130	<56	<100	<100	<56	3	9	<2	<17	<17
	trans-1,3-dichloropropene	µg/m3	2.3				<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<64	<64	<110	<110	<110	<110	<64	<64	<110	<110	<64	<2.3	<2.3	<2.3	<19	<19
	Vinyl chloride	µg/m3	1.3			100	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<36	<36	<60	<60	<60	<60	<36	<36	<60	<60	<36	<1.3	<1.3	<1.3	<11	<11
Halogenated Hydrocarbons	1,2-dibromoethane	µg/m3	3.8				<3.8	<3.8	<3.8	<3.8	<3.8	<3.8	<108	<108	<190	<190	<190	<190	<108	<108	<190	<190	<108	<3.8	<3.8	<3.8	<32	<32
	Bromomethane	µg/m3	1.9				<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<53	<53	<90	<90	<90	<90	<53	<53	<90	<90	<53	<1.9	<1.9	<1.9	<16	<16
	Dichlorodifluoromethane	µg/m3	2.5				6	<2.5	<2.5	3	3	<2.5	<69	<69	<120	<120	<120	<120	<69	<69	<120	<120	<69	<2.5	<2.5	<2.5	<21	<21
	Trichlorofluoromethane	µg/m3	2.8				<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<79	<79	<140	<140	<140	<140	<79	<79	<140	<140	<79	<2.8	<2.8	<2.8	<23	<23
Halogenated Benzenes	1,2,4-trichlorobenzene	µg/m3	3.7				<3.7	<3.7	<3.7	<3.7	<3.7	<3.7	<104	<104	<190	<190	<190	<190	<104	<104	<190	<190	<104	<3.7	<3.7	<3.7	<31	<31
	1,2-dichlorobenzene	µg/m3	3				<3	<3	<3	<3	<3	<3	<84	<84	<150	<150	<150	<150	<84	<84	<150	<150	<84	<3	<3	<3	<25	<25
	1,3-dichlorobenzene	µg/m3	3				<3	<3	<3	<3	<3	<3	<84	<84	<150	<150	<150	<150	<84	<84	<150	<150	<84	<3	<3	<3	<25	<25
	1,4-dichlorobenzene	µg/m3	3				70	20	36	78	31	<3	<84	<84	<150	<150	<150	<150	<84	<84	<150	<150	<84	<3	4	20	30	59
	Chlorobenzene	µg/m3	2.3				<2.3	<2.3	<2.3	<2.3	<2.3	<2.3	<64	<64	<120	<120	<120	<120	<64	<64	<120	<120	<64	<2.3	<2.3	<2.3	<19	<19
VOCs	1,3-Butadiene	µg/m3	1.1				<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<31	<31	<60	<60	<60	<60	<31	<31	<60	<60	<31	<1.1	<1.1	<1.1	<9	<9
	Acrolein	µg/m3	1.1				<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<32	<32	<60	<60	<60	<60	<32	<32	<60	<60	<32	<1.1	<1.1	<1.1	<10	<10
	Methyl Methacrylate	µg/m3	2				<2	<2	<2	<2	<2	<2	<57	<57	<100	<100	<100	<100	<57	<57	<100	<100	<57	<2	<2	<2	<17	<17
Solvents	1,4-Dioxane	µg/m3	1.8				<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<50	<50	<90	<90	<90	<90	<50	<50	<90	<90	<50	<1.8	<1.8	<1.8	<15	<15
	Methyl Ethyl Ketone	µg/m3	1.5				<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<41	<41	<70	<70	<70	<70	<41	<41	<70	<70	<41	<1.5	<1.5	<1.5	<12	<12
	2-hexanone (MBK)	µg/m3	2				<2	<2	<2	<2	<2	<2	<57	<57	<100	<100	<100	<100	<57	<57	<100	<100	<57	<2	<2	<2	<17	<17
	4-Methyl-2-pentanone	µg/m3	2				<2	<2	<2	<2	3	<2	<57	<57	<100	<100	<100	<100	<57	<57	<100	<100	<57	<2	<2	<2	<17	<17
	Acetone	ug/m3	11.9				-	<11.9	<11.9	10	20	<11.9	-	<330	<600	<600	<600	<600	-	<330	<600	<600	50	<11.9	-	<11.9	20	<99
	Carbon disulfide	µg/m3	1.6				<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<44	<44	<80	<80	<80	<80	<44	<44	<80	<80	<44	<1.6	<1.6	<1.6	<13	<13
	Cyclohexane	ug/m3	1.7				<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<48	<48	<90	<90	<90	<90	<48	<48	<90	<90	<48	<1.7	<1.7	<1.7	<14	<14
	Ethanol	µg/m3	0.9				<0.9	<0.9	<0.9	<0.9	47	30	<26	<26	<50	<50	<50	<50	<26	<26	<50	<50	<26	32	<0.9	<0.9	<8	<8
	Ethyl acetate	µg/m3	1.8				<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<50	<50	<90	<90	<90	<90	<50	<50	<90	<90	<50	<1.8	<1.8	<1.8	<15	<15
	Heptane	µg/m3	2				10	<2	<2	<2	3	<2	<57	<57	<100	<100	<100	<100	<57	<57	<100	<100	<57	<2	<2	<2	<17	<17
	Hexane	µg/m3	1.8				240	3	<1.8	59	44	<1.8	<49	<49	<90	<90	<90	<90	<49	<49	<90	<90	64	10	<1.8	4	<15	49
	MTBE	ug/m3	1.8				<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<50	<50	<90	<90	<90	<90	<50	<50	<90	<90	<50	<1.8	<1.8	<1.8	<15	<15
	Tetrahydrofuran	µg/m3	1.5				<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<41	<41	<70	<70	<70	<70	<41	<41	<70	<70	<41	<1.5	<1.5	<1.5	<12	<12
	Vinyl acetate	µg/m3	1.8				<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<49	<49	<90	<90	<90	<90	<49	<49	<90	<90	<49	<1.8	<1.8	<1.8	<15	<15
PAH/Phenols	Naphthalene	µg/m3	2.6	4000	85000		<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<73	<73	<130	<130	<130	<130	<73	<73	<130	<130	<73	<2.6	<2.6	<2.6	<22	<22

Notes:

NEPM 2013 Table 1A(5) Comm/Ind D Soil Vapour HSL	National Environment Protection (Assessment of Site Contamination) Measure 1999 (Amended 2013, published by National Environmental Protection Council (2013), (NEPC 2013). NEPC (2013), HSL for clay soil, commercial / industrial landuse
NEPM 2013 Table 1A(2) Comm/Ind D Soil Vap VOCC HILs	National Environment Protection (Assessment of Site Contamination) Measure 1999 (Amended 2013, published by National Environmental Protection Council (2013), (NEPC 2013). Health Investigation Levels for chlorinated Compounds

	Field_ID	SV4 - can	SV4 can	SV5	SV5	SV5	SV5	SV5- can	SV5 can
	LocCode	SV4	SV4	SV5	SV5	SV5	SV5	SV5	SV5
	WellCode								
	Sampled_Date-Time	27-Apr-17	12-Jul-17	17-Dec-15	14-Jul-16	19-Oct-16	20-Jan-17	27-Apr-17	12-Jul-17

Chem_Group	ChemName	Units	EQL	NEPM 2013 Table 1A(5) Comm/Ind D Soil Vapour HSL for Vapour Intrusion, Clay 0-1m	NEPM 2013 Table 1A(5) Comm/Ind D Soil Vapour HSL for Vapour Intrusion, Clay 1-2m	NEPM 2013 Table 1A(2) Comm/Ind D Soil Vap VOCC HILs								Statistical Summary									
														Number of	Number of	Minimum	Minimum	Maximum	Maximum	Average	Median	Standard	Number of	Number of
	Freon 113	µg/m3	3.8				<8	<8	<3.8	<3.8	<3.8	<200	<3.8	<3.8	30	3	<3.8	4	<200	8	35	6	41	0	0
	2-Propanol	µg/m3	1.2				120	20	340	<1.2	70	170	310	16	30	20	<1.2	5	2400	2400	210	49	461	0	0
	Propene	µg/m3	0.9				<9	<2	7	<0.9	<0.9	<43	<2	<0.9	30	2	<0.9	7	<4500	34	84	5.75	409	0	0
TO15 in Canisters ug/m3	1,2-Dichlorotetrafluoroethane	µg/m3	2.5				<5	<5	<2.5	<2.5	<2.5	<120	<2.5	<2.5	30	0	<2.5	ND	<120	ND	21	2.5	25	0	0
	Vacuum before Analysis	Hg"					-4	-4	-5	-6	-4	-4	-5	-7	30	30	-7	ND	0	ND	-5.2	-5	1.2	0	0
	Vacuum before Shipment	Hg"					-30	-29	-27	-30	-30	-29	-30	-29	30	30	-30	ND	0	ND	-29	-29	0.82	0	0
BTEX	Benzene	µg/m3	1.6	5000	80000		<3	<3	<1.6	<1.6	<1.6	<80	<1.6	<1.6	30	2	<1.6	4	<80	16	15	5.25	16	0	0
	Ethylbenzene	µg/m3	2.2	1800000	31000000		9	<4	6	4	<2.2	<110	10	<2.2	30	8	<2.2	4	<110	71	22	9	24	0	0
	Toluene	µg/m3	1.9	6500000	100000000		33	6	4	10	3	<90	41	4	30	16	<1.9	3	<90	43	23	26.5	17	0	0
	Xylene (m & p)	µg/m3	4.3				30	<9	8	10	<4.3	<220	40	<4.3	30	10	<4.3	5	<220	180	48	24	53	0	0
	Xylene (o)	µg/m3	2.2				7	<4	3	4	<2.2	<110	10	<2.2	30	7	<2.2	3	<110	10	20	8	22	0	0
MAH	1,2,4-trimethylbenzene	µg/m3	2.5				<5	<5	<2.5	<2.5	<2.5	<120	7	<2.5	30	5	<2.5	3	<120	7	22	5.5	24	0	0
	1,3,5-trimethylbenzene	µg/m3	2.5				<5	<5	<2.5	<2.5	<2.5	<120	<2.5	<2.5	30	0	<2.5	ND	<120	ND	21	2.5	25	0	0
	1-methyl-4 ethyl benzene	µg/m3	2.5				<5	<5	<2.5	<2.5	<2.5	<120	3	<2.5	30	1	<2.5	3	<120	3	21	2.75	25	0	0
	Styrene	µg/m3	2.1				9	<4	<2.1	6	3	<110	10	<2.1	30	8	<2.1	3	<110	10	21	9.5	22	0	0
Chlorinated Hydrocarbons	1,1,1-trichloroethane	µg/m3	2.7			230000	7	<5	<2.7	<2.7	<2.7	<140	<2.7	<2.7	30	6	<2.7	3	<140	7	25	6	28	0	0
	1,1,2,2-tetrachloroethane	µg/m3	3.4				<7	<7	<3.4	<3.4	<3.4	<170	<3.4	<3.4	30	0	<3.4	ND	<170	ND	30	3.5	35	0	0
	1,1,2-trichloroethane	µg/m3	2.7				<5	<5	<2.7	<2.7	<2.7	<140	<2.7	<2.7	30	0	<2.7	ND	<140	ND	24	2.5	29	0	0
	1,1-dichloroethane	µg/m3	2				<4	<4	<2	<2	<2	<100	<2	<2	30	0	<2	ND	<100	ND	18	2	21	0	0
	1,1-dichloroethene	µg/m3	2				<4	<4	<2	<2	<2	<100	<2	<2	30	1	<2	4	<100	4	18	3	21	0	0
	1,2-dichloroethane	µg/m3	2				<4	<4	<2	<2	<2	<100	<2	<2	30	0	<2	ND	<100	ND	18	2	21	0	0
	1,2-dichloropropane	µg/m3	2.3				<5	<5	<2.3	<2.3	<2.3	<120	<2.3	<2.3	30	0	<2.3	ND	<120	ND	21	2.5	25	0	0
	Benzyl chloride	ug/m3	2.6				<5	<5	<2.6	<2.6	<2.6	<130	<2.6	<2.6	30	0	<2.6	ND	<130	ND	23	2.5	27	0	0
	Bromodichloromethane	µg/m3	3.4				<7	<7	<3.4	<3.4	<3.4	<170	<3.4	<3.4	30	0	<3.4	ND	<170	ND	30	3.5	35	0	0
	Bromoform	µg/m3	5.2				<10	<10	<5.2	<5.2	<5.2	<260	<5.2	<5.2	30	0	<5.2	ND	<260	ND	45	5	54	0	0
	Carbon tetrachloride	µg/m3	3.1				10	8	<3.1	<3.1	<3.1	<160	<3.1	<3.1	30	3	<3.1	6	<160	10	28	9	33	0	0
	Chlorodibromomethane	µg/m3	1.6				<3	<3	<1.6	<1.6	<1.6	<80	<1.6	<1.6	30	0	<1.6	ND	<80	ND	14	1.5	17	0	0
	Chloroethane	µg/m3	1.3				<3	<3	<1.3	<1.3	<1.3	<70	<1.3	<1.3	30	0	<1.3	ND	<70	ND	12	1.5	14	0	0
	Chloroform	µg/m3	2.4				9	<5	<2.4	<2.4	<2.4	<120	<2.4	<2.4	30	6	<2.4	9	190	190	29	15	39	0	0
	Chloromethane	µg/m3	1				<2	<2	<1	<1	<10	<50	<1	<1	30	0	<1	ND	<50	ND	9.2	4.5	10	0	0
	cis-1,2-dichloroethene	µg/m3	2			300	<4	<4	<2	<2	<2	<100	<2	<2	30	3	<2	10	730	730	43	8.5	131	1	1
	cis-1,3-dichloropropene	µg/m3	2.3				<5	<5	<2.3	<2.3	<2.3	<110	<2.3	<2.3	30	0	<2.3	ND	<110	ND	20	2.5	23	0	0
	Dichloromethane	µg/m3	20				<34	<34	-	<20	<20	<860	<20	<20	25	0	<20	ND	<860	ND	161	17	186	0	0
	Hexachlorobutadiene	µg/m3	5.3				<11	<11	<5.3	<5.3	<5.3	<270	<5.3	<5.3	30	0	<5.3	ND	<270	ND	47	5.5	56	0	0
	Trichloroethene	µg/m3	2.7			80	130	160	10	3	4	<130	20	<2.7	30	24	<2.7	3	1100	1100	219	81	320	17	15
	Tetrachloroethene	µg/m3	3.4			8000	3800	7500	470	190	140	210	120	80	30	30	43	43	12000000	12000000	544246	5250	2187177	12	12
	trans-1,2-dichloroethene	µg/m3	2				<4	<4	<2	<2	<2	<100	<2	<2	30	3	<2	3	130	130	21	5.75	29	0	0
	trans-1,3-dichloropropene	µg/m3	2.3				<5	<5	<2.3	<2.3	<2.3	<110	<2.3	<2.3	30	0	<2.3	ND	<110	ND	20	2.5	23	0	0
	Vinyl chloride	µg/m3	1.3			100	<3	<3	<1.3	<1.3	<1.3	<60	<1.3	<1.3	30	0	<1.3	ND	<60	ND	11	1.5	12	0	0
Halogenated Hydrocarbons	1,2-dibromoethane	µg/m3	3.8				<8	<8	<3.8	<3.8	<3.8	<190	<3.8	<3.8	30	0	<3.8	ND	<190	ND	33	4	39	0	0
	Bromomethane	µg/m3	1.9				<4	<4	<1.9	<1.9	<1.9	<90	<1.9	<1.9	30	0	<1.9	ND	<90	ND	16	2	19	0	0
	Dichlorodifluoromethane	µg/m3	2.5				<5	<5	6	<2.5	<2.5	<120	3	<2.5	30	5	<2.5	3	<120	6	22	6	24	0	0
	Trichlorofluoromethane	µg/m3	2.8				6	<6	<2.8	<2.8	<2.8	<140	<2.8	<2.8	30	1	<2.8	6	<140	6	25	4.5	29	0	0
Halogenated Benzenes	1,2,4-trichlorobenzene	µg/m3	3.7				<7	<7	<3.7	<3.7	<3.7	<190	<3.7	<3.7	30	0	<3.7	ND	<190	ND	33	3.5	39	0	0
	1,2-dichlorobenzene	µg/m3	3				<6	<6	<3	<3	<3	<150	<3	<3	30	0	<3	ND	<150	ND	26	3	31	0	0
	1,3-dichlorobenzene	µg/m3	3				<6	<6	<3	<3	<3	<150	<3	<3	30	0	<3	ND	<150	ND	26	3	31	0	0
	1,4-dichlorobenzene	µg/m3	3				30	<6	20	37	32	<150	40	<3	30	14	<3	4	<150	78	42	41	26	0	0
	Chlorobenzene	µg/m3	2.3				<5	<5	<2.3	<2.3	<2.3	<120	<2.3	<2.3	30	0	<2.3	ND	<120	ND	21	2.5	25	0	0
VOCs	1,3-Butadiene	µg/m3	1.1				<2	<2	<1.1	<1.1	<1.1	<60	<1.1	<1.1	30	0	<1.1	ND	<60	ND	10	1	12	0	0
	Acrolein	µg/m3	1.1				<2	<2	<1.1	<1.1	<1.1	<60	<1.1	<1.1	30	0	<1.1	ND	<60	ND	10	1	12	0	0
	Methyl Methacrylate	µg/m3	2				<4	<4	<2	<2	<2	<100	<2	<2	30	0	<2	ND	<100	ND	18	2	21	0	0
Solvents	1,4-Dioxane	µg/m3	1.8				<4	<4	<1.8	<1.8	<1.8	<90	<1.8	<1.8	30	0	<1.8	ND	<90	ND	16	2	19	0	0
	Methyl Ethyl Ketone	µg/m3	1.5				<3	<3	<1.5	<1.5	<1.5	<70	<1.5	<1.5	30	0	<1.5	ND	<70	ND	12	1.5	15	0	0
	2-hexanone (MBK)	µg/m3	2				<4	<4	<2	<2	<2	<100	<2	<2	30	0	<2	ND	<100	ND	18	2	21	0	0
	4-Methyl-2-pentanone	µg/m3	2				5	<4	<2	<2	<2	<100	3	<2	30	3	<2	3	<100	5	18	4	21	0	0
	Acetone	ug/m3	11.9				30	<11.9	-	<11.9	<11.9	<600	20	<11.9	25	6	10	10	<600	50	107	20	130	0	0
	Carbon disulfide	µg/m3	1.6				<3	<3	<1.6	<1.6	<1.6	<80	<1.6	<1.6	30	0	<1.6	ND	<80	ND	14	1.5	17	0	0
	Cyclohexane	ug/m3	1.7				<3	<3	<1.7	<1.7	<1.7	<90	<1.7	<1.7	30	0	<1.7	ND	<90	ND	15	1.5	19	0	0
	Ethanol	µg/m3	0.9				48	<2	130	71	1000	1000	470	66	30	10	<0.9	30	1000	1000	104	25	258	0	0
	Ethyl acetate	µg/m3	1.8				<4	<4	<1.8	<1.8	<1.8	<90	<1.8	<1.8	30	0	<1.8	ND	<90	ND	16	2	19	0	0
	Heptane	µg/m3	2				<4	<4	<2	<2	<2	<100	7	<2	30	3	<2	3	<100	10	18	7.75	20	0	0
	Hexane	µg/m3	1.8				54	10	<1.8	6	8	<90	43	9	30	14	<1.8	3	240	240	34	24.5	44	0	0
	MTBE	ug/m3	1.8				<4	<4	<1.8	<1.8	<1.8	<90	<1.8	<1.8	30	0	<1.8	ND	<90	ND	16	2	19	0	0
	Tetrahydrofuran	µg/m3	1.5				<3	<3	<1.5	<1.5	<1.5	<70	<1.5	<1.5	30	0	<1.5	ND	<70	ND	12	1.5	15	0	0
	Vinyl acetate	µg/m3	1.8				<4	<4	<1.8	<1.8	<1.8	<90	<1.8	<1.8	30	0	<1.8	ND	<90	ND	16	2	19	0	0
PAH/Phenols	Naphthalene	µg/m3	2.6	4000	85000		<10	<10	<2.6	<2.6	<2.6	<130	<2.6	<2.6	30	0	<2.6	ND	<130	ND	23	5	27	0	0

Notes:

NEPM 2013 Table 1A(5) Comm/Ind D Soil Vapour HSL — National Environment Protection (Assessment of Site Contamination) Measure 1999 (Amended 2013, published by National Environmental Protection Council (2013), (NEPC 2013). NEPC (2013), HSL for clay soil, commercial / industrial landuse

NEPM 2013 Table 1A(2) Comm/Ind D Soil Vap VOCC HILs — National Environment Protection (Assessment of Site Contamination) Measure 1999 (Amended 2013, published by National Environmental Protection Council (2013), (NEPC 2013). Health Investigation Levels for chlorinated Compounds

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Table 4: Summary of Indoor Air Monitoring Results - Stage 1B

Substance				Tetrachloroethene (PCE)	Trichloroethene (TCE)	Cis-1,2-Dichloroethene (cis-1,2-DCE)	Trans, 1,2-DCE	1,1-Dichloroethene (1,1-DCE)	Vinyl Chloride (VC)
Sample ID	**Location**	**Sample Duration (hour)**	**Date**	**mg/m^3**	**mg/m^3**	**mg/m^3**	**mg/m^3**	**mg/m^3**	**mg/m^3**
A1	Dry cleaner	12	2-3 Nov 15	88	<0.075	<0.056	<0.056	<0.057	<0.036
		8	20-Nov-15	99	<0.34	<0.25	<0.25	<0.25	<0.16
		8	14-Jul-16	200	<0.75	<0.56	<0.56	<0.56	<0.36
		8	19-Oct-16	15	<0.022	<0.017	<0.017	<0.017	<0.011
		8	20-Jan-17	16	<0.13	<0.1	<0.1	<0.1	<0.06
		8	27-Apr-17	0.53	<0.003	<0.002	<0.002	<0.002	<0.001
		8	**12-Jul-17**	**0.81**	**<0.005**	**<0.004**	**<0.004**	**<0.004**	**<0.003**
A2	Storage room opposoite dry cleaner	12	2-3 Nov 15	0.61	<0.002	<0.002	<0.002	<0.002	<0.001
		8	20-Nov-15	4.1	<0.34	<0.25	<0.25	<0.25	<0.16
		8	14-Jul-16	1.3	<0.003	<0.002	<0.002	<0.002	<0.001
		8	19-Oct-16	0.56	<0.13	<0.1	<0.1	<0.1	<0.06
		8	20-Jan-17	0.71	<0.03	<0.002	<0.002	<0.002	<0.001
		8	27-Apr-17	0.03	<0.003	<0.002	<0.002	<0.002	<0.001
		8	**12-Jul-17**	**<0.003**	**0.005**	**<0.002**	**<0.002**	**<0.002**	**<0.001**

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Table 4: Summary of Indoor Air Monitoring Results - Stage 1B

Substance				Tetrachloroethene (PCE)	Trichloroethene (TCE)	Cis-1,2-Dichloroethene (cis-1,2-DCE)	Trans, 1,2-DCE	1,1-Dichloroethene (1,1-DCE)	Vinyl Chloride (VC)
Sample ID	**Location**	**Sample Duration (hour)**	**Date**	**mg/m^3**	**mg/m^3**	**mg/m^3**	**mg/m^3**	**mg/m^3**	**mg/m^3**
A3	Firehose reel room adjacent to florist	12	2-3 Nov 15	3.6	0.008	<0.002	<0.002	<0.002	<0.001
		8	20-Nov-15	0.95	<0.003	<0.002	<0.002	<0.002	<0.001
		8	14-Jul-16	1.8	<0.011	<0.008	<0.008	<0.008	<0.005
		8	19-Oct-16	0.39	<0.13	<0.1	<0.1	<0.1	<0.06
		8	20-Jan-17	0.36	<0.03	<0.002	<0.002	<0.002	<0.001
		8	27-Apr-17	0.01	<0.003	<0.002	<0.002	<0.002	<0.001
		8	**12-Jul-17**	**<0.013**	**<0.011**	**<0.008**	**<0.008**	**<0.008**	
A4	Firehose reel room opposite play area	12	2-3 Nov 15	3.8	<0.002	<0.002	<0.002	<0.002	<0.001
		8	20-Nov-15	2.1	<0.003	<0.002	<0.002	<0.002	<0.001
		8	14-Jul-16	2.8	<0.011	<0.008	<0.008	<0.008	<0.005
		8	19-Oct-16	0.51	<0.13	<0.1	<0.1	<0.1	<0.06
		8	20-Jan-17	0.53	<0.03	<0.002	<0.002	<0.002	<0.001
		8	27-Apr-17	0.01	<0.003	<0.002	<0.002	<0.002	<0.001
		8	**12-Jul-17**	**<0.007**	**<0.005**	**<0.004**	**<0.004**	**<0.004**	
Investigation Levels									
NOHSC 1995			**mg/m3**	340	54	793	-	20	13
Modified 12-hr TWA			**mg/m3**	227	36	529	-	13	9
WHO (2000)			**mg/m3**	0.3	0.023	-	-	-	No safe level

Note: The above summary table only presents the results of the primary contaminants of concern related to the dry cleaning activites

* Applies to A2, A3, A4

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Table 5. Dry Cleaner Drainage Swab Testing - Stage 1B

Sample ID	Sample Location	Rationale	PCE Concentration ug/swab
S1	Top of drain behind dry cleaning unit	Assess potential for floor drain to be disposal system of PCE and subsequent contamination into the environment.	13,000
S2	Metal pipe in drain behind dry cleaning unit	Assess potential for floor drain to be disposal system of PCE and subsequent contamination into the environment.	55,000
S3	Bottom of drain pipe near sump behind dry cleaning unit	Assess potential for floor drain to be disposal system of PCE and subsequent contamination into the environment.	31,000
S4	Bend in sink (in drycleaner) drain pipe	Assess potential for sink to be disposal system of PCE and subsequent contamination into the environment.	110
S5	Sewer pipe inspection point on western side of dry cleaner. Sample collected near the bottom of the pipe at the junction with the horizontal pipe (by attaching gauss to inspection camera)	Sewer connected to drains in the dry cleaner. Assess the potential for dry cleaning solvents being disposed to sewer via drain or sink in rear of drycleaners	100
S6	Sewer pipe inspection point on eastern side of dry cleaner. Sample collected near the bottom of the pipe at the junction with the horizontal pipe (by attaching gauss to inspection camera)	Sewer does not connect to drains in the dry cleaner. Assess the potential for dry cleaning solvents being disposed to sewer via drain or sink in rear of drycleaners	23
S7	Eastern grease trap inlet in loading dock adjacent to dry cleaners	Assess potential for dry cleaning solvents to be disposed to grease trap and/or for secondary sources of contamination (not related to dry cleaner)	<10
S8	Western grease trap in loading dock adjacent to drycleaners	Assess potential for dry cleaning solvents to be disposed to grease trap and/or for secondary sources of contamination (not related to dry cleaner)	<15

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Table 6. Dry Cleaner Surfaces Swab Testing - Stage 1B

Sample ID	Sample Location	Rationale	Pre – Cleaning PCE Concentration 23-May-17	Post– Cleaning PCE Concentration (µg/swab) 11-Jul-17
Ceiling Duct 1	Lower surface of ceiling unit	Determine if PCE was drawn into ceiling unit	<20	<15
Ceiling Duct 2	Side of ceiling unit		<30	<15
Upper Ceiling	Metal framework of ceiling	Determine if ceiling framework was impacted by PCE	<30	<15
South	1.5 m from floor on southern blockwork wall near window	Assess PCE contamination on southern wall	<30	<15
West 1	1.5 m from floor on western wall near former clothes racks	Assess PCE contamination on western wall	<30	<15
West 2	1.5 m from floor on western wall near breaker box and former chemical stores	Assess PCE contamination on western wall	<30	<15
North 1	1.5 m from floor on northern wall near former presses and chemical stores	Assess PCE contamination on northern wall	<30	<15
North 2	Northern wall near former sink and drain where PCE believed to have been disposed	Assess PCE contamination on northern wall near suspected disposal point. PCE previously detected on metal work and drain behind drycleaner machine at 13,000 to 55,000 ug/swab)	44	<15
East 1	1.5 m from floor on eastern wall	Assess PCE contamination on eastern wall near former dry-cleaning machine	<30	<15
Floor 1	Floor below former drycleaner machine	Assess potential PCE contamination on floor below former dry-cleaning machine	110	<15
Floor 2	Floor near former chemical store	Assess potential PCE contamination on floor below former chemical store	35	<15
Floor 3	Floor below former clothes racks	Assess potential PCE contamination on floor below former clothes racks	<30	<15
Floor 4	Floor near former drain behind drycleaner machine. Drain since capped.	PCE previously detected on metal work and drain behind drycleaner machine at 13,000 to 55,000 µg/swab)	110	<15

Table 7. Stage 2 Soil Results

	BTEX							Lead	Metals								OCP/OPP										
	Benzene	Ethylbenzene	Toluene	Xylene (m & p)	Xylene (o)	Xylene Total	C6-C10 less BTEX (F1)	Lead	Arsenic	Cadmium	Chromium (III+VI)	Copper	Manganese	Mercury	Nickel	Zinc	Aldrin + Dieldrin	DDT+DDE+DDD	Endrin	Endosulfan (total)	Heptachlor	HCB	Methoxychlor	Chlordane	Chlorpyrifos	Benzo(a) pyrene	Benzo(a) pyrene TEQ
	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	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
PQL	0.2	1	0.5	2	1		25	1	4	0.4	1	1		0.1	1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.05
NEPM (2013) Table 1A(1) HILs Commercial/Industrial D Soil								1500	3000	900	3600	240,000	60,000	730	6000	400,000	45	3600	100	2000	50	80	2500	530	2000		40
NEPM (2013) Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay 0-1m	3	NL	NL			NL	260																				
NEPM (2013) Direct Contact HSL Comm/Ind D	430	27,000	99,000			81,000	26,000																				
NEPM (2013) Direct Contact HSL Intrusive Maintenance Worker	1100	85,000	120,000			130,000	82,000																				
NEPM (2013) Table 1B(7) Management Limits Commercial/Industrial, Coarse Soil																											
Soil-specific Contaminant Limits - EILs[a]								1800	160		530	280			290	620		640									
ESLs - Commercial and Industrial (Coarse)	75	165	135			180																				1.4	
Current Assessment (DP 2015)																											
Test Bore Location	**Sample Depth**	**Sample Date**																									
109	0.3-0.4	19/08/2015	<0.2	<1	<0.5	<2	<1	<1	<25	48	<4	<0.4	6	11	-	<0.1	9	59	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	0.5
109	0.9-1.0	19/08/2015	<0.2	<1	<0.5	<2	<1	<1	<25	98	<4	<0.4	18	28	93	0.3	8	83	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	3.8	5.2
110	0.3-0.4	21/08/2015	<0.2	<1	<0.5	<2	<1	<1	<25	30	11	<0.4	5	25	140	<0.1	19	49	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5
BD8	110/0.3-0.4	21/08/2015	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	19	5	<0.4	<5	15	-	0.16	18	31	-	-	-	-	-	-	-	-	-	1.2	1.2
111	0.9-1.0	19/08/2015	<0.2	<1	<0.5	<2	<1	<1	<25	230	6	0.6	14	74	190	0.2	14	330	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1.7	2.3
112	0.9-1.0	20/08/2015	<0.2	<1	<0.5	<2	<1	<1	<25	1000	<4	3	18	53	110	0.3	9	710	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.5
113	0.2-0.3	29/08/2015	<0.2	<1	<0.5	<2	<1	<1	<25	510	9	1	17	120	-	1.3	8	960	-	-	-	-	-	-	-	-	-	11	16
113	0.8-1.0	29/08/2015	<0.2	<1	<0.5	<2	<1	<1	<25	32	<4	<0.4	11	10	38	<0.1	3	11	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.4	0.6
114	0.25-0.3	29/08/2015	<0.2	<1	<0.5	<2	<1	<1	<25	200	5	<0.4	9	290	79	0.2	13	260	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.5
BD1/290815	114/0.25-0.3	29/08/2015	<0.2	<1	<0.5	<2	<1	<1	<25	39	<4	<0.4	5	170	79	<0.1	14	54	-	-	-	-	-	-	-	-	-	0.2	<0.5
BD2/1090818	114/1.5-1.7	29/08/2015	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	18	3.1	<0.4	13	6.6	-	<0.05	<5	9.3	-	-	-	-	-	-	-	-	-	1.2	1.2
114	0.25-0.3	29/08/2015																									
115	0.4-0.5	29/08/2015	<0.2	<1	<0.5	<2	<1	<1	<25	72	<4	<0.4	14	56	88	<0.1	39	300	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.06	<0.5
116	0.2-0.3	29/08/2015	<0.2	<1	<0.5	<2	<1	<1	<25	94	<4	<0.4	11	37	110	<0.1	4	84	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.9	1.3
116	0.5	29/08/2015	<0.2	<1	<0.5	<2	<1	<1	<25	200	6	0.4	15	110	-	0.7	7	160	-	-	-	-	-	-	-	-	-	11	15
117	0.2-0.3	29/08/2015	<0.2	<1	<0.5	<2	<1	<1	<25	86	<4	<0.4	13	34	-	<0.1	8	88	-	-	-	-	-	-	-	-	-	0.1	<0.5
117	0.4-0.5	29/08/2015	<0.2	<1	<0.5	<2	<1	<1	<25	530	5	0.4	13	170	270	0.6	9	240	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	14	20
TB-19082015	-	19/08/2015	<0.2	<1	<0.5	<2	<1	<1	<25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TS-19082015	-	19/08/2015	100%	101%	100%	101%	101%	101%	<25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Previous Assessment (DP 2010)																											
Test Bore Location	**Sample Depth**	**Sample Date**																									
BH5	0.05-0.1	17/03/2010	<0.5	<0.5	<1	-	-	<3	-	8	<4	<0.5	3	260	-	<0.1	8	49	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	-
BH5	2.3-2.5	17/03/2010	<0.5	<0.5	<1	-	-	<3	-	17	<4	<0.5	21	20	-	<0.1	11	16	-	-	-	-	-	-	-	-	-	0.1	-
BH6	0.15-0.3	16/03/2010	<0.5	<0.5	<1	-	-	<3	-	28	5	0.7	18	70	-	<0.1	33	62	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1.2	-
BH6	1.9-2.0	16/03/2010	<0.5	<0.5	<1	-	-	<3	-	17	<4	<0.5	20	14	-	<0.1	5	7	-	-	-	-	-	-	-	-	-	<0.05	-
BH7	0.4-0.5	23/03/2010	<0.5	<0.5	<1	-	-	<3	-	72	6	<0.5	16	28	-	0.2	5	74	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	5	-
BH7	2.8-3.0	23/03/2010	<0.5	<0.5	<1	-	-	<3	-	110	14	<0.5	17	28	-	0.2	5	100	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	2.4	-
BH8	0.4-0.5	24/03/2010	<0.5	<0.5	<1	-	-	<3	-	510	6	0.5	12	61	-	0.3	9	410	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	3.6	-
BH8	3.0-3.2	24/03/2010	<0.5	<0.5	<1	-	-	<3	-	35	<4	<0.5	14	9	-	<0.1	3	22	-	-	-	-	-	-	-	-	-	0.09	-
BH9	0.2-0.3	22/03/2010	<0.5	<0.5	<1	-	-	<3	-	57	<4	<0.5	8	62	-	<0.1	7	200	-	-	-	-	-	-	-	-	-	0.1	-
BH9	2.4-2.5	22/03/2010	<0.5	<0.5	<1	-	-	<3	-	16	<4	<0.5	19	8	-	<0.1	2	15	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	-

Notes:

BTEX	Benzene, Toluene, Ethylbenzene and Xylene	PAH	Polycyclic Aromatic Hydrocarbon		Exceeds HIL/HSL
CRC CARE	Cooperative Research Centre for Contamination Assessment and Remediation of t	PQL	Practical Quantiation Limit		Exceeds EIL/ESL
HIL	Health Investigation Level	TEQ	Toxicity Equivalence Quotient	-	Not Analysed/Not Applicable/Not Available
HSL	Health Screening Level	TRH	Total Recoverable Hydrocarbon	a	Based on CEC of 2.5 meq/100g, pH 9.0
NAD	No Asbestos Detected at Reporting Limit of 0.1g/kg	VOC	Volatile Organic Compounds	*	Tetrachloroethene (PCE)
NEPM	National Environmental Protection Measure 1999 as amended (2013)	EIL	Environmental Investigation Level	CH/AM	Chrysotile and Amosite Asbestos Detected
OCP/OPP	Organochlorine Pesticides/Organophosphorus Pesticides	ESL	Environmental Screening Level		
PCB	Polychlorinated Biphenyls				

Table 7. Stage 2 Soil Results

			PAH			PCB	TPH										Asbestos	VOC
			Naphthalene	PAHs (Sum of total)	Phenolics Total		C10-C16	C16-C34	C34-C40	F2-NAPHTHALENE	C6 - C9	C10 - C14	C15 - C28	C29-C36	+C10 - C36 (Sum of total)	C6-C10		
			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
PQL			0.1		5	0.1	50	100	100	50	25	50	100	100	250	25	NAD	-
NEPM (2013) Table 1A(1) HILs Commercial/Industrial D Soil				4000	240,000	7												
NEPM (2013) Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay 0-1m			NL															
NEPM (2013) Direct Contact HSL Comm/Ind D			11,000				20,000	27,000	38,000									
NEPM (2013) Direct Contact HSL Intrusive Maintenance Worker			29,000				62,000	85,000	120,000									
NEPM (2013) Table 1B(7) Management Limits Commercial/Industrial, Coarse Soil							1000	3500	10,000							700		
Soil-specific Contaminant Limits - EILs[a]			370															
ESLs - Commercial and Industrial (Coarse)							170	1700	3300							215		
Current Assessment (DP 2015)																		
Test Bore Location	**Sample Depth**	**Sample Date**																
109	0.3-0.4	19/08/2015	<0.1	3	-	<0.1	-	<100	<100	<50	<25	<50	<100	<100	<250	<25	-	-
109	0.9-1.0	19/08/2015	0.2	38	<5	<0.1	<50	190	<100	<50	<25	<50	110	100	210	<25	NAD	<PQL
110	0.3-0.4	21/08/2015	<0.1	0.56	<5	<0.1	<50	<100	<100	<50	<25	<50	<100	<100	<250	<25	NAD	<PQL
BD8	110/0.3-0.4	21/08/2015	<0.5	0.7	-	-	<50	<100	<100	<50	<20	<20	<50	<50	<50	<20	-	-
111	0.9-1.0	19/08/2015	<0.1	17	<5	<0.1	<50	<100	<100	<50	<25	<50	<100	<100	<250	<25	NAD	<PQL
112	0.9-1.0	20/08/2015	<0.1	1.8	<5	<0.1	<50	<100	<100	<50	<25	<50	<100	<100	<250	<25	NAD	<PQL
113	0.2-0.3	29/08/2015	0.3	100	-	-	<50	620	170	<50	<25	<50	350	350	700	<25	-	<PQL
113	0.8-1.0	29/08/2015	<0.1	5	<5	<0.1	<50	<100	<100	<50	<25	<50	<100	<100	<250	<25	NAD	<PQL
114	0.25-0.3	29/08/2015	<0.1	1.8	<5	<0.1	<50	<100	<100	<50	<25	<50	<100	<100	<250	<25	NAD	<PQL
BD1/290815	114/0.25-0.3	29/08/2015	<0.1	2.5	-	-	<50	<100	<100	<50	<25	<50	<100	<100	<250	<25	-	-
BD2/1090818	114/1.5-1.7	29/08/2015	<0.5	1.2	-	-	<50	<100	<100	<50	<20	<20	<50	<50	<50	<20		
114	0.25-0.3	29/08/2015															**CH,AM**	
115	0.4-0.5	29/08/2015	<0.1	0.49	<5	<0.1	<50	<100	<100	<50	<25	<50	<100	<100	<250	<25	NAD	<PQL
116	0.2-0.3	29/08/2015	<0.1	9	<5	<0.1	<50	<100	<100	<50	<25	<50	<100	<100	<250	<25	-	<PQL
116	0.5	29/08/2015	1.1	120	-	-	<50	710	170	<50	<25	<50	470	320	790	<25	NAD	<PQL
117	0.2-0.3	29/08/2015	<0.1	1.3	-	-	<50	<100	<100	<50	<25	<50	<100	<100	<250	<25	-	<PQL
117	0.4-0.5	29/08/2015	1.3	140	<5	<0.1	<50	1000	230	<50	<25	<50	680	470	1150	<25	NAD	<PQL
TB-19082015	-	19/08/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TS-19082015	-	19/08/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Previous Assessment (DP 2010)																		
Test Bore Location	**Sample Depth**	**Sample Date**																
BH5	0.05-0.1	17/03/2010	-	<0.1	<5	<0.1	-	-	-	-	<25	-	-	-	<250	-	NAD	-
BH5	2.3-2.5	17/03/2010	-	0.5	<5	-	-	-	-	-	<25	-	-	-	<250	-	-	-
BH6	0.15-0.3	16/03/2010	-	7.1	<5	<0.1	-	-	-	-	<25	-	-	-	640	-	NAD	-
BH6	1.9-2.0	16/03/2010	-	<0.1	<5	-	-	-	-	-	<25	-	-	-	<250	-	-	-
BH7	0.4-0.5	23/03/2010	-	58	<5	<0.1	-	-	-	-	<25	-	-	-	170	-	NAD	-
BH7	2.8-3.0	23/03/2010	-	27	<5	-	-	-	-	-	<25	-	-	-	<250	-	NAD	-
BH8	0.4-0.5	24/03/2010	-	33	<5	<0.1	-	-	-	-	<25	-	-	-	310	-	NAD	-
BH8	3.0-3.2	24/03/2010	-	0.7	<5	-	-	-	-	-	<25	-	-	-	<250	-	-	-
BH9	0.2-0.3	22/03/2010	-	0.5	<5	<0.1	-	-	-	-	<25	-	-	-	<250	-	NAD	-
BH9	2.4-2.5	22/03/2010	-	<0.1	<5	-	-	-	-	-	<25	-	-	-	<250	-	-	-

Table 8. Stage 2 Groundwater Results

							Field_ID	BH109	BH110	BH112	BH113
							LocCode	BH109	BH110	BH112	BH113
							WellCode				
							Sampled_Date-Time	2/10/2015	2/10/2015	2/10/2015	2/10/2015
				ANZECC 2000 LOW RELIABILITY FW	NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay	ANZECC 2000, Fresh Waters	Drinking Water				
Chem_Group	**ChemName**	**Units**	**EQL**		2-4m						
	Formaldehyde	mg/L	0.1				0.5	<0.1	<0.1	-	0.3
Inorganics	Ammonia	mg/L	0.005			0.9		0.052	<0.005	0.025	0.029
Cyanides	Cyanide Total	mg/L	0.004			0.007	0.08	<0.004	<0.004	-	<0.004
Metals	Aluminium (Filtered)	mg/L	0.01			0.055		0.02	0.08	0.1	0.04
	Arsenic (Filtered)	mg/L	0.001				0.01	<0.001	<0.001	<0.001	<0.001
	Cadmium (Filtered)	mg/L	0.0001			0.0002	0.002	0.0002	0.0001	0.0001	<0.0001
	Calcium (Filtered)	mg/L	0.5					3.6	2.2	-	10
	Chromium (III+VI) (Filtered)	mg/L	0.001					<0.001	<0.001	<0.001	<0.001
	Copper (Filtered)	mg/L	0.001			0.0014	2	0.002	0.002	0.004	<0.001
	Lead (Filtered)	mg/L	0.001			0.0034	0.01	<0.001	0.001	0.007	<0.001
	Magnesium (Filtered)	mg/L	0.5					3.1	4.6	-	13
	Manganese (Filtered)	mg/L	0.005			1.9	0.5	0.025	0.047	0.063	0.13
	Mercury (Filtered)	mg/L	0.00005			0.00006	0.001	<0.00005	<0.00005	<0.00005	<0.00005
	Nickel (Filtered)	mg/L	0.001			0.011	0.02	0.001	0.002	0.002	0.004
	Silver (Filtered)	mg/L	0.001			0.00005	0.1	<0.001	<0.001	<0.001	0.002
	Zinc (Filtered)	mg/L	0.001			0.008		0.021	0.023	0.066	0.025
TPH	C10-C16	mg/L	0.05					<0.05	<0.05	<0.05	<0.05
	C16-C34	mg/L	0.1					0.1	<0.1	<0.1	<0.1
	C34-C40	mg/L	0.1					<0.1	<0.1	<0.1	<0.1
	F2-NAPHTHALENE	mg/L	0.05		NL			<0.05	<0.05	<0.05	<0.05
	C6 - C9	mg/L	0.01					<0.01	<0.01	<0.01	<0.01
	C10 - C14	mg/L	0.05					<0.05	<0.05	<0.05	<0.05
	C15 - C28	mg/L	0.1					<0.1	<0.1	<0.1	<0.1
	C29-C36	mg/L	0.1					<0.1	<0.1	<0.1	<0.1
	C6-C10 less BTEX (F1)	mg/L	0.01		NL			<0.01	<0.01	<0.01	<0.01
	C6-C10	mg/L	0.01					<0.01	<0.01	<0.01	<0.01
BTEX	Benzene	mg/L	0.001		30	0.95	0.001	<0.001	<0.001	<0.001	<0.001
	Ethylbenzene	mg/L	0.001		NL		0.3	<0.001	<0.001	<0.001	<0.001
	Toluene	mg/L	0.001		NL		0.8	<0.001	<0.001	<0.001	<0.001
	Xylene (m & p)	mg/L	0.002					<0.002	<0.002	<0.002	<0.002
	Xylene (o)	mg/L	0.001			0.35		<0.001	<0.001	<0.001	<0.001
MAH	1,2,4-trimethylbenzene	mg/L	0.001					<0.001	<0.001	<0.001	<0.001
	1,3,5-trimethylbenzene	mg/L	0.001					<0.001	<0.001	<0.001	<0.001
	Isopropylbenzene	mg/L	0.001					<0.001	<0.001	<0.001	<0.001
	n-butylbenzene	mg/L	0.001					<0.001	<0.001	<0.001	<0.001
	n-propylbenzene	mg/L	0.001					<0.001	<0.001	<0.001	<0.001
	p-isopropyltoluene	mg/L	0.001					<0.001	<0.001	<0.001	<0.001
	sec-butylbenzene	mg/L	0.001					<0.001	<0.001	<0.001	<0.001
	Styrene	mg/L	0.001				0.03	<0.001	<0.001	<0.001	<0.001
	tert-butylbenzene	mg/L	0.001					<0.001	<0.001	<0.001	<0.001
Chlorinated Hydrocarbons	1,1,1,2-tetrachloroethane	mg/L	0.001					<0.001	<0.001	<0.001	<0.001
	1,1,1-trichloroethane	mg/L	0.001	0.27				<0.001	<0.001	<0.001	<0.001
	1,1,2,2-tetrachloroethane	mg/L	0.001	0.4				<0.001	<0.001	<0.001	<0.001
	1,1,2-trichloroethane	mg/L	0.001	1.9		6.5		<0.001	<0.001	<0.001	<0.001
	1,1-dichloroethane	mg/L	0.001					<0.001	<0.001	<0.001	<0.001
	1,1-dichloroethene	mg/L	0.001				0.03	<0.001	<0.001	<0.001	<0.001
	1,1-dichloropropene	mg/L	0.001					<0.001	<0.001	<0.001	<0.001
	1,2,3-trichloropropane	mg/L	0.001					<0.001	<0.001	<0.001	<0.001
	1,2-dibromo-3-chloropropane	mg/L	0.001					<0.001	<0.001	<0.001	<0.001
	1,2-dichloroethane	mg/L	0.001	1.9			0.003	<0.001	<0.001	<0.001	<0.001
	1,2-dichloropropane	mg/L	0.001	0.9				<0.001	<0.001	<0.001	<0.001
	1,3-dichloropropane	mg/L	0.001	1.1				<0.001	<0.001	<0.001	<0.001
	2,2-dichloropropane	mg/L	0.001					<0.001	<0.001	<0.001	<0.001
	Bromochloromethane	mg/L	0.001					<0.001	<0.001	<0.001	<0.001
	Bromodichloromethane	mg/L	0.001					<0.001	<0.001	<0.001	<0.001
	Bromoform	mg/L	0.001					<0.001	<0.001	<0.001	<0.001
	Carbon tetrachloride	mg/L	0.001	0.24			0.003	<0.001	<0.001	<0.001	<0.001
	Chlorodibromomethane	mg/L	0.001					<0.001	<0.001	<0.001	<0.001
	Chloroethane	mg/L	0.01					<0.01	<0.01	<0.01	<0.01
	Chloroform	mg/L	0.001	0.37				0.001	<0.001	<0.001	<0.001

Table 8. Stage 2 Groundwater Results

						Field_ID	BH109	BH110	BH112	BH113
						LocCode	BH109	BH110	BH112	BH113
						WellCode				
						Sampled_Date-Time	2/10/2015	2/10/2015	2/10/2015	2/10/2015
				ANZECC 2000 LOW RELIABILITY FW	NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay	ANZECC 2000, Fresh Waters	Drinking Water				
Chem_Group	**ChemName**	**Units**	**EQL**		2-4m						
	Chloromethane	mg/L	0.01					<0.01	<0.01	<0.01	<0.01
	cis-1,2-dichloroethene	mg/L	0.001					<0.001	<0.001	<0.001	<0.001
	cis-1,3-dichloropropene	mg/L	0.001	0.0008				<0.001	<0.001	<0.001	<0.001
	Dibromomethane	mg/L	0.001					<0.001	<0.001	<0.001	<0.001
	Hexachlorobutadiene	mg/L	0.001				0.0007	<0.001	<0.001	<0.001	<0.001
	Trichloroethene	mg/L	0.001	0.33				<0.001	<0.001	<0.001	<0.001
	Tetrachloroethene	mg/L	0.001	0.07			0.05	<0.001	<0.001	<0.001	<0.001
	trans-1,2-dichloroethene	mg/L	0.001					<0.001	<0.001	<0.001	<0.001
	trans-1,3-dichloropropene	mg/L	0.001	0.0008				<0.001	<0.001	<0.001	<0.001
	Vinyl chloride	mg/L	0.01				0.0003	<0.01	<0.01	<0.01	<0.01
Halogenated Hydrocarbons	1,2-dibromoethane	mg/L	0.001					<0.001	<0.001	<0.001	<0.001
	Bromomethane	mg/L	0.01				0.001	<0.01	<0.01	<0.01	<0.01
	Dichlorodifluoromethane	mg/L	0.01					<0.01	<0.01	<0.01	<0.01
	Trichlorofluoromethane	mg/L	0.01					<0.01	<0.01	<0.01	<0.01
Halogenated Benzenes	1,2,3-trichlorobenzene	mg/L	0.001	0.003		0.003	0.03	<0.001	<0.001	<0.001	<0.001
	1,2,4-trichlorobenzene	mg/L	0.001			0.085	0.03	<0.001	<0.001	<0.001	<0.001
	1,2-dichlorobenzene	mg/L	0.001	0.16		0.16	1.5	<0.001	<0.001	<0.001	<0.001
	1,3-dichlorobenzene	mg/L	0.001	0.26		0.26		<0.001	<0.001	<0.001	<0.001
	1,4-dichlorobenzene	mg/L	0.001	0.06		0.06	0.04	<0.001	<0.001	<0.001	<0.001
	2-chlorotoluene	mg/L	0.001					<0.001	<0.001	<0.001	<0.001
	4-chlorotoluene	mg/L	0.001					<0.001	<0.001	<0.001	<0.001
	Bromobenzene	mg/L	0.001					<0.001	<0.001	<0.001	<0.001
	Chlorobenzene	mg/L	0.001				0.3	<0.001	<0.001	<0.001	<0.001
	Hexachlorobenzene	mg/L	0.00001					<0.00001	<0.00001	<0.00001	<0.00001
Solvents	Cyclohexane	mg/L	0.001					<0.001	<0.001	<0.001	<0.001
PAH/Phenols	2,4-dimethylphenol	mg/L	0.001					<0.001	<0.001	-	<0.001
	2,4-dinitrophenol	mg/L	0.02			0.045		<0.02	<0.02	-	<0.02
	2-methylphenol	mg/L	0.001					<0.001	<0.001	-	<0.001
	2-nitrophenol	mg/L	0.001					<0.001	<0.001	-	<0.001
	3-&4-methylphenol	mg/L	0.002					<0.002	<0.002	-	<0.002
	4,6-Dinitro-2-methylphenol	mg/L	0.01					<0.01	<0.01	-	<0.01
	4-chloro-3-methylphenol	mg/L	0.005					<0.005	<0.005	-	<0.005
	4-nitrophenol	mg/L	0.02					<0.02	<0.02	-	<0.02
	Acenaphthene	mg/L	0.0001					<0.0001	<0.0001	<0.0001	<0.0001
	Acenaphthylene	mg/L	0.0001					<0.0001	<0.0001	<0.0001	<0.0001
	Anthracene	mg/L	0.0001					<0.0001	<0.0001	<0.0001	<0.0001
	Benz(a)anthracene	mg/L	0.0001					<0.0001	<0.0001	<0.0001	<0.0001
	Benzo(a) pyrene	mg/L	0.0001				0.00001	<0.0001	<0.0001	<0.0001	<0.0001
	Benzo(b)&(k)fluoranthene	mg/L	0.0002					<0.0002	<0.0002	<0.0002	<0.0002
	Benzo(g,h,i)perylene	mg/L	0.0001					<0.0001	<0.0001	<0.0001	<0.0001
	Chrysene	mg/L	0.0001					<0.0001	<0.0001	<0.0001	<0.0001
	Dibenz(a,h)anthracene	mg/L	0.0001					<0.0001	<0.0001	<0.0001	<0.0001
	Fluoranthene	mg/L	0.0001					<0.0001	<0.0001	<0.0001	<0.0001
	Fluorene	mg/L	0.0001					<0.0001	<0.0001	<0.0001	<0.0001
	Indeno(1,2,3-c,d)pyrene	mg/L	0.0001					<0.0001	<0.0001	<0.0001	<0.0001
	Naphthalene	mg/L	0.0002		NL	0.016		<0.0002	<0.0002	<0.0002	<0.0002
	Phenanthrene	mg/L	0.0001					<0.0001	<0.0001	<0.0001	<0.0001
	Phenol	mg/L	0.001			0.32		<0.001	<0.001	-	<0.001
	Phenolics Total	mg/L	0.05					<0.05	<0.05	<0.05	<0.05
	Pyrene	mg/L	0.0001					<0.0001	<0.0001	<0.0001	<0.0001

Table 8. Stage 2 Groundwater Results

							Field_ID	BH109	BH110	BH112	BH113
							LocCode	BH109	BH110	BH112	BH113
							WellCode				
							Sampled_Date-Time	2/10/2015	2/10/2015	2/10/2015	2/10/2015
				ANZECC 2000 LOW RELIABILITY FW	NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Clay	ANZECC 2000, Fresh Waters	Drinking Water				
Chem_Group	**ChemName**	**Units**	**EQL**		2-4m						
Halogenated Phenols	2,3,4,6-tetrachlorophenol	mg/L	0.001			0.01		<0.001	<0.001	-	<0.001
	2,4,5-trichlorophenol	mg/L	0.001					<0.001	<0.001	-	<0.001
	2,4,6-trichlorophenol	mg/L	0.001			0.003	0.02	<0.001	<0.001	-	<0.001
	2,4-dichlorophenol	mg/L	0.001			0.12	0.2	<0.001	<0.001	-	<0.001
	2,6-dichlorophenol	mg/L	0.001					<0.001	<0.001	-	<0.001
	2-chlorophenol	mg/L	0.001			0.34	0.3	<0.001	<0.001	-	<0.001
	Pentachlorophenol	mg/L	0.005			0.0036	0.01	<0.005	<0.005	-	<0.005
Polychlorinated Biphenyls	Arochlor 1016	mg/L	0.0001	0.000009				<0.0001	<0.0001	<0.0001	<0.0001
	Arochlor 1221	mg/L	0.0001	0.001				<0.0001	<0.0001	<0.0001	<0.0001
	Arochlor 1232	mg/L	0.0001	0.0003				<0.0001	<0.0001	<0.0001	<0.0001
	Arochlor 1242	mg/L	0.0001	0.0006		0.0003		<0.0001	<0.0001	<0.0001	<0.0001
	Arochlor 1248	mg/L	0.0001	0.00003				<0.0001	<0.0001	<0.0001	<0.0001
	Arochlor 1254	mg/L	0.0001	0.00003		0.00001		<0.0001	<0.0001	<0.0001	<0.0001
	Arochlor 1260	mg/L	0.0001	0.025				<0.0001	<0.0001	<0.0001	<0.0001
Organochlorine Pesticides	4,4-DDE	mg/L	0.00001					<0.00001	<0.00001	<0.00001	<0.00001
	a-BHC	mg/L	0.00001					<0.00001	<0.00001	<0.00001	<0.00001
	Aldrin	mg/L	0.00001					<0.00001	<0.00001	<0.00001	<0.00001
	b-BHC	mg/L	0.00001					<0.00001	<0.00001	<0.00001	<0.00001
	Chlordane (cis)	mg/L	0.00001					<0.00001	<0.00001	<0.00001	<0.00001
	Chlordane (trans)	mg/L	0.00001					<0.00001	<0.00001	<0.00001	<0.00001
	d-BHC	mg/L	0.00001					<0.00001	<0.00001	<0.00001	<0.00001
	DDD	mg/L	0.00001					<0.00001	<0.00001	<0.00001	<0.00001
	DDT	mg/L	0.000006			0.000006	0.009	<0.000006	<0.000006	<0.000006	<0.000006
	Dieldrin	mg/L	0.00001					<0.00001	<0.00001	<0.00001	<0.00001
	Endosulfan I	mg/L	0.00001					<0.00001	<0.00001	<0.00001	<0.00001
	Endosulfan II	mg/L	0.00001					<0.00001	<0.00001	<0.00001	<0.00001
	Endosulfan sulphate	mg/L	0.00001					<0.00001	<0.00001	<0.00001	<0.00001
	Endrin	mg/L	0.00001			0.00001		<0.00001	<0.00001	<0.00001	<0.00001
	Endrin aldehyde	mg/L	0.00001					<0.00001	<0.00001	<0.00001	<0.00001
	g-BHC (Lindane)	mg/L	0.00001			0.0002	0.01	<0.00001	<0.00001	<0.00001	<0.00001
	Heptachlor	mg/L	0.00001			0.00001		<0.00001	<0.00001	<0.00001	<0.00001
	Heptachlor epoxide	mg/L	0.00001				0.0003	<0.00001	<0.00001	<0.00001	<0.00001
	Methoxychlor	mg/L	0.00001					<0.00001	<0.00001	<0.00001	<0.00001
Organophosphorous Pesticides	Azinophos methyl	mg/L	0.00002				0.03	<0.00002	<0.00002	<0.00002	<0.00002
	Bromophos-ethyl	mg/L	0.00001					<0.00001	<0.00001	<0.00001	<0.00001
	Chlorpyrifos	mg/L	0.00001			0.00001	0.01	<0.00001	<0.00001	<0.00001	<0.00001
	Chlorpyrifos-methyl	mg/L	0.00001					<0.00001	<0.00001	<0.00001	<0.00001
	Diazinon	mg/L	0.01			0.00001	0.004	<0.01	<0.01	<0.01	<0.01
	Dichlorvos	mg/L	0.00001				0.005	<0.00001	<0.00001	<0.00001	<0.00001
	Dimethoate	mg/L	0.00001			0.00015	0.007	<0.00001	<0.00001	<0.00001	<0.00001
	Ethion	mg/L	0.00001				0.004	<0.00001	<0.00001	<0.00001	<0.00001
	Fenitrothion	mg/L	0.00001			0.0002	0.007	<0.00001	<0.00001	<0.00001	<0.00001
	Malathion	mg/L	0.00005			0.00005	0.07	<0.00005	<0.00005	<0.00005	<0.00005
	Ronnel	mg/L	0.00001					<0.00001	<0.00001	<0.00001	<0.00001
Pesticides	Bifenthrin	mg/L	0.0005					<0.0005	<0.0005	-	<0.0005
	Parathion	mg/L	0.00001			0.000004	0.02	<0.00001	<0.00001	<0.00001	<0.00001

Notes:

ANZECC 2000 Freah Water	National water quality management strategy. Australia and New Zealand Guidelines for Fresh and Marine Water Quality 2000 (ANZECC and ARMCANZ). Moderate Reliability Investigation Levels for the protection of 95% of species
NEPM 2013	National Environment Protection (Assessment of Site Contamination) Measure 1999 (Amended 2013, published by National Environmental Protection Council (2013), (NEPC 2013). NEPC (2013), HSL for clay soil, 2-4 m bgl, commercial / industrial landuse
Drinking Water	Australian Drinking Water Guidelines 2011 (ADWG)
ANZECC 2000 LOW RELIABILITY FW	National water quality management strategy. Australia and New Zealand Guidelines for Fresh and Marine Water Quality 2000 (ANZECC and ARMCANZ). Low reliability investigation levels for fresh water