

Report on Preliminary Waste Classification

Proposed Residential Development Ivanhoe Estate, Macquarie Park

Prepared for Fraser Property Ivanhoe Pty Ltd

> Project 86043.01.R.004 December 2017



Douglas Partners Geotechnics | Environment | Groundwater

Document History

Document details		P	
Project No.	86043.01.R.004	Document No.	R.004.Rev0
Document title	Report on Preliminary	Waste Classification	on
	Proposed Residential	Development	8
Site address	Ivanhoe Estate, Macq	uarie Park	
Report prepared for	Fraser Property Ivanh	oe Pty Ltd	
File name	86043.01.R.004.Rev0		

Document status and review

Status	Prepared by	Reviewed by	Date issued
Revision 0 David Walker		Kurt Plambeck	20 December 2017
			14

Distribution of copies

	000.00			
Status	Electronic	Paper	Issued to	
Revision 0	1	0	Joe Zannino, Fraser Property Ivanhoe Pty Ltd	

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

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Report on Preliminary Waste Classification Proposed Residential Development Ivanhoe Estate, Macquarie Park

1. Introduction

This report presents the results of a preliminary waste classification undertaken for the proposed residential development known as Ivanhoe Estate at Macquarie Park. The investigation was commissioned by Fraser Property Ivanhoe Pty Ltd under the Consultancy Services Deed for Ivanhoe Estate dated 15 November 2017.

It is understood that the development of the site will include the demolition of existing structures followed by the construction of new high rise buildings, largely for residential purposes. Basements of four to six levels are proposed to provide parking, together with the construction of a new bridge across Shrimptons Creek and connecting road to Lyonpark Road. Significant excavation is anticipated across the greater site area in order to obtain the proposed site levels and for the basement excavations.

Sampling for the preliminary waste classification was conducted from boreholes positioned for geotechnical investigations which are reported separately by DP (reference numbers 86043.01.R001, 86043.01.R002 and 86043.01.R003). The purpose of the preliminary waste classification, therefore, was to collect waste classification data on the basis that further testing/assessment will need to be undertaken in untested areas of the site during construction.

2. Scope of Works

The scope of works for the preliminary waste classification included:

-) A review of relevant reports;
-) Collection of soil samples from geotechnical test bores (where possible);
- Analysis of selected samples at a NATA (National Association of Testing Authority) accredited laboratory for the following:
 - metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc);
 - polycyclic aromatic hydrocarbons (PAH);
 - total recoverable hydrocarbons (TRH);
 - benzene, toluene, ethylbenzene and xylene (BTEX);
 - organochlorine pesticides (OCP);
 - organophosphorus pesticides (OPP);
 - polychlorinated biphenyls (PCB);
 - total phenols;
 - asbestos;



- TRH with silica gel clean-up; and
- Toxicity characteristic leaching procedure (TCLP) (for lead and nickel); and
-) Preparation of this preliminary waste classification report.

3. Site Description

The Ivanhoe Estate site is located in Macquarie Park near the corner of Epping Road and Herring Road within the Ryde Local Government Area (LGA). The site is approximately 8.2 hectares and currently accommodates 259 social housing dwellings, comprising a mix of townhouse and four storey apartment buildings set around a cul-de-sac street layout. An aerial photo of the site is provided in Figure 1 below.



The Site

To facilitate road extension to Lyonpark Road

Figure 1: Ivanhoe Estate site



Immediately to the north of the site are a series of four storey residential apartment buildings. On the north-western boundary, the site fronts Herring Road and a lot which is currently occupied by four former student accommodation buildings and is likely to be subject to redevelopment. Epping Road runs along the south-western boundary of the site and Shrimptons Creek, an area of public open space runs along the south-eastern boundary. Vehicle access to the site is via Herring Road.

The site is comprised of 17 individual lots and part of an 18th lot and are owned and managed by Land and Housing Corporation. The site also incorporates an extension of this land, being a portion of Shrimptons Creek and part of the commercial site at 2-4 Lyonpark Road. The extended land is included to facilitate a bridge crossing and road connection to Lyonpark Road.

Ground levels in the Ivanhoe Estate site slope down from approximately RL 71 towards the Herring Road/Epping Road intersection towards the east and south-east, to RL 42 at Shrimptons Creek, at the south-eastern site boundary.

4. **Previous Investigations**

Previous field investigations where soil contamination testing was undertaken for the Ivanhoe Estate project were reported in the following which were provided to DP:

- JBS&G Australia Pty Ltd, *Detailed Site Investigation, Ivanhoe Estate, Herring Road, Macquarie Park, NSW,* October 2016 (52047/104956 Rev0) [JBS&G, 2016]; and
- DLA Environmental Services Pty Ltd, Supplementary Site Investigation, Ivanhoe Estate, Corner Herring Road and Epping Road, Macquarie Road NSW 2113, June 2017 (DL3953_S006887) [DLA, 2017a]; and
-) DLA, Supplementary Site Investigation, New Property Acquisition Ivanhoe Estate, 2 Lyon Road, Macquarie Park NSW 2113, July 2017 (DL3953_S007076) [DP, 2017b].

It is noted that JBS&G (2016) did not include an assessment of results for waste classification.

According to JBS&G (2016), the site has previously been used for market gardens, with a small number of historical structures, up until development of the site for its current land use as government housing. Potential areas of environmental concern (AEC) or potentially contaminating activities were identified as:

-) Fill materials of unknown origin observed to be present as a result of the site development activities;
- Hazardous building materials associated with existing / former site structures; and
- *Former agricultural / market garden activities.*

Potential contaminants (associated with one or more of the above-listed AEC) were listed to include metals, PAH, TRH, BTEX, OCP, OPP, PCB and asbestos.

JBS&G (2016) included sampling using a hand auger at 32 locations (HA01 to HA32) across the Ivanhoe Estate site. Test locations are shown on Figure 4 from JBS&G (2016), Appendix A. Borehole



logs are provided in Appendix C. A summary of analytical results is shown in Table A from JBS&G (2016), Appendix B. Further comments regarding the results are made in Section 11.

DLA (2017a) included sampling from nine locations (BH1 to BH4, BH5/1, BH5/2, BH6 to BH9) at the northern and central parts of the Ivanhoe Estate site. Test locations are shown on Figure 2 from DLA (2017a), Appendix A. Borehole logs (dated 24 May 2017) are provided in Appendix C. A summary of analytical results is shown in Table 1 and Table 2 from DLA (2017a), Appendix B. DLA assessed the results and stated that both the topsoil and underlying reworked natural material are classified as General Solid Waste (non-putrescible), although a more detailed assessment of fill material would be required to more thoroughly classify the material to facilitate appropriate off-site disposal.

DLA (2017b) included sampling from six locations (BH1 to BH6) at the proposed road reserve at Lyon Park Road. Test locations are shown on Figure 2 from DLA (2017b), Appendix A. Borehole logs (dated 27 June 2017) are provided in Appendix C. A summary of analytical results is shown in Table 1 and Table 2 (titled *New Property Acquisition*), from DLA (2017b), Appendix B. DLA assessed the results and stated that the data indicates that fill material is classified as General Solid Waste (non-putrescible), although a more detailed assessment of fill material would be required to more thoroughly classify the material to facilitate appropriate off-site disposal.

5. Geology and Acid Sulfate Soils

Reference to the Sydney Geology Series Sheet suggests that the site is underlain by Ashfield Shale (typically comprising shale and laminite) at more elevated parts of the site and by Hawkesbury Sandstone in the lower parts of the site (typically comprising medium to coarse grained sandstone with very minor shale and laminite lenses).

According to Acid Sulfate Soil Risk Mapping Data supplied by the NSW Department of Environment and Climate Change (1994-1998), the site is in an area of no known risk of Acid Sulfate Soils.

6. Field Work Methodology

Samples were collected from test bores that were drilled for geotechnical purposes (except at Borehole 36 where shallow refusal was encountered). Drawing 1, Appendix A, shows the location of boreholes (1 to 13, 31 to 47 and LP1). Various machinery and equipment was used to drill the boreholes including:

- A truck-mounted drilling rig at Boreholes 1 to 5, 7 to 13, 34, 38, 41 and LP1;
- A bobcat-mounted drilling rig at Boreholes 6 and 44;
- An excavator with auger attachment at Boreholes 31 to 33, 35, 37, 39, 40, 42, 43, 45 to 47; and
- A hand auger at Borehole 36 (where there was considered to be an elevated risk of buried services).



Boreholes 1 to 13 and LP1 were drilled using a combination of the solid flight auger attachment and NMLC-coring (of rock). Boreholes 34, 38, 41, 44 were drilled using a solid flight auger attachment (only).

Samples for contamination testing were collected by a geotechnical engineer with reference to standard operating procedures outlined in the DP *Field Procedures Manual*. The general sampling procedure comprised:

-) Collection of representative soil samples directly from the auger at regular depth intervals;
-) The use of disposable gloves for each sampling event;
-) Transfer of samples into laboratory-prepared glass jars, capping immediately, minimising the headspace within the sample jar;
-) Labelling of sample containers with individual and unique identification, including project number, sample location and sample depth; and
-) Placing the glass jars into a cooled, insulated and sealed container for transport to the laboratory; and
-) Use of chain of custody documentation ensuring that sample tracking and custody could be cross-checked at any point in the transfer of samples from the field to the laboratory.

7. Field Work Observations

The borehole logs are provided in Appendix A and should be referenced for detailed soil descriptions at each sample location.

Filling (including topsoil) was encountered to various depths of up to 2.1 m bgl and comprised various filling materials included silty sand, sand, silty clay, clay, sandy clay, clayey sand, gravel, sandy gravelly clay and gravelly sand. Filling was typically brown in colour but also orange-brown, grey and red-brown. No obvious signs of contamination (e.g. odours or possible asbestos containing materials) were noted in the samples; however, anthropogenic materials were noted in the filling at some locations including:

- A trace of slag at Borehole 3, depth 0-0.3 m;
- A trace of brick fragments at Borehole 3, depth 1.35 to 2.1 m;
-) A trace of brick at Borehole 4, depth 0 0.2 m;
-) Concrete fragments at Borehole 8, depth 0 0.7 m;
- A trace of slag at Borehole 9, depth 0.05 0.16 m;
- A trace of concrete fragments at Borehole 10, depth 0 0.2 m;
-) Metal and plastic wire at Borehole 12, depth 0.4-0.5 m;
-) A trace of brick fragments at Borehole 31, depth 0 0.1 m;
- A possible concrete boulder (or service) at Borehole 33, depth 1.2 m where the bore was discontinued;
- A concrete boulder at Borehole 37, depth 0.8 m where the bore was discontinued;



- A plastic sheet and a concrete boulder at Borehole 45 at depths of 0.2 m; and
- A pen and brick at Borehole 46, at depths of 0.1 m and 0.2 m, respectively.

Although asbestos containing materials were not observed in the filling, asbestos may be associated with building rubble in filling, such as brick and concrete listed above.

Natural soil was not commonly observed beneath filling (as bedrock directly beneath filling was often encountered). Observed natural soils included:

-) Orange-brown clay at Borehole 7, depth 1.3-1.5 m;
-) Light orange-brown clay at Borehole 8, depth 0.7 1.6 m;
- Dark brown silty sand at Borehole 10, depth 0.6 1.0 m, then light brown sandy clay at depth 1 2.1 m;
- J Grey, orange-brown and red-brown clayey silt and silty clay at Borehole 11, depth 0.7 2.8m;
- Brown sandy clay at Borehole 12, depth 1.2 2.1 m;
-) Yellow brown silty clay at Borehole 13, depth 1.35 2.0 m;
- Red-brown mottled brown clay at Borehole LP1, depth 1.3 2.2 m; and
- J Yellow-brown sandy clay at Borehole 39, depth 0.1 0.5 m;
- Brown clay at Borehole 40, depth 1.2-1.5 m;
- / Yellow-brown clay at Borehole 41, depth 0.2-0.7 m;
- Light brown clay at Borehole 42, depth 1.3 to 1.7m; and
- Light brown and red-brown clay at Borehole 47, depth 0.8 to 3.1 m (although the soil was logged as possible filling to a depth of 1.3 m).

Observed bedrock (beneath filling or beneath natural soil) included orange-brown, orange and grey, brown shale; orange, yellow, brown, red-brown, grey-brown, grey, yellow-brown, purple-brown, orange-brown, purple-grey sandstone; and laminite.

8. Waste Classification Criteria

EPA (2014) contains a six step procedure for determining the type of waste and the waste classification. Part of the procedure, for materials not classified as special waste or pre-classified waste, is a comparison of analytical data initially against contaminant threshold (CT) values specific to a waste category. Alternatively, the data can be assessed against specific contaminant concentration (SCC) thresholds when used in conjunction with toxicity characteristic leaching procedure (TCLP) thresholds.

The CT, SCC, and TCLP values relevant to this preliminary waste classification are shown on Table B1, Appendix B.



The POEO Act defines virgin excavated natural material (VENM) as:

'natural material (such as clay, gravel, sand, soil or rock fines):

(a) that has been excavated or quarried from areas that are not contaminated with manufactured chemicals, or with process residues, as a result of industrial, commercial, mining or agricultural activities and

(b) that does not contain any sulfidic ores or soils or any other waste

and includes excavated natural material that meets such criteria for virgin excavated natural material as may be approved for the time being pursuant to an EPA Gazettal notice.'

Additional advice is provided on the EPA web site [http://www.epa.nsw.gov.au/waste/virginmaterial.htm] entitled 'Virgin Excavated Natural Material'. This advice states:

-) Generators of VENM must assess the past and present activities on the site. The possibility that a previous land use has caused contamination of a site must be considered when assessing whether an excavated material is VENM. Land uses that could result in contaminants being present in an excavated material are listed on the web site. The list is not exhaustive and an excavated material may still be contaminated even where none of these activities have previously occurred on a site. Activities not directly related to a site may also lead to contamination, including diffuse sources of pollution such as contaminated groundwater that migrates under a site, or dust settling out from industrial emissions. Generators of VENM must consider these factors.
-) Generators of excavated material should review the applicable Acid Sulfate Soil Risk Maps to determine the probability of acid sulfate soils being present at the site at which VENM excavation is proposed. The waste cannot be classified as VENM if the Acid Sulfate Soil Risk Maps identify a high probability of occurrence of acid sulfate soils or potential acid sulfate soils, unless it has undergone chemical assessment in accordance with the *Acid Sulfate Soils Assessment Guidelines* and the updated *Acid Sulfate Soils Laboratory Method Guidelines Version 2.1* June 2004.
-) By definition, VENM cannot contain any other waste, or be 'made' from processed soils. Excavated material that has been processed in any way cannot be classified as VENM.
-) Classification of excavated material as VENM requires certainty that all aspects of the definition are met. Chemical testing may be required to ascertain whether an excavated material is contaminated with manufactured chemicals or process residues, or whether it contains sulfidic ores or soils.

9. Laboratory Analysis

All sample analysis was conducted by Envirolab Services Pty Ltd (a NATA accredited laboratory). Selected samples (primarily filling samples) were subject to laboratory analysis for metals, PAH, TRH, BTEX, PCB, total phenols, OPP, OCP and asbestos. The filling sample from Borehole 32, depth 0.1 m, was analysed for TRH with silica gel clean up (total petroleum hydrocarbons) given that TRH was detected above the laboratory's limit of reporting.



Samples from Borehole 9, depth 0.1 m, and Borehole 41, depth 0-0.1m, were subject to TCLP analysis for nickel given that concentrations of nickel were above the CT1 values. The sample from Borehole 38, depth 0.1 m, was subject TCLP analysis for lead given the concentration of lead was above the CT1 value.

Laboratory certificates with chain of custody are provided in Appendix D. Results are summarised in Table B1, Appendix B.

Based on a review of laboratory QA/QC results, it is considered that the laboratory results are useable for this assessment.

10. Waste Classification

10.1 Filling

The following Table 1 presents the results of the six step procedure outlined in EPA (2014) for determining the type of waste and the waste classification. This process applies to fill (including topsoil) at the site, which do not meet the definition of VENM.

Table 1:	Six Step	Classification	Proced	ure for F	Filling	J

Step	Comments	Rationale
1. Is the waste special waste?	No	No asbestos-containing materials (ACM), clinical or related waste, or waste tyres were observed in the test pits;
		Asbestos was not detected by the analytical laboratory.
2. Is the waste liquid waste?	No	The fill comprised a soil matrix.
3. Is the waste "pre-classified"?	No	The fill is not pre-classified with reference to EPA (2014).
4. Does the waste possess hazardous waste characteristics?	No	The waste was not observed to contain or considered at risk to contain explosives, gases, flammable solids, oxidising agents, organic peroxides, toxic substances, corrosive substances, coal tar, batteries, lead paint or dangerous goods containers.
5. Determining a wastes classification using chemical assessment	Conducted	Refer to Table B1, Appendix B.
6. Is the waste putrescible?	No	The fill does not contain materials considered to be putrescible ^a .

Note: a wastes that are generally not classified as putrescible include soils, timber, garden trimmings, agricultural,forest and crop materials, and natural fibrous organic and vegetative materials (EPA, 2014).



As shown on Table B1, Appendix B, contaminants concentrations for analysed filling samples were within the contaminant thresholds (CT1s) for General Solid Waste (GSW) with the exception of:

- Nickel concentrations in the samples from Borehole 9, depth 0.1 m, and Borehole 41, depth 0 0.1 m; and
-) The lead concentration in the sample from Borehole 38, depth 0.1 m.

Concentrations for the above samples were within the SCC1 and TCLP1 contaminant thresholds for GSW.

Based on the observations at the time of sampling and the reported analytical results, the filling (including topsoil) as described in the borehole logs, Appendix C, has a preliminary classification of **General Solid Waste (non-putrescible)**, as defined in EPA (2014). It is noted that building rubble (such as brick and concrete) was observed in filling and asbestos contamination can sometimes be associated with building rubble in filling. Asbestos is pre-classified as Special Waste and, therefore, the above preliminary waste classification of General Solid Waste (non-putrescible) does not apply if asbestos is encountered in the filling during excavation.

10.2 Natural Soil

The following Table 2 presents the results of the assessment of natural soils and bedrock at the site with reference to the VENM definition and EPA advice outlined in Section 8.

Table 2:	VENM	Classification	Procedure
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ltem	Comments	Rationale
1. Is the material natural?	Yes	Natural clay, silty sand, silty clay, sandy clay, clay, shale, sandstone and laminite logged as natural soil in the borehole logs, Appendix C.
 Is the material impacted by manufactured chemicals or process residues? 	Yes	There were no visual indicators of chemical contamination in sampled materials; however, residual OCP was detected in three natural soil samples.
3. Are the materials acid sulphate soils?	No	A review of the Acid Sulfate Soil Risk Map shows the site in an area of no ASS occurrence.
4. Are there current or previous land uses that have (or may have) contaminated the materials?	Yes	The site has previously been used as market gardens where pesticides may have impacted natural soils.

As shown in Table B1, Appendix B concentrations of cadmium, mercury, PAH, TRH and BTEX for analysed natural soil samples were below the laboratory's limit of reporting. Concentrations of arsenic, chromium, copper, lead, nickel and zinc are considered to be at background concentrations (ANZECC, *Australia and New Zealand Guidelines for the Assessment and Management of Contaminated Sites*, 1992). Out of the 16 natural samples analysed, three samples had concentrations of OCP at or above the laboratory's limit of reporting, including from:



- J Borehole 10, depth 0.9-1.0 m (DDE 0.4 mg/kg);
- Borehole 47, depth 1 m (Chlordane 0.2 mg/kg, DDE 0.1 mg/kg); and
- Borehole 47, depth 1.5 m (DDE 0.1 mg/kg).

It is noted that the site was previously used as market gardens, and it is considered that the low (residual) concentrations of OCP in natural soil listed above are likely to be a result of the application of pesticides for the previous market gardens. Given the presence of OCP, the natural soil represented by the above listed sample is not VENM; however, results are within the CT1 criteria and, therefore, the natural soil represented by the above listed by the above listed samples has a preliminary classification of **General Solid Waste (non-putrescible)** as defined in EPA (2014).

Results for natural samples from Boreholes 1, 7, 8, 11, 12, 13, 38, 39, 40, 41, 42 and 44 indicate that the natural soil at these locations may be classified as **VENM**. It is noted, however, that further testing will need to be undertaken during construction to provide a final VENM classification, in particular, to show that OCP impacted soils have been segregated from underlying soil/rock that has not been impacted from contaminants.

If during excavation the natural *in situ* soil is found to contain possible signs of contamination or is cross-contaminated with any non-VENM materials the excavated natural soil cannot be classified as VENM. In this regard, it is also recommended that care should be taken during the bulk excavation of the VENM to prevent cross contamination between the VENM and non-VENM materials.

11. Additional Comments

Only filling samples were analysed for the JBS&G investigation JBS&G (2016) which did not include a waste classification assessment. Based on a review of results from DLA (2016), results were within the CT1 criteria for General Solid Waste, except for:

- *f* The nickel concentration of 58 mg/kg in the sample from HA14, depth 0-0.1 m;
-) The benzo(a)pyrene concentration of 2.5 mg/kg in the sample from HA20, depth 0-0.1; and
-) The nickel concentration of 48 mg/kg in the sample from HA22, depth 0-0.1 m.

TCLP analysis was not undertaken on these samples, so it cannot be determined if results meet the TCLP1 (and SCC1) criteria for General Solid Waste.

Given the generally low level of contaminants in filling, there may be opportunity to assess filling soils as Excavated Natural Material (ENM), in accordance with *The Excavated Natural Material Order 2014*. The sampling for an ENM assessment may need to be done *ex situ* (from stockpiles) to adequately assess the proportion of foreign materials.



12. Conclusion

Results of this investigation and previous investigations indicate that filling at the site may be classified as General Solid Waste (non-putrescible), although further assessment and testing will be required to provide final waste classification.

Results indicate that not all natural soil can be classified as VENM given that the presence of OCP was identified in some natural soil samples. Further testing will need to be undertaken during construction to provide a final VENM classification of soil/rock, in particular, to show that OCP impacted natural soils have been segregated from underlying soil/rock that has not been impacted from contaminants.

13. Limitations

Douglas Partners (DP) has prepared this report (or services) for the Ivanhoe Estate project at Macquarie Park in general accordance with DP's proposal dated 18 September 2017. The work was carried out under the Consultancy Services Deed for Ivanhoe Estate dated 15 November 2017. This report is provided for the exclusive use of Fraser Property Ivanhoe Pty Ltd for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of 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.

Asbestos has not been detected by observation or by laboratory analysis, either on the surface of the site, or in filling materials at the test locations sampled and analysed. Building demolition materials,



such as concrete and brick, were, however, located in below-ground filling and these are considered as indicative of the possible presence of hazardous building materials (HBM), including asbestos.

Although the sampling plan adopted for this investigation is considered appropriate to achieve the stated project objectives, there are necessarily parts of the site that have not been sampled and analysed. This is either due to undetected variations in ground conditions or to budget constraints (as discussed above), or to parts of the site being inaccessible and not available for inspection/sampling, or to vegetation preventing visual inspection and reasonable access. It is therefore considered possible that HBM, including asbestos, may be present in unobserved or untested parts of the site, between and beyond sampling locations, and hence no warranty can be given that asbestos is not present.

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.

Douglas Partners Pty Ltd

Appendix A

Drawings





CLIENT: Frasers Property Ivanhoe				
OFFICE: Sydney	DRAWN BY: PSCH			
SCALE: 1:2000 @ A3	DATE: 29.11.2017			

TITLE: Test Location Plan Proposed Residential Development Ivanhoe Estate, MACQUARIE PARK



NOTE:

- Base image from Nearmap.com (Dated 19.10.2017)
 Test locations are approximate only and are shown with reference to existing features.



- Cored bore location
- Shallow bore location
- Site boundary
- Area to facilitate road extension to Lyonpark Road



1





Legend		A		Figure Title Additional	Investigation Loo	cations		
 Site Boundary Sample Locations (approximate) 	N ` Approximate Scale		Project Title Client Ivanhoe Estate, Macquarie Park Frasers Propr			asers Proper	rty Australia	
Altered Topography Areas	0m	75m	130m	Project No. DL 3953	Date 6/6/2017	Scale As Showr	Figure No. 1 2	Revision Version 1.0

Compiled



Vame: 52047_04 rence http://maps.au.nearmap.com/. imagery 19/01/2016. accessed 06/04/2016







Legend		A		Figure Title Site	Layout and Sam	ple Locations		Negola kawa sa sa
 Approximate Site Boundary Sample Locations (approximate) 	App	N proximate Sca	ale	Project Title Nev	v Property Acquis hoe Estate, Mac	sition ^{cii} quarie Park	^{ent} Frasers Austral	Property ia
	0m	7.5m	15m	Project No. DL3953	Date 10/7/2017	_{Scale} As Shown	Figure No. 2	Revision Version 1.0

Appendix B

Analytical Results Summary Tables

Table B1: Summary of Results of Analytical Results

Sample	Sample	Soil Tuno					Metals						Polycyclic Ar Hydrocarbons	omatic s (PAH)	Total F Hydr	ecoverable ocarbons TRH)	TRH with Silica Gel Clean-up	Monocyc	clic Arom	atic Hydrocarbo	ns (BTEX)	Ashestes	Total Polychlorinated	Total Phenolics	Organophosphorus Pesticides (OPP)	Organoci Pesticides	hlorine s (OCP)
Location	Depth (m)	Soli Type	Arsenic	Cadmium	Chromium (III + VI)	Copper	Lead	Lead in TCLP	Mercury	Nickel	Nickel in TCLP	Zinc	Benzo(a)pyrene	Total PAH	н се-ся	C10-C36	C10-C36	Benzene	Toluene	Ethylbenzene	Total Xylene	Aspestos	Biphenyls (PCB)			Endosulfan	Total
			(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/L)	(mg/kg)	(mg/kg)	(mg/L)	(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)
BH01	0.35	Filling	8	<0.4	24	18	24	-	<0.1	13	-	25	<0.05	< 0.05	<25	<pql< td=""><td>-</td><td><0.2</td><td><0.5</td><td><1</td><td><1</td><td>NAD</td><td><0.1</td><td><5</td><td><pql< td=""><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<></td></pql<>	-	<0.2	<0.5	<1	<1	NAD	<0.1	<5	<pql< td=""><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<>	<pql< td=""><td><pql< td=""></pql<></td></pql<>	<pql< td=""></pql<>
BH01 BH02	1	Filling	12	<0.4	13	15	23	-	<0.1	2	-	8	<0.05	<0.05	<25	<pql< td=""><td>-</td><td><0.2</td><td><0.5</td><td><1</td><td><1</td><td>- NAD</td><td>- <0.1</td><td>- <5</td><td>- <pqi< td=""><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pqi<></td></pql<>	-	<0.2	<0.5	<1	<1	- NAD	- <0.1	- <5	- <pqi< td=""><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pqi<>	<pql< td=""><td><pql< td=""></pql<></td></pql<>	<pql< td=""></pql<>
BH03	0.0	Filling	5	<0.4	54	16	11	-	<0.1	37	-	25	<0.05	< 0.05	<25	<pql< td=""><td>-</td><td><0.2</td><td><0.5</td><td><1</td><td><1</td><td>NAD</td><td><0.1</td><td><5</td><td><pql< td=""><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<></td></pql<>	-	<0.2	<0.5	<1	<1	NAD	<0.1	<5	<pql< td=""><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<>	<pql< td=""><td><pql< td=""></pql<></td></pql<>	<pql< td=""></pql<>
BH03	1	Filling	7	<0.4	22	14	17	-	<0.1	9	-	18	<0.05	< 0.05	<25	<pql< td=""><td>-</td><td><0.2</td><td><0.5</td><td><1</td><td><1</td><td>-</td><td>-</td><td>-</td><td>-</td><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<>	-	<0.2	<0.5	<1	<1	-	-	-	-	<pql< td=""><td><pql< td=""></pql<></td></pql<>	<pql< td=""></pql<>
BH03	1.5	Filling	5	<0.4	19	8	10	-	<0.1	12	-	11	<0.05	<0.05	<25	<pql< td=""><td>-</td><td><0.2</td><td><0.5</td><td><1</td><td><1</td><td>-</td><td>-</td><td>-</td><td>-</td><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<>	-	<0.2	<0.5	<1	<1	-	-	-	-	<pql< td=""><td><pql< td=""></pql<></td></pql<>	<pql< td=""></pql<>
BH04 BH05	0-0.1	Filling	<4	<0.4	10	10	8	-	<0.1	3	-	14	<0.05	< 0.05	<25	<pql< td=""><td>-</td><td><0.2</td><td><0.5</td><td><1</td><td><1</td><td>- INAD</td><td>-</td><td>-</td><td><fql -</fql </td><td><pql <pql< td=""><td><pql< td=""></pql<></td></pql<></pql </td></pql<>	-	<0.2	<0.5	<1	<1	- INAD	-	-	<fql -</fql 	<pql <pql< td=""><td><pql< td=""></pql<></td></pql<></pql 	<pql< td=""></pql<>
BH05	1	Filling	<4	<0.4	17	3	8	-	<0.1	2	-	6	<0.05	< 0.05	<25	<pql< td=""><td>-</td><td><0.2</td><td><0.5</td><td><1</td><td><1</td><td>NAD</td><td><0.1</td><td><5</td><td><pql< td=""><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<></td></pql<>	-	<0.2	<0.5	<1	<1	NAD	<0.1	<5	<pql< td=""><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<>	<pql< td=""><td><pql< td=""></pql<></td></pql<>	<pql< td=""></pql<>
BH06	0.4-0.5	Filling	6	<0.4	26	10	19	-	<0.1	5	-	16	<0.05	< 0.05	<25	<pql< td=""><td>-</td><td><0.2</td><td><0.5</td><td><1</td><td><1</td><td>NAD</td><td><0.1</td><td><5</td><td><pql< td=""><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<></td></pql<>	-	<0.2	<0.5	<1	<1	NAD	<0.1	<5	<pql< td=""><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<>	<pql< td=""><td><pql< td=""></pql<></td></pql<>	<pql< td=""></pql<>
BH06 BH07	1.4-1.5	Filling	6	<0.4	23	6	13	-	<0.1	2	-	8	<0.05	<0.05	<25	<pql< td=""><td>-</td><td><0.2</td><td><0.5</td><td><1</td><td><1</td><td>- NAD</td><td>-</td><td>-</td><td>- - POI</td><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<>	-	<0.2	<0.5	<1	<1	- NAD	-	-	- - POI	<pql< td=""><td><pql< td=""></pql<></td></pql<>	<pql< td=""></pql<>
BH07	0.9-1.0	Natural	8	<0.4	30	6	14	-	<0.1	12	-	6	<0.05	<0.05	<25	<pql< td=""><td>-</td><td><0.2</td><td><0.5</td><td><1</td><td><1</td><td>-</td><td>-</td><td>-</td><td>-</td><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<>	-	<0.2	<0.5	<1	<1	-	-	-	-	<pql< td=""><td><pql< td=""></pql<></td></pql<>	<pql< td=""></pql<>
BH08	0.1	Filling	<4	<0.4	13	15	14	-	<0.1	15	-	65	<0.05	< 0.05	<25	<pql< td=""><td>-</td><td><0.2</td><td><0.5</td><td><1</td><td><1</td><td>NAD</td><td><0.1</td><td><5</td><td><pql< td=""><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<></td></pql<>	-	<0.2	<0.5	<1	<1	NAD	<0.1	<5	<pql< td=""><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<>	<pql< td=""><td><pql< td=""></pql<></td></pql<>	<pql< td=""></pql<>
BH08	0.4-0.5	Filling	4	<0.4	14	6	16	-	<0.1	2	-	13	<0.05	< 0.05	<25	<pql< td=""><td>-</td><td><0.2</td><td><0.5</td><td><1</td><td><1</td><td>NAD</td><td>-</td><td>-</td><td>-</td><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<>	-	<0.2	<0.5	<1	<1	NAD	-	-	-	<pql< td=""><td><pql< td=""></pql<></td></pql<>	<pql< td=""></pql<>
BH08 BH09	0.9-1.0	Filling	4 <4	<0.4	9	70	9	-	<0.1	2 120	- 0.2	3 42	<0.05	<0.05	<25	<pql< td=""><td>-</td><td><0.2</td><td><0.5</td><td><1</td><td><1</td><td>- NAD</td><td><0.1</td><td>- <5</td><td>- <pqi< td=""><td><pql <pqi< td=""><td><pql <pqi< td=""></pqi<></pql </td></pqi<></pql </td></pqi<></td></pql<>	-	<0.2	<0.5	<1	<1	- NAD	<0.1	- <5	- <pqi< td=""><td><pql <pqi< td=""><td><pql <pqi< td=""></pqi<></pql </td></pqi<></pql </td></pqi<>	<pql <pqi< td=""><td><pql <pqi< td=""></pqi<></pql </td></pqi<></pql 	<pql <pqi< td=""></pqi<></pql
BH09	1	Filling	<4	<0.4	29	1	8	-	<0.1	3	-	3	<0.05	<0.05	<25	<pql< td=""><td>-</td><td><0.2</td><td><0.5</td><td><1</td><td><1</td><td>-</td><td>-</td><td>-</td><td>-</td><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<>	-	<0.2	<0.5	<1	<1	-	-	-	-	<pql< td=""><td><pql< td=""></pql<></td></pql<>	<pql< td=""></pql<>
BH10	0.5	Filling	5	<0.4	17	14	18	-	<0.1	11	-	16	<0.05	0.3	<25	<pql< td=""><td>-</td><td><0.2</td><td><0.5</td><td><1</td><td><1</td><td>NAD</td><td><0.1</td><td><5</td><td><pql< td=""><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<></td></pql<>	-	<0.2	<0.5	<1	<1	NAD	<0.1	<5	<pql< td=""><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<>	<pql< td=""><td><pql< td=""></pql<></td></pql<>	<pql< td=""></pql<>
BH10	0.9-1.0	Natural	<4	<0.4	6	5	6	-	<0.1	1	-	8	<0.05	< 0.05	<25	<pql< td=""><td>-</td><td><0.2</td><td><0.5</td><td><1</td><td><1</td><td>-</td><td>-</td><td>-</td><td>-</td><td><pql< td=""><td>0.4</td></pql<></td></pql<>	-	<0.2	<0.5	<1	<1	-	-	-	-	<pql< td=""><td>0.4</td></pql<>	0.4
BH11 BH11	0.5	Natural	<4	<0.4	30	9	13	-	<0.1	3	-	10	<0.05	<0.05	<25	<pql< td=""><td>-</td><td><0.2</td><td><0.5</td><td><1</td><td><1</td><td>NAD -</td><td><0.1</td><td><0</td><td><pql -</pql </td><td><pql <pql< td=""><td><pql <pql< td=""></pql<></pql </td></pql<></pql </td></pql<>	-	<0.2	<0.5	<1	<1	NAD -	<0.1	<0	<pql -</pql 	<pql <pql< td=""><td><pql <pql< td=""></pql<></pql </td></pql<></pql 	<pql <pql< td=""></pql<></pql
BH12	0.5	Filling	4	<0.4	19	12	42	-	<0.1	6	-	41	<0.05	< 0.05	<25	<pql< td=""><td>-</td><td><0.2</td><td><0.5</td><td><1</td><td><1</td><td>NAD</td><td><0.1</td><td><5</td><td><pql< td=""><td><pql< td=""><td>0.3</td></pql<></td></pql<></td></pql<>	-	<0.2	<0.5	<1	<1	NAD	<0.1	<5	<pql< td=""><td><pql< td=""><td>0.3</td></pql<></td></pql<>	<pql< td=""><td>0.3</td></pql<>	0.3
BH12	1.5	Natural	<4	<0.4	18	4	10	-	<0.1	3	-	9	<0.05	<0.05	<25	<pql< td=""><td>-</td><td><0.2</td><td><0.5</td><td><1</td><td><1</td><td>-</td><td>-</td><td>-</td><td>-</td><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<>	-	<0.2	<0.5	<1	<1	-	-	-	-	<pql< td=""><td><pql< td=""></pql<></td></pql<>	<pql< td=""></pql<>
BH13	0.15	Filling	7	<0.4	13	11	15	-	<0.1	6	-	25	<0.05	<0.05	<25	<pql< td=""><td>-</td><td><0.2</td><td><0.5</td><td><1</td><td><1</td><td>NAD</td><td><0.1</td><td><5</td><td><pql< td=""><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<></td></pql<>	-	<0.2	<0.5	<1	<1	NAD	<0.1	<5	<pql< td=""><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<>	<pql< td=""><td><pql< td=""></pql<></td></pql<>	<pql< td=""></pql<>
BH31	0.1	Filling	<4	<0.4	13	10	20	-	<0.1	6	-	29	<0.05	<0.05	<25	<pql< td=""><td></td><td><0.2</td><td><0.5</td><td><1</td><td><1</td><td>NAD</td><td><0.1</td><td><5</td><td><pql< td=""><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<></td></pql<>		<0.2	<0.5	<1	<1	NAD	<0.1	<5	<pql< td=""><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<>	<pql< td=""><td><pql< td=""></pql<></td></pql<>	<pql< td=""></pql<>
BH31	0.5	Filling	<4	<0.4	10	4	13	-	<0.1	2	-	8	<0.05	<0.05	<25	<pql< td=""><td>-</td><td><0.2</td><td><0.5</td><td><1</td><td><1</td><td>-</td><td>-</td><td>-</td><td>-</td><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<>	-	<0.2	<0.5	<1	<1	-	-	-	-	<pql< td=""><td><pql< td=""></pql<></td></pql<>	<pql< td=""></pql<>
BH32	0.1	Filling	<4	<0.4	7	16	17	-	<0.1	15	-	65	<0.05	< 0.05	<25	380	<250	<0.2	<0.5	<1	<1	NAD	<0.1	9	<pql< td=""><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<>	<pql< td=""><td><pql< td=""></pql<></td></pql<>	<pql< td=""></pql<>
BH33 BH34	0.1	Filling	<4	<0.4	13 23	10	10	-	<0.1	10	-	31	<0.05	<0.05	<25	<pql< td=""><td>-</td><td><0.2</td><td><0.5</td><td><1</td><td><1</td><td>NAD NAD</td><td><0.1</td><td><5</td><td><pql< td=""><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<></td></pql<>	-	<0.2	<0.5	<1	<1	NAD NAD	<0.1	<5	<pql< td=""><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<>	<pql< td=""><td><pql< td=""></pql<></td></pql<>	<pql< td=""></pql<>
BH35	0.1 0.2	Filling	<4	<0.4	8	6	7	-	<0.1	8	-	26	<0.05	<0.05	<25	<pql< td=""><td>-</td><td><0.2</td><td><0.5</td><td><1</td><td><1</td><td>-</td><td>-</td><td>-</td><td>-</td><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<>	-	<0.2	<0.5	<1	<1	-	-	-	-	<pql< td=""><td><pql< td=""></pql<></td></pql<>	<pql< td=""></pql<>
BH35	0.5	Filling	5	<0.4	26	5	7	-	<0.1	11	-	7	<0.05	< 0.05	<25	<pql< td=""><td>-</td><td><0.2</td><td><0.5</td><td><1</td><td><1</td><td>NAD</td><td><0.1</td><td><5</td><td><pql< td=""><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<></td></pql<>	-	<0.2	<0.5	<1	<1	NAD	<0.1	<5	<pql< td=""><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<>	<pql< td=""><td><pql< td=""></pql<></td></pql<>	<pql< td=""></pql<>
BH37	0.1	Filling	<4	<0.4	11	8	19	-	<0.1	4	-	26	<0.05	< 0.05	<25	<pql< td=""><td>-</td><td><0.2</td><td><0.5</td><td><1</td><td><1</td><td>NAD</td><td><0.1</td><td><5</td><td><pql< td=""><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<></td></pql<>	-	<0.2	<0.5	<1	<1	NAD	<0.1	<5	<pql< td=""><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<>	<pql< td=""><td><pql< td=""></pql<></td></pql<>	<pql< td=""></pql<>
BH38	0.1	Natural	5	<0.4	21	40	12	< 0.03	<0.1	22	-	3	<0.05	<0.05	<25	<pql <pql< td=""><td>-</td><td><0.2</td><td><0.5</td><td><1</td><td><1</td><td>NAD</td><td><0.1</td><td><0</td><td><pql -</pql </td><td><pql <pql< td=""><td><pql <pql< td=""></pql<></pql </td></pql<></pql </td></pql<></pql 	-	<0.2	<0.5	<1	<1	NAD	<0.1	<0	<pql -</pql 	<pql <pql< td=""><td><pql <pql< td=""></pql<></pql </td></pql<></pql 	<pql <pql< td=""></pql<></pql
BH39	0.1	Filling	<4	<0.4	14	10	15	-	<0.1	14	-	44	<0.05	< 0.05	<25	<pql< td=""><td>-</td><td><0.2</td><td><0.5</td><td><1</td><td><1</td><td>NAD</td><td><0.1</td><td><5</td><td><pql< td=""><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<></td></pql<>	-	<0.2	<0.5	<1	<1	NAD	<0.1	<5	<pql< td=""><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<>	<pql< td=""><td><pql< td=""></pql<></td></pql<>	<pql< td=""></pql<>
BH39	0.4	Natural	<4	<0.4	10	1	5	-	<0.1	3	-	4	<0.05	< 0.05	<25	<pql< td=""><td>-</td><td><0.2</td><td><0.5</td><td><1</td><td><1</td><td>-</td><td>-</td><td>•</td><td>-</td><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<>	-	<0.2	<0.5	<1	<1	-	-	•	-	<pql< td=""><td><pql< td=""></pql<></td></pql<>	<pql< td=""></pql<>
BH40	0.1	Filling	<4	<0.4	12	8	14	-	<0.1	3	-	19	<0.05	<0.05	<25	<pql< td=""><td>-</td><td><0.2</td><td><0.5</td><td><1</td><td><1</td><td>NAD</td><td><0.1</td><td><5</td><td><pql< td=""><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<></td></pql<>	-	<0.2	<0.5	<1	<1	NAD	<0.1	<5	<pql< td=""><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<>	<pql< td=""><td><pql< td=""></pql<></td></pql<>	<pql< td=""></pql<>
BH41	0-0.1	Filling	<4	<0.4	66	16	9	-	<0.1	44	<0.02	32	<0.05	<0.05	<25	<pql< td=""><td>-</td><td><0.2</td><td><0.5</td><td><1</td><td><1</td><td>NAD</td><td><0.1</td><td><5</td><td><pql< td=""><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<></td></pql<>	-	<0.2	<0.5	<1	<1	NAD	<0.1	<5	<pql< td=""><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<>	<pql< td=""><td><pql< td=""></pql<></td></pql<>	<pql< td=""></pql<>
BH41	0.4-0.5	Natural	6	<0.4	27	<1	7	-	<0.1	1	-	3	<0.05	<0.05	<25	<pql< td=""><td>-</td><td><0.2</td><td><0.5</td><td><1</td><td><1</td><td>-</td><td>-</td><td>-</td><td>-</td><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<>	-	<0.2	<0.5	<1	<1	-	-	-	-	<pql< td=""><td><pql< td=""></pql<></td></pql<>	<pql< td=""></pql<>
BH42	0.4-0.5	Filling	<4	<0.4	7	3	6	-	<0.1	4	-	5	<0.05	< 0.05	<25	<pql< td=""><td>-</td><td><0.2</td><td><0.5</td><td><1</td><td><1</td><td>NAD</td><td><0.1</td><td><5</td><td><pql< td=""><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<></td></pql<>	-	<0.2	<0.5	<1	<1	NAD	<0.1	<5	<pql< td=""><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<>	<pql< td=""><td><pql< td=""></pql<></td></pql<>	<pql< td=""></pql<>
BH42 BH43	1.4-1.5	Filling	4	<0.4	29	3	21	-	<0.1	2	-	9	<0.05	<0.05	<25	<pql< td=""><td>-</td><td><0.2</td><td><0.5</td><td><1</td><td><1</td><td>- NAD</td><td>-</td><td>-</td><td>- <poi< td=""><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></poi<></td></pql<>	-	<0.2	<0.5	<1	<1	- NAD	-	-	- <poi< td=""><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></poi<>	<pql< td=""><td><pql< td=""></pql<></td></pql<>	<pql< td=""></pql<>
BH44	0.4-0.5	Filling	<4	<0.4	18	2	7	-	<0.1	1	-	4	<0.05	<0.05	<25	<pql< td=""><td>-</td><td><0.2</td><td><0.5</td><td><1</td><td><1</td><td>NAD</td><td><0.1</td><td><5</td><td><pql< td=""><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<></td></pql<>	-	<0.2	<0.5	<1	<1	NAD	<0.1	<5	<pql< td=""><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<>	<pql< td=""><td><pql< td=""></pql<></td></pql<>	<pql< td=""></pql<>
BH44	0.9-1.0	Natural	4	<0.4	23	5	10	-	<0.1	2	-	8	<0.05	< 0.05	<25	<pql< td=""><td>-</td><td><0.2</td><td><0.5</td><td><1</td><td><1</td><td>-</td><td>-</td><td>-</td><td>-</td><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<>	-	<0.2	<0.5	<1	<1	-	-	-	-	<pql< td=""><td><pql< td=""></pql<></td></pql<>	<pql< td=""></pql<>
BH45	0.1	Filling	<4	<0.4	9	31	19	-	<0.1	9	-	52	<0.05	< 0.05	<25	<pql< td=""><td></td><td><0.2</td><td><0.5</td><td><1</td><td><1</td><td>NAD</td><td><0.1</td><td><5</td><td><pql< td=""><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<></td></pql<>		<0.2	<0.5	<1	<1	NAD	<0.1	<5	<pql< td=""><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<>	<pql< td=""><td><pql< td=""></pql<></td></pql<>	<pql< td=""></pql<>
BH40 BH47	0.3	Filling	<4	<0.4	12	4	14	-	<0.1	5 6	-	13	<0.05	<0.05	<25	<pql <pql< td=""><td>-</td><td><0.2</td><td><0.5</td><td><1</td><td><1</td><td>NAD</td><td><0.1</td><td><5</td><td><pql <pql< td=""><td><pql <pql< td=""><td><pql <pql< td=""></pql<></pql </td></pql<></pql </td></pql<></pql </td></pql<></pql 	-	<0.2	<0.5	<1	<1	NAD	<0.1	<5	<pql <pql< td=""><td><pql <pql< td=""><td><pql <pql< td=""></pql<></pql </td></pql<></pql </td></pql<></pql 	<pql <pql< td=""><td><pql <pql< td=""></pql<></pql </td></pql<></pql 	<pql <pql< td=""></pql<></pql
BH47	1	Natural (possible filling)	<4	<0.4	12	8	13	-	<0.1	5	-	18	<0.05	< 0.05	<25	<pql< td=""><td>-</td><td><0.2</td><td><0.5</td><td><1</td><td><1</td><td>-</td><td>-</td><td>-</td><td>•</td><td><pql< td=""><td>0.3</td></pql<></td></pql<>	-	<0.2	<0.5	<1	<1	-	-	-	•	<pql< td=""><td>0.3</td></pql<>	0.3
BH47	1.5	Natural	<4	<0.4	12	8	14	-	<0.1	5	-	16	<0.05	< 0.05	<25	<pql< td=""><td>-</td><td><0.2</td><td><0.5</td><td><1</td><td><1</td><td>-</td><td>-</td><td>-</td><td>-</td><td><pql< td=""><td>0.1</td></pql<></td></pql<>	-	<0.2	<0.5	<1	<1	-	-	-	-	<pql< td=""><td>0.1</td></pql<>	0.1
LP1	0.1	Filling	14	<0.4	20	10	20	-	<0.1	4	-	23	<0.05	< 0.05	<25	<pql< td=""><td>-</td><td><0.2</td><td><0.5</td><td><1</td><td><1</td><td>NAD</td><td><0.1</td><td><5</td><td><pql< td=""><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<></td></pql<>	-	<0.2	<0.5	<1	<1	NAD	<0.1	<5	<pql< td=""><td><pql< td=""><td><pql< td=""></pql<></td></pql<></td></pql<>	<pql< td=""><td><pql< td=""></pql<></td></pql<>	<pql< td=""></pql<>
LFI	0.5	Filling	0	<0.4	19	0	21	-	<0.1	4	-	25	General Solid W	aste Crite	ria (with	ut TCLP)	-	<0.2	<0.5	<1	<1	-	-	-	-	< FQL	< FQL
	C	271	100	20	100 for Cr(IV)	-	100	-	4	40	-	-	0.8	200	10000	40000	40000	10	288	600	1000	-	<50	40 for 2,4,6- Trichlorophenol	250**	60	<50*
					·	·	<u> </u>	<u> </u>	I			<u> </u>	General Solid	Waste Crit	teria (wit	n TCLP)		·	·		·		•				·
	S	CC1	-			-	-	5		-	2	-								-			-	-			
	TC	CLP1	-	-	-	-	1500	-	-	1050		-	-	-		-		-	-	-	-	-	-		-	-	-
Notes CT SCC TCLP NAD PQL	Contaminant Thre Specific Contamin Toxicity Character No asbestos deter Practical Quantific	shold aant Concentration istics Leaching Procedure cled at reporting limit of 0.1g/kg auton Limit																									

Value for moderately harmful pesticides *

** Value for scheduled chemicals

- Not Applicable / Not Defined / Not analysed

				Metal	ls & Meta	alloids				T	TPHs	(NEPC 1	.999)				TRHs	(NEPC 2	013)	and the second second	TR	Hs (Silic	a-Gel)	1		E	TEX	and second second				and the second line				-	-			Po	vcyclic	Aromat	ic Hydro	carbons	5
JBS&G	Arsenic (Total)	Gadmium	chromium (Total)	Copper	lion	Lead	Mercury (Inorganic)	Nickel	Zinc	C6-C9 Fraction	C10-C14 Fraction	C15-C28 Fraction	, C29-C36 Fraction	, C10-C36 Fraction (Total)	>C10-C16 Fraction	>C16-C34 Fraction	>C34-C40 Fraction	. C6-C10 Fraction	C6 - C10 less BTEX (F1)	->C10 - C16 less Naphthalene (F2)	>C10-C16 Fraction (SG)	>C16-C34 Fraction (SG)	>C34-C40 Fraction (SG)	Benzene	Ethylbenzene	Tollisene		Xylene (m & p)	Xylene (o)	Xylene (Total)	Acenaphthene	Acenaphthylene	Anthracene	Benz(a) anthracene	Benzo(a)pyrene	Benzo(a)pyrene TEQ (lower bound)*	Benzo(a)pyrene TEQ (medium bound)*	Benzo(a)pyrene TEQ (upper bound)*	Benzo(b,j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Benzo(b,j+k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene
	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 r	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/k	g mg	'kg I	mg/kg n	ng/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 m	ng/kg
EQL	2.00	0.40	1.00	1.00	20.00	1.00	0.05	1.00	1.00	20.00	20.00	50.00	50.00	50.00	50.00	100.00	100.00	20.00	20.00	50.00	50.00	100.00	100.00	0.10	0.10	0.1	0	0.20	0.10	0.30	0.10	0.10	0.10	0.10	0.05	0.50	0.50	0.50	0.50	0.10	0.50		0.10	0.10	0.10
NEPM 2013 EIL - Urban Residential (site specific)	100		190*1	220		1100		180	560																															-	-				
NEPM 2013 EIL - Commercial and Industrial (site specific)	160	6 2 5 A & A	580*1	310		1100		310	800	12000	100			ACCORD 1		C. Linkson	Contraction of	COLUMN I	CONTRACTOR IN	D-ROLLERS	in the second	OK SH	Statistics of the	10000	C MILLION	100	0.90	10119	-	TO A DUT	Service of	1000			CERCENT		COLUMN T	CALCULAR .		Contractor of	10000	-		COLUMN TWO	
NEPM 2013 ESL Urban Residential and Public Open Space, Coarse Soil	all manifest		Contraction of											Serie S	120#1	300**	2500**	180*7	180*1	120*5	120*5	300*5	2800*6	50.45	70*5	80	N		Contract Inte	10525	Constant of the			HOCATTO I	0.7*1										
NEPM 2013 ESL Commercial and Insustrial, Coarse Soil	The second									THE OWNER					170"	1700**	3300**	215"	215*>	170**	170 5	1700**	3300"	75"	165	130	#5			180	Tratta and				2 4 10										
NEPM 2013 Soil HIL A	100**	20	100**	6000	and the second	300*10	40*11	400	7400		I COLOR							TRACK IN		Maria					105	160	•12			100						-					The second second				
NEPM 2013 Soil HIU B	500**	150	500**	30000		1200 818	120*11	1200	60000	Colorado de	SCHOOL ST		1000	1.10		100	and the second		TERME	INC. ROLLARS	-	COLUMN.	COLUMN STATE	COLUMN SALE	-			-			and and a second second			-	and the second			-			No. No.	-		-	
NEPM 2013 Soil HIL C	300**	90	300**	17000		600*10	80*11	1200	30000	IN STAR		and the second			STORE A		-		Contraction of the	-			No. of Concession, Name	COMPANY OF					Statistics Main	COLUMN STORY				CARGE OF THE	and the second						COLUMN TO A				
NEPM 2013 Soll HIL D	3000**	900	3600**	240000	and the second	1500***	730*11	6000	400000	The second	A.C.A.	100.000		Card I						Contraction of the	Contractory of	To the state	10000	-	-	rises Processo		10001 00	-	al results					Second V			and the second		2224	CTOR OT AL				And Personnel of
NEPM 2013 Soil HSLA & HSL 8 for Vapour Intrusion - Sand 0 to <1m																			45*18	110*3	10000			0.5	55	16	0			40															
MEDIA AND EXCLUSION AND A DATA AND AND AND AND AND AND AND																					-	the second second																							

EQL NEPM 2013 ELL - Lurban R NEPM 2013 ELL - Comme		6) especific	G	algan Markanic (Lotal) 2000 2000 2000	g mg/k 0.40	001 0 3/8m 8 201 0 1001 0 1000 0 100000000	kg mg/k 0 1.00	5 8 mg/kg 20.00	p eg f mg/kg 1 100	00 8%/Mercury (Inorganic)	9 100 100 100 100	000 000 000 000	8/8m 8/	CIS-C28 Fraction 00.05	239-C36 Fraction	9 2 CID-C16 Fraction	00.001 00 53/2m 54/2m 54/2m CI6-C34 Fraction	⁸³ / ⁸⁰ 234-C40 Fraction	84/8m 0002	0.002 g/gm 0.0002 g/gm 0.00000 g/gm 0.0000000000000000	می (22) - C16 less Naphthalene (F2)	88/8m 00:05	^{84/8} ^{92/5}	00001 83/84 83/84-C40 Fraction (SG)	Benzene Berzene mg/kg 0.10	gthy/benzene style= 0.10	eu mej/kg 0.10	(d g m) mg/kg m 0.20 0	(o) <i>g/vg</i> <i>g/vg</i> <i>mg/v</i> <i>xy</i> (here (10) 0.30	Accomplythene	sy game as a second sec	a gy/gm 0.0	is a straight of the second se	8 mg/k 0.50 0.50 (lower bound)*	o 행 (1) 10 10 10 10 10 10 10 10 10 10 10 10 10	8% Benzo(a)pyrene TEQ (upper bound)*	0.50 8x/8ª 8x/00 (b,j)fluoranthene	0.0 84/Benzo(g,h,i)perylene	structure and stru	R R Benzolb,J+K)filuoranthene 10 M Charles Colb,J+K)filuoranthene	8 ki kiy ⁰ Dibenz(a,h)anthracene	s mg/kg 0.10	éu Innorma Img/kg 0.10	010 58/f8 58/ Indeno(1,2,3-c,d)pyrene	mg/kg 0.10	a ^a ^a ^a ^a ^c ^a ^c ^c ^a ^c ^c ^c ^c ^c ^c ^c ^c	Bay/am 01:0	Beneficial and a second	a Starting (Total)	Total Positive PAHs
NEPM 2013 ESL Urban Re NEPM 2013 ESL Commer	sidential and Public Op Ial and Insustrial, Coar	pen Space, Coar rse Soil	se Soit													120	0 ⁴¹ 300 ⁴⁴	2800 ⁴⁶	180 ⁴⁷	180 ⁴¹	120 ⁴⁵	120 ⁴⁵	300 ^{#5}	2800 ⁴⁶	50 ⁴⁶	70 ⁴⁶	85 rd		105*				0.7	PE											370					
NEPM 2013 Soll HIL A NEPM 2013 Soll HIL B				100*	20	100*	··· 6000		300 ^{#10}	40*11	400 7	400															160 ^{*11}																			3*13		3(00*14	
NEPM 2013 Soll HIL C				300	90	300"	1700	0	600*10	80 ^{e11}	1200 30	000																																		3*10		40	00*14	
NEPM 2013 Soil HSLA &	ISL 8 for Vapour Intrus	sion - Sand O to	c1m	3000	- 900	3600	24000		1500	730***	6000 40	0000								45 ⁴¹⁸	110*18			1	0.5	55	160		40																3	40 ^{*13}		400	100 ^{#14}	
NEPM 2013 Soll HSL C for	Vapour Intrusion - San	nd C to clm	la di pala															CONTRACT OF	9	19999"11	999999*11				999999	999999	999999		99999		ill Saint	STATES IN			a second										999959	REAL				
Field ID HA01 0.0-0.1	0.0-0.1	Date 6/09/2016	Lab Report 4	14	<0.4	21	23	1.	47	<0.05	<5	41 <20	<20	<50	<50 <	50 <5	0 <100	<100	<20	<20	<50	- 1	.	. 1	<0.1	<0.1	<0.1	<0.2 <	0.1 <0.3	<0.5	<0.5	<0.5	<0.5 <0.	.5 <0.5	0.6	1.2	<0.5	<0.5	0.5	- <0	5 <0.5	<0.5	<0.5	<0.5	<0.5	<1.21 ⁸⁵	<0.5	<0.5	<0.5	
HA01 0.3-0.4	0.3-0.4	6/09/2016	514702	8.3	<0.4	13	12	•	27	<0.05	5.1	17 -	-					·	· _	•	•	•	•	·	•		•	•		•	•	•		•	•		-		•		-			-	-	-	-		-	-
HA02 0.0-0.05	0.0-0.05	6/09/2016	514702	9.1	<0.4	9.9	8.9		45	<0.05	4	45 <20	<20	51	82 1	33 <5	0 120	<100	<20	<20	<50				<0.1	<0.1	<0.1	<0.2 <	0.1 <0.3	<0.5	i <0.5	<0.5	<0.5 <0.	.5 <0.5	0.6	1.2	<0.5	<0.5	-0.5	<0.	5 <0.5	<0.5	<0.5	<0.5	<0.5	<1.21*5	<0.5	<0.5 <	<0.5	•
HA03 0.0-0.1	0.0-0.1	6/09/2016	514702	3.7 - 6	9 <0.4	6.7 - 1	10 9 - 18	8 26,000	16-19	<0.05	<5-16 47	- 53 -		·	•		•	·	•	•		•	•	•	•		•	•		<0.5	<0.5	<0.5	<0.5 <0.	.5 <0.5	0.6	1.2	<0.5	<0.5	0.5	- <0.	5 <0.5	<0.5	<0.5	<0.5	<0.5	<1.21*5	<0.5	<0.5 <	<0.5	•
QC20160906-01A	0.0-0.1	6/09/2016	152979	5	<0.4	14	16		19	<0.1	17	54 <25	<50	<100	<100	. <5	0 <100	<100	<25	<25	<50				<0.2	- 1	<0.5		<1 .	<0.5	<0.5	<0.5	<0.5 <0.	.5 <0.5	0.6	1.2	<0.5	<0.5		. <0.5	5 <0.5	<0.5	<0.5	<0.5	<0.5	<1.21*5	<0.5	<0.5 <6	:0.5	
HA04 0.0-0.1	0.0-0.1	6/09/2016	514702	10	<0.4	33	24		18	<0.05	37	45 <20	<20	<50	<50 <5	50 <5	0 <100	<100	<20	<20	<50	•	•	•	<0.1	<0.1	<0.1	<0.2 <	0.1 <0.3	•	1 .		• •		•			•					-		<0.5		-			
HA04 0.2-0.3 HA05 0.3-0.4	0.2-0.3	6/09/2016	514702																	-						:		-	· · ·	<0.5	<0.5	<0.5	<0.5 <0.	.5 <0.5	0.6	1.2	<0.5	<0.5	0.5	<0.9	5 <0.5	<0.5	<0.5	<0.5	<0.5	<1.21*5	<0.5	<0.5 <	<0.5	•
HA06 0.0-0.1	0.0-0.1	6/09/2016	514702	9	<0.4	25	38		31	<0.05	40	73 .		•			•					•		•	•	•		•		<0.5	< 0.5	<0.5	<0.5 <0.	.5 <0.5	0.6	1.2	<0.5	<0.5	0.5	- <0.	5 <0.5	<0.5	<0.5	<0.5	<0.5	<1.21*5	<0.5	<0.5 <	<0.5	
HA07 0.0-0.1 HA07 0.2-0.3	0.0-0.1	6/09/2016	514702	4.5	<0.4	9.3	7.3		13	<0.05	5.4	47 <20	<20	<50	59 5	9 <5	0 <100	<100	<20	<20	<50	•	•		<0.1	<0.1	<0.1	<0.2 <	0.1 <0.3	<0.5	<0.5	<0.5	<0.5 <0.	5 <0.5	0.6	1.2	<0.5	<0.5	:0.5	- <0.5	5 <0.5	<0.5	<0.5	<0.5	<0.5	<1.21#5	<0.5	<0.5 <	0.5	•
HA08 0.0-0.1	0.0-0.1	6/09/2016	514702	4.2	<0.4	5.1	<5		11	<0.05	<5	cs .	•		•															<0.5	<0.5	<0.5	<0.5 <0.	5 <0.5	0.6	1.2	<0.5	<0.5	0.5	<0.	5 <0.5	<0.5	<0.5	<0.5	<0.5	<1.21*5	<0.5	<0.5 <	<0.5	
HA09 0.0-0.1 HA10 0.0-0.1	0.0-0.1	6/09/2016	514702	2.8	<0.4	12	<5	•	5.4	<0.05	<5	45 <20 53	33	91	68 19	92 <5	0 150	<100	<20	<20	<50	·	•	•	<0.1	<0.1	<0.1	<0.2 <	0.1 <0.3	<0.5	<0.5	<0.5	<0.5 <0.	5 <0.5	0.6	1.2	<0.5	<0.5 <	0.5	. <0.1	5 <0.5	<0.5	<0.5	<0.5	<0.5	<1.21*5	<0.5	<0.5 </td <td><0.5</td> <td>+</td>	<0.5	+
HA10 0.2-0.3	0.2-0.3	6/09/2016	514702													-	-													<0.5	<0.5	<0.5	<0.5 <0.	5 <0.5	0.6	1.2	<0.5	<0.5	0.5	- <0.	5 <0.5 5 <0.5	<0.5	<0.5	<0.5	<0.5	<1.21 ⁴⁵ <1.21 ⁴⁵	<0.5	<0.5 <0	<0.5	•
HA11 0.0-0.1	0.0-0.1	6/09/2016	514702	6.8	<0.4	8.7	15		22	<0.05	10	15 <20	<20	54	63 11	17 <50	0 <100	<100	<20	<20	<50	•	•		<0.1	<0.1	<0.1	<0.2 <	0.1 <0.3	<0.5	<0.5	<0.5	<0.5 <0.	5 <0.5	0.6	1.2	<0.5	<0.5	0.5	<0.	5 <0.5	<0.5	<0.5	<0.5	<0.5	<1.21*5	<0.5	<0.5 <	<0.5	+
HA12 0.0-0.1	0.0-0.1	6/09/2016	514702	9.3	<0.4	15	20		22	<0.05	13	32 -																		<0.5	<0.5	<0.5	<0.5 <0.	5 <0.5 5 <0.5	0.6	1.2	<0.5	<0.5 <	0.5	<0.5	5 <0.5 5 <0.5	<0.5	<0.5	<0.5	<0.5	<1.21*5	<0.5	<0.5 <0	:0.5	•
HA13 0.0-0.1	0.0-0.1	6/09/2016	514702	9.2	<0.4	11	5.5		9	<0.05	<5	.4 -	-	•			•	· .	•		•	•	•	· .		•	•	•		<0.5	<0.5	<0.5	<0.5 <0.	5 <0,5	0.6	1.2	<0.5	<0.5 <	0.5	- <0."	5 <0.5	<0.5	<0.5	<0.5	<0.5	<1.21*5	<0.5	<0.5 <	<0.5	
HA14 0.2-0.3	0.2-0.3	6/09/2016	514702		<0.4	- 18			- 16	<0.05	- 58										· ·		•							<0.5	<0.5	<0.5	<0.5 <0.	5 <0.5	0.6	1.2	<0.5	<0.5 <	0.5	<0.5	5 <0.5	<0.5	<0.5	<0.5	<0.5	<1.21*5	<0.5	<0.5 <0	:0.5	-
HA15 0.0-0.1	0.0-0.1	6/09/2016	514702	9.2	<0.4	26	15		17	<0.05	24	50 <20	27	380	450 85	57 11	0 440	380	<20	<20	110	•	•	•	<0.1	<0.1	<0.1	0.5 0	0.2 0.8	<0.5	<0.5	<0.5	<0.5 <0.	5 <0.5	0.6	1.2	<0.5	<0.5	0.5	- <0.	5 <0.5	<0.5	<0.5	<0.5	<0.5	<1.21*5	<0.5	<0.5 <	c0.5	
HA15 0.0-0.1 HA15 0.2-0.3	0.0-0.1	6/09/2016	516962											•				· ·	•	•	•	<50	<100	<100	-	•		•			1		• •		•	•	•	•	•					•		•			-	
HA16 0.0-0.1	0.0-0.1	6/09/2016	514702	<2	<0.4	<5	6.4		<5	<0.05	<5	12 .	•	•	•		•	•	•	•	•				•	•	•	•		<0.5	<0.5	<0.5	<0.5 <0.	5 <0.5	0.6	1.2	<0.5	<0.5 <	0.5 .	. <0.1	5 <0.5	<0.5	<0.5	<0.5	<0.5	<1.21*5	<0.5	<0.5 <	<0.5	3
HA16 0.2-0.3 HA17 0.2-0.3	0.2-0.3	5/09/2016	514702			-					-			•				· ·	•			•	•		•							•	· ·		•	•			· ·						•		-	-	•	•
HA17 0.0-0.1	0.0-0.1	5/09/2016	514668	7.5	<0.4	11	11	•	23	<0.05	<5	32 <20	<20	72	110 18	82 <50	0 140	<100	<20	<20	<50	•		•	<0.1	<0.1	<0.1	<0.2 <	0.1 <0.3	<0.5	<0.5	<0.5	<0.5 <0.1	5 <0.5	0.6	1.2	<0.5	<0.5 <	0.5 .	- <0.	5 <0.5	<0.5	<0.5	<0.5	<0.5	<1.21 ^{#5}	<0.5	<0.5 <	<0.5	
HA18 0.0-0.05 HA18 0.2-0.3	0-0.05	6/09/2016	514702	4.9	<0.4	13	- <5		7.3	<0.05		2 <20	<20	<50	<50 <5	0 <5	-	- <100	<20	<20	<50	:	•	:	-	<0.1	-									•	· .					•	-	-			-		-	•
HA19 0.2-0.3	0.2-0.3	5/09/2016	514668	8.8	<0.4	27	10	•	10	<0.05	20	.7 .						•	·		•	•	•		•		-	-		<0.5	<0.5	<0.5	<0.5 <0.1	5 <0.5	0.6	1.2	<0.5	<0.5 <	0.5	- <0.	5 <0.5	<0.5	<0.5	<0.5	<0.5	<1.21 4	<0.5	<0.5 <0	<0.5	
HA19 0.0-0.1 HA20 0.0-0.1	0.0-0.1	5/09/2016	514668	5.9	<0.4	7.3	10		9.3	<0.05	<5	25 <20	- <20	- 60	66 12	26 <5	-	- <100	<20	- <20	<50	•	•	•	-	-		. 0.2 0		- 25	- 24	- 25			-		•	•						•		•	· .	•		•
HA21 0.2-0.3	0.2-0.3	5/09/2016	514668	•	•			•		•	•			•				•			•									-					-	-	-	•			-	-	-	-		5.864	-		•2	•
HA21 0.4-0.5 HA21 0.0-0.1	0.4-0.5	5/09/2016	514668 514668	3.2	<0.4	- <5	<5		9.1	<0.05				•				•	-	:	•		•		•			•	• •	<0.5	<0.5	<0.5	<0.5 <0.5	5 <0.5	0.6	1.2	<0.5	<0.5 <	0.5	<0.5	5 <0.5	<0.5	<0.5	<0.5	<0.5	<1.21 ^{#1}	<0.5	<0.5 <0	:0.5	•
HA22 0.0-0.1	0.0-0.1	5/09/2016	514668	8	<0.4	55	23		38	<0.05	48	15 .								-								-		<0.5	<0.5	<0.5	0.5 <0.5	5 <0.5	0.6	1.2	<0.5	<0.5 <	0.5	<0.5	s <0.5 5 <0.5	<0.5	<0.5	<0.5	<0.5	<1.21*5	<0.5	<0.5 <0	0.5	-
HA23 0.2-0.3	0.2-0.3	5/09/2016	514668	3.5	<0.4	9.2	20		13	<0.05	15			-	120			-100						•		•		-		<0.5	<0.5	<0.5	0.5 <0.5	5 <0.5	0.6	1.2	<0.5	<0.5 <	0.5 -	<0.5	5 <0.5	<0.5	<0.5	<0.5	<0.5	<1.21*5	<0.5	<0.5 <f< td=""><td>:0.5</td><td></td></f<>	:0.5	
HA24 0.0-0.05	0-0.05	5/09/2016	514668	3.9	<0.4	6.8	5.3	-	14	<0.05	3	12 -	-				-			-					<0.1	<0.1	<0.1	<0.2 <							· ·		•					· ·	·	•	<0.5	•	· ·	<u>.</u>		-
HA25 0.2-0.3	0.2-0.3	5/09/2016	514668	4.2	<0.4	11	9		18	<0.05	5.3	23 .						•	· _		•	•	•	•		•	•	•	•		•	•		•	•	•	•	•				•	•	-		•	•		-	-
HA25 0.0-0.1	0.0-0.1	5/09/2016	514668	8.9	<0.4	23	8.9		17	<0.05	<5	17 .	<20				- <100	<100	<20	<20	<50		·		<0.1	<0.1	<0.1	<0.2 <	0.1 <0.3	<0.5	<0.5	<0.5	<0.5 <0.5 <0.5 <0.5	5 <0.5 5 <0.5	0.6	1.2	<0.5	<0.5 <	0.5	<0.5	5 <0.5 5 <0.5	<0.5	<0.5	<0.5	<0.5	<1.21*5	<0.5	<0.5 <0	.0.5	
QC20160905-01	0.0-0.1	5/09/2016	514668	20	<0.4	32	18		16	<0.05	<5			•	• •	-	-	·	•				•	•			•			<0.5	<0.5	<0.5	:0.5 <0.5	5 <0.5	0.6	1.2	<0.5	<0.5 <	0.5 -	. <0.5	5 <0.5	<0.5	<0.5	<0.5	<0.5	<1.21*5	<0.5	<0.5 <	:0.5	
QC20160905-01A HA27 0.2-0.3	0.0+0.1	5/09/2016	514668	12	<0.4	25		-	- 14	<0,1	2			•		-		· · ·	·		•		•	•	•			· ·		<0.1	<0.1	<0.1	<0.1 <0.0	05 <0.5	<0.5	<0.5	•	<0.1	- <0	2 <0.1	1 <0.1	<0.1	<0.1	<0.1	<0.1	<0.172*1	<0.1	<0.1	• •	0*6
HA27 0.0-0.1	0.0-0.1	5/09/2016	514668	12	<0.4	17	5.4	28,000	22	<0.05	<5	20 <20	<20	54	170 22	24 <50	200	<100	<20	<20	<50	•	•		<0.1	<0.1	<0.1	0.5 0	0.2 0.6	<0.5	<0.5	<0.5	0.5 <0.5	5 <0.5	0.6	1.2	<0.5	<0.5 <	0.5 -	<0. ¹	5 <0.5	<0.5	<0.5	<0.5	<0.5	<1.21*5	<0.5	<0.5 d	c0.5	-
HA28 0.0-0.1 HA28 0.2-0.3	0.0-0.1	5/09/2016	514668	4.5	<0.4	20	9.8		15	<0.05	8.9			· -		-		:	-	-		·	-	:	:		:	-						5 105		- 12	· · ·	-			-		-				-			•
HA29 0.0-0.1	0.0-0.1	5/09/2016	514668	3.8	<0.4	12	10		14	<0.05	6	28 <20	<20	<50	<50 <5	0 <50	0 <100	<100	<20	<20	<50	•	•		<0.1	<0.1	<0.1	<0.2 <	0.1 <0.3		-0.3				-	-		-0.5 K				-	-	-	<0.5	<1.21*	-		u.5	-
HA29 0.2-0.3 HA30 0.0-0.1	0.2-0.3	5/09/2016	514668 514668		*0.4	12	- 10	1	-	. 0.23			-		<50		-	-				•	-		-					<0.5	<0.5	<0.5	<0.5 <0.5	5 <0.5	0.6	1.2	<0.5	<0.5 <	0.5 -	<0.5	5 <0.5	<0.5	<0.5	<0.5	<0.5	<1.21*5	<0.5	<0.5 <	.0.5	•
HA31 0.0-0.1	0.0-0.1	5/09/2016	514668	3.8	<0.4	12	11	· ·	33	<0.05	5.3	6 .								-40					-	-		×0.2 <	· · ·		· ·				1			-	: :	+ + + + + + + + + + + + + + + + + + + +		:	· ·	-	<0.5		· +		·	÷
HA31 0.2-0.3	0.2-0.3	5/09/2016	514668	5.7	<0.4	9.5	13		33	<0.05	<5	12 .	-	·	•	-	•	·	· _	•	•	·	•	•	•		•	•		•	•	•		•	•	-	•	•			•	•	•	•	•		-	•		•
HA32 0.0-0.05	0.0-0.5	5/09/2016	514668	4.3	<0.4	15	36		33	0.05	14 1	10 <20	43	360	310 71	13 97	\$40	230	<20	- <20	97		•		<0.1	<0.1	<0.1	0.7 0		<0.5	<0.5	<0.5		5 <0.5	0.6	1.2	<0.5	<0.5 <	0.5	<0	- <0.5	<0.5	<0.5	<0.5	<0 5	-	- <0.5	<0.5	-	-
HA32 0.0-0.05	0.0-0.5	5/09/2016	517819	· ·				•		1 .		· ·	•	•			•	•	•		•	<50	<100	<100				•		·		•		- ·								1.	1.1					<0.5		-

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Table A: Soil Analytical Data Project Number: 52047 Project Name: Ivanhoe DSI

											Asbe	stos - T	race Ar	nalysis					
(J)	BS	68.1	G	prox. Sample Mass	bestos from ACM in Soil	ass ACM	ass Asbestos in ACM	bestos from FA & AF in Soil	ass FA	ass Asbestos in FA	ass AF	ass Asbestos in AF	ass Asbestos in FA & AF	nthetic Fibres - Comment	:M - Comment	- Comment	- Comment	ganic Fibres - Comment	spirable Fibres - Comment
				Ap	Ash	ž	ž	Asw/m	ž	ž	ž	ž	ž	S	Comment	4 Comment	E	Ö Commont	Comment
EQL	and the stand of the			-		0	в		8	-									
NEPM 2013 ELL - Urban Resid NEPM 2013 ELL - Commercia NEPM 2013 ESL Urban Resid NEPM 2013 ESL Commercial NEPM 2013 Soil HIL & NEPM 2013 Soil HIL &	dential (site specific) I and Industrial (site ential and Public Op and Insustrial, Coar	specific) en Space, Coarse se Soil	e Soil																
NEPM 2013 Soil HIL D				100000						0.50		200032				(And Argen			
NEPM 2013 Soil HSLA & HSL	. 8 for Vapour Intrus	ion - Sand 0 to <	Im																
NEPM 2013 Soll HSL C for Va	ipour Intrusion - San	d 0 to <1m			Negeries.				1.20	1000	15.11	1 ales	1.404	and the second		STATISTICS.		and the second	and the second
Field ID	Depth (m)	Date	Lab Report #																
HA01 0.0-0.1	0.0-0.1	6/09/2016	514702	637	0	0	0	0	0	0	0	0	0	1*7	1*'	1*7	1"	144	1*3
HA01 0.3-0.4	0.3-0.4	6/09/2016	514702	•	•	•	•	•	•	•	•	•		•	•	•		-	
HA02 0.0-0.05	0.0-0.05	6/09/2016	514702	348	0	0	0	0	0	0	0	0	0	1"7	1*'	1*7	1"'	1**	1**
HA02 0.2-0.3	0.2-0.3	6/09/2016	514702	414.559						-	•							-	
QC20160906-01	0.0-0.1	6/09/2016	514702	587	0	0	0	0	0	0	0	0	0	1	1 187	1"	1 187	1 14	1 1#3
QC20160906-01A	0.0-0.1	6/09/2016	152979					· ·		•	•	•	•						
HA04 0.0-0.1	0.0-0.1	6/09/2016	514702	553	0	0	0	0	0	0	0	0	0	1*7	1117	1 117	1*7	1#4	1"
HA04 0.2-0.3	0.2-0.3	6/09/2016	514702		•				1	•	•			•	•		•		
HA05 0.3-0.4	0.3-0.4	6/09/2016	514702	744	0	0	0	0	0	0	0	0	0	1*7	1*7	1"	1"	14	1**
HA07 0.0-0.1	0.0-0.1	6/09/2016	514702		-	-	-	-		-	-	-				-	-	-	
HA07 0.2-0.3	0.2-0.3	6/09/2016	514702	624	0	0	0	0	0	0	0	0	0	1*7	1*'	1.82	1*?	1**	1#3
HA08 0.0-0.1	0.0-0.1	6/09/2016	514702	623	0	0	0	0	0	0	0	0	0	1*7	1"'	1*7	1"	1**	1*3
HA09 0.0-0.1	0.0-0.1	6/09/2016	514702	570	0	0	0	0	0	0	0	0	0	1*7	1*7	1**	1**	1**	140
HA10 0.0-0.1	0.0-0.1	6/09/2016	514702		· ·	•	•		•	•	•	•	•		•	•		•	•
HA11 0.0-0.1	0.0-0.1	6/09/2016	514702	508	0	0	0	0	0	0	0	0	0	1#7	187	1#7	1#7	144	140
HA11 0.3-0.4	0.3-0.4	6/09/2016	514702				•					•							
HA12 0.0-0.1	0.0-0.1	6/09/2016	514702	613	0	0	0	0	0	0	0	0	0	1#7	1"7	1#7	1*7	1**	1*3
HA13 0.0-0.1	0.0-0.1	6/09/2016	514702	617	0	0	0	0	0	0	0	0	0	1*7	1"7	1""	1"	1**	1**
HA14 0.0-0.1	0.0-0.1	6/09/2016	514702	- 493	-		-	-	-	-	-	-	-						
HA14 0.2-0.3	0.2-0.3	6/09/2016	514702	493	0	0	0	0	0	0	0	0	0	1"	1"	1"	1"	1 144	1"
HA15 0.0-0.1	0.0-0.1	6/09/2016	516962		•					•				•					-
HA15 0.2-0.3	0.2-0.3	6/09/2016	514702	492	0	0	0	0	0	0	0	0	0	1*7	1.7	1*7	147	144	1"
HA16 0.0-0.1	0.0-0.1	6/09/2016	514702					•	•	•	•	•	•	•	•	•	•	•	
HA16 0.2-0.3	0.2-0.3	5/09/2016	514702	615	0	0	0	0	0	0	0	0	0	1*7	147	1**	1*7	1**	1"
HA17 0.0-0.1	0.0-0.1	5/09/2016	514668			-	1.	1.											
HA18 0.0-0.05	0-0.05	6/09/2016	514702	341	0	0	0	0	0	0	0	0	0	1#7	1*7	1*7	1*7	114	1*3
HA18 0.2-0.3	0.2-0.3	6/09/2016	514702	442	0	0	0	0	0	0	0	0	0	1*7	1"	1*2	1*7	1*4	1"
HA19 0.2-0.3	0.2-0.3	5/09/2016	514668			-	-			-		-							-
HA20 0.0-0.1	0.0-0.1	5/09/2016	514668	407	0	0	0	0	0	0	0	0	0	1"	1"	1**	1**	1"	1"
HA210.2-0.3	0.2-0.3	5/09/2016	514668	619	0	0	0	0	0	0	0	0	0	1.87	1*7	1*7	1*7	1**	143
HA21 0.4-0.5	0.4-0.5	5/09/2016	514668				•		-	•	•	•	•				-		•
HA21 0.0-0.1	0.0-0.1	5/09/2016	514668	528	0	0	0	0	0	0	0	0	0	1*7	1"'	1*7	1"	1#4	1"
HA22 0.0-0.1	0.0-0.1	5/09/2016	514668	528	0	0	0	0	0	0	0	0	0	1"	1"	1"	1"	1"	1"
HA23 0.0-0.1	0.0-0.1	5/09/2016	514668	409	0	0	0	0	0	0	0	0	0	1*7	1*7	187	1#7	154	1#3
HA24 0.0-0.05	0-0.05	5/09/2016	514668	400	0	0	0	0	0	0	0	0	0	1*7	1*7	1*7	1*7	1**	1"
HA25 0.2-0.3	0.2-0.3	5/09/2016	514668		•		•	•	•	•	•	•		•	•		•	•	1.1
HA25 0-0.10	0.0-0.1	5/09/2016	514668	519	0	0	0	0	0	0	0	0	0	1*7	1*7	1*7	1*7	144	149
HA26 0.0-0.1	0.0-0.1	5/09/2016	514668	355	0	0	0	0	0	0	0	0	0	1**	1"	1"	1"	144	1"
QC20160905-01A	0.0-0.1	5/09/2016	152971	409	0	0	0	0	0	0	0	0	0	-			-		-
HA27 0.2-0.3	0.2-0.3	5/09/2016	514668	688	0	0	0	0	0	0	0	0	0	1*7	1.87	1#7	147	114	1**
HA27 0.0-0.1	0.0-0.1	5/09/2016	514668			100				-		•	•	•		•	•		
HA28 0.0-0.1	0.0-0.1	5/09/2016	514668			•			•		•			•			•		
HA28 0.2-0.3	0.2-0.3	5/09/2016	514668	647	0	0	0	0	0	0	0	0	0	147	147	147	110	1#4	1#1
HA29 0.2-0.3	0.2-0.3	5/09/2016	514668		÷.											-			A
HA30 0.0-0.1	0.0-0.1	5/09/2016	514668							-	•	•	•	•					· ·
HA31 0.0-0.1	0.0-0.1	5/09/2016	514668		•			•		•	•		•	•	•	•	•		•
HA31 0.2-0.3	0.2-0.3	5/09/2016	514668	•		•	•	•	•	•		•		•	•	•	•		· ·]
HA32 0.4-0.5	0.0-0.5	5/09/2016	514668	283	0	0	0	0	0	0	0	0	0	1.177	1#7	1.17	100	1.14	150
HA32.0.0-0.05	0.0-0.5	5/09/2016	517819	-	1.	1.			1.	1.									<u> </u>

Exv Side Comments
1.11 V1 bits for Chomium (III), Clay Content of 1%
2.17 V1 bits for Chomium (III), Clay Content of 1%
2.17 V1 bits for CHOMium (III), Clay Content of 1%
2.17 V1 bits for CEC5
3.17 V1 bits for CEC5
3.15 Sills are of moderate reliability
3.16 Sills are of moderate reliability
3.17 V1 bits for the reliability
3.18 Sills are of moderate reliability
3.18 Sills are of moderate reliability
3.10 Sills are of Sills and the releared to prove to application in Fitchel and Klackbaum (2011b and 2011d).
3.19 Tradpiced from Chomium (VII)
4.10 Sills are of Sills and the releared to prove to application in Fitchel and Klackbaum (2011b and 2011d).
3.11 After to fist, and soll subaration concentration limit.
3.12 Sensitive setting Sills A.18 Sill of On to clim micro adopted. Exceedence quantifies forther interpretation.
3.13 Refer to Section 3.2 and Appondix I in Fitchel and Nadebaum (2011a).
3.14 V1 minybe be multiplied by a Sill of On to clim micro adopted in the space of space associates for there interpretation.
3.13 Refer to Section 3.2 and Appondix I in Fitchel and Nadebaum (2011a).
3.14 V1 minybe be multiplied by a Sill of On to clim micro adopted in the space associate associate supervise in the pretation adopted in the space of space associate for the space of space associate adopted in the pretation of Sills of Sills and To atom micro adopted. Exceedence quantifies forther interpretation.
3.15 After to Section 3.2 A 4 Kills Sind Off to a clim official adopted. Exceedence quantifies forther interpretation.
3.24 Sensitive setting Sills Califs to a clim of Sills A field adopted. Exceedence quantifies forther interpretation.
3.25 Sensitive setting Sills Califs to a clim of Clim Sills adopted. Exceedence quantifies further interpretation.

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Data Comments 11 ESDAT Combined. Sense Analytics are missing from this Combined Compound. 22 ESDAT Combined with Non-Detect Multiplier of 0.5. 23 No respirable fibres detected 24 Organic bases detected. 25 ESDAT Combined. 26 NL (+)9E 27 Nd

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Table 1 - Soil Analytical Results Supplementary Investigation 'Ivanhoe Estate' Macquarie Park NSW

	No. of the second second			CONTRACT OF A DESCRIPTION OF A DESCRIPTI	and the second second				AND DESCRIPTION OF	distant in the second													And the second second			
	JL DLA Fox																									
						BT	EX				TF	RH		P/	AH	Pesti	cides					Heavy	Metals			
Sample ID	Depth (m)	Date	Chemical Report	Asbestos	Benzene	Toluene	Ethylbenzene	Xylene	Naphthalene	H	5	£	F4	BaP TEQ	Total PAH	OCP	dРР	PCB	As	g	Cr VI	J	Рb	Hg	ï	zn
SITE ASSESSMENT	CRITERIA					Star Garage			States of the															and the second second		
HIL A Residential (NEPC, 2013)			ND	-	-	-	-	-	-	-	-	-	3	300	-	-		100	20	100	6000	300	40	400	7400
HSL A Residential,	0-<1m, sand (NEP	M, 2013)		· · · · · · · · · · · · · · · · · · ·	0.5	160	55	40	3	45	110			-		-			-	-	-	-	-	-	-	-
HSL A Direct Conta	act (Friebel, et al, 2	.011)		-	400	14000	4500	12000	1400	4400	3300	4500	6300	-	-	-	-	-	-	-	-		-	-	-	-
Management Limits,	Urban Residential, f	ine (NEPC, 2013)		-	-	-	-,	-	-	700	1000	2500	10000	-	-		-	-	-	-	-		-	-	-	-
EIL Urban Residen	tial / Public Open S	Space (NEPC, 2013	3)	-	-	-	-	-			-	-	-	-	-	-			100		410	217	1109	-	312	407
ESL Urban Residen	itial / Public Open	Space, coarse (NE	PM, 2013)	-	50	85	70	45		180	120	300	2800	0.7		-	- 10		-	all search	-			-		-
PRIMARY SAMPLE	S																						120		Citize States	
BH1	0.1-0.2	24-May-17	167858	ND	<0.2	<0.5	<1	<1	<1	<25	<50	<100	<100	<0.5	<0.05	<0.1	<0.1	<0.1	7	<0.4	20	21	25	<0.1	8	31
BH1 '	0.2-0.5	24-May-17	167858	-	<0.2	<0.5	<1	<1	<1	<25	<50	<100	<100	<0.5	<0.05	-	-	-	7	<0.4	17	18	32	<0.1	7	29
BH2	0.1-0.4	24-May-17	167858	ND	<0.2	<0.5	<1	<1	<1	<25	<50	<100	<100	<0.5	<0.05	<0.1	<0.1	<0.1	5	<0.4	45	17	11	<0.1	36	25
BH2	0.5-0.6	24-May-17	167858	-	<0.2	<0.5	<1	<1	<1	<25	<50	<100	<100	<0.5	<0.05	-	-	-	7	<0.4	14	12	16	<0.1	3	7
BH3	0.0-0.1	24-May-17	167858	ND	<0.2	<0.5	<1	<1	<1	<25	<50	140	<100	<0.5	< 0.05	<0.1	<0.1	<0.1	8	<0.4	23	8	22	<0.1	4	16
BH3	0.1-0.8	24-May-17	167858	-	<0.2	<0.5	<1	<1	<1	<25	<50	<100	<100	<0.5	<0.05	-	-	-	7	<0.4	14	17	22	<0.1	2	16
BH4	0.1-0.2	24-May-17	167858	ND	<0.2	<0.5	<1	<1	<1	<25	<50	<100	<100	<0.5	<0.05	<0.1	<0.1	<0.1	8	<0.4	9	5	6	<0.1	7	17
BH4	0.2-0.4	24-May-17	167858	-	<0.2	<0.5	<1	<1	<1	<25	<50	<100	<100	<0.5	<0.05	-	-	-	5	<0.4	18	18	14	<0.1	14	33
BH5/1	0.1-0.5	24-May-17	167858	ND	<0.2	<0.5	<1	<1	<1	<25	<50	<100	<100	<0.5	<0.05	<0.1	<0.1	<0.1	<4	<0.4	6	8	8	<0.1	5	32
BH5/2	0.5-0.8	24-May-17	167858	-	<0.2	<0.5	<1	<1	<1	<25	<50	<100	<100	<0.5	<0.05		-	-	<4	<0.4	10	2	9	<0.1	2	7
BH6	0.1-0.5	24-May-17	167858	ND	<0.2	<0.5	<1	<1	<1	<25	<50	<100	<100	<0.5	<0.05	<0.1	<0.1	<0.1	<4	<0.4	8	2	8	<0.1	1	4
BH7	0.2-0.7	24-May-17	167858	ND	<0.2	<0.5	<1	<1	<1	<25	<50	<100	<100	<0.5	<0.05	<0.1	<0.1	<0.1	<4	<0.4	10	3	8	<0.1	1	7
BH8	0.0-0.1	24-May-17	167858	ND	<0.2	<0.5	<1	<1	<1	<25	250	650	. 170	<0.5	<0.05	<0.1	<0.1	<0.1	<4	<0.4	14	8	14	<0.1	3	22
BH8	0.1-0.4	24-May-17	167858	-	<0.2	< 0.5	<1	<1	<1	<25	120	180	<100	<0.5	<0.05	-	-	-	<4	<0.4	12	5	12	<0.1	2	13
INTRA-LABORATO	RY DUPLICATE		and the second				A States		Station Inter						A STATE OF A							C. E. G. G. STAL		Sugar C	ANTI-ANDIAN PROV	
BH2	0.1-0.4A	24-May-17	167858	ND	<0.2	<0.5	<1	<1	<1	<25	<50	140	<100	<0.5	<0.05	<0.1	<0.1	<0.1	4	<0.4	44	20	11	<0.1	42	29
BH7	0.2-0.7A	24-May-17	167858	ND	<0.2	<0.5	<1	<1	<1	<25	<50	140	<100	<0.5	<0.05	<0.1	<0.1	<0.1	<4	<0.4	10	4	8	<0.1	3	11
STATISTICAL ANAL	LYSIS		and an and the state			1 - 20 - 213				A STATES	and House				A State State		1 Standy	CEL SER ER				State Providence			CHESSERIES I	
Min	MiMin				0	0	0	0	0	0	120	140	170	0	0	0	0	0	5	0	6	2	6	0	1	4
Max	MaMax				0	0	0	0	0	0	250	650	170	0	0	0	0	0	8	0	45	21	32	0	36	33
Avg	AvAvg				-	-	-	-	-	-	185	323	170	-	-	-	-	-	7	-	16	10	15	-	7	19
Stdev			A second second		-	-	-	-	-	-	92	284			-	-	-	-	1	-	10	7	8	-	9	10
Reported in mg/kg unle	ess stated otherwise																					and the second second				ACTION AND AND AND AND AND AND AND AND AND AN

* Depth relates to Depth Below Surface Level

nd = not detected above laboratory LOR

NL = Not Limiting

RED = Exceeds HIL Criteria

YELLOW = Exceeds EIL Criteria

Table 2 - RPD Results Supplementary Investigation 'Ivanhoe Estate' Macquarie Park NSW

	A El subordentes Sera]											
Sample ID	Date	Report		В	TEX				TF	RH		PA	Н
Jampie ID	Date	Report	Benzene	Toluene	EthylBenzene	Xylene	Naphthalene	F1	F2	F3	F4	B(a)P TEQ	Total
INTRA-LABORATORY												and the second second second	
BH2_0.1-0.4	24-May-17	167858	<0.2	<0.5	<1	<1	<1	<25	<50	<100	<100	<0.5	< 0.05
BH2_0.1-0.4A	24-May-17	167858	<0.2	<0.5	<1	<1	<1	<25	<50	140	<100	<0.5	< 0.05
RPD			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH7_0.2-0.7	24-May-17	167858	<0.2	<0.5	<1	<1	<1	<25	<50	<100	<100	<0.5	<0.05
BH7_0.2-0.7A	24-May-17	167858.0	<0.2	<0.5	<1	<1	<1	<25	<50	140	<100	<0.5	<0.05
RPD			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Sample ID	Date	Report				Heavy	Metals			
Sample ib	Date	Report	As	Cd	Cr	Cu	Pb	Hg	Ni	Zn
INTRA-LABORATORY	Provide and							A STATE OF A STATE OF A STATE		
BH2_0.1-0.4	24-May-17	167858	5	<0.4	45	17	11	<0.1	36	25
BH2_0.1-0.4A	24-May-17	167858	4	<0.4	44	20	11	<0.1	42	29
RPD			22%	NA	2%	16%	0%	NA	15%	15%
BH7_0.2-0.7	24-May-17	167858	<4	<0.4	10	3	8	<0.1	1	7
BH7_0.2-0.7A	24-May-17	167858	<4	<0.4	10	4	8	<0.1	3	11
RPD			NA	NA	0%	29%	0%	NA	100%	44%

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Table 1 - Soil Analytical Results Supplementary Investigation New Property Aquisition 'Ivanhoe Estate' Macquarie Park NSW

	the second s		WINDOW CONTRACTOR	and a second	and the second se	C. Service and	State of the local division of the local div	Contraction of the local division of the loc	Contraction of the local division of the loc	Contraction of the second		CONTRACTOR OF THE OWNER	CALCULATION OF COLORADO	and the second s			THE R. LEWIS CO., LANSING MICH.	THE REAL PROPERTY AND INCOME.	Contraction of the local division of the loc	and the second second second			and the second se		
					BT	EX			Alterna Santa	TR	H		P/	AH	Pesti	cides		MANISTER STR			Heavy	Metals			
Sample ID	Depth (m)	Date	Chemical Report	Benzene	Toluene	Ethylbenzene	Xylene	Naphthalene	FI	F2	£	F4	BaP TEQ	Total PAH	ocb	ОРР	PCB	As	छ	Cr VI	Ū	ЪЪ	Hg	ïN	Zn
SITE ASSESSMENT	CRITERIA																- Alto H			1. A. A. A.					and the second
HIL D Commercial	/ Industrial (NEPC	, 2013)		-		-	-	-	-	-	-				-	-	-	3000	900	3600	240000	1500	730	6000	400000
HSL D Commercia	/Industrial, 0-<1r	m, sand (NEPM, 20	013)	3.0	NL	NL	230	NL	260	NL	-	-	-	-	-	-	-	-	.=:	-		-	-	-	-
HSL D Commercia	/ Industrial, 1-<2r	m, sand (NEPM, 20	013)	3.0	NL	NL	NL	NL	370	NL	-	-	-	-	-	-	-	-	-	-	-	-	-		-
HSL D Direct Cont	act (Friebel, et al, 2	2011)		430	99000	27000	81000	11000	26000	20000	27000	38000	-	-	-	- *	-	-	-	-	-	-	-	-	-
Management Limits	, Commercial / Indus	trial, coarse (NEPC,	2013)	-	-	10		-	700	1000	3500	10000	-	-	-	-	-	-	-	-	-	-	-		
PRIMARY SAMPLI	S																								
BH1	0.2	27-Jun-17	170151	<0.2	<0.5	<1	<1	<1	<25	<50	<100	<100	<0.5	0.4	<0.1	<0.1	<0.1	<4	<0.4	12	24	47	<0.1	7	100
BH1	0.7	27-Jun-17	170151	<0.2	<0.5	<1	<1	<1	<25	<50	<100	<100	<0.5	0.9	-	-	-	<4	<0.4	11	13	70	<0.1	6	62
BH1	1.4	27-Jun-17	170151	<0.2	<0.5	<1	<1	<1	<25	<50	<100	<100	<0.5	<0.05	<0.1	<0.1	<0.1	9	<0.4	24	5	24	<0.1	2	13
BH1	0.4	27-Jun-17	170151	<0.2	<0.5	<1	<1	<1	<25	<50	<100	<100	<0.5	<0.05	-	-	-	4	<0.4	21	1	10	<0.1	2	3
BH2	0.5	27-Jun-17	170151	<0.2	<0.5	<1	<1	<1	<25	<50	<100	<100	<0.5	<0.05	-	-	-	<4	<0.4	3	210	6	<0.1	5	42
BH3	0.2	27-Jun-17	170151	<0.2	<0.5	<1	<1	<1	<25	<50	<100	<100	<0.5	<0.05	<0.1	<0.1	<0.1	<4	<0.4	5	9	6	<0.1	1	7
BH4	0.4	27-Jun-17	170151	<0.2	<0.5	<1	<1	<1	<25	<50	<100	<100	<0.5	<0.05	-	-	-	<4	<0.4	1	2	4	<0.1	<1	5
BH5	0.2	27-Jun-17	170151	<0.2	<0.5	<1	<1	<1	<25	<50	<100	<100	<0.5	2.2	<0.1	<0.1	<0.1	<4	<0.4	3	5	9	<0.1	1	22
BH5	0.5	27-Jun-17	170151	<0.2	<0.5	<1	<1	<1	<25	<50	<100	<100	<0.5	<0.05	-	-	-	4	0.5	12	10	17	<0.1	4	23
BH6	0.1	27-Jun-17	170151	<0.2	<0.5	<1	<1	<1	<25	<50	<100	<100	<0.5	0.51	<0.1	<0.1	<0.1	<4	<0.4	6	12	18	<0.1	2	35
BH6	0.4	27-Jun-17	170151	<0.2	<0.5	<1	<1	<1	<25	<50	<100	<100	<0.5	<0.05			-	4	<0.4	12	5	15	<0.1	2	13
INTRA-LABORATO	RY DUPLICATE																					ALL			
BH1	1.4A	27-Jun-17	170151	<0.2	<0.5	<1	<1	<1	<25	<50	<100	<100	<0.5	<0.05	<0.1	<0.1	<0.1	8	<0.4	19	4	30	<0.1	2	15
STATISTICAL ANA	LYSIS										1. 30. 20														
Min	MiMin			0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	1	1	1	4	0	1	3
Max	MaMax			0	0	0	0	0	0	0	0	0	0	2	0	0	0	9	1	24	210	70	0	7	100
Avg	AvAvg			-	-	-	-	-	-	-	-	-	-	1	-	-	-	5	1	10	27	21	-	3	30
Stdev				-	-	-	-	-	-	-	-	-	-	0.8	-	-	-	3	-	7	61	20	-	2	29
Reported in mg/kg unl	ess stated otherwise																								

* Depth relates to Depth Below Surface Level

nd = not detected above laboratory LOR

NL = Not Limiting

RED = Exceeds HIL Criteria

YELLOW = Exceeds EIL Criteria

Table 2 - RPD Results Supplementary Investigation New Property Aquisition 'Ivanhoe Estate' Macquarie Park NSW

		3											
Sample ID	Date	Report		E	BTEX			Superior and the world	Т	RH		PA	Н
Sample ID	Date	Report	Benzene	Toluene	EthylBenzene	Xylene	Naphthalene	F1	F2	F3	F4	B(a)P TEQ	Total
INTRA-LABORATORY	Y									A CARLER OF			
BH1_1.4	27-Jun-17	170151	<0.2	<0.5	<1	<1	<1	<25	<50	<100	<100	<0.5	<0.05
BH1_1.4A	27-Jun-17	170151	<0.2	<0.5	<1	<1	<1	<25	<50	<100	<100	<0.5	<0.05
RPD			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

	CA Emitormental Sister Association car									
Sample ID	Date	Report				Heavy	Metals		A STATE AND	
Sample ib	Date	Report	As	Cd	Cr	Cu	Pb	Hg	Ni	Zn
INTRA-LABORATORY	1								and the second second	
BH1_1.4	27-Jun-17	170151	9	<0.4	24	5	24	<0.1	2	13
BH1_1.4A	27-Jun-17	170151	8	<0.4	19	4	30	<0.1	2	15
RPD			12%	NA	23%	22%	22%	NA	0%	14%

Appendix C

Borehole Logs

Notes About This Report



Introduction

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

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

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

Borehole and Test Pit Logs

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

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

Groundwater

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

 In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;

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

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

Reports

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

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

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

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

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.

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 thinwalled 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 insitu 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:

 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

Sampling Methods

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

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:

Туре	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:

Туре	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%)	
Adiantiva	20 250/	Candy Clay	
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

s Pai

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		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 Descriptions

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	М	0.3 - 1.0	6 - 20
High	Н	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:

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

С	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

\triangleright	Water seep
\bigtriangledown	Water level

Sampling and Testing

- A Auger sample
- B Bulk sample
- D Disturbed sample
- E Environmental sample
- 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

В	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

21

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

Coating or Infilling Term

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

Coating Descriptor

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

Shape

cu	curved
ir	irregular
pl	planar
st	stepped
un	undulating

Roughness

ро	polished
ro	rough
sl	slickensided
sm	smooth
vr	verv rouah

Other

fg	fragmented
bnd	band
qtz	quartz

Symbols & Abbreviations

Graphic Symbols for Soil and Rock

General

oo	
A. A. A. A A. D. A. A	

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



Talus

Sedimentary Rocks



Limestone

Metamorphic Rocks

Slate, phyllite, schist

Quartzite

Igneous Rocks



Granite

Dolerite, basalt, andesite

Dacite, epidote

Tuff, breccia

Porphyry

อบเมอเ

Gneiss

SURFACE LEVEL: 67.5 AHD **EASTING:** 325470 NORTHING: 6260569 DIP/AZIMUTH: 90°/--

BORE No: 01 PROJECT No: 86043.01 DATE: 31-10-2017 SHEET 1 OF 3

Depth (m) of 2 Depth (m) Strata 0.3 Gravel, bamp 0.4 - root affected (topsoil) to 0.05m FILLING - light brown sand filling, 0.9 Slightly clayey, with some roadbase and ironstone gravel, damp 1 0.9 FILLING - pale brown silty clay filling with some ironstone gravel and a trace of sand, humid 1.75 SANDSTONE - very low strength, orange and red-brown sandstone 2 SHALE - very low strength, highly weathered, fractured, orange-brown and light grey shale, thinly laminated with some high strength iron-cemented bands -3 3.56 LAMINITE - low to medium and medium strength, moderately weathered, fractured laminite, thinly laminated with some -3 -5					•	in Situ Testing	
FILLING - brown silty sand filling with a trace of clay and roadbase gravel, damp - root affected (topsoil) to 0.05m FILLING - light brown sand filling, slightly clayey, with some roadbase and ironstone gravel, damp FILLING - pale brown silty clay filling with some ironstone gravel and a trace of sand, humid 1.75 SANDSTONE - very low strength, orange and red-brown sandstone SHALE - very low strength, highly weathered, fractured, orange-brown and light grey shale, thinly laminated with some high strength iron-cemented bands	MW SW SW SW FR FR Grap LO C Very Low	(m)	B - Bedding J - Joint S - Shear F - Fault	Type	Core Rec. %	RQD %	Test Results & Comments
1.75 SANDSTONE - very low strength, orange and red-brown sandstone 2 SHALE - very low strength, highly weathered, fractured, orange-brown and light grey shale, thinly laminated with some high strength iron-cemented bands 3			Note: Unless otherwise stated, rock is fractured along rough planar bedding dipping 0°- 10°, some ironstained	A/E A/E A/E A/E S			15,16,6/110mm refusal
3.56 LAMINITE - low to medium and medium strength, moderately weathered, fractured laminite, thinly laminated with some iron-cemented beds			1.8m: B0°, cly, 10mm 1.94m: B0°, cly, 5mm 1.96m: B0°, cly, 10mm 2.11m: B0°, cly, 10mm 2.8m: B0°, cly, 10mm	с	100	0	PL(A) = 1.2 PL(A) = 1.1
5.8			3.1m: J60°- 85°, un, ro, cln 3.3-3.79m: B (x12), cly, 5-10mm 3.62-3.89m: Cs, 70mm 3.95m: B0°, cly, 10mm 4.03m: J90°, cly, 4mm 4.03m: J90°, pl, ro, cly, 2mm 4.09m: J85° & 50°, st, ro, fe 4.14-4.27m: B0°, cly, 5-8mm 4.29m: J75°- 85°, un, he, fe 4.55m: J25°, pl, he, fe 4.8-4.94m: B (x2) 0°, clv.	С	100	46	PL(A) = 1.2 PL(A) = 0.87 PL(A) = 0.31
SANDSTONE - high strength, slightly weathered and fresh, slightly fractured and unbroken, grey-brown and grey, medium grained, thinly bedded sandstone 6.4-6.94m: fine grained, thinly laminated			6mm 5.86m: B0°, cly, 2mm, fe 6.51m: B0°, cly, 2mm, fe 6.54-6.59m: Ds, 40mm 6.86-6.92m: B (x3) 0°, fe 7.13-7.3m: B (x4) 0°, fe 8.04m: B0°, fe	С	100	88	PL(A) = 1.4 PL(A) = 1.1 PL(A) = 1.3
			9.32-9.45m: Ds, 110mm 9.56m: B0°, cly, 7mm	с	100	89	PL(A) = 1.2

TYPE OF BORING: Solid flight auger (TC-bit) to 1.75m; NMLC-Coring to 23.5m

CASING: HQ to 1.75m

WATER OBSERVATIONS: No free groundwater observed whilst augering. Water level at 17.7m depth on 12/12/17

REMARKS: Well constructed to 23.5m (blank 0.0-1.0m; screen to 23.5m; backfill 0.0-0.4m; bentonite 0.4-1.4m; sand 1.4-23.5m)

	SAMP	LIN	G & IN SITU TESTING	3 LE	GEND			
A A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)		_	
BE	3ulk sample	Р	Piston sample	PL(A	A) Point load axial test Is(50) (MPa)			
BLK E	Block sample	U,	Tube sample (x mm dia.)	PL(D) Point load diametral test Is(50) (MPa)	1		Volidias Parners
C (Core drilling	Ŵ	Water sample	pp	Pocket penetrometer (kPa)			Douglas i ai tileis
D	Disturbed sample	⊳	Water seep	S	Standard penetration test			
EE	Environmental sample	Ŧ	Water level	V	Shear vane (kPa)	1900	1	Geotechnics Environment Groundwater



Fraser Property Ivanhoe Pty Ltd Proposed Residential Development LOCATION: Ivanhoe Estate, Macquarie Park

CLIENT:

PROJECT:

Fraser Property Ivanhoe Pty Ltd

LOCATION: Ivanhoe Estate, Macquarie Park

Proposed Residential Development

SURFACE LEVEL:67.5 AHD **EASTING**: 325470 **NORTHING**: 6260569 **DIP/AZIMUTH**: 90°/-- BORE No: 01 PROJECT No: 86043.01 DATE: 31-10-2017 SHEET 2 OF 3

		Description	Degree of Weathering .≌		Rock Strenath	L	Fracture	Discontinuities	Sa	ampli	ing &	In Situ Testing
R	Depth (m)	of	raph Branch			Wate	Spacing (m)	B - Bedding J - Joint	/pe	ore c. %	aD %	Test Results
		SANDSTONE bigh strongth	M H M S S S H U		High Kery	_	0.05	S - Shear F - Fault	ŕ	QŌ	Ϋ́ς	Comments
56	-11	SANDSTONE - high strength, slightly weathered and fresh, slightly fractured and unbroken, grey-brown and grey, medium grained, thinly bedded sandstone (<i>continued</i>) 11.08-11.8m: fine grained sandstone, indistinct bedding						10.3-10.34m: Ds, 40mm 11.0-11.07m: Ds, 70mm 11.73m: B0°, cly, 3mm 11.75-11.78m: Ds,	С	100	89	PL(A) = 1.5 PL(A) = 1.9
55	- 13							20mm 11.86m: B0°, cly, 3mm				PL(A) = 1.4
54	- - - - - - 14								С	100	99	PL(A) = 1.3
53	-							14.25-14.28m: B (x2), cly, 3mm				PL(A) = 1.4
52	- 15 							15.3-15.33m: B (x2), cly, 4mm				PL(A) = 1.67
50 51	- 17							16.65-16.75m: B (x2) 0°, cly 17.17-17.87m: B (x5), cly, 2-5mm	С	100	95	PL(A) = 1.3
	- 18					12-12-17		18.04-18.05m: B (x2) 0°, cly, 2mm				PL(A) = 2.1 PL(A) = 1.2
48	- 19								С	100	98	ΡΙ (Δ) = 2.5
ŧ	- '	SANDSTONE - see next page						19.68m: B0°, fe				1 = (n) = 2.3
∟ RI TY	G: Scou	It 2 DRILI BORING: Solid flight auger (TC-bi	_ER: Ground Te	est MLC	LC Coring to 2)G 3.5	GED: LS/SI	CASING: HQ	to 1	.75m	I	1

WATER OBSERVATIONS: No free groundwater observed whilst augering. Water level at 17.7m depth on 12/12/17

REMARKS: Well constructed to 23.5m (blank 0.0-1.0m; screen to 23.5m; backfill 0.0-0.4m; bentonite 0.4-1.4m; sand 1.4-23.5m)

SA	MPLI	NG & IN SITU TESTIN	G LE	GEND			
A Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)		_	
B Bulk sample	Р	Piston sample	PL(A) Point load axial test Is(50) (MPa)			Develop Developera
BLK Block sample	U,	Tube sample (x mm dia.)	PL(D) Point load diametral test Is(50) (MPa)	1	1.	Doudlas Partners
C Core drilling	Ŵ	Water sample	, aa	Pocket penetrometer (kPa)		/ .	Dougias i unicis
D Disturbed sample	⊳	Water seep	s	Standard penetration test			
E Environmental samp	e ¥	Water level	V	Shear vane (kPa)	and the second second		Geotechnics Environment Groundwater

SURFACE LEVEL: 67.5 AHD **EASTING:** 325470 NORTHING: 6260569 **DIP/AZIMUTH:** 90°/--

BORE No: 01 PROJECT No: 86043.01 DATE: 31-10-2017 SHEET 3 OF 3

\square		Description	Degree of	с	Rock Strength	Fracture	Discontinuities	Sampling & In			In Situ Testing
R	Depth (m)	of Strata		Graphi Log	Very Low Medium Fix High Ex High Wate	Spacing (m)	B - Bedding J - Joint S - Shear F - Fault	Type	Core Rec. %	RQD %	Test Results & Comments
47	-21	SANDSTONE - high strength, slightly and moderately weathered, slightly fractured, grey, yellow-brown and purple-brown, medium grained sandstone (continued)					ן 20.96m: B0°, cly, 2mm,	С	100	98	PL(A) = 2.7
46	-22						fe 21.03m: J30°, pl, ro, cly, 1mm, fe 21.66m: B0°, fe, cly, 1mm				PL(A) = 2.7
45	-23						22.14-22.44m: B (x2) 0°, fe	С	100	100	PL(A) = 3.1
											PL(A) = 2.8
	- 23.5 - 24 - 25 - 26 - 27 - 28 - 29	Bore discontinued at 23.5m									

RIG: Scout 2

CLIENT:

PROJECT:

Fraser Property Ivanhoe Pty Ltd

LOCATION: Ivanhoe Estate, Macquarie Park

Proposed Residential Development

DRILLER: Ground Test

LOGGED: LS/SI TYPE OF BORING: Solid flight auger (TC-bit) to 1.75m; NMLC-Coring to 23.5m

CASING: HQ to 1.75m

WATER OBSERVATIONS: No free groundwater observed whilst augering. Water level at 17.7m depth on 12/12/17

REMARKS: Well constructed to 23.5m (blank 0.0-1.0m; screen to 23.5m; backfill 0.0-0.4m; bentonite 0.4-1.4m; sand 1.4-23.5m)



SURFACE LEVEL:63.1 AHD **EASTING:** 325516 **NORTHING:** 6260564 DIP/AZIMUTH: 90°/--

BORE No: 02 PROJECT No: 86043.01 DATE: 1-11-2017 SHEET 1 OF 2

\square		Description	Degree of Weathering .≌	Rock Strength	Fracture	Discontinuities	Sampling & In S			In Situ Testing
R	Depth (m)	of	Graphi		Spacing (m)	B - Bedding J - Joint	ype	Core Sc. %	%	Test Results &
63	-1	FILLING - apparently well compacted, brown clay filling with some ironstone gravel - root affected to 0.01m - some gravel at 0.5m - possible natural from 1.1m SHALE - low to very low strength, brown shale	EW HWW MMM MMM MMM MMM MMM MMM MMM MMM MM			Note: Unless otherwise stated, rock is fractured	A/E A/E A/E S		~	Comments 10,9,17 N = 26
	- 2 2.6 2.66	SHALE and LAMINITE - low strength with extremely low and high strength beds, highly weathered, fragmented to fractured, orange-brown with some dark grey beds, shale and laminite some iron-cemented beds				along rough planar bedding dipping 0°- 10° 2.6m: CORE LOSS: 60mm 2.66-2.82m: fg 3.03-3.11m: B (x5) 0°, cly, 1-3mm, fe 3.2m: B0°, cly, 10mm 3.28-3.33m: Ds, 50mm 3.48-3.77m: B (x5) 0°,	С	88	29	PL(A) = 0.18
	-4 4.83 -5	SANDSTONE - high strength, moderately weathered then fresh, slightly fractured and unbroken, medium grained sandstone, very thinly bedded				cly, 2mm, fe 3.94m: B0°, cly, 1mm 4.1m: B0°, fe 4.17m: B0°, cly, 10mm 4.33-4.37m: Cs, 40mm 4.41-4.48m: Ds, 70mm 4.52m: J45°, pl, ro, cly, 2mm 4.68-4.79m: fragmented 5.14m: B0°, fe, mica, cbs 5.38m: B0°, fe, mica 5.54m: B0°, cly, 3mm,	С	100	44	PL(A) = 3.3 PL(A) = 0.5 PL(A) = 1.3
56	- 6 - 7	6.5-13.7m: indistinct bedding				6.06-6.07m: B (x2) 0°, fe 6.17m: B0°, fe 6.66m: B0°, cly, 10mm				PL(A) = 1.2 PL(A) = 1.4
14	- 8 - 9					>>	C	100	97	PL(A) = 1.4
	10.0						с	100	98	PL(A) = 1.5

RIG: Scout 2

CLIENT:

PROJECT:

Fraser Property Ivanhoe Pty Ltd

LOCATION: Ivanhoe Estate, Macquarie Park

Proposed Residential Development

DRILLER: Ground Test

LOGGED: LS/SI

CASING: HW to 2.5m

TYPE OF BORING: Solid flight auger (TC-bit) to 2.6m; NMLC-Coring to 19.21m WATER OBSERVATIONS: No free groundwater observed whilst augering **REMARKS:**

SAM A Auger sample B Bulk sample BLK Block sample C Core drilling	PLIN G P U, W	IG & IN SITU TESTING Gas sample Piston sample Tube sample (x mm dia.) Water sample	G LEGEND PID Photo ionisation detector (ppm) PL(A) Point load axial test Is(50) (MPa) PL(D) Point load diametral test Is(50) (MPa pp Pocket penetrometer (kPa)	Douglas Partner
D Disturbed sample E Environmental sample	₽	Water seep Water level	S Standard penetration test V Shear vane (kPa)	Geotechnics Environment Groundwat

SURFACE LEVEL:63.1 AHD **EASTING**: 325516 **NORTHING**: 6260564 **DIP/AZIMUTH**: 90°/-- BORE No: 02 PROJECT No: 86043.01 DATE: 1-11-2017 SHEET 2 OF 2

	Description	Degree of Weathering	<u>.</u>	Rock Strength	Fracture	Discontinuities	Sampling			In Situ Testing
교 Depth (m)	of	j	raph Log		Spacing (m)	B - Bedding J - Joint	be	ore c. %	DC %	Test Results
	Strata	H M M M M M M M M M M M M M M M M M M M	<u>თ</u>	Ex Low Very Very Very	0.01 0.10 1.00 1.00	S - Shear F - Fault	È	с я К	<u>я</u> ,	Comments
29 - 11 - 12	SANDSTONE - high strength, fresh, slightly fractured and unbroken, medium grained sandstone, very thinly bedded					10.3m: B0°, cly, 5mm	С	100	98	PL(A) = 1.6 PL(A) = 1.7 PL(A) = 1.8
- 12 - 12 - 12 - 12 - 12 - 12 - 12 - 12						12.74-12.81m: Ds, 70mm 13.67-13.7m: Cs, 30mm 14.17-14.72m: B (x4) 0°, cly, 2-4mm	С	100	97	PL(A) = 1.8 PL(A) = 1.2 PL(A) = 2.1
- 15 - 15 - 27 - 16 - 27 - 16	15.0-16.47m: bedding at 10°					16.0-16.22m: B (x2) 0°, cly, 3mm	с	100	100	PL(A) = 1.3 PL(A) = 2.1
- 16.4 - - - - - - -	SANDSTONE - high then very high strength, moderately weathered, unbroken, orang-brown and purple-brown, medium to coarse grained sandstone									PL(A) = 2.1
- 18 - 18 - 19 - 19							С	100	100	PL(A) = 3 PL(A) = 3.4
19.2 	Bore discontinued at 19.21m - target depth reached									

RIG: Scout 2

CLIENT:

PROJECT:

Fraser Property Ivanhoe Pty Ltd

LOCATION: Ivanhoe Estate, Macquarie Park

Proposed Residential Development

DRILLER: Ground Test

LOGGED: LS/SI

CASING: HW to 2.5m

TYPE OF BORING: Solid flight auger (TC-bit) to 2.6m; NMLC-Coring to 19.21m **WATER OBSERVATIONS:** No free groundwater observed whilst augering **REMARKS:**

SAN	MPLIN	G & IN SITU TESTING	G LE	GEND	1						
A Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)					_		
B Bulk sample	Р	Piston sample	PL(A	 Point load axial test Is(50) (MPa) 			-			all so a	
BLK Block sample	U,	Tube sample (x mm dia.)	PL(E	D) Point load diametral test Is(50) (MPa)			011			THE	
C Core drilling	Ŵ	Water sample	` qq	Pocket penetrometer (kPa)						IIG	/ u
D Disturbed sample	⊳	Water seep	s	Standard penetration test						. .	
E Environmental sample	Ŧ	Water level	V	Shear vane (kPa)		📕 Geotechnic	SII	Environ	ment	Ground	wate
				· · ·							

SURFACE LEVEL: 62.3 AHD **EASTING**: 325514 **NORTHING**: 6260536 **DIP/AZIMUTH**: 90°/-- BORE No: 03 PROJECT No: 86043.01 DATE: 8-11-2017 SHEET 1 OF 2

\square		Description	Degree of Weathering		Rock Strength	-	Fracture	Discontinuities	Sa	ampli	ing &	In Situ Testing
Ъ	Depth (m)	of		Log		Vate	Spacing (m)	B - Bedding J - Joint	pe	ore S. %	DG %	Test Results
		Strata	M H M M M M M M M M M M M M M M M M M M		Ex Low Very High Very Ex Hi	-000	0.05 0.10 1.00	S - Shear F - Fault	È	S a c	ж°	Comments
61	- 0.3	FILLING - dark brown clay filling with some medium to fine sand, roadbase gravel and a trace of slag, MC <pl FILLING - light brown sandy clay filling with some ironstone and roadbase gravel and a trace of plastic film, apparently poorly compacted - trace of brick fragments below 1.35m</pl 							A/E A/E S A/E			3,2,3 N = 5
	2.1	SHALE - very low to low strength with some medium strength bands, light brown shale							S			PL(A) = 2.57 4,15,5/50mm refusal
ŀ	_ 2.85 -3	SANDSTONE - medium strength, highly weathered, fractured, light						2.89-2.95m: B (x2) cly,	С	100	0	
57 58 58 59	-4 -4 -5 -5	SANDSTONE - medium then high strength, moderately weathered and fresh, slightly fractured and unbroken, thinly and thickly bedded 5.0-5.55m: very thinly bedded at 10°						10mm 3.1m: CORE LOSS: 110mm 3.31m: B0°, cly, 2mm 3.37-3.59m: Cz, 20mm 3.57m: J85°- 90°, un, he, cly, 2mm 3.6m: J45° & 70°, st, ro, he, cly, 2-9mm 3.7m: B0°, cly, 3mm 4.31-4.41m: Cs, 100mm 4.44-4.49m: Cs, 50mm 5.47m: J70°, pl, ro, fe 5.59m: B0°, cly, 5mm	с	97	73	PL(A) = 0.81 PL(A) = 0.62
55	-7-7								с	100	100	PL(A) = 1.9 PL(A) = 1.2
53 54		8.2-8.7m: fine grained sandstone, very thinly bedded at 5°						8.21m: B0°, cly, 8mm 8.72m: B0°, cly vn	c	100	100	PL(A) = 1.9 PL(A) = 1.4

RIG: Scout 2

CLIENT:

PROJECT:

Fraser Property Ivanhoe Pty Ltd

LOCATION: Ivanhoe Estate, Macquarie Park

Proposed Residential Development

DRILLER: Ground Test

LOGGED: LS

CASING: HW to 2.85m

TYPE OF BORING: Solid flight auger (TC-bit) to 2.85m; NMLC-Coring to 18.08m **WATER OBSERVATIONS:** No free groundwater observed whilst augering **REMARKS:**

	SAMPL	.IN	G & IN SITU TESTING	LE	GEND					
A Auger same	ole	G	Gas sample	PID	Photo ionisation detector (ppm)		_			
B Bulk sample	e	Р	Piston sample	PL(A	A) Point load axial test Is(50) (MPa)					
BLK Block same	le	U,	Tube sample (x mm dia.)	PL(C) Point load diametral test (s(50) (MPa)			Londas	Part	ners
C Core drillin	1 I	Ŵ	Water sample	΄ αα	Pocket penetrometer (kPa)		1.	Dugiuu		
D Disturbed s	ample I	⊳	Water seep	s	Standard penetration test					
E Environmer	ntal sample	Ŧ	Water level	V	Shear vane (kPa)	1		Geotechnics Envil	onment G	iroundwater

SURFACE LEVEL: 62.3 AHD **EASTING:** 325514 NORTHING: 6260536 DIP/AZIMUTH: 90°/--

BORE No: 03 PROJECT No: 86043.01 DATE: 8-11-2017 SHEET 2 OF 2

Π		Description	Degree of		Rock Strength	Fracture	Discontinuities	Sa	ampl	ing &	In Situ Testing
RL	Depth (m)	of Strata	M H H W S H H S H S H S H S H S H S H S H	Graph	Very Low Very Low Medium Very High Ex High	Spacing (m)	B - Bedding J - Joint S - Shear F - Fault	Type	Core Rec. %	RQD %	Test Results & Comments
51 52 52	-11	SANDSTONE - high strength, moderately weathered and fresh, slightly fractured and unbroken, thinly and thickly bedded 10.32-10.72m: fine grained sandstone, very thinly bedded cross bedding at 5°- 10°					10.39m: B0°, cly vn 11.87-12.1m: B (x3) 0°, cbs	С	100	100	PL(A) = 1.9 PL(A) = 1.7
49 50	-13 -14						[∿] 12.13m: B0°, cly vn 12.34-12.81m: B (x3) 0°, cly vn, cbs	С	100	100	PL(A) = 1.8 PL(A) = 1.5
48		15.05-15.78m [.] very thinly bedded					- 15.04m: B0°, fe				PL(A) = 1.2
46 47	- 16	at 5°- 10°					15.14m: B0°, cly, 3mm 15.6m: B0°, fe, cly, 3mm 15.64m: B0°, cly, 3mm 15.7-15.76m: Ds, 60mm				PL(A) = 1.5
45	- 17	SANDSTONE - high strength, moderately weathered, unbroken, purple-brown and orange-brown, coarse grained sandstone, thickly bedded					16.57m: B10°, cly, 1mm 17.42m: B0°, cly, 2mm	С	100	100	PL(A) = 2.4
44	- 18.08	Bore discontinued at 18.08m									

RIG: Scout 2

CLIENT:

PROJECT:

Fraser Property Ivanhoe Pty Ltd

LOCATION: Ivanhoe Estate, Macquarie Park

Proposed Residential Development

DRILLER: Ground Test

LOGGED: LS

CASING: HW to 2.85m

TYPE OF BORING: Solid flight auger (TC-bit) to 2.85m; NMLC-Coring to 18.08m WATER OBSERVATIONS: No free groundwater observed whilst augering **REMARKS**:

SAN	IPLIN	G & IN SITU TESTING	G LE	GEND							
A Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)		_					
B Bulk sample	P	Piston sample	PL(A	A) Point load axial test Is(50) (MPa)					- 1		
BLK Block sample	U,	Tube sample (x mm dia.)	PL(C) Point load diametral test Is(50) (MPa)	1	1.1			5	Part	ners
C Core drilling	Ŵ	Water sample	, aa	Pocket penetrometer (kPa)			DOG				
D Disturbed sample	⊳	Water seep	s	Standard penetration test					34 - MA		
E Environmental sample	Ŧ	Water level	V	Shear vane (kPa)	Contract of Contract	1	Geotechnics	s I Env	/iron	ment / G	iroundwater
				(),							

CLIENT:

Fraser Property Ivanhoe Pty Ltd

PROJECT: Proposed Residential Development

LOCATION: Ivanhoe Estate, Macquarie Park

SURFACE LEVEL: 64.6 AHD EASTING: 325483 **NORTHING:** 6260455 **NORTHING:** 6260455 **DIP/AZIMUTH:** 90°/--

BORE No: 04 PROJECT No: 86043.01 DATE: 30-10-2017 SHEET 1 OF 2

Γ		Description	Degree of	Rock	th _	Fracture	Discontinuities	S	ampli	ing &	In Situ Testing
님	Depth (m)	of			Vate	Spacing (m)	B - Bedding J - Joint	e	.%	۵.,	Test Results
		Strata	A M W W W W W W W W W W W W W W W W W W	High High		0.05	S - Shear F - Fault	۲ ۲	ပိပ္စ	A 0 %	& Comments
E	02	TOPSOIL - brown, slightly clayey		2			Note: Unless otherwise	E			
Ę	- 0.2	and ironstone gravel, humid					along rough planar		-		
-49	- 0.5 [SANDSTONE - low strength,					peaaing aipping 0°- 10° 				PL(A) = 1.4
ţ	ļ	SANDSTONE - high then very low					0.75m: CORE LOSS:				
F	-1 1.0	strength, highly weathered,				╱╷╷╷┾╴ ╵╵┞┓╵╵	1.0-1.08m: Ds				
E	[medium grained sandstone with					1 34-1 52m [.] B's 0°- 5°				
- 63	-	iron-cemented bands			i i 🛛	¦ ⊾ i¦ ¦∶	cly, fe	С	88	38	
Ē	Ē										PL(A) = 1.2
E	-2						1.87-2.2m: Ds				
ţ	- 2.2	SANDSTONE - high strength,					0.00				
Ē	-	moderately weathered, fractured, brown, medium grained sandstone					2.32m: J35°, un, ro, fe				PL(A) = 2.2
Ē	[with some extremely low and very					2.6-2.63m: Cs 2.74m: B0° cly 1mm				
ţ	-3	low strength bands				 	2.9-3.0m: Ds				
F	F						5.0-3.3m: J80°, pl, ro,				
E	[i i L ii	¹ 3.25m: B10°, cly, 10mm				
- 50	-						0.40m. D0 , cry, omm				PL(A) = 2.1
Ē						╎╺┿┫	3.76m: B5°, fe 3.87, 3.9m: B5°, clv vn		100	70	
ŧ	4.05	SANDSTONE - high strength,		░╎╪╤╤		┆┊┆┺╧┪	fe 4.04.4.08m: Do. 40mm		100	10	
ţ	-	slightly fractured, light grey and					4.04-4.0011. DS, 401111				
-8	E	yellow-brown, medium grained			i i 🛛	i ii i					PL(A) = 1.8
Ł	-	siltstone/carbonaceous flakes				╎╎┢╾┿┫					
F	-5						A.9m: B0°, cly, 1mm, te ∖ & J90°, pl, ro, cly vn				
Ē	E						^C 5.08, 5.11m: B (x2) 0°, fe				
- 69	-				i i 📔	i ii i					
-	-										PL(A) = 1.6
Ē	-6				i i	i ii 🏳	6.04m; P. fo				
Ł	-						0.04III. D, IE				
ŧ,	-										PL(A) = 1.3
233						┆┝╤╤┫╎	6.71. 6.75m: B (x2) 0°.				
ţ	-7						fe	с	100	90	
F	-										
E	Ē						7.31m: B0°, fe				PI(A) = 1.6
- 23	-				ii	i ii l ii	7.49m: B0°, cly, 1mm				1 2(77) = 1.0
F	-):::: : :::::::::::::::::::::::::::::::		╎╎╏┖┿┪	7.00-7.711.03, 201111				
E	- 8	- medium strength from 7.95m		i 🛶 i .	i i 🛛	i nig i ∥	7.94m: B0°, fe ∖ 8.1m: B0°, fe				PL(A) = 0.7
ţ	-						8.14m: J20°, pl, ro, fe,				
26	- 8.5	SANDSTONE - high strength,			i i		8.25m: J25°, pl, ro, fe,				
E	E	unbroken, medium grained, thickly					ciy, 10mm				
ţ	-9	bedded, light grey sandstone			i i						PL(A) = 2.5
ŧ	F	medium grained sandstone						С	100	98	
[[9.44-9.45m: Ds, 10mm				
F	-						9.75m: B0°, clv. 4mm				
Ŀ	t						, - , ,				
RI	G: Sco	ut 2 DRILI	ER: Ground	est	LOG	GED: LS/SI	CASING: HV	V to C).5m		

TYPE OF BORING: Solid flight auger (TC-bit) to 0.5m; NMLC-Coring to 20.0m WATER OBSERVATIONS: No free groundwater observed whilst augering **REMARKS:**

ſ	SAM	PLIN	G & IN SITU TESTIN	G LE	GEND			
	A Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)			
	B Bulk sample	Р	Piston sample	PL(A	A) Point load axial test Is(50) (MPa)			Douveloo
	BLK Block sample	U,	Tube sample (x mm dia.)	PL(C	0) Point load diametral test Is(50) (MPa)	1	1.	LOUGIAS
	C Core drilling	Ŵ	Water sample	pp	Pocket penetrometer (kPa)		1.	Deagine
	D Disturbed sample	⊳	Water seep	S	Standard penetration test			
	E Environmental sample	Ŧ	Water level	V	Shear vane (kPa)			Geotechnics Envirol



Fraser Property Ivanhoe Pty Ltd

LOCATION: Ivanhoe Estate, Macquarie Park

Proposed Residential Development

CLIENT:

PROJECT:

SURFACE LEVEL:64.6 AHD **EASTING**: 325483 **NORTHING**: 6260455 **DIP/AZIMUTH**: 90°/-- BORE No: 04 PROJECT No: 86043.01 DATE: 30-10-2017 SHEET 2 OF 2

		Description	Degree of Weathering .≌	Rock Strength	Fracture	Discontinuities	S	ampl	ing &	In Situ Testing
님	Depth (m)	of	aph		Spacing (m)	B - Bedding J - Joint	e	ere.	۵.,	Test Results
	(,	Strata			0.05	S - Shear F - Fault	۲ ۲	ပိမ္စ	R 0 %	Comments
54	- - - - - - - - - - - - -	SANDSTONE - high strength, fresh, slightly fractured and unbroken, medium grained, thickly bedded, light grey sandstone (continued)					с	100	98	PL(A) = 1.5
53		11.7-12.0m: thinly bedded				11.7m: irregular bedding				PL(A) = 1.5
52	- 12					L11.93m: B0°, cly, 1mm				PL(A) = 1.4
51	- 13 - - - - - - - - - - - - - - - - - - -					12.93m: 60°, ciy, 1mm	С	100	100	PL(A) = 1.6
50	-	- thinly cross bedded (5°- 10°) from 14.1m				14.45, 14.63m: B0°, cly, 1mm				PL(A) = 1.5
49	- 15	15.2-15.6m & 16.25 to 16.6m: fine sandstone				15.04-15.14m: B (x4) 0°, cbs, cly	C	100	98	PL(A) = 2.1
48						16.25m: B5°, cly vn				PL(A) = 1.9
47	- 18					17.45m: B10°, cly co, 3mm				PL(A) = 2.3
5 46	- 18.4 - - - - - - 19 - - - - - - - - - - - -	SANDSTONE - high strength, moderately weathered, unbroken, medium to coarse grained sandstone					С	100	100	PL(A) = 2.6
-	20.0									PL(A) = 2.9
RI	G: Scou	Bore discontinued at 20.0m	ER: Ground Te	st LOG	GED: 1.S/SI	CASING HW	/ to ().5m		
TY	PE OF	BORING: Solid flight auger (TC-bi	t) to 0.5m; NMI	_C-Coring to 20.0n	n					
W. RE	ATER O	BSERVATIONS: No free groundwa	ter observed wh	ilst augering						

 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
 Tube sample (x mm dia.)
 PL(D) Point load diametral test Is(50) (MPa)

 C Core drilling
 W
 Water sample
 P
 Pocket penetrometer (kPa)

 D Disturbed sample
 P
 Water seep
 S
 Standard penetration test

 E Environmental sample
 ¥
 Water level
 V
 Shear vane (kPa)

Fraser Property Ivanhoe Pty Ltd

LOCATION: Ivanhoe Estate, Macquarie Park

Proposed Residential Development

CLIENT: PROJECT: SURFACE LEVEL: 59.2 AHD **EASTING:** 325541 NORTHING: 6260484 **DIP/AZIMUTH:** 90°/--

BORE No: 05 PROJECT No: 86043.01 DATE: 1-11-2017 SHEET 1 OF 2

		Description	Degree of	.U	Rock Strength	Fracture	Discontinuities	Sa	ampli	ng &	In Situ Testing
님	Depth (m)	of	Weathering	iraphi Log		Spacing (m)	B - Bedding J - Joint	be	ore c. %	an %	Test Results
		Strata	M H M S S H H	U	Very Very Very Ex High	0.05 0.10 0.50 1.00	S - Shear F - Fault	Ļ	с я К	Å,	Comments
59	0.3 0.6	FILLING - brown medium sand filling with some ironstone gravel and clay, humid - root affected (topsoil) to 0.05m FILLING - orange-brown medium					Note: Unless otherwise	A/E A/E B			
28	-1 1.35	FILLING - brown, gravelly clay filling, ironstone gravel (20-30mm) with a trace of fine sand, MC <pl< td=""><td></td><td>\bigotimes</td><td></td><td></td><td>stated, rock is fractured along rough planar bedding dipping 0°- 10°</td><td>A/E S</td><td></td><td></td><td>9,10,11 N = 21</td></pl<>		\bigotimes			stated, rock is fractured along rough planar bedding dipping 0°- 10°	A/E S			9,10,11 N = 21
	-2	SANDSTONE - extremely low to very low strength, orange-brown and grey sandstone		\times			1.8m: B0°, cly, 1mm 1.95m: CORE LOSS: 270mm				PL(A) = 0.28
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2.22	low strength, extremely to moderately weathered, fractured, light grey and red-brown, medium grained sandstone with some high					2.6m: B0°, cly, 1mm	с	78	0	PI (A) - 2.2
56	-3 2.9	Strength iron-cemented beds SANDSTONE - high strength, slightly weathered and fresh, slightly fractured and unbroken,					2.802.89m: B (x5) 0°, cly, 1-3mm, fe 2.95m: B0°, cly, 3mm				PL(A) = 2.2
	- 4	light grey, medium grained sandstone					3.67-3.21m: B0°, fe				
55								с	100	85	PL(A) = 1.4
54	-5						5.24m: B15°, fe 5.56-5.89m: B (x6) 0°, fe 5.9-5.95m: Ds, 50mm				PL(A) = 1.2
- 23							6.09-6.11m: B (x2) 0°, fe				PL(A) = 1
	- 7						6.57m: B0°, cly, 2mm 6.68m: J65°, he, fe 6.8m: B0°, cly, 2mm 7.3-7.32m: B (x2) 20°, cly, 2mm 8.78m: B0°, cly, 10mm 9.1-9.15m: B (x2) 0°, cly, 1-8mm	C	100	91	PL(A) = 1.4 PL(A) = 2.1 PL(A) = 1.3
								С	100	95	1 = (//) = 1.5
RIC	G: Scou	ut 2 DRILI	ER: Ground	d Tes	t LOG	GED: LS/SI	CASING: HW	/ to 1	.7m		

TYPE OF BORING: Solid flight auger (TC-bit) to 1.7m; NMLC-Coring to 18.27m

CASING: HW to 1.7m

WATER OBSERVATIONS: No free groundwater observed whilst augering. Water level at 12.68m depth on 12/12/17

REMARKS: Well constructed to 18.27m (blank to 0.5m; screen 0.5-18.27m; bentonite 0.1-0.8m; sand 0.8-18.27m). MC= Moisture content; PL=Plastic limit; bulk sample obtained by excavator-mounted large diameter auger on 9/11/2017

	SAME	PLIN	G & IN SITU TESTING	3 LE	GEND			
A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)		_	
B	Bulk sample	Р	Piston sample	PL(A	A) Point load axial test Is(50) (MPa)			Develop Developera
B	LK Block sample	U,	Tube sample (x mm dia.)	PL(D) Point load diametral test Is(50) (MPa)	1	1.1	Douolas Pariners
C	Core drilling	Ŵ	Water sample	pp	Pocket penetrometer (kPa)			Douglao i ui tiloi o
D	Disturbed sample	⊳	Water seep	S	Standard penetration test			
E	Environmental sample	ž	Water level	V	Shear vane (kPa)	100	1	Geotechnics Environment Groundwater

CLIENT:

PROJECT:

Fraser Property Ivanhoe Pty Ltd

LOCATION: Ivanhoe Estate, Macquarie Park

Proposed Residential Development

SURFACE LEVEL: 59.2 AHD **EASTING:** 325541 NORTHING: 6260484 **DIP/AZIMUTH:** 90°/--

BORE No: 05 PROJECT No: 86043.01 DATE: 1-11-2017 SHEET 2 OF 2

		Description	Degree of	Rock Strength	Fracture	Discontinuities	Sa	ampli	ing &	In Situ Testing
RL	Depth (m)	of Strata			Spacing (m)	B - Bedding J - Joint S - Shear F - Fault	Type	Core Rec. %	RQD %	Test Results & Comments
7 48 48	-11	SANDSTONE - high strength, slightly weathered and fresh, slightly fractured and unbroken, light grey, medium grained sandstone <i>(continued)</i>				∖10.63m: B0°,, cly, 4mm 10.67-10.7m: Ds, 30mm	с	100	95	PL(A) = 1.5 PL(A) = 1.3
46 47 47	- 13			12-12-17		12.42m: B0°, cly, 10mm, fe				PL(A) = 0.89
45	- 14					13.68m: B0°, cly, 3mm	с	100	97	PL(A) = 2.4
44	- 14.8 - 15 -	SANDSTONE - high strength, slightly weathered, unbroken, light brown, medium and medium to coarse grained sandstone				14.55m: B0°, cly, 3mm				PL(A) = 2.4
43	- 16					16.26m: B0°, fe	С	100	100	PL(A) = 2.6
41 42 42	-18									PL(A) = 2.6 PL(A) = 2.7
40	- 19	Bore discontinued at 18.27m								
RI	G: Scou	It 2 DRILL	ER: Ground Te	st LOG	GED: I S/SI	CASING: HW	/ to 1	.7m	I	<u> </u>

DRILLER: Ground Test TYPE OF BORING: Solid flight auger (TC-bit) to 1.7m; NMLC-Coring to 18.27m

CASING: HW to 1.7m

WATER OBSERVATIONS: No free groundwater observed whilst augering. Water level at 12.68m depth on 12/12/17

REMARKS: Well constructed to 18.27m (blank to 0.5m; screen 0.5-18.27m; bentonite 0.1-0.8m; sand 0.8-18.27m). MC= Moisture content; PL=Plastic limit; bulk sample obtained by excavator-mounted large diameter auger on 9/11/2017



SURFACE LEVEL: 54.1 AHD **EASTING:** 325597 **NORTHING:** 6260464 **DIP/AZIMUTH:** 90°/--

BORE No: 06 PROJECT No: 86043.01 DATE: 10-11-2017 SHEET 1 OF 2

		Description	Degree of Weathering .≌	Rock Strength	Fracture	Discontinuities	Sa	ampli	ng &	In Situ Testing
R	Depth (m)	of	raph		(m)	B - Bedding J - Joint	be	ore S. %	۵»	Test Results
		Strata	G FR G	Low Very Very Ex High	0.01	S - Shear F - Fault	È	ပိမ္ရွိ	<u>ж</u> ,	Comments
52 53 54 54	- 0.9 -1 -2 -2 2.1	FILLING - apparently compacted, dark brown clay filling, slightly sandy with some silt, MC <pl - top 0.05m affected by rootlets - top 0.2m with some ironstone gravel FILLING - apparently compacted, brown mottled orange-brown, clay filling with some fine sand, silt and a trace of ironstone gravel, MC<pl< td=""><td></td><td></td><td></td><td>Note: Unless otherwise stated, rock is fractured along rough planar bedding dipping 0°- 10°</td><td>A/E A/E A/E S A/E</td><td></td><td></td><td>4,7,4 N = 11</td></pl<></pl 				Note: Unless otherwise stated, rock is fractured along rough planar bedding dipping 0°- 10°	A/E A/E A/E S A/E			4,7,4 N = 11
51	- 3	moderately and slightly weathered, slightly fractured, red-brown with light grey bands, medium grained sandstone				2.4m: J35°, pl, ro, cly vn, fe 2.46m: B0°, cly, 3mm 2.64m: B0°, fe 2.7-2.78m: Ds, 80mm 3.02-3.14m: Ds, 30mm 3.06-3.14m: Cs, 80mm 3.24m: B0°, cly, 1mm	С	100	79	PL(A) = 1.3
20	- - - 4 -					3.58m: B0°, cly, 4mm 3.9-4.0m: Ds, 100mm 4.05m: B0°, cly, 3mm				PL(A) = 0.44
49	- 4.3 	SANDSTONE - medium then high strength, slightly weathered to fresh, slightly fractured, light grey with some orange-brown bands, fine and medium grained sandstone				4.3m: B5°, fe 4.34m: J5°- 50°, un, ro, fe, cly, 1mm 4.6m: B0°, cly, 3mm 4.9m: B0°, fe, cly, 3mm 5.05-5.3m: B (x2) 0°, cly, 3mm, fe	C	100	100	PL(A) = 0.64
48	- - - - - - - - - - - - -					5.58-6.04m: B (x2) 0°, cly, 2-4mm	C	100	100	PL(A) = 2 PL(A) = 1.4
47	- - 7 - - -					6.76-6.77m: Ds, 10mm				
46	8					7.64m: B0°, cly, 3mm				rl(A) = 1.5
45						8.38-8.56m: B (x2) 0°- 5°, cly, 1-4mm	с	100	98	PL(A) = 0.96
	- - - - - - - - - - - - - - - - - - -					9.6-9.65m: Cs, 50mm				PL(A) = 1.2
RI	G: Bobo	cat DRILI	LER: Ground Te	st LOG	GED: LS	CASING: HV	√ to 2	.1m		

CLIENT:

PROJECT:

Fraser Property Ivanhoe Pty Ltd

LOCATION: Ivanhoe Estate, Macquarie Park

Proposed Residential Development

DRILLER: Ground Test

LOGGED: LS

CASING: HW to 2.1m

TYPE OF BORING: Solid flight auger to 2.2m; NMLC-Coring to 17.25m WATER OBSERVATIONS: No free groundwater observed whilst augering **REMARKS**:

SAM	PLIN	IG & IN SITU TESTIN	3 LE	GEND							
A Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)			_		_	_	
B Bulk sample	Р	Piston sample	PL(A	A) Point load axial test Is(50) (MPa)							
BLK Block sample	U,	Tube sample (x mm dia.)	PL([D) Point load diametral test Is(50) (MPa)	11				Pa	rner	-
C Core drilling	Ŵ	Water sample	pp	Pocket penetrometer (kPa)				7140			-
D Disturbed sample	⊳	Water seep	S	Standard penetration test		/ .					
E Environmental sample	Ŧ	Water level	V	Shear vane (kPa)		4 (Seotechnic	s Envii	onment	Groundwa	ter

SURFACE LEVEL:54.1 AHD **EASTING:** 325597 **NORTHING:** 6260464 **DIP/AZIMUTH:** 90°/-- BORE No: 06 PROJECT No: 86043.01 DATE: 10-11-2017 SHEET 2 OF 2

		Description	Degree of	Rock Strength	Fracture	Discontinuities	Sa	ampl	ing &	In Situ Testing
님	Depth (m)	of Strata	Graphi Graphi	Very Low Very Low Medium High Very High	Spacing (m)	B - Bedding J - Joint S - Shear F - Fault	Type	Core Rec. %	RQD %	Test Results & Comments
44	- - - - - - - - - - - - - 11	SANDSTONE - high strength, slightly weathered to fresh, slightly fractured, light grey with some orange-brown bands, fine and medium grained sandstone				10.36-10.48m: B (x2) 0°, fe 10.77m: B5°, cbs				PL(A) = 1.2
42	- 12					11.77m: B5°, cbs	С	100	100	PL(A) = 1.3
41 4	- - - - - - - - - - - - - - - - - - -									PL(A) = 1.5
-	- - - - - - - - - - - - - -									PL(A) = 2.3
39 40	- - - - - - - - - - - - - - - - - - -	- slightly weathered below 15.0m				14.64m: B0°, cly, 2mm	С	100	100	PL(A) = 2
38	- - - - - - - - - - - - - - - - - - -									PL(A) = 2.4
37	- 17					16.6m: J30°, pl, ro, cbs, fe	С	100	100	PL(A) = 2.5
35 36 36	- 17.25 	Bore discontinued at 17.25m								
	- - - - -									

RIG: Bobcat

CLIENT:

PROJECT:

Fraser Property Ivanhoe Pty Ltd

LOCATION: Ivanhoe Estate, Macquarie Park

Proposed Residential Development

DRILLER: Ground Test

LOGGED: LS

CASING: HW to 2.1m

TYPE OF BORING: Solid flight auger to 2.2m; NMLC-Coring to 17.25m **WATER OBSERVATIONS:** No free groundwater observed whilst augering **REMARKS:**

SAM	IPLIN	IG & IN SITU TESTIN	3 LE	GEND									
A Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)		_				_	_		
B Bulk sample	Р	Piston sample	PL(/	A) Point load axial test Is(50) (MPa)							and the second se		
BLK Block sample	U,	Tube sample (x mm dia.)	PL(I	D) Point load diametral test Is(50) (MPa)	1	1.					T	ner	5
C Core drilling	Ŵ	Water sample	aq (Pocket penetrometer (kPa)		/ .	D UG	-				1161	-
D Disturbed sample	⊳	Water seep	s	Standard penetration test								ganna stanas	
E Environmental sample	Ŧ	Water level	V	Shear vane (kPa)	100		Geotechnic	CS I E	nvirc	onment	G	roundwa	ter

CLIENT:

PROJECT:

Fraser Property Ivanhoe Pty Ltd

LOCATION: Ivanhoe Estate, Macquarie Park

Proposed Residential Development

SURFACE LEVEL: 59.1 AHD **EASTING**: 325545 **NORTHING**: 6260402 **DIP/AZIMUTH**: 90°/-- BORE No: 07 PROJECT No: 86043.01 DATE: 7-11-2017 SHEET 1 OF 3

		Description	Degree of Weathering	<u>.</u> 0	Rock Strength	Fracture	Discontinuities	Sa	ampli	ing &	In Situ Testing
님	Depth (m)	of	· · · · · · · · · · · · · · · · · · ·	Log	Kate	Spacing (m)	B - Bedding J - Joint	be	ore %	۵°	Test Results
	()	Strata	H M M M M M M M M M M M M M M M M M M M	Ū	Ex Low Very Very Ex High	0.05 0.10 1.00	S - Shear F - Fault	Γ	ပိမ္မ	Я°	Comments
59	0.05 0.1' 	BRICK PAVERS FILLING - light brown then dark brown, fine then coarse sand filling		X				A/E			
	- 0.6 -	with some roadbase gravel, moist FILLING - brown silty clay filling with some fine sand with a trace of									
58	-1 - - 1.3	ironstone gravel, humid CLAY - stiff to very stiff,						A/E S			6,8,20 N = 28
	- 1.5 -	with a trace of fine sand, MC <pl SANDSTONE - very low strength, light grey and orange-brown</pl 					∖ 1.5-1.56m: fg 1.56-1.59m: Cs, 30mm	с	100	93	PL(A) = 0.9
57	-2	sandstone SANDSTONE - medium to high					2.2m: B5°, cly, 8mm				
	- - - -	fractured, light grey and orange-brown, medium grained sandstone									PL(A) = 1
56	- 3										
	3.6	SANDSTONE - medium strength,					3.28-3.34m: Cs, 60mm 3.4-3.6m: Cs, 200mm 3.69m: B0°, clv, 3mm				PL(A) = 0.32
55	- 4 -	grey fine grained sandstone, thinly bedded with some siltstone laminations				╞═╡┼┚╎╎ ╎╺╧╅┚╎╎	3.84-3.86m: fg, 20mm 3.86m: J0° & 90°, st, ro, cln	с	100	77	
	-						4.17m: B0°, he, cly, 2mm 4.2-4.24m: Cs, 40mm				PL(A) = 0.94
54	- 5 -					i ili-i i 	4.28-4.41m: B (x3) 0°, he, cly, 3mm 4.57-4.74m: B (x4) 0°, fe 4.82-4.94m: B (x4) 0°.				
	- - - -						he, cly, 2mm 5.21-5.28m: Cs, 70mm 5.57-5.62m: Cs, 50mm 5.72-5.76m: B (x4) 0°,				PL(A) = 1
53	- - 6 6.0 -	SANDSTONE - high strength, fresh, unbroken, light grey, medium				, , , , , , , , , , , , , , , , , , ,	he, cly, 2mm 5.84-5.88m: Cs, 40mm 5.91-5.96m: Cs, 50mm 6.27m: B0° fe, cly, 1mm				
	- - - -	grained sandstone, thinly and thickly bedded with some siltstone laminations					0.27m. 60 , 18, Ciy, 1mm				PL(A) = 1.6
52	- 7 										
	-										PL(A) = 1.4
51	- 						8.22m; B0°, clv. 3mm	с	100	100	
	- - -						0.22				PL(A) = 1.5
50	- 9 - 9										
	- - - -						9.45m: B0°, cly, 2mm 9.6m: B0°, cly, 5mm				PL(A) = 1.7
Ľ	-										
RI TY	G: Scou PE OF	ut 2 DRILL BORING: Solid flight auger (TC-bi	_ER: Ground t) to 1.5m;	d Tes NML	t LOG C-Coring to 21.0m	GED: LS n	CASING: HV	V to 1	.5m		

WATER OBSERVATIONS: No free groundwater observed whilst augering. Water level at 13.45m depth on 12/12/17

REMARKS: MC = Moisture Content; PL = Plastic Limit. Ground well (blank 0.3-1.5m; screen 1.5-21.0m; fill 0-0.6m; bentonite 0.6-1.2m; gravel 1.2-21.0m)

SAM	IPLIN	IG & IN SITU TESTIN	G LE	GEND					
A Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)	 		_	_	
B Bulk sample	Р	Piston sample	PL(/	A) Point load axial test Is(50) (MPa)				will be a sea	-
BLK Block sample	U,	Tube sample (x mm dia.)	PL(I	D) Point load diametral test Is(50) (MPa)			s Pa	гпег	5
C Core drilling	Ŵ	Water sample	aa '	Pocket penetrometer (kPa)		71 LI 4	, , wa		
D Disturbed sample	⊳	Water seep	s	Standard penetration test					
E Environmental sample	Ŧ	Water level	V	Shear vane (kPa)	Geotechnic:	s I Env	rironment	Groundwate	эr

CLIENT:

PROJECT:

Fraser Property Ivanhoe Pty Ltd

LOCATION: Ivanhoe Estate, Macquarie Park

Proposed Residential Development

SURFACE LEVEL: 59.1 AHD **EASTING:** 325545 **NORTHING:** 6260402 **DIP/AZIMUTH:** 90°/-- BORE No: 07 PROJECT No: 86043.01 DATE: 7-11-2017 SHEET 2 OF 3

Γ		Description	Degree of Weathering	Rock Strength		Fracture	Discontinuities	S	ampli	ing &	In Situ Testing
Ā	Depth (m)	of	dp		Vate	Spacing (m)	B - Bedding J - Joint	be	ore : %	۵° ۵	Test Results
		Strata	N N N N N N N N N N N N N N N N N N N	FX Lo Medic FX High	>	0.01 0.10 0.50	S - Shear F - Fault	Ţ	ပိမ္စ	R0%	Comments
	₽ 	SANDSTONE - high strength, fresh, unbroken, light grey, medium grained sandstone, thinly and thickly bedded with some siltstone laminations <i>(continued)</i>					11.56m: B0°, cly, 3mm	С	100	100	PL(A) = 1.4 PL(A) = 1.6
	- 12										PL(A) = 1.5
	- 13 - - - - - - - -				12-12-17 i		13.1-13.3m: B (x3) 0°, he, cly	С	100	100	PL(A) = 1.5
- 4											PL(A) = 1.6
	- 15 - - - - - - - - - - - - - - - - - - -						15.44m: B20°, cbs, 1mm				PL(A) = 1.8 PL(A) = 2.6
	- - - - - - - - - - - - - - - -						∖ 17.64-17.74m: Cs.	С	100	100	PL(A) = 2.7
	- 18 - 18 -	18.0m: shale clast					10mm 17.67m: B0°, cly, 4mm 18.22m: B0°, cly, 1mm, cbs				PL(A) = 2.7
	- 18.65 - 19 19	SANDSTONE - high strength, slightly weathered and fresh, slightly fractured, medium grained sandstone with trace siltstone clasts					18.81m: B0°, fe, cbs	С	100	100	PL(A) = 2.6
ŧ	20.0						19.67m: BU°, Cly, 2mm				
R	IG: Scou	t 2 DIN	FR: Ground Te	est I	06	GED		/ to 1	5m		-
T	YPE OF I	BORING: Solid flight auger (TC-bi	t) to 1.5m; NM	LC-Coring to 2	1.0r	9 20 . 13 N		101	.om		
W	ATER O	BSERVATIONS: No free groundwa	ter observed wh	ilst augering. V	Vate	er level at 13.	45m depth on 12/12/17				

WATER OBSERVATIONS: No free groundwater observed whilst augering. Water level at 13.45m depth on 12/12/17

REMARKS: MC = Moisture Content; PL = Plastic Limit. Ground well (blank 0.3-1.5m; screen 1.5-21.0m; fill 0-0.6m; bentonite 0.6-1.2m; gravel 1.2-21.0m)



SURFACE LEVEL: 59.1 AHD **EASTING:** 325545 NORTHING: 6260402 **DIP/AZIMUTH:** 90°/--

BORE No: 07 PROJECT No: 86043.01 DATE: 7-11-2017 SHEET 3 OF 3

		Description	Degree of Weathering	. <u>.</u>	Rock Strength	Fracture	Discontinuities	Sa	ampli	ing &	In Situ Testing
RL	Depth (m)	of Strata	A A A A A A A	Graph Log	Very Low Very Low Medium Kery High Ex High	Spacing (m)	B - Bedding J - Joint S - Shear F - Fault	Type	Core Rec. %	RQD %	Test Results & Comments
39		SANDSTONE - very high strength, slightly weathered, slightly fractured, medium grained sandstone with siltstone clasts and some very low strength bands					20.05m: B0°, fe 20.46-20.49m: B0°, cly, 10mm	с	100	100	PL(A) = 3.3
38	-21 21.0	Bore discontinued at 21.0m									
37	- 22										
36	-23										
32	-24										
34	- 25										
33 1	- 26										
32	- 27										
31	- 28										
30	- 29										
Ŀ	-										

RIG: Scout 2

CLIENT:

PROJECT:

Fraser Property Ivanhoe Pty Ltd

LOCATION: Ivanhoe Estate, Macquarie Park

Proposed Residential Development

DRILLER: Ground Test

LOGGED: LS TYPE OF BORING: Solid flight auger (TC-bit) to 1.5m; NMLC-Coring to 21.0m

CASING: HW to 1.5m

WATER OBSERVATIONS: No free groundwater observed whilst augering. Water level at 13.45m depth on 12/12/17

REMARKS: MC = Moisture Content; PL = Plastic Limit. Ground well (blank 0.3-1.5m; screen 1.5-21.0m; fill 0-0.6m; bentonite 0.6-1.2m; gravel 1.2-21.0m)

	SAME	LIN	G & IN SITU TESTING	5 LEO	GEND			
A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)			
B	Bulk sample	Р	Piston sample	PL(A) Point load axial test Is(50) (MPa)			
BLK I	Block sample	U,	Tube sample (x mm dia.)	PL(C) Point load diametral test Is(50) (MPa)	1		Louidias Partners
C	Core drilling	Ŵ	Water sample	pp`	Pocket penetrometer (kPa)			Budgius i ur tircis
D	Disturbed sample	⊳	Water seep	S	Standard penetration test		/	
E	Environmental sample	Ŧ	Water level	V	Shear vane (kPa)			Geotechnics Environment Groundwater

SURFACE LEVEL:50.1 AHD EASTING: 325647 NORTHING: 6260426 DIP/AZIMUTH: 90°/-- BORE No: 08 PROJECT No: 86043.01 DATE: 7-11-2017 SHEET 1 OF 1

Rock Degree of Weathering Fracture Discontinuities Sampling & In Situ Testing Description Strength <u>0</u> Spacing Rec. Depth Water aph -00 -Ig II Test Results R of , Low Core B - Bedding J - Joint Type Very Low Medium Very High (m) (m) ۲. & σ S - Shear F - Fault <u>8</u>9 Strata юб EW MW FS FS Comments FILLING - dark brown clay filling, A/E .0 slightly sandy with some concrete 0.2 fragments and trace metal wire, A/E MC<PL, root affected to 0.05m FILLING - brown clay filling with some sand and a trace of concrete A/E fragments, MC<PL 6 0.5m: metal wire observed 7.7.7 S N = 14 CLAY - stiff, light orange-brown clay with some fine sand and silt 1.6 and a trace of ironstone gravel, \MC<PL SANDSTONE - low to medium - 2 \$ strength, red-brown and light grey, medium grained sandstone with some very low strength bands Α 2.5m: CORE LOSS: 2.6 100mm 2.75 SANDSTONE - medium and high 2.7m: B0°, cly, 2mm 2.9-2.93m: Cs, 30mm PL(A) = 0.2strength, slightly weathered and 3 4 fresh, light grey with purple-brown bands, medium grained sandstone, 3.3m: B0°, cly, 5mm 3.36-3.38m: Cs, 30mm medium bedded PL(A) = 1.63.64m: B0°, fe, cly, 3mm С 96 86 \$ 4.2-4.22m: Ds, 20mm 4.28-4.3m: Cs, 20mm PL(A) = 0.85 2 5. Bore discontinued at 5.1m 6 4 4 8 4 . 9 LOGGED: LS CASING: HW to 2.5m

 RIG:
 Scout 2
 DRILLER:
 Ground Test
 LOG

 TYPE OF BORING:
 Solid flight auger (TC-bit) to 2.5m;
 NMLC-Coring to 5.1m

 WATER OBSERVATIONS:
 No free groundwater observed whilst augering

Fraser Property Ivanhoe Pty Ltd

LOCATION: Ivanhoe Estate, Macquarie Park

Proposed Residential Development

CLIENT:

PROJECT:

REMARKS: MC = Moisture Content; PL = Plastic Limit



SURFACE LEVEL: 45.8 AHD **EASTING**: 325720 **NORTHING**: 6260386 **DIP/AZIMUTH**: 90°/-- BORE No: 09 PROJECT No: 86043.01 DATE: 8-11-2017 SHEET 1 OF 1

\square		Description	Degree of	.0	Rock Strength	Fracture	Discontinuities	S	ampl	ing &	In Situ Testing
님	Depth (m)	of	Weathering	aphi	Vate Aller	Spacing (m)	B - Bedding J - Joint	90	e.%	۵.,	Test Results
	()	Strata	H M M M M M M M M M M M M M M M M M M M	Ū		0.01 0.10 0.50 1.00	S - Shear F - Fault	T _y	ပိမ္စ	RO%	& Comments
2	0.05	BRICK PAVERS FILLING - dark grey medium to coarse sand filling with some roadbase and sandstone gravel and a trace of slag, moist						<u>A/E</u>			
4	-1 1.0	FILLING - light brown sandy clay and clay filling with trace sandstone gravel and fine sand, MC <pl SANDSTONE - very low to low</pl 						A/E S			6,4,6/50mm refusal bouncing
	-2 2.0	SANDSTONE - medium strength, extremely and moderately weathered, fractured, light grey and orange-brown, medium grained sandstone SANDSTONE - medium and high					1.72m: B0°, fe 1.87m: CORE LOSS: 130mm 2.0-2.12m: Cs, 120mm 2.34m: B0°, cly, 5mm 2.44-2.45m: Ds, 10mm	с	89	73	PL(A) = 0.67 PL(A) = 1.5
43	-3	strength, slightly weathered, slightly fractured, medium grained sandstone, medium bedded					2.88m: B10°, fe 3.11-3.29m: B (x5) 0°- 5°, cly, 3-5mm				PL(A) = 0.69
41	- 4						4.03m: B0°, fe 4.43-4.47m: Cs, 40mm 4.57m: B0°, fe 4.7m: B0°, fe, cly, 2mm	с	100	98	PL(A) = 0.86
	-5 					i ii j i I II j i	5.13m: B5°, cly, 3mm				PL(A) = 0.57
	-99	Bore discontinued at 5.44m									

RIG: Scout 2

CLIENT:

PROJECT:

Fraser Property Ivanhoe Pty Ltd

LOCATION: Ivanhoe Estate, Macquarie Park

Proposed Residential Development

DRILLER: Ground Test

LOGGED: LS

CASING: HW to 1.5m

TYPE OF BORING: Solid flight auger (TC-bit) to 1.5m; NMLC-Coring to 5.44m **WATER OBSERVATIONS:** No free groundwater observed whilst augering **REMARKS:**

SAM	IPLIN	G & IN SITU TESTING	3 LE	GEND							
A Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)					_		
B Bulk sample	Р	Piston sample	PL(A	A) Point load axial test Is(50) (MPa)							
BLK Block sample	U,	Tube sample (x mm dia.)	PL() Point load diametral test Is(50) (MPa)					Par	гпег	-
C Core drilling	Ŵ	Water sample	ga	Pocket penetrometer (kPa)							-
D Disturbed sample	⊳	Water seep	S	Standard penetration test		- · · · ·				- ·	
E Environmental sample	Ŧ	Water level	V	Shear vane (kPa)		Geotechnic	SIE	nviro	nment /	Groundwat	ter
· · ·				(),	1						

SURFACE LEVEL: 45.2 AHD **EASTING**: 325736 **NORTHING**: 6260351 **DIP/AZIMUTH**: 90°/-- BORE No: 10 PROJECT No: 86043.01 DATE: 2-11-2017 SHEET 1 OF 1

		Description	Degree of Weathering	. <u>0</u>	Rock Strength	_	Fracture	Discontinuities	Sa	ampli	ing &	In Situ Testing
님	Depth (m)	of		Log	siai i≣i i≣ie	Vate	Spacing (m)	B - Bedding J - Joint	be	ore %	۵°	Test Results
		Strata	H M M M M M M M M M M M M M M M M M M M	Ū	Ex Lo Very High Ex High	>	0.10	S - Shear F - Fault	Ţ	ပိမ္စ	R0%	Comments
43 44 44 45 45	0.2 0.6 -1 1.0 -2 2.1	FILLING - dark brown clayey sand filling with ironstone gravel and a trace of concrete fragments, moist - root affected to 0.05m FILLING - red-brown silty clay filling with some fine sandstone and roadbase gravel, moist SILTY SAND - medium dense, dark brown, fine to medium silty sand with some clay and a trace of ironstone gravel, moist SANDY CLAY - soft to firm, light brown, fine to medium sandy clay, moist						Note: Unless otherwise stated, rock is fractured along rough planar bedding dipping 0°- 10°	A/E A/E S E			pp = 100 1,1,3 N = 4
42	2.75	SANDSTONE - low and medium strength, light grey and orange-brown sandstone with extremely low strength bands SANDSTONE - medium and high strength, moderately weathered to fresh, slightly fractured and unbroken, medium grained sandstone, thinly to medium bedded						2.47m: J90°, pl, ro, cly, 2mm 2.47m: B0°, cly, 2mm 2.6m: B0°, cly, 2mm 2.7-2.74m: Cs, 40mm 3.05-3.64m: B (x2) 0°, cly, 4mm	С	100	84	PL(A) = 0.24 PL(A) = 1.2
39 40 40 41	-4	5.45-6.48m: fresh				12-12-17		4.14-4.16m: B (x2) 0°, fe 5.17-5.18m: B (x2) 0°, cly, 1mm 5.25m: B15°, he, cly, 2mm 5.49m: B15°, fe 5.55-5.56m: Cs, 10mm 5.87m: B0°, cly, 5mm	С	100	92	PL(A) = 1.3 PL(A) = 1.1 PL(A) = 0.36
37		7.07m: siltstone clast						6.48m: B0°, fe 6.8-7.22m: B (x7) 0°, fe, cbs 7.23m: J20°, he, cbs 7.25m: B0°, he, cbs 7.3-7.32m: B (x2) 0°, fe, cbs	С	100	84	PL(A) = 1.9 PL(A) = 2.6
36	- 	Bore discontinued at 8.97m - target depth reached						8.82m: J30°, pl, ro, cly, 1mm				PL(A) = 1.8
-	- - - -											

RIG: Scout 2

CLIENT:

PROJECT:

Fraser Property Ivanhoe Pty Ltd

LOCATION: Ivanhoe Estate, Macquarie Park

Proposed Residential Development

DRILLER: Ground Test

LOGGED: LS

CASING: HW to 2.4m

TYPE OF BORING: Solid flight auger (TC-bit) to 2.4m; NMLC-Coring to 8.97m **WATER OBSERVATIONS:** No free groundwater observed whilst augering. Water level at 4.5m depth on 12/12/17 **REMARKS:** Well installed to 5.6m (blank 0.0-2.5m; screen 2.5-5.6m; bentonite 1.3-2.6m; gravel 2.6-5.6m)

SAM	PLIN	IG & IN SITU TESTING	G LE	GEND						
A Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)		_			_	_
B Bulk sample	Р	Piston sample	PL(A) Point load axial test Is(50) (MPa)						
BLK Block sample	U,	Tube sample (x mm dia.)	PL(C) Point load diametral test Is(50) (MPa)	1	1.		125	Pal	Thers
C Core drilling	Ŵ	Water sample	, aa	Pocket penetrometer (kPa)		/ .	D G G G	140		
D Disturbed sample	⊳	Water seep	s	Standard penetration test					and the second sec	
E Environmental sample	Ŧ	Water level	V	Shear vane (kPa)			Geotechnics	I Envir	onment	Groundwater

SURFACE LEVEL: 43.2 AHD **EASTING:** 325768 NORTHING: 6260337 **DIP/AZIMUTH:** 90°/--

BORE No: 11 PROJECT No: 86043.01 DATE: 2-11-2017 SHEET 1 OF 1

			Description	\ \	De	gre	e o	f	<u>0</u>		F	Roc	k ath			Fracture	Discontinu	ities	Sa	ampli	ing &	In Situ Testing
님	Deptl	h	of		vec		CIIII	9	Log	3	3		<u>କ</u> ୍ଷା କୁ	Vate	2	Spacing (m)	B - Bedding J - J	oint	Эe	.%	۵.,	Test Results
	(,		Strata	Ň	≷	MM MW	ŝ	ЧĽ	פֿ	EX Lo	Very L	Mediu	Very High	ĭ ĭ ĭ	^	0.05 0.10 1.00	S - Shear F - F	ault	Ţ	Rec	R 0 %	& Comments
۲. ۲	0.1	16	CONCRETE - 20mm						4													
Ę	- 0.2	21	SUBBASE - roadbase gravel,		ij	į	ij	Ŕ	\bigotimes	ļ	į		ij		ļ	ii ii l						
Ē	[0	7	25-30mm, angular to sub-angular		 			ľ	\bigotimes			 										
ŧ	-		filling, MC>PL					ľ														
E	-1		CLAYEY SILT - stiff, grey mottled		ij	į	ij	ľ		ļ	į		ij		l							pp = 340
-	-		sand, moist					ĺ				 										
Ē	Ē							1	///													2,5,6
ŧ	- 1	.9	SILTY CLAY firm rod brown			i		ľ	μV	i	Ì		ii		l		Note: Unless oth	nerwise	3			N = 11
Ē.	-2		mottled grey, silty clay with a trace					ľ				 					stated, rock is fra	actured				
-	-		of fine and coarse sand, moist		İİ	İ	İİ	ł	1/1	ļ	į		İİ		İ		bedding dipping	0°- 10°				
Ē	Ē		2.6m: becoming wet, gravelly					ľ				 							s			6,3,7/40mm refusal
ŧ	2	2.8	∖MC>PL	╞				•						_			2.85-3.0m: fa					bouncing
E.	-3		LATERITIC SANDSTONE - high strength, highly weathered,		ili	į	ij			ļ	į		ij		ļ		3 13m [.] B0° clv	10mm				
ŀ	-		fragmented, dark red-brown									 					3.22m: B0°, cly,	2mm				PL(A) = 1
Ē	Ē		orange-brown lateritic sandstone	-	Ļ		11	+	\sim	H	+			-	Ļ		3.37-3.42m: Cz,	e 50mm				
ŧ	- 3	8.8	SANDSTONE - high strength,	-		Ţ		ł			1		$\overline{\Box}$	-	İ		3.46m: B0°, cly, 3.48m: J25°, he,	2mm, te cly,				
E	-4		slightly weathered, light red-grey, medium grained sandstone, thickly		 							 					2mm, fe 3.6m: CORE LO	SS:		01	40	
Ę	-		bedded														200mm			01	42	
Ē						Ì					Ì				l							
ŧ	-																					PL(A) = 1.1
Ē	-5					$\stackrel{\uparrow}{\downarrow}$		Ť	$\overline{\times}$		1	Ā	7		Ì		4.98m: J70°, pl, 5m: CORE LOS	ro, cln S∙				
۲°	- 5.3	31		-				¥		H	1			>			310mm	°- 00°				PL(A) = 1.2
Ē	Ē											 					un, ro, cln	- 30 ,				
ŧ						İ	11		$\overline{\mathbb{C}}$	i	i		ii		i	ii li	F OO H DOO H	4				
Ē	-6 6	5.0										 					5.92m: 80°, ciy, CORE LOSS: 8	1mm 0mm				PL(A) = 1.3
۲°	-																└6.0-6.41m: J85° un, ro, cly, 1mm	- 90°,				
Ē	Ē				İİ	į	İİ			ļ	į		i i		ļ	ii dii I	^L 6.23-6.63m: J70 cln	°, pl, ro,				
ŧ	ļ							_				 				╎╎┖┿┪╵	6 90 9 00m; 195	° 00°				
Ē.	-7		- fresh, light grey from 6.97m			1											un, ro, cln	- 90 ,	с	97	98	
۳ ۲	-					Ì					i				l							
Ē	Ē																					
Ē	[İİ	į	ij			ļ	į		ļi		l							$PI(\Lambda) = 1.2$
F.,	-8												J¦ ¦			╎╷╺┽┥	0 12 0 16m; Co	20mm				PL(A) = 1.5
Ē	-		- thinly bedded with 5% siltstone laminae from 8.17-8.35m										┓┆╴╎				8.35m [•] B0° clv	3mm				
Ē	8	8.6	Bore discontinued at 8.6m	-	H	+	ļļ	Ŀ		H	-	 	Ļ	_	H		,,, , , , , , , , , , , ,					PL(A) = 2.4
ŀ	F		- target depth reached									 										
Ę	-9 [
ľ	ŀ					į					ļ				l							
Ē	Ē				 							 										
ŀ	ŀ																					

RIG: Scout 2

CLIENT:

PROJECT:

Fraser Property Ivanhoe Pty Ltd

LOCATION: Ivanhoe Estate, Macquarie Park

Proposed Residential Development

DRILLER: Ground Test

LOGGED: LS

CASING: HW to 2.85m TYPE OF BORING: Diacore to 0.16m; Solid flight auger (TC-bit) to 2.5m; Washbore to 2.85m; NMLC-Coring to 8.6m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: MC = Moisture Content; PL = Plastic Limit



SURFACE LEVEL: 45.2 AHD EASTING: 325735 NORTHING: 6260295 **DIP/AZIMUTH:** 90°/--

BORE No: 12 PROJECT No: 86043.01 DATE: 3-11-2017 SHEET 1 OF 1

		Description	Degree of Weathering	1. <u>0</u>	Rock Strenath	_	Fracture	Discontinuities	Sa	ampli	ing &	In Situ Testing
님	Depth (m)	of	, vouinoning	aph.		Vate	Spacing (m)	B - Bedding J - Joint	e	.%	۵.,	Test Results
	()	Strata	A M M M M M M M M M M M M M M M M M M M	Ū	Ex Lo Low High Ex High		0.05 0.10 1.00	S - Shear F - Fault	۲ ۲	ပိမ္စ	RO 2 %	& Comments
43 44 44 45 45	0.15 -1 1.2 -2 2.1	FILLING - dark grey, medium to fine sand filling (topsoil), slightly clayey with bark and rootlets and a trace of ironstone gravel, damp FILLING - brown, medium to fine clayey sand filling with some ironstone gravel and trace of rootlets, damp 0.4-0.5m: metal and plastic wire fragment SANDY CLAY - stiff, brown, medium grained sandy clay, moist SANDSTONE - extremely low to very low strength, red-brown and						Note: Unless otherwise stated, rock is fractured along rough planar bedding dipping 0°- 10°	A/E A/E S A/E			4,5,5 N = 10
42	-3	\light grey sandstone SANDSTONE - medium strength, moderately to highly weathered, fractured to slightly fractured, red-brown medium grained sandstone						2.54m: B0°, cly, 3mm 3.15m: B0°, cly, 2mm 3.21m: B0°, cly, 10mm 3.46m: B0°, cly, 10mm 3.49-3.59m: Cs, 100mm 3.61m: CORE LOSS:	С	95	80	PL(A) = 0.55 PL(A) = 0.46
39 41 41 40 40 41 41 41 41 41 41 41 41 41 41 41 41 41	-4 4.0 -5 -6	SANDSTONE - high strength, moderately weathered, slightly fractured, red-brown medium to coarse grained sandstone				12-12-17		 3.80min 2005. 80min 3.86m: B0°, cly, 1mm, fe 4.2m: B0°, cly, 1mm 4.58m: B15°, cly, 1mm, fe 6.31-6.33: B (x2) 0°, fe 6.51-6.79m: B (x3) 0°, 	С	100	96	PL(A) = 1.7 PL(A) = 1.8 PL(A) = 1.2
36 37 37 38	-9	Bore discontinued at 6.93m - target depth reached				-		ciy, 1mm				

RIG: Scout 2

CLIENT:

PROJECT:

Fraser Property Ivanhoe Pty Ltd

LOCATION: Ivanhoe Estate, Macquarie Park

Proposed Residential Development

DRILLER: Ground Test

LOGGED: LS TYPE OF BORING: Solid flight auger (TC-bit) to 2.4m; NMLC-Coring to 6.93m

CASING: HW to 2.4m

WATER OBSERVATIONS: No free groundwater observed whilst augering. Water level at 4.1m depth on 12/12/17

REMARKS: Well installed to 6.93m (blank 0.0-2.1m; screen 2.1-6.93m; filling 0.0-1.5m; bentonite 1.5-2.3m; sand 2.3-6.93m)



Fraser Property Ivanhoe Pty Ltd

LOCATION: Ivanhoe Estate, Macquarie Park

Proposed Residential Development

CLIENT: PROJECT: SURFACE LEVEL: 46.8 AHD **EASTING:** 325702 NORTHING: 6260260 **DIP/AZIMUTH:** 90°/--

BORE No: 13 PROJECT No: 86043.01 DATE: 3-11-2017 SHEET 1 OF 1

Γ			Description	De	egree	of ng.≌		Rock Strength	L	Fracture	Discontinuities	S	ampl	ing &	In Situ Testing
R		epth	of		amon	aphia	60		/ate	Spacing (m)	B - Bedding J - Joint	e	e.	Ω.	Test Results
	, ,	,	Strata	≥ ₹	MM M	ч Б		/ery Lov /ery L /ery F /ery Hid	\leq	0.05	S - Shear F - Fault	۲	C S	RQ 8%	& Comments
46		0.6	FILLING - light brown sandy clay filling with some roadbase gravel, damp - root affected to 0.09m 0.3m: with some ironstone gravel				XXXX					A/E			
-	- 1 - - -	1.35	SILTY CLAY - stiff to very stiff,				XX				Note: Unless otherwise stated, rock is fractured	A/E S			2,4,6 N = 10 pp = 440
45	-2	2.0	sandy, with a trace of ironstone gravel, moist SANDSTONE - extremely low to								along rough planar bedding dipping 0°- 10°				
44		2.3	SANDSTONE - low to medium then high strength, slightly weathered, slightly fractured and unbroken, light grey sandstone		 					· · · · · · · · · · · · · · · · · · ·	2.37-2.43m: Cs, 60mm 2.47-2.93m: B (x3) 0°, cly, 3mm				PL(A) = 0.2
-	-		bands and light brown thinly and thickly bedded								2.97-2.99m: Cs, 20mm	С	100	87	PL(A) = 0.61
42	- 4 - 4 								¥		4.58m: B5°, fe, cly, 2mm				PL(A) = 1
	-5	5.3	5.24-5.3m: highly fractured, iron-cemented SANDSTONE - high strength, slightly weathred, slightly fractuerd, purple-grey, medium to coarse grained sandstone						12-12-17		4.95m: B10°, cly, 1mm fr 5.25-5.31m: B (x5) 5°- 10°, manganese, fe 5.54m: B0°, cly, 10mm	с	100	95	
40	- 6 		granieu sanusione								6.43m: B0°, cly, 2mm, manganese				PL(A) = 1.4 PL(A) = 2
-	-7 - - - -	7.0	Bore discontinued at 7.0m - target depth reached												
39	-8														
38	- - - - - - - - - - - - - - - - - - -														
	-														

RIG: Scout 2

DRILLER: Ground Test

LOGGED: LS TYPE OF BORING: Solid flight auger (TC-bit) to 2.3m; NMLC-Coring to 7.0m

CASING: HW to 2.3m

WATER OBSERVATIONS: No free groundwater observed whilst augering. Water level at 4.9m depth on 12/12/17

REMARKS: Well installed to 7.0m (blank 0.0-2.1m; screen 2.1-7.0m; filling 0.0-1.3m; bentonite 1.5-1.8m; gravel 1.8-7.0m; gravel bridge in hole)

	SAMF	2LIN	G & IN SITU TESTING	G LE	GEND								
A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)		_	_	-		_	_	
B	Bulk sample	Р	Piston sample	PL(A	A) Point load axial test Is(50) (MPa)				_				
BL	K Block sample	U,	Tube sample (x mm dia.)	PL(C	 Point load diametral test Is(50) (MPa) 						Pal		
C	Core drilling	Ŵ	Water sample	pp	Pocket penetrometer (kPa)								
D	Disturbed sample	⊳	Water seep	S	Standard penetration test		1						
E	Environmental sample	ž	Water level	V	Shear vane (kPa)	100 C	1	Geotechnics	1	Enviro	nment	Groundw	ater

Fraser Property Ivanhoe Pty Ltd

LOCATION: Ivanhoe Estate, Macquarie Park

Proposed Residential Development

CLIENT: PROJECT: SURFACE LEVEL:45.1 AHD EASTING: 325807 NORTHING: 6260305 DIP/AZIMUTH: 90°/-- BORE No: LP1 PROJECT No: 86043.01 DATE: 9-11-2017 SHEET 1 OF 1

Rock Degree of Weathering Fracture Discontinuities Sampling & In Situ Testing Description Strength <u>0</u> Spacing Water Depth Core -00 _ الح التا Test Results R of , Low ROD % B - Bedding J - Joint Very Low Medium Very High (m) Type (m) H H & σ S - Shear F - Fault <u>8</u>9 Strata юб Comments FILLING - brown sandy gravelly clay filling, fine to medium gravel, A/E 5 0.2 moist, medium plasticity, MC<PL A/E - root affected to 0.02m FILLING - brown silty sand filling, slightly clayey with some fine А sandstone and ironstone gravel, 4 14,10,10 humid, MC<<PL S N = 20 1.3 CLAY - stiff to very stiff, red-brown mottled brown clay with some fine sand, MC<PL, medium plasticity Note: Unless otherwise (residual) stated, rock is fractured along rough planar 2 64 bedding dipping 0°- 10° 22 SANDSTONE - extremely low 10/50mm strength, extremely weathered, refusal light grey sandstone (very stiff to S 2.63 bouncing hard sandy clay properties), - very low strength from 2.5m .3 SANDSTONE - low and medium 4 strength, moderately weathered, slightly fractured, red-brown, brown and light grey, medium grained PL(A) = 0.14sandstone 3.61m: B30°, un, sm, cly 3.69m: B30°, pl, sm, cbs 3.77m: B30°, pl, sm, cly 3 75 SANDSTONE - low and medium strength with extremely low Δ 100 С 65 strength bands, fresh, slightly fractured, light grey, medium grained sandstone with trace siltstone laminae <5% 4.59 4.52m: B10°, pl, ro, cly PL(A) = 0.59SANDSTONE - high strength, 4.58m: B5°, pl, sm, cly fresh, slightly fractured, light grey, medium grained sandstone - 5 솽 PL(A) = 1.55.56m: B10°, un, ro, cln 5.65m: J50°, pl, ro, cln 5.74m: J45°, pl, ro, he 5.88 -6 5.8m: CORE LOSS: စ္တ 80mm PL(A) = 1.56.32m: B15°, un, ro, cln 6.67m: B15°, pl, ro, cly 97 С 78 7m: J45°, pl, ro, un ⁻7.05m: B0°, pl, ro, cly 8 7.35m: B5°, pl, he 7.57m: B5°, pl, he 7.58m: B30°, pl, ro, cln PL(A) = 1.48 7.98m: J75°, pl, ro, cln 8.4m: B30°, pl, ,ro 8.42m: J80°, pl, ro 8.55m: CORE LOSS: SANDSTONE - very low strength with some medium strength bands, 8.59 С 92 32 PL(A) = 0.07moderately weathered, slightly 40mm 8.63m: B10°, pl, sm, cln 8.74m: B10°, pl, sm, cly . 9 90 fractured, light brown, medium ဖ္ထ grained sandstone Bore discontinued at 9.0m - target depth reached DRILLER: Ground Test LOGGED: SCP CASING: HW to 2.5m RIG: Scout 2

TYPE OF BORING: Solid flight auger to 2.5m; Washbore to 2.63m; NMLC-Coring to 9.0m **WATER OBSERVATIONS:** No free groundwater observed whilst augering

REMARKS:

SA	MPLIN	IG & IN SITU TESTIN	G LEO	GEND	
A Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)	
B Bulk sample	Р	Piston sample	PL(A) Point load axial test Is(50) (MPa)	
BLK Block sample	U,	Tube sample (x mm dia.)	PL(D	Point load diametral test Is(50) (MPa)	
C Core drilling	Ŵ	Water sample	, aa	Pocket penetrometer (kPa)	
D Disturbed sample	⊳	Water seep	S	Standard penetration test	
E Environmental sampl	e ¥	Water level	V	Shear vane (kPa)	



SURFACE LEVEL: 66.9 AHD **EASTING:** 325490 **NORTHING:** 6260594 **DIP/AZIMUTH:** 90°/--

BORE No: 31 PROJECT No: 86043.01 DATE: 9-11-2017 SHEET 1 OF 1

		Description	ic		Sam	pling 8	k In Situ Testing			_	_	_]
R	Depth (m)	of	sraph Log	/pe	epth	nple	Results &	Wate	Dynamic (blo	c Penetro ws per 1	meter 1 50mm)	est	
		Strata		ŕ		Sar	Comments	-	5	10	15 2	20	
	0.1	FILLING - apparently compacted, dark brown, clayey sand filling, medium sand with some ironstone gravel and traces of brick fragments, damp		A/E	0.0							· ·	
		FILLING - light brown, silty clay filling, slightly sandy, medium to fine sand, MC <pl< td=""><td></td><td>></td><td>0.4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>>></td></pl<>		>	0.4								>>
-	-	- typically in an apparently compacted condition		A/E	0.5								
-	-			В	0.7								
- 4			\bigotimes										
-	-1			>					-1				
ļ	-			>									
ŀ				>									
ŀ	-		\bigotimes	>									
F	ļ	1.7m; becoming light grange-brown (possibly natural)	\bigotimes		1.7								
65	-				1.8								
ŀ	-2		\bigotimes		21				-2			· · ·	
	-	SHALE - very low to low strength, light grey shale with orange bands		A	2.2						•		
ŀ	2.3	Bore discontinued at 2.35m											1
F	-												
ļ											:		
- 73	- 3								-3				
ŀ	-												
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- 2	-										:		
Ľ										:	:	:]
R T	IG: 3.5 YPE OF	excavator DRILLER: A & A Hire BORING: 300mm diameter solid flight auger to 2.35m		LOC	GED	: LS	CASING	3 : U	Incased				
w		DBSERVATIONS: No free groundwater observed whilst a	ugering	g									

REMARKS: MC = Moisture Content; PL = Plastic Limit

 SAMPLING & IN SITU TESTING LEGEND

 G
 Gas sample
 PID
 Photo ionisation detector (ppm)

 P
 Piston sample
 PL(A) Point load axial test Is(50) (MPa)

 U
 Tube sample (x mm dia.)
 PL(D) Point load diametral test Is(50) (MPa)

 W
 Water sample
 pp
 Pocket penetrometer (kPa)

 e
 >
 Water seep
 S
 Standard penetration test

 ample
 ¥
 Water level
 V
 Shear vane (kPa)

 A Auger sample B Bulk sample BLK Block sample C Core drilling D Disturbed sample E Environmental sample

□ Sand Penetrometer AS1289.6.3.3 Cone Penetrometer AS1289.6.3.2

Fraser Property Ivanhoe Pty Ltd Proposed Residential Development LOCATION: Ivanhoe Estate, Macquarie Park

CLIENT:

PROJECT:



Geotechnics | Environment | Groundwater

SURFACE LEVEL:63.1 AHD **EASTING:** 325538 NORTHING: 6260575 **DIP/AZIMUTH:** 90°/--

BORE No: 32 PROJECT No: 86043.01 DATE: 9-11-2017 SHEET 1 OF 1

묍	Depth				oung	pinig o		L .		
	(m)	of Strata	Graph Log	Type	Depth	Sample	Results & Comments	Wate	Dynamic F (blow: 5	Penetrometer Lest s per 150mm) 10 15 20
	0.2	FILLING - apparently compacted, dark brown, sand filling, medium sand with some clay and sandstone gravel, moist SANDSTONE - very low to low strength, light brown sandstone with extremely low strength bands (hard clay properties)		B	0.0 0.1 0.5 0.7				- 1	
	1.5 2 3	Bore discontinued at 1.5m - auger refusal on low to medium strength sandstone								

RIG: 3.5t excavator

CLIENT:

PROJECT:

Fraser Property Ivanhoe Pty Ltd

LOCATION: Ivanhoe Estate, Macquarie Park

Proposed Residential Development

DRILLER: A & A Hire TYPE OF BORING: 300mm diameter solid flight auger to 1.5m LOGGED: LS

CASING: Uncased

WATER OBSERVATIONS: No free groundwater observed whilst augering **REMARKS:**

 SAMPLING & IN SITU TESTING LEGEND

 G
 Gas sample
 PID
 Photo ionisation detector (ppm)

 P
 Piston sample
 PL(A) Point load axial test Is(50) (MPa)

 U
 Tube sample (x mm dia.)
 PL(D) Point load diametral test Is(50) (MPa)

 W
 Water sample
 PL
 Pocket penetrometer (kPa)

 Ø
 Water seep
 S Standard penetration test

 ample
 ¥
 Water level
 V
 A Auger sample B Bulk sample BLK Block sample C Core drilling D Disturbed sample E Environmental sample □ Sand Penetrometer AS1289.6.3.3 Cone Penetrometer AS1289.6.3.2



SURFACE LEVEL:62.7 AHD **EASTING**: 325497 **NORTHING**: 6260509 **DIP/AZIMUTH**: 90°/-- BORE No: 33 PROJECT No: 86043.01 DATE: 9-11-2017 SHEET 1 OF 1

			Description	.u		Sam	oling 8	In Situ Testing				
묍	Dep (m	oth 1)	of Strata	Graph Log	Type	Depth	ample	Results & Comments	Water	Dynamic P (blows	enetrometer To per 150mm)	est
	 - -	0.5	FILLING - apparently compacted, brown clayey sand filling with some sandstone gravel and silt, damp		A/E A/E	0.0 0.1 0.4						
62	- - - -	1.0	FILLING - apparently compacted, light brown sand filling, medium to fine sand, slightly clayey, with some ironstone and roadbase gravel, damp		В	0.7				1		
		1.2	FILLING - apparently compacted, light yellow-brown medium to fine sand filling, damp							-		
	- - - - - - - - - - - - - - - - - - -	1.2	Bore discontinued at 1.2m - due to possible concrete boulder or service (concrete at side of hole)	KXXX						-2		
	- - - -											

RIG: 3.5t excavator

CLIENT:

PROJECT:

Fraser Property Ivanhoe Pty Ltd

LOCATION: Ivanhoe Estate, Macquarie Park

Proposed Residential Development

DRILLER: A & A Hire

LOGGED: LS

CASING: Uncased

TYPE OF BORING: 300mm diameter solid flight auger to 1.2m WATER OBSERVATIONS: No free groundwater observed whilst augering REMARKS:

 SAMPLING & IN SITU TESTING LEGEND

 A
 Auger sample
 G
 Gas sample
 PID
 Photo ionisation detector (ppm)

 B
 Buik sample
 P
 Piston sample
 PL(A) Point load axial test Is(50) (MPa)

 BLK Block sample
 U
 Tube sample (x mm dia.)
 PL(D) Point load diametral test Is(50) (MPa)

 C
 Core drilling
 W
 Water sample
 p
 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

SURFACE LEVEL:65.3 AHD **EASTING**: 325461 **NORTHING**: 6260475 **DIP/AZIMUTH**: 90°/-- BORE No: 34 PROJECT No: 86043.01 DATE: 3-10-2017 SHEET 1 OF 1

			Description	U		Sam	oling 8	In Situ Testing		Well
R	Dep	th	of	aphi -og	e	£	e	Desulta 8	ater	Construction
	(m	"	Strata	5 U	Typ	Dep	Samp	Comments	>	Details
	-	0.4	FILLING - brown gravelly sand filling, medium grained ironstone and roadbase gravel with some clay, moist - root affected to 0.1m		E A/E	0.0 0.1 0.2				-
-	-		SANDSTONE - medium strength, orange-brown sandstone with some low strength bands		<u> </u>	0.5				-
ł	-		0.6m: becoming light grey medium and high strength		A	0.6				-
-	-									-
ĺ		1.0			Α	0.9				-
-			Bore discontinued at 1.0m - target depth reached			1.0				-
- 49	-									-
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-	-									-
ŀ	ŀ									
t	Ī									
-	-2									-2
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RIG: Scout 2

CLIENT:

PROJECT:

Fraser Property Ivanhoe Pty Ltd

LOCATION: Ivanhoe Estate, Macquarie Park

Proposed Residential Development

DRILLER: Ground Test

LOGGED: LS

CASING: Uncased

TYPE OF BORING: Solid flight auger (TC-bit) to 1.0m WATER OBSERVATIONS: No free groundwater observed whilst augering REMARKS:

SAM	PLIN	IG & IN SITU TESTIN	3 LE	GEND									
A Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)		_				_		_	
B Bulk sample	Р	Piston sample	PL(A) Point load axial test Is(50) (MPa)				-	-		-	di na a	
BLK Block sample	U,	Tube sample (x mm dia.)	PL(D) Point load diametral test Is(50) (MPa)	11			TR.	35		ar	TNF	
C Core drilling	Ŵ	Water sample	aa `	Pocket penetrometer (kPa)			D U U U					e114	
D Disturbed sample	⊳	Water seep	S	Standard penetration test		//		· .				-	
E Environmental sample	Ŧ	Water level	V	Shear vane (kPa)		1	Geotechnic	3 1	Enviro	onmer	nt /	Ground	dwater
				·									

SURFACE LEVEL:65.1 AHD **EASTING:** 325463 NORTHING: 6260433 **DIP/AZIMUTH:** 90°/--

BORE No: 35 PROJECT No: 86043.01 DATE: 11-9-2017 SHEET 1 OF 1

Depth (m)	of Strata	40					-				
- 12- 0.15 \ S		Gra	Type	Depth	sample	Results & Comments	Wate	5 Dyn	(blows pe	etrometer er 150mm) 15	20
	FILLING - apparently compacted, dark brown clayey sand filling, medium grained, with a trace of roadbase		A/E	0.0 0.1	0,					–	
F	FILLING - apparently compacted, light brown clay filling, slightly sandy, medium to fine sand with some sandstone gravel, MC <pl< td=""><td></td><td>В</td><td>0.2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></pl<>		В	0.2							
	SANDSTONE - very low to low strength, light grey sandstone		A	0.7 1.0 _1 1_				-1			
	Bore discontinued at 1.1m - auger refusal on low to medium strength rock			1.1-							
2 - 8- 								-2			
								-			
3								-3			
- 8- 											
								-			
4 								-4			

RIG: 3.5t excavator DRILLER: A & A Hire TYPE OF BORING: 300mm diameter solid flight auger to 1.1m **REMARKS:** MC = Moisture Content; PL = Plastic Limit

CLIENT:

PROJECT:

Fraser Property Ivanhoe Pty Ltd

LOCATION: Ivanhoe Estate, Macquarie Park

Proposed Residential Development

LOGGED: LS

CASING: Uncased

□ Sand Penetrometer AS1289.6.3.3 Cone Penetrometer AS1289.6.3.2



 SAMPLING & IN SITU TESTING LEGEND

 G
 Gas sample

 P
 Piston sample

 U
 Tube sample (x mm dia.)

 W
 Water sample

 W
 Water sample

 W
 Vater sample

 W
 Standard penetration test

 Mater sample
 Standard penetration test

 Mater sample
 V

 Standard penetration test
 Standard penetration test

 Mater sample
 V
 A Auger sample B Bulk sample BLK Block sample C Core drilling D Disturbed sample E Environmental sample **Douglas Partners** Geotechnics | Environment | Groundwater

SURFACE LEVEL: 59.4 AHD **EASTING:** 325532 NORTHING: 6260471 **DIP/AZIMUTH:** 90°/--

BORE No: 36 PROJECT No: 86043.01 DATE: 14-11-2017 SHEET 1 OF 1

		Description	jc		Sam	oling &	In Situ Testing		Well	
R	Depth (m)	of	3raph Log	ype	epth	mple	Results &	Wate	Constructio	on
		Strata FILLING - apparently hard, light brown, silty clay filling	\propto	μ.	ă	Sa	Comments		Details	
	0.11	with some fine sand and sandstone gravel, MC <pl< td=""><td>KXX</td><td></td><td></td><td></td><td></td><td>+</td><td></td><td></td></pl<>	KXX					+		
-	-	- hand auger refusal on sandstone gravel and hard clay							-	
-26	-								_	
-	-								-	
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RIG: Hand tools

CLIENT:

PROJECT:

Fraser Property Ivanhoe Pty Ltd

LOCATION: Ivanhoe Estate, Macquarie Park

Proposed Residential Development

DRILLER: LS TYPE OF BORING: 150mm diameter hand auger to 0.11m LOGGED: LS

CASING: Uncased

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: Bore hand augered only due to high risk of potential services after services scanning. MC = Moisture Content; PL = Plastic Limit

	SAM	PLIN	G & IN SITU TESTIN	G LE	GEND			
A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)		_	
B	Bulk sample	Р	Piston sample	PL(A	A) Point load axial test Is(50) (MPa)			Develop Developera
BL	K Block sample	U,	Tube sample (x mm dia.)	PL(C	D) Point load diametral test Is(50) (MPa)	1	1.	Louolas Partners
C	Core drilling	Ŵ	Water sample	pp	Pocket penetrometer (kPa)			D'agius i ui tiisis
D	Disturbed sample	⊳	Water seep	S	Standard penetration test		11	
Е	Environmental sample	Ŧ	Water level	V	Shear vane (kPa)	and the second se		Geotechnics Environment Groundwater

SURFACE LEVEL:52.2 AHD EASTING: 325645 NORTHING: 6260488 DIP/AZIMUTH: 90°/-- BORE No: 37 PROJECT No: 86043.01 DATE: 9-11-2017 SHEET 1 OF 1

Sampling & In Situ Testing Description Graphic Log Water **Dynamic Penetrometer Test** Depth R Sample of Depth Type (blows per 150mm) (m) Results & Comments Strata 20 0.0 FILLING - apparently compacted, brown silty clay filling, A/E 0.1 slightly sandy, medium to fine grained, with a trace of 0.2 ironstone gravel, MC<PL FILLING - apparently compacted, light brown, clayey sandy filling, medium to fine grained with some 0.4 sandstone gravel, damp A/E 0.5 В 0.8 0.8 Bore discontinued at 0.8m - auger refusal on concrete boulder 1 -2 .2 20 -3 3 6 -4 4 œ

 RIG: 3.5t excavator
 DRILLER: A & A Hire

 TYPE OF BORING:
 300mm diameter solid flight auger to 0.8m

 WATER OBSERVATIONS: No free groundwater observed whilst augering

 REMARKS: MC = Moisture Content;
 PL = Plastic Limit

CLIENT:

PROJECT:

Fraser Property Ivanhoe Pty Ltd

LOCATION: Ivanhoe Estate, Macquarie Park

Proposed Residential Development

LOGGED: LS

CASING: Uncased

Sand Penetrometer AS1289.6.3.3 Cone Penetrometer AS1289.6.3.2



Fraser Property Ivanhoe Pty Ltd

LOCATION: Ivanhoe Estate, Macquarie Park

Proposed Residential Development

CLIENT: PROJECT: SURFACE LEVEL: 63.9 AHD **EASTING:** 325482 NORTHING: 6260409 DIP/AZIMUTH: 90°/--

BORE No: 38 PROJECT No: 86043.01 DATE: 8-11-2017 SHEET 1 OF 1

Sampling & In Situ Testing Graphic Log Well Description Water Depth Sample R Construction of Depth Type Results & Comments (m) Strata Details FILLING - dark brown, sandy clay filling, slightly silty, with a trace of ironstone and riverstone gravel, MC<PL 0.0 A/E 0.1 0.4 0.4 SANDSTONE - medium to high strength, red-brown A/E 0.5 sandstone 0.9 63 A/E 1.0 1.0 Bore discontinued at 1.0m - target depth reached 62 -2 -2 6 -3 - 3 .0 -4 - 4

RIG: Scout 2

DRILLER: Ground Test

LOGGED: LS

CASING: Uncased

TYPE OF BORING: Solid flight auger (TC-bit) to 1.0m WATER OBSERVATIONS: No free groundwater observed whilst augering **REMARKS:**

SAN	APLIN	IG & IN SITU TESTIN	G LE	GEND				
A Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)	 		_	
B Bulk sample	Р	Piston sample	PL(/	A) Point load axial test Is(50) (MPa)				
BLK Block sample	U,	Tube sample (x mm dia.)	PL(I	D) Point load diametral test Is(50) (MPa)		1 EL	i Pal	
C Core drilling	Ŵ	Water sample	gg	Pocket penetrometer (kPa)		ALC: C		
D Disturbed sample	⊳	Water seep	S	Standard penetration test				
E Environmental sample	Ŧ	Water level	V	Shear vane (kPa)	🗖 Geotechnic	s I Env	ironment	Groundwater
· · ·								
SURFACE LEVEL:57.9 AHD **EASTING**: 325554 **NORTHING**: 6260381 **DIP/AZIMUTH**: 90°/-- BORE No: 39 PROJECT No: 86043.01 DATE: 9-11-2017 SHEET 1 OF 1

$\left[\right]$		Description					_	Dunamia Panatromator Taat			
뉟	Depth (m)	of	iraph Log	be	pth	nple	Results &	Vate	(blows per 150mm)		
		Strata	0	Ļ ∠		San	Comments	Ĺ	5 10 15 20		
$\left \right $	• 0.1	FILLING - poorly compacted, dark brown, sand filling,	$\mid \not > $	A/E	0.0						
$\left \right $		CLAYEY SAND - dense, yellow-brown medium to	()))	в							
		coarse sandy clay with some ironstone gravel, moist	[]]		0.4						
$\left \right $	0.5	SANDSTONE - extremely low to very low strength	[///	A/E/B	0.5						
}		orange-brown sandstone									
	· 0.8										
-12		Bore discontinued at 0.8m - auger refusal on low to medium strength sandstone									
$\left \right $	-1								-1		
$\left \right $											
$\left \right $											
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RIG: 3.5t excavator

CLIENT:

PROJECT:

Fraser Property Ivanhoe Pty Ltd

LOCATION: Ivanhoe Estate, Macquarie Park

Proposed Residential Development

DRILLER: A & A Hire

LOGGED: LS

CASING: Uncased

TYPE OF BORING: 300mm diameter solid flight auger to 0.8m WATER OBSERVATIONS: No free groundwater observed whilst augering REMARKS:

 SAMPLING & IN SITU TESTING LEGEND

 A
 Auger sample
 G
 Gas sample
 PID
 Photo ionisation detector (ppm)

 B
 Buik sample
 P
 Piston sample
 PIL(A) Point load axial test Is(50) (MPa)

 BLK Block sample
 U
 Tube sample (x mm dia.)
 PL(D) Point load diametral test Is(50) (MPa)

 C
 Core drilling
 W
 Water sample
 P

 D
 Disturbed sample
 P
 Water seep
 S
 Standard penetration test

 E
 Environmental sample
 ¥
 Water level
 V
 Shear vane (kPa)



Douglas Partners Geotechnics | Environment | Groundwater

Fraser Property Ivanhoe Pty Ltd

LOCATION: Ivanhoe Estate, Macquarie Park

Proposed Residential Development

CLIENT: PROJECT: **SURFACE LEVEL**:53.6 AHD **EASTING**: 325600 **NORTHING**: 6260407 **DIP/AZIMUTH**: 90°/-- BORE No: 40 PROJECT No: 86043.01 DATE: 9-11-2017 SHEET 1 OF 1

	_		Description .e Sampling & In Situ Testing							
씸	Dep (m	oth I)	of Strata	Graph Log	Type	Depth	ample	Results & Comments	Wate	bynamic Penetrometer Test (blows per 150mm)
\vdash	().05 ⁻	→ BRICK PAVERS			0.05	S			
tt	().15 ⁻	FILLING - brown sand filling, moist	\bigotimes		0.1				
	_		FILLING - apparently compacted, brown clay filling with	\bigotimes						
	-		some silt and ironstone gravel, MC>PL, moist	\bigotimes		0.4				
$\left \right $	-			\bigotimes	A/E	0.5				
-23	-			\bigotimes						
ŀ	-			\bigotimes	>					
	-			\bigotimes						[
	-1			\bigotimes	>					-1
$\left \right $	-			\bigotimes						
$\left \right $	-	1.2	CLAY - apparently stiff, brown clay with some coarse	\not	A/E/B	1.2				
ŀ	-		sand and ironstone gravel, MC>PL	\langle / \rangle		1.3				
t I	_	15			В	15				
- 23	-	1.5	SANDSTONE - extremely low to very low strength, light			1.6				
-	-		grey motiled orange-brown sandstone		A	1.7				
$\left \right $	-									
$\left \right $	-									
tt	-2		2.0m: turning light grey mottled red							²
	_									
$\left \right $	-				<u> </u>	2.3				
╞╞	-				A	2.4				
ŀ	-									
- 23	_	2.6	Bore discontinued at 2.6m							
	-		- auger refusal on low to medium strength sandstone							
$\left \right $	-									
$\left \right $	-3									-3
ŀ	-									
	_									
$\left \right $	-									
$\left \right $	-									
- 63	-									
tt										
	_									
$\left \right $	-4									-4
$\left \right $	-									
	-									
	_									
$\left \right $	-									
- 4	-									
$\left \right $	-									
t t	-									
RI4	C · 2	5+ /			1.00			CASING	2- 1	Incased
TY	'PE (OF I	BORING: 300mm diameter solid flight auger to 2.6m		200		. 10	CASING	.	100000
w	ATE	२ ०	BSERVATIONS: No free groundwater observed whilst a	ugering	g					
RE	EMA	RKS	5: MC = Moisture Content; PL = Plastic Limit							Sand Penetrometer AS1289.6.3.3 Cone Penetrometer AS1289.6.3.2



SURFACE LEVEL:53.7 AHD **EASTING**: 325603 **NORTHING**: 6260366 **DIP/AZIMUTH**: 90°/-- BORE No: 41 PROJECT No: 86043.01 DATE: 30-10-2017 SHEET 1 OF 1

		Description	.c.		Sam	oling &	In Situ Testing		Well
님	Depth (m)	of	sraph Log	,pe	pth	nple	Results &	Wate	Construction
		Strata		ŕ		Sar	Comments	-	Details
-	- 0.2	Clayey, medium to fine grained with some ironstone	\bigotimes	A/E	0.1				-
-	-	CLAY - apparently stiff, yellow-brown clay with some sand and a trace of ironstone gravel, damp, possibly disturbed		A/E	0.4				-
-	-				0.5				-
- 36	- 0.7	SANDSTONE - low to medium strength, light grey and red-brown sandstone with extremely low to very low and medium strength bands			0.9				-
-	- 1		· · · · · · · · · · · · · · · · · · ·	A S	1.0 1.1		10/100mm refusal bouncing		-1
-	-								-
	-		· · · · · · · · · · · · · · · · · · ·						-
52	-								-
-	- -2		, , , , , , , , , , , , , , , , , , ,	A	2.0				- 2
	- 2.1 -	Bore discontinued at 2.1m - target depth reached			-2.1-				-
-	-								-
51	-								-
	- - - 3								- 3
	-								
-	-								-
-	-								
202	-								-
-	- 4								-4
-	-								-
ŀ	-								
49	-								
-	-								

RIG: Scout 2

CLIENT:

PROJECT:

Fraser Property Ivanhoe Pty Ltd

LOCATION: Ivanhoe Estate, Macquarie Park

Proposed Residential Development

DRILLER: Ground Test

LOGGED: LS

CASING: Uncased

TYPE OF BORING: Solid flight auger (TC-bit) to 2.1m; **WATER OBSERVATIONS:** No free groundwater observed whilst augering **REMARKS:**

SAM	PLIN	G & IN SITU TESTIN	G LE(GEND	1					
A Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)	I			_		
B Bulk sample	Р	Piston sample	PL(A) Point load axial test Is(50) (MPa)						
BLK Block sample	U,	Tube sample (x mm dia.)	PL(C) Point load diametral test Is(50) (MPa)				5 23		THERE
C Core drilling	Ŵ	Water sample	pp	Pocket penetrometer (kPa)						
D Disturbed sample	⊳	Water seep	S	Standard penetration test						.
E Environmental sample	Ŧ	Water level	V	Shear vane (kPa)		📕 Geotechnic	s I Ei	nvironment	1	Groundwate
					•					

SURFACE LEVEL:52.0 AHD **EASTING**: 325633 **NORTHING**: 6260386 **DIP/AZIMUTH**: 90°/-- BORE No: 42 PROJECT No: 86043.01 DATE: 9-11-2017 SHEET 1 OF 1

		Description	Jic		Sampling & In Situ Testing				Dvnamic Penetrometer Test				
Ъ	Depth (m)	of Strata	Graph Log	Type	Depth	Sample	Results & Comments	Wate	bynamic Penetrometer Test (blows per 150mm) 5 10 15 20				
		FILLING - apparently compacted, light brown, clayey sand filling, medium to fine grained with some ironstone and roadbase gravel, damp - root affected to 0.05m		A/E A/E	0.05 0.1 0.4 0.5 0.6								
51	-1			A/E	0.9				-1				
	1.5	CLAY - apparently stiff, light brown clay with some silt and fine grained sand, possibly extremely weathered sandstone SANDSTONE - low strength, red-brown and light grey		E A	1.4 1.5 1.6								
	·2 2.2	sandstone		A	2.0 2.1				-2				
	-3	Bore discontinued at 2.2m - auger refusal on low to medium strength sandstone							-3				

RIG: 3.5t excavator

CLIENT:

PROJECT:

Fraser Property Ivanhoe Pty Ltd

LOCATION: Ivanhoe Estate, Macquarie Park

Proposed Residential Development

DRILLER: A & A Hire

LOGGED: LS

CASING: Uncased

TYPE OF BORING: 300mm diameter solid flight auger to 2.1m WATER OBSERVATIONS: No free groundwater observed whilst augering REMARKS:

 SAMPLING & IN SITU TESTING LEGEND

 A
 Auger sample
 G
 Gas sample
 PID
 Photo ionisation detector (ppm)

 B
 Buik sample
 P
 Piston sample
 PL(A) Point load axial test Is(50) (MPa)

 BLK Block sample
 U
 Tube sample (x mm dia.)
 PL(D) Photo ionisation detector (ppm)

 C
 Core drilling
 W
 Water sample
 p
 Pocket penetrometer (kPa)

 D
 Disturbed sample
 P
 Water seep
 S
 Standard penetron test

 E
 Environmental sample
 ¥
 Water level
 V
 Shear vane (kPa)



SURFACE LEVEL:52.2 AHD EASTING: 325604 NORTHING: 6260317 DIP/AZIMUTH: 90°/-- BORE No: 43 PROJECT No: 86043.01 DATE: 14-11-2017 SHEET 1 OF 1

Sampling & In Situ Testing Description Graphic Log Dynamic Penetrometer Test (blows per 150mm) Water Depth R Sample of Depth Type (m) Results & Comments Strata 20 0.0 FILLING - brown gravelly medium to coarse sand filling √E/B 0.1 with some roadbase gravel and brick fragments, angular to subangular with some silt, trace of rootlets, damp В 0.4 0.4 SANDSTONE - extremely low to very low strength, 0.5 orange-brown sandstone А 0.6 0.7 Bore discontinued at 0.7m - auger refusal on low to medium strength sandstone 1 -2 - 2 20 -3 3 6 -4 4 ထ္

RIG: 3.5t excavator

CLIENT:

PROJECT:

Fraser Property Ivanhoe Pty Ltd

LOCATION: Ivanhoe Estate, Macquarie Park

Proposed Residential Development

DRILLER: A & A Hire

LOGGED: LS

CASING: Uncased

TYPE OF BORING: 300mm diameter solid flight auger to 0.7m WATER OBSERVATIONS: No free groundwater observed whilst augering 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
 Tube sample (x mm dia.)
 PL(D) Point load diametral test Is(50) (MPa)

 D Disturbed sample
 V
 Water sample
 P
 Pocket penetrometer (kPa)

 D Disturbed sample
 V
 Water level
 V
 Shear vane (kPa)



SURFACE LEVEL: 47.0 AHD **EASTING**: 325702 **NORTHING**: 6260345 **DIP/AZIMUTH**: 90°/-- BORE No: 44 PROJECT No: 86043.01 DATE: 10-11-2017 SHEET 1 OF 1

		Description	Jic	Sampling & In Situ Testing			ο Dynamic Penetrometer Test			
R	Depth (m)	of Strata	Graph Log	Type	Depth	Sample	Results & Comments	Wate	blows 5 1	per 150mm)
	- - - 0.5	FILLING - apparently compacted, brown clayey sand filling with a trace of sandstone gravel, damp SANDSTONE - extremely low to very low strength, orange-brown mottled grey sandstone		A/E A/E	0.0 0.1 0.4 0.5					
	- - - 1 - 1 15	0.8m: becoming low to medium strength		A/E SA	0.9 1.0 1.05 _1.1_		7/50mm refusal bouncing		- 1	
	1.15 1.15	Bore discontinued at 1.15m - auger refusal on medium strength sandstone			_1.1				-2	
									-	

 RIG:
 Bobcat
 DRILLER:
 A & A Hire

 TYPE OF BORING:
 125mm diameter solid flight auger to 1.15m

 WATER OBSERVATIONS:
 No free groundwater observed whilst augering

 REMARKS:

CLIENT:

PROJECT:

Fraser Property Ivanhoe Pty Ltd

LOCATION: Ivanhoe Estate, Macquarie Park

Proposed Residential Development

LOGGED: LS

CASING: Uncased

SAM	PLIN	G & IN SITU TESTIN	3 LE	GEND			
A Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)			
B Bulk sample	Р	Piston sample	PL(A	A) Point load axial test Is(50) (MPa)	×.	Develop Devtropy	-
BLK Block sample	U,	Tube sample (x mm dia.)	PL(D) Point load diametral test Is(50) (MPa)		Loudas Parner	5
C Core drilling	Ŵ	Water sample	` qq	Pocket penetrometer (kPa)		Dougius i ur inci	-
D Disturbed sample	⊳	Water seep	s	Standard penetration test	/		
E Environmental sample	Ŧ	Water level	V	Shear vane (kPa)		Geotechnics Environment Groundwate	эr

SURFACE LEVEL: 49.6 AHD **EASTING**: 325634 **NORTHING**: 6260281 **DIP/AZIMUTH**: 90°/-- BORE No: 45 PROJECT No: 86043.01 DATE: 14-11-2017 SHEET 1 OF 1

\square		Description .e Sampling & In Situ Testing						T Dynamic Ponotromotor Tost			
님	Depth (m)	of	iraph Log	be	pth	nple	Results &	Vate	Dynamic Pe (blows)	netrometer per 150mm	י lest ו)
		Strata	0	Ţ	å	San	Comments	_	5 10	15	20
		FILLING - apparently compacted, brown sand filling, medium to fine grained with some clay and traces of roadbase gravel, damp 0.2m: plastic sheet 0.2m: concrete boulder		_A/E	0.05 0.1						
49	· 0.5	SANDSTONE - very low to low strength, light grey sandstone	KXX 	A	0.5 0.6						
	0.65	Bore discontinued at 0.65m - auger refusal on low to medium strength sandstone							-1		
46	- 3								-3		
45	- - 4 - 4 - - - - - -								-4		

RIG: 3.5t excavator

CLIENT:

PROJECT:

Fraser Property Ivanhoe Pty Ltd

LOCATION: Ivanhoe Estate, Macquarie Park

Proposed Residential Development

DRILLER: A & A Hire

LOGGED: LS

CASING: Uncased

TYPE OF BORING: 300mm diameter solid flight auger to 0.65m WATER OBSERVATIONS: No free groundwater observed whilst augering REMARKS:

 SAMPLING & IN SITU TESTING LEGEND

 A
 Auger sample
 G
 Gas sample
 PID
 Photo ionisation detector (ppm)

 B
 Buik sample
 P
 Piston sample
 PL(A) Point load axial test Is(50) (MPa)

 BLK Block sample
 U
 Tube sample (x mm dia.)
 PL(D) Point load diametral test Is(50) (MPa)

 D
 Disturbed sample
 V
 Water sample expense
 p

 D
 Disturbed sample
 V
 Water seep
 S
 Standard penetration test

 E
 Environmental sample
 ¥
 Water level
 V
 Shear vane (kPa)



SURFACE LEVEL: 47.3 AHD **EASTING**: 325695 **NORTHING**: 6260305 **DIP/AZIMUTH**: 90°/-- BORE No: 46 PROJECT No: 86043.01 DATE: 14-11-2017 SHEET 1 OF 1

\square		Description	bic g		Sam	oling 8	In Situ Testing					
Ъ	Deptl (m)	of	braph Log	/pe	epth	nple	Results &	Wate	(blows per 150mm)			
_		Strata FILLING - brown sand filling, fine grained sand with		⊢Ê 	ص 0.05	Sar	Comments		5 10	15 20		
	-				0.1							
-4-	-	0.3m: sea shell										
	- 0	5 FILLING - light brown, fine to medium sandy clay filling		A/E/B	0.5				-			
	-	with some silt, with a trace of roadbase gravel, MC <pl< td=""><td></td><td>В</td><td>0.6</td><td></td><td></td><td></td><td>-</td><td>Ľ</td></pl<>		В	0.6				-	Ľ		
	- 0	8 Bore discontinued at 0.8m		×	-0.8-					>>		
	-1	- auger refusal on low to medium strength sandstone (possible boulder)							-1			
	-											
-46	-											
	-											
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 RIG: 3.5t excavator
 DRILLER: A & A Hire

 TYPE OF BORING:
 300mm diameter solid flight auger to 0.8m

 WATER OBSERVATIONS: No free groundwater observed whilst augering

 REMARKS:
 DCP 46A offset 1m from Bore 46

CLIENT:

PROJECT:

Fraser Property Ivanhoe Pty Ltd

LOCATION: Ivanhoe Estate, Macquarie Park

Proposed Residential Development

LOGGED: LS

CASING: Uncased



Fraser Property Ivanhoe Pty Ltd

LOCATION: Ivanhoe Estate, Macquarie Park

Proposed Residential Development

CLIENT: PROJECT: SURFACE LEVEL: 44.1 AHD **EASTING:** 325755 **NORTHING:** 6260398 DIP/AZIMUTH: 90°/--

BORE No: 47 PROJECT No: 86043.01 DATE: 14-11-2017 SHEET 1 OF 1

		Description							b Dunamia Papatramatar Taat				
R	Depth (m)	of Strata	Graph Log	Type	Depth	Sample	Results & Comments	Wate	Dynamic Penetrometer Test (blows per 150mm) 5 10 15 20				
	-	FILLING - dark brown clay filling with some medium to fine sand and a trace of ironstone and roadbase gravel, MC <pl< td=""><td></td><td></td><td>0.05 0.1 0.4</td><td></td><td></td><td></td><td></td></pl<>			0.05 0.1 0.4								
	- 0.6 - - - - - - 2-	CLAY - light brown clay filling with some fine sand, silt and a trace of ironstone gravel, MC <pl (possible="" filling<br="">to 1.3m)</pl>		B	0.5								
-	-			A/E B	1.4 1.5 1.8								
42	- 1.9 -2 -	CLAY - red-brown mottled light brown clay, with some coarse to fine sand and slt, MC <pl, extremely<br="" possibly="">weathered sandstone</pl,>		A	2.0 2.1				-2				
	3			A	2.4 2.5 3.0				-3				
	-	Bore discontinued at 3.1m - maximum depth of auger			0.1								
- 40	- 4 2- - - -								-4				
-	-												
	IG: 3.5t	excavator DRILLER: A & A Hire BORING: 300mm diameter solid flight auger to 3.1m		LOG	GED	: LS	CASING	G: U	Incased				
R	EMARK	 SERVATIONS: No free groundwater observed whilst a S: MC = Moisture Content; PL = Plastic Limit 	ugering	g					Sand Penetrometer AS1289.6.3.3 Cone Penetrometer AS1289.6.3.2				
A B C D E	Auger s Bulk sa LK Block s Core dr Disturb Environ	ample G Gas sample FID Photo ionisation detecc mple P Piston sample PL(A) Point load axial test Is(ample U Tube sample (x mm dia.) PL(D) Point load axial test Is(illing W Water sample PL(D) Point load axial test Is(ad sample V Water sample PL(D) Point load axial test Is(ad sample V Water sample PD mental sample V Water level V	tor (ppm) (50) (MPa st Is(50) (i kPa) est) MPa)		Ф	Doug Geotechnics	a	s Partners				



HA01 Project Number: 52047 Client: NSW Land & Housing Corporation Project Name: Ivanhoe Estate PSI Site Address: Herring Rd, Macquarie Park, NSW

Date: 6/09/2016 Logged By: A.Finney/L.Blecher Contractor: Total Hole Depth (mbgs): 0.6 Bore Diameter (mm): 50

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Hand Auger				Fill	Fill - Clayey Silty SAND - Dark brown, heterogeneous, damp, poorly graded, fine to medium grained, angular, sub-rounded with inclusions of sandstone gravels concrete and brick fragments	HA01 0.0-0.1	No Odours, Staining or Asbestos
	_	0.30		Fill	Fill - Silty SAND - Light brown, heterogeneous, damp, fine to medium grained angular, homogeneous loose		
	_					HA01 0.3-0.4	No Odours, Staining or Asbestos
	0.5						
		0.60			Borehole HA01 terminated at 0.6m		
	_						
	_						
	_						
	1.0					The Construction of the	



Project Number: 52047 Client: NSW Land & Housing Corporation Project Name: Ivanhoe Estate PSI Site Address: Herring Rd, Macquarie Park, NSW

Date: 6/09/2016 Logged By: A.Finney/L.Blecher Contractor: Total Hole Depth (mbgs): 0.3 Bore Diameter (mm): 50

		1	T T				
Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
nd Auger				Fill	Fill - Silty SAND - dark brown, heterogeneous, damp, poorly graded, very loose	HA02 0.0-0.05	No Odours, Staining or Asbestos
Ha		0.05		Fill	Fill - Gravelly SAND - brown/grey, homogeneous, damp, fine to medium grained, very loose sandstone gravel		
	-						4
	-	-					
						HA02 0.2-0.3	No Odours, Staining or Asbestos
$\left \right $	+	0.30			Borehole HA02 terminated at 0.3m		
	-	-					
	0.5						
9							
DT 30/9/1							
TRALIA.GI	-						
STD AUS							
PJ GINT	-						
EHOLE.G							
BSG BOR	-	1					
EHOLE J							
BOR	1.0					14.1	



Project Number: 52047 Client: NSW Land & Housing Corporation Project Name: Ivanhoe Estate PSI Site Address: Herring Rd, Macquarie Park, NSW

Date: 6/09/2016 Logged By: A.Finney/L.Blecher Contractor: Total Hole Depth (mbgs): 0.15 Bore Diameter (mm): 50

						8 BM 1178	
Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Hand Auger				Fill	Fill - Gravelly Silty SAND - dark brown, heterogeneous, damp, poorly graded, angular, loose consistency	HA03 0.0-0.1	Refusal on sandstone No Odours, Staining or Asbestos
		0.15			Borehole HA03 terminated at 0.15m	1	
	_						
	-						
	-						
	0.5						
	-						
5TRALIA.GDT 30/9/16	_	e					
E.GPJ GINT STD AUS	-						
LE JBSG BOREHOL	_						
BOREHO	1.0						



Project Number: 52047 Client: NSW Land & Housing Corporation Project Name: Ivanhoe Estate PSI Site Address: Herring Rd, Macquarie Park, NSW

Date: 6/09/2016 Logged By: A.Finney/L.Blecher Contractor: Total Hole Depth (mbgs): 0.3 Bore Diameter (mm): 50

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Hand Auger				Fill	Fill - Gravelly Silty SAND - Dark brown, heterogeneous, damp, poorly graded, fine to medium grained, angular- sub-angular	HA04 0.0-0.1	No Odours, Staining or Asbestos
	_	0.10		Fill	Fill - Gravelly SAND - Orangish brown, homogeneous, damp, poorly graded, fine to medium grained, angular to sub-rounded		Refusal on sandstone
	-					HA04 0.2-0.3	
		0.30			Borehole HA04 terminated at 0.3m		
							No Odours, Staining or Asbestos
	-	•					
	0 <u>.5</u>						
	_						
9/16							
JSTRALIA.GDT 30/9	-						
E.GPJ GINT STD AL	-						
E JBSG BOREHOLI	-						
BOREHOLE	1.0					and the	



Project Number: 52047 Client: NSW Land & Housing Corporation Project Name: Ivanhoe Estate PSI Site Address: Herring Rd, Macquarie Park, NSW

Date: 6/09/2016 Logged By: A.Finney/L.Blecher Contractor: Total Hole Depth (mbgs): 0.4 Bore Diameter (mm): 50

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Hand Auger				Fill	Fill - Silty Gravelly SAND - Dark brown, heterogeneous , damp, poorly graded, fine to medium grained, angular to sub-rounded, very loose, inclusions of roots	HA05 0.0-0.1	No Odours, Staining or Asbestos
	-	0.10		Fill	Fill - Gravelly SAND - Orangish brown, dry, poorly graded, fine to medium grained, angular to sub-rounded, loose, non plastic, firm weathered SST sandstone		No Odours, Staining or Asbestos
						HA05 0.3-0.4	
		0.40			Borehole HA05 terminated at 0.4m		
	0.5						
D AUSTRALIA.GDT 30/9/16	_						
DLE.GPJ GINT STI	-						
DLE JBSG BOREHC	-					r.	
BOREHC	1.0						



Project Number: 52047 Client: NSW Land & Housing Corporation Project Name: Ivanhoe Estate PSI Site Address: Herring Rd, Macquarie Park, NSW

Date: 6/09/2016 Logged By: A.Finney/L.Blecher Contractor: Total Hole Depth (mbgs): 0.4 Bore Diameter (mm): 50

		_					
Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Hand Auger				Fill	Fill - Gravelly Silty SAND - Dark brown, heterogeneous, damp, poorly graded, fine to medium grained, angular to sub-rounded, high organic content and rare glass fragments.	HA06 0.0-0.1	No Odours, Staining or Asbestos
	_	0.10		Fill	Fill - Gravelly SAND - Greyish brown, homogeneous, damp, gravelly, fine to medium grained, angular to sub-rounded, frequent sandstone gravels		
	_						
						HA06 0.3-0.4	No Odours, Staining or Asbestos
		0.40			Borehole HA06 terminated at 0.4m		
	0.5						
							s /
	-						
/9/16							
GDT 30	_						
TRALIA							
TD AUS							
GINT S	-						
DLE.GPJ							
JBSG BOREHC	-						
BOREHOLE	1.0						



HA07 Project Number: 52047 Client: NSW Land & Housing Corporation Project Name: Ivanhoe Estate PSI Site Address: Herring Rd, Macquarie Park, NSW

Date: 6/09/2016 Logged By: A.Finney/L.Blecher Contractor: Total Hole Depth (mbgs): 0.4 Bore Diameter (mm): 50

0 41

Eastings (GDA 94): Northings (GDA 94): Zone/Area: Reference Level: Ground Surface Elevation (m):

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Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Hand Auger				Fill	Fill - Clayey Gravelly SAND - Orange brown, homogeneous, damp, poorly graded fine to medium grained, angular to sub-rounded, loose to medium dense with frequent sandstone	HA07 0.0-0.1	No Odours, Staining or Asbestos
	_						
		0.40			Borehole HA07 terminated at 0.4m		
	0.5						
2	-						÷
	-						
	-						
	-						
	1.0						



HA08 Project Number: 52047 Client: NSW Land & Housing Corporation Project Name: Ivanhoe Estate PSI

Site Address: Herring Rd, Macquarie Park, NSW

Date:	6/09/2	2016
Logge	d By:	A.Finney/L.Blecher
Contra	actor:	
Total	Hole D	epth (mbgs): 0.2
Bore I	Diamet	er (mm): 50

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Hand Auger	_			Fill	Fill - Clayey SAND - Orangish brown, homogeneous, dry, non plastic, firm to stiff, weathered bedrock	HA08 0.0-0.1	Refusal on sandstone bedrock No Odours, Staining or Asbestos
		0.20			Borehole HA08 terminated at 0.2m		
	-						
	_						
	0.5						
/9/16	-						
D AUSTRALIA.GDT 30	-						
REHOLE.GPJ GINT ST	-	-					
BOREHOLE JBSG BOF	1.0						



Project Number: 52047 Client: NSW Land & Housing Corporation Project Name: Ivanhoe Estate PSI Site Address: Herring Rd, Macquarie Park, NSW

Date: 6/09/2016 Logged By: A.Finney/L.Blecher Contractor: Total Hole Depth (mbgs): 0.2 Bore Diameter (mm): 50 Eastings (GDA 94): Northings (GDA 94): Zone/Area: Reference Level: Ground Surface Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Hand Auger				Fill	Fill - Gravelly Clayey SAND - Orangish brown, homogeneous, dry, fine to medium grained, angular to sub-rounded, non plastic, firm to stiff	HA09 0.0-0.1	No Odours, Staining or Asbestos
							-
		0.20	×××		Borehole HA09 terminated at 0.2m		
	_						
	_						
	0 <u>.5</u>				5		
	-						
	_						
	-						
	-						
						8	
	1.0						

BOREHOLE JBSG BOREHOLE.GPJ GINT STD AUSTRALIA.GDT 30/9/16



HA10 Project Number: 52047 Client: NSW Land & Housing Corporation Project Name: Ivanhoe Estate PSI Site Address: Herring Rd, Macquarie Park, NSW

Date: 6/09/2016 Logged By: A.Finney/L.Blecher Contractor: Total Hole Depth (mbgs): 0.4 Bore Diameter (mm): 50

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Hand Auger				Fill	Fill - Gravelly Clayey SAND - Dark brown, poorly graded, fine to medium grained, angular to sub-rounded	HA10 0.0-0.1	No Odours, Staining or Asbestos
	-						
	-						
	_						
		0.40			Borehole HA10 terminated at 0.4m		
	0 <u>.5</u>						
	_						
	-						
	-						
	-						
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	10						



HA11 Project Number: 52047 Client: NSW Land & Housing Corporation Project Name: Ivanhoe Estate PSI Site Address: Herring Rd, Macquarie Park, NS¹

Site Address: Herring Rd, Macquarie Park, NSW Date: 6/09/2016 Eastings (GDA 94): Logged By: A.Finney/L.Blecher Northings (GDA 94): Contractor: Zone/Area: Reference Level: Ground Surface Total Hole Depth (mbgs): 0.4 Bore Diameter (mm): 50 Elevation (m): Contact (mbgs Depth (mbgs) Samples Graphic Log Lithological Class Lithological Description Tests Additional Observations Method Remarks $\label{eq:Fill-Gravelly Clayey SAND - Dark brown, heterogeneous, damp, poorly graded, fine to medium grained, angular to sub-rounded, high organic content$ Hand Auger Fill HA11 0.0-0.1 No Odours, Staining or Asbestos Fill Fill - Gravelly SAND - Orangish brown, homogeneous, poorly graded, fine to medium grained, angular to sub-rounded 0.10 HA11 0.3-0.4 No Odours, Staining or Asbestos 0.40 Borehole HA11 terminated at 0.4m 0.5 BOREHOLE JBSG BOREHOLE.GPJ GINT STD AUSTRALIA.GDT 30/9/16 1.0



HA12 Project Number: 52047 Client: NSW Land & Housing Corporation Project Name: Ivanhoe Estate PSI

Site Address: Herring Rd, Macquarie Park, NSW

Date:	6/09/2	2016
Logge	d By:	A.Finney/L.Blecher
Contra	actor:	
Total I	Hole D	epth (mbgs): 0.4
Bore [Diamet	er (mm): 50

Marken d	Merinon	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
					Fill	Fill - Gravelly Silty SAND - Dark brown,heterogeneous, damp, poorly graded, fine to medium grained, angular to sub-rounded, high in organic and root content	HA12 0.0-0.1	No Odours, Staining or Asbestos
		_	0.10		Fill	Fill - Gravelly Clayey SAND - Orangish brown, homogeneous, poorly graded, fine to medium grain, angular to sub-rounded, low plasticity		
		_					HA12 0.3-0.4	No Odours, Staining or Asbestos
			0.40			Borehole HA12 terminated at 0.4m		
		0.5						
16		_						
USTRALIA.GDT 30/9/		_						
LE.GPJ GINT STD A		_						
OLE JBSG BOREHO		_						
BOREH		1.0						



Project Number: 52047 Client: NSW Land & Housing Corporation Project Name: Ivanhoe Estate PSI Site Address: Herring Rd, Macquarie Park, NSW

Date: 6/09/2016 Logged By: A.Finney/L.Blecher Contractor: Total Hole Depth (mbgs): 0.2 Bore Diameter (mm): 50

_							
Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Hand Auger				Fill	Fill - Gravelly SAND - Orangish brown, poorly graded, fine to medium grained, angular to sub-rounded, very loose to medium dense	HA13 0.0-0.1	No Odours, Staining or Asbestos
	-						Refusal on sandstone bedrock
		0.20			Borehole HA13 terminated at 0.2m		
	-						
	0 <u>.5</u>						
16	-						
STRALIA.GDT 30/9/	-	-					
GPJ GINT STD AU	-	-					
JBSG BOREHOLE.	-	-					
BOREHOLE	1.0						



Project Number: 52047 Client: NSW Land & Housing Corporation Project Name: Ivanhoe Estate PSI Site Address: Herring Rd, Macquarie Park, NSW

Date: 6/09/2016 Logged By: A.Finney/L.Blecher Contractor: Total Hole Depth (mbgs): 0.2 Bore Diameter (mm): 50

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Hand Auger	2			Fill	Fill - Gravelly Silty SAND - Dark brown,heterogeneous, damp, poorly graded, loose density, high organic content	HA14 0.0-0.1	No Odours, Staining or Asbestos
	-	0.10		Fill	Fill - Gravelly Silty SAND - Greyish brown, homogeneous, damp, poorly graded, fine to medium grained, angular to sub-rounded		
						HA14 0.2-0.3	No Odours, Staining or Asbestos
	-	0.30	XXX		Borehole HA14 terminated at 0.2m		
	-						
	0 <u>.5</u>	_				a	
	-	-					
ALIA.GDT 30/9/16	-	-					
GINT STD AUSTR	-	_					
BOREHOLE.GPJ	-	-					
BOREHOLE JBSG	1.0						



Project Number: 52047 Client: NSW Land & Housing Corporation Project Name: Ivanhoe Estate PSI Site Address: Herring Rd, Macquarie Park, NSW

Date: 6/09/2016 Logged By: A.Finney/L.Blecher Contractor: Total Hole Depth (mbgs): 0.4 Bore Diameter (mm): 50 Eastings (GDA 94): Northings (GDA 94): Zone/Area: Reference Level: Ground Surface Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Hand Auger				Fill	Fill - Gravelly Silty SAND - Dark brown, heterogeneous, damp, poorly graded, fine to medium grained, angular to sub-rounded	HA15 0.0-0.1	No Odours, Staining or Asbestos
		0.10		Fill	Fill - Gravelly Clayey SAND - Orangish brown, homogeneous, damp, fine to medium grained, low plasticity		
						HA15 0.2-0.3	No Odours, Staining or Asbestos
		0.40			Borehole HA15 terminated at 0.4m		
	0.5						
	-						
	-						
	-	-					
	-						
	1.0						

BOREHOLE JBSG BOREHOLE.GPJ GINT STD AUSTRALIA.GDT 30/9/16



Project Number: 52047 Client: NSW Land & Housing Corporation Project Name: Ivanhoe Estate PSI Site Address: Herring Rd, Macquarie Park, NSW

Date: 6/09/2016 Logged By: A.Finney/L.Blecher Contractor: Total Hole Depth (mbgs): 0.4 Bore Diameter (mm): 50

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Hand Auger				Fill	Fill - Gravelly Silty SAND - Dark brown,heterogeneous, damp, poorly graded, high organic content	HA16 0.0-0.1	No Odours, Staining or Asbestos
		0.10		Fill	Fill - Gravelly Silty SAND - Light brown,homogeneous, dry, poorly graded, fine to medium grained, angular to sub-rounded, roots present		
		_				HA16 0.2-0.3	No Odours, Staining or Asbestos
		0.40			Borehole HA16 terminated at 0.4m		
	0 <u>.</u>	5					
	5	-					
STRALIA.GDT 30/9/16		_					
E.GPJ GINT STD AU		_					
OLE JBSG BOREHOL		_					
BOREH	1.0)					



HA17 Project Number: 52047 Client: NSW Land & Housing Corporation Project Name: Ivanhoe Estate PSI Site Address: Herring Rd, Macquarie Park, NSW

Date: 5/09/2016 Logged By: A.Finney/L.Blecher Contractor: Total Hole Depth (mbgs): 0.4 Bore Diameter (mm): 50

- L.	_	_						
	Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
	Hand Auger				Fill	Fill - Gravelly Silty SAND - Brown, heterogeneous, damp, poorly graded, fine to medium grained, angular to sub-rounded	HA17 0.0-0.1	No Odours, Staining or Asbestos
			0.10		Fill	Fill - Gravelly Clayey SAND - Orangish brown, homogeneous, damp, poorly graded, very angular, loose density		
							HA17 0.2-0.3	No Odours, Staining or Asbestos
			0.40			Borehole HA17 terminated at 0.4m		
		0.5						
		-	1					
TRALIA.GDT 30/9/16		-						
E.GPJ GINT STD AUS		_					14	
E JBSG BOREHOLE		_						
BOREHOL		1.0						



HA18 Project Number: 52047 Client: NSW Land & Housing Corporation Project Name: Ivanhoe Estate PSI Site Address: Herring Rd, Macquarie Park, NSW

Date: 6/09/2016 Logged By: A.Finney/L.Blecher Contractor: Total Hole Depth (mbgs): 0.6 Bore Diameter (mm): 50

Eastings (GDA 94): Northings (GDA 94): Zone/Area: Reference Level: Ground Surface Elevation (m):

Image: second								
Part of the second se	Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
1 -	nd Auger				Fill	Fill - Silty Gravelly SAND - Dark brown, poorly graded, very loose, high organic matter	HA18 0.0-0.05	No Odours, Staining or Asbestos
0.10 FH F	Ha							
1 -		-	0.10		Fill	Fill - Clayey SAND - Dark yellowish brown, homogeneous, damp, low plasticity		
Image: Image:								
Borehole HA18 terminated at 0.8m No Odoura, Staining or Asbestos 0.55 0.60 0.60 Borehole HA18 terminated at 0.8m 0.61 0.60		-						
							HA18 0.2-0.3	No Odours, Staining or Asbestos
1 - <td></td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>		-						
0.5 0.60 Borehole HA18 terminated at 0.6m 0000 Up 100 0.60 Borehole HA18 terminated at 0.6m 1 - - - - -		-						
0.5 Borehole HA18 terminated at 0.6m 0.60 Borehole HA18 terminated at 0.6m 0.61 - 0.62 - 0.60 - 0.60 - 0.60 - 0.60 - 0.60 - 0.60 - 0.60 - 0.60 - 0.60 - 0.60 - 0.60 - 0.60 - 0.60 -								
9000 0.80 Borehole HA18 terminated at 0.6m 9000 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -		0.5						
9000 0.60 Borehole HA18 terminated at 0.6m 91000 - - - 1 - - - 1 - - - 1 - - - 1 - - - 1 - - - 1 - - - 1 - - - 1 - - - 1 - - - 1 - - -								
			0.60			Borehole HA18 terminated at 0.6m	-	
	9/16							
	.GDT 30/	_						
	JSTRALIA							
	NT STD AL	_						
	E.GPJ GIN							
	OREHOLE							
	E JBSG B							
	BOREHOL	1.0						

STD AUSTRALIA GDT BORFHOLF GP.I GINT IBSG . LICT



Project Number: 52047 Client: NSW Land & Housing Corporation Project Name: Ivanhoe Estate PSI Site Address: Herring Rd, Macquarie Park, NSW

Date: 5/09/2016 Logged By: A.Finney/L.Blecher Contractor: Total Hole Depth (mbgs): 0.4 Bore Diameter (mm): 50

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Hand Auger				Fill	Fill - Gravelly Clayey SAND - Brown, heterogeneous, damp, poorly graded, fine to medium grained, angular to sub-rounded, loose density	HA19 0.0-0.1	No Odours, Staining or Asbestos
	_	0.10		Fill	Fill - Gravelly SItty SAND - Orangish brown, heterogeneous, damp, poorly graded, fine to medium grained, angular to sub-rounded,		
	_					HA19 0.2-0.3	No Odours, Staining or Asbestos
	_						
\vdash		0.40	<u> </u>		Borehole HA19 terminated at 0.4m	-	
	0 <u>.5</u>						
	-						
IRALIA.GUI 30/9/16	-						
LIGPU GINI SID AUS	_						
E JBSG BOREHOLE	_						
BOREHOL	1.0						



Project Number: 52047 Client: NSW Land & Housing Corporation Project Name: Ivanhoe Estate PSI Site Address: Herring Rd, Macquarie Park, NSW

Date: 5/09/2016 Logged By: A.Finney/L.Blecher Contractor: Total Hole Depth (mbgs): 0.15 Bore Diameter (mm): 50

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Hand Auger	_	-		Fill	Fill - Gravelly Clayey SAND - Dark brown,heterogeneous, damp, poorly graded, fine to medium grained, angular to sub-rounded, loose density	HA20 0.0-0.1	No Odours, Staining or Asbestos Refusal on sandstone
	_	0.15			Borehole HA20 terminated at 0.15m		
	-						
	0 <u>.5</u>	-					
T 30/9/16	-	-					
U GINT STD AUSTRALIA.GD	-	-					
HOLE JBSG BOREHOLE.GF	-						
BORE	1.0						



Project Number: 52047 Client: NSW Land & Housing Corporation Project Name: Ivanhoe Estate PSI Site Address: Herring Rd, Macquarie Park, NSW

Date: 5/09/2016 Logged By: A.Finney/L.Blecher Contractor: Total Hole Depth (mbgs): 0.5 Bore Diameter (mm): 50

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Hand Auger		_		Fill	Fill - Silty SAND - Brown, heterogeneous, damp, roots present	HA21 0.0-0.1	No Odours, Staining or Asbestos
		0.15		Fill	Fill - Clayey SAND - Brown, homogeneous, dense		
	-	-					
	-					HA21 0.2-0.5	No Odours, Staining or Asbestos
	-	-					
	0.5	0.50			Decele la 1804 (constructed et 0.5m)		
	-	-			Borehole HA21 terminated at 0.5m		
TRALIA.GDT 30/9/16	-	-	24				
E.GPJ GINT STD AUS	-						
E JBSG BOREHOLE	-						
BOREHOL	1.0						



Project Number: 52047 Client: NSW Land & Housing Corporation Project Name: Ivanhoe Estate PSI Site Address: Herring Rd, Macquarie Park, NSW

Date: 5/09/2016 Logged By: A.Finney/L.Blecher Contractor: Total Hole Depth (mbgs): 0.4 Bore Diameter (mm): 50

1								
	Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
	Hand Auger				Fill	Fill - Gravelly Clayey SAND - Brown, heterogeneous, damp, poorly graded, very angular to sub-rounded, loose density	HA22 0.0-0.1	No Odours, Staining or Asbestos
		_	0.10					
		-						Refusal on sandstone
						Borehole HA22 terminated at 0.4m		
		0 <u>.5</u>						
		-						
RALIA.GDT 30/9/16		-						
J GINT STD AUST		_						
SG BOREHOLE.GP		_						
BOREHOLE JBS		1 <u>.0</u>						



Project Number: 52047 Client: NSW Land & Housing Corporation Project Name: Ivanhoe Estate PSI Site Address: Herring Rd, Macquarie Park, NSW

Date: 5/09/2016 Logged By: A.Finney/L.Blecher Contractor: Total Hole Depth (mbgs): 0.4 Bore Diameter (mm): 50

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Hand Auger				Fill	Fill - Gravelly Silty SAND - Dark brown, heterogeneous, very angular to rounded, very loose density,	HA23 0.0-0.1	No Odours, Staining or Asbestos
	_	0.10		Fill	Fill - Gravelly Clayey SAND - Orangish brown, heterogeneous, poorly graded, fine to medium grained, angular to sub-rounded, brick fragments and roots present		
						HA23 0.2-0.3	No Odours, Staining or Asbestos
		0.40			Borehole HA23 terminated at 0.4m		
	0.5						
	_						
GDT 30/9/16	_						
VT STD AUSTRALIA.	_						
SOREHOLE.GPJ GI							
BOREHOLE JBSG E	1 <u>.0</u>						



HA24 Project Number: 52047 Client: NSW Land & Housing Corporation Project Name: Ivanhoe Estate PSI Site Address: Herring Rd, Macquarie Park, NSW

Date: 5/09/2016 Logged By: A.Finney/L.Blecher Contractor: Total Hole Depth (mbgs): 0.2 Bore Diameter (mm): 50

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
d Auger				Fill	Fill - Gravelly Silty SAND - Dark brown, heterogeneous, damp, organic matter present	HA24 0.0-0.05	No Odours, Staining or Asbestos
Han							
		0.15		Fill	Fill - Clayey SAND - Orangish brown, homogeneous, damp, vary angular to sub-rounded, loose density	HA24 0.1-0.2	No Odours, Staining or Asbestos
		0.20			Borehole HA24 terminated at 0.2m		5. 194
	-						
	-						
	0 <u>.5</u>						
	_						
9							
DT 30/9/1							
TRALIA.G							
STD AUS							
PJ GINT	-						
EHOLE.G							
BSG BOR	-						
HOLE JI							1
BOR	1.0						



Project Number: 52047 Client: NSW Land & Housing Corporation Project Name: Ivanhoe Estate PSI Site Address: Herring Rd, Macquarie Park, NSW

Date: 5/09/2016 Logged By: A.Finney/L.Blecher Contractor: Total Hole Depth (mbgs): 0.3 Bore Diameter (mm): 50

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	Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
	Hand Auger				Fill	Fill - Silty SAND - heterogeneous, damp, medium density, roots present	HA25 0.0-0.1	No Odours, Staining or Asbestos
		-	0.10		Fill	Fill - Clayey SAND - Brown, homogeneous, medium to coarse grain size, angular, dense		
		-					HA25 0.2-0.3	No Odours, Staining or Asbestos
			0.30			Borehole HA25 terminated at 0.3m		
		0.5						
		_						
LIA.GDT 30/9/16		-						
D AUSTRAI						Δ.		
E.GPJ GINT ST		-						
BSG BOREHOLI		-						9
BOREHOLE J		1.0						



HA26 Project Number: 52047 Client: NSW Land & Housing Corporation Project Name: Ivanhoe Estate PSI Site Address: Herring Rd, Macquarie Park, NSW

Date: 5/09/2016 Logged By: A.Finney/L.Blecher Contractor: Total Hole Depth (mbgs): 0.4 Bore Diameter (mm): 50

	_						
Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Hand Auger				Fill	Fill - Silty SAND - Dark brown, heterogeneous, damp, poorly graded, fine to coarse grained, angular to sub-rounded, brick fragments present	HA26 0.0-0.1	No Odours, Staining or Asbestos
	-	0.10		Fill	Fill - Clayey SAND - Orangish brown, homogeneous, damp, firm density, low plasticity, weathered sandstone		
	_					HA26 0.2-0.3	No Odours, Staining or Asbestos
	_						
		0.40			Borehole HA26 terminated at 0.4m		
	0.5						
GINT STD AUSTRALIA.GDT 30/9/16	-						
	-						
	-						
BOREHOLE.GPJ							
BOREHOLE JBS(1.0						



HA27 Project Number: 52047 Client: NSW Land & Housing Corporation Project Name: Ivanhoe Estate PSI Site Address: Herring Rd, Macquarie Park, NSW

Date: 5/09/2016 Logged By: A.Finney/L.Blecher Contractor: Total Hole Depth (mbgs): 0.5 Bore Diameter (mm): 50

_	_						
Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Hand Auger				Fill	Fill - Silty SAND - Dark brown, heterogenous, damp, poorly graded, fine to medium grained, very loose density	HA27 0.0-0.1	No Odours, Staining or Asbestos
	_	0.20		Fill	Fill - Clayey SAND - Brown, homogeneous, damp, poorly graded, fine to medium grained, angular to sub-rounded	HA27 0.2-0.3	No Odours, Staining or Asbestos
	_						
	- 0.5						
		0.50			Borehole HA27 terminated at 0.5m		
T 30/9/16					· · ·		
REHOLE.GPJ GINT STD AUSTRALIA.GD	-						
	-						
REHOLE JBSG BOF	-						
ы	1.0						


HA28

Project Number: 52047 Client: NSW Land & Housing Corporation Project Name: Ivanhoe Estate PSI Site Address: Herring Rd, Macquarie Park, NSW

Date: 5/09/2016 Logged By: A.Finney/L.Blecher Contractor: Total Hole Depth (mbgs): 0.5 Bore Diameter (mm): 50

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Hand Auger				Fill	Fill - Silty Clayey SAND - Brown, homogeneous, damp, poorly graded, organic matter present	HA28 0.0-0.1	No Odours, Staining or Asbestos
	_	0.10		Fill	Fill - Clayey SAND - Brown, heterogeneous, damp, soft to firm consistency, brick and sandstone fragments present		
	_					HA28 0.2-0.3	No Odours, Staining or Asbestos
	-						
	0.5	0.50	×××		Borehole HA28 terminated at 0.5m	-	
0.000	_						
	_						
	-						
	-	-					
	1.0						



HA29 Project Number: 52047 Client: NSW Land & Housing Corporation Project Name: Ivanhoe Estate PSI Site Address: Herring Rd, Macquarie Park, NSW

Date: 5/09/2016 Logged By: A.Finney/L.Blecher Contractor: Total Hole Depth (mbgs): 0.3 Bore Diameter (mm): 50

	Meriod	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
					Fill	Fill - Clayey SAND - Dark brown, heterogeneous, soft to firm consistency, traces of brick fragments	HA29 0.0-0.1	No Odours, Staining or Asbestos
		_						
		_						
			0.30			Borehole HA29 terminated at 0.3m		
		-						
		0.5						
		_						
16								
DT 30/9/1								
RALIA.GI								
TD AUST								
J GINT S		-						
HOLE.GP								
SG BORE		-						
HOLE JB:								
BOREH		1.0						



HA30 Project Number: 52047 Client: NSW Land & Housing Corporation Project Name: Ivanhoe Estate PSI Site Address: Herring Rd, Macquarie Park, NSW

Date: 5/09/2016 Logged By: A.Finney/L.Blecher Contractor: Total Hole Depth (mbgs): 0.2 Bore Diameter (mm): 50

			_				
Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Hand Auger	-	-		Fill	Fill - Gravelly Silty SAND - Dark brown, heterogeneous, damp, poorly graded, angular to sub-angular, loose density with inclusions of sandstone and organic matter present	HA30 0.0-0.1	No Odours, Staining or Asbestos Refusal on sandstone bedrock
		0.20			Borehole HA30 terminated at 0.2m		
	-						
	-	_					
	0 <u>.5</u>						
16	-						
AUSTRALIA.GDT 30/9/	-	_					
HOLE.GPJ GINT STD /		_					
DREHOLE JBSG BORE			~				
é	1.0						1



HA31 Project Number: 52047 Client: NSW Land & Housing Corporation Project Name: Ivanhoe Estate PSI Site Address: Herring Rd, Macquarie Park, NSW

Site Address: Herring Rd, Macquarie Park, NSW Date: 5/09/2016 Eastings (GDA 94): Logged By: A.Finney/L.Blecher Northings (GDA 94): Contractor: Zone/Area: Reference Level: Ground Surface Total Hole Depth (mbgs): 0.4 Bore Diameter (mm): 50 Elevation (m): Contact (mbgs) Depth (mbgs) Samples Graphic Log Lithological Class Tests Remarks Lithological Description Additional Observations Method Hand Auger No Odours, Staining or Asbestos Fill - Silty SAND - Dark brown, heterogenous, damp, poorly graded, fine to medium grained, very loose density Fill HA31 0.0-0.4 0.40 Borehole HA31 terminated at 0.4m 0.5 BOREHOLE JBSG BOREHOLE.GPJ GINT STD AUSTRALIA.GDT 30/9/16 1.0



HA32 Project Number: 52047 Client: NSW Land & Housing Corporation Project Name: Ivanhoe Estate PSI

Site Address: Herring Rd, Macquarie Park, NSW

Date: 5/09/2016 Logged By: A.Finney/L.Blecher Contractor: Total Hole Depth (mbgs): 0.6 Bore Diameter (mm): 50

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
nd Auger				Fill Fill	Fill - Clayey SAND - Dark brown, heterogenous, damp, poorly graded, high organic content Fill - Gravelly Clayey SAND - Dark brown, heterogenous, damp, poorly graded, low plasticity. soft consistency	HA32 0.0-0.05	No Odours, Staining or Asbestos
Han	_	0.05			plasticity, soit consistency		No Odours, Staining or Asbestos
	-	0.30		Fill	Fill - Gravelly Clayey SAND - Yellowish brown, homogeneous, damp, low plasticity, soft consistency		
						HA32 0.05-0.3	
	-	-					
						HA32 0.4-0.5	No Odours, Staining or Ashestos
	0.5						
							•
		0.60			Borehole HA32 terminated at 0.6m		
30/9/16							
LIA.GDT	-						
AUSTRA							
NT STD	2						
GPJ GI							
REHOLE							
BSG BO	-						
HOLE .							
BOR	1.0						

							Borelog		
	DLA En	vironmental Services Pacic Environment compeny				L	ocation BH1		
		Fracers Property Australia	Job Type:				Supplementary Investigation		
lo:		DL3953	Address:				Ivanhoe Estate, Macquarie Park NSW		
		24/05/2017	Logged By:				MJ		
or:	-	-	Method:				Hand auger		
	5	100mm diameter	Co-ordinates:				Not surveyed		
Depth (m) Graphic Log	USCS Classification	Material Description		Moisture	Density / Stiffness	Sampling	Comments		
0.1		TOPSOIL: sandy loam, pale brown, sandstone fragm siltstone / claystone fragments Reworked natural: siltstone / claystone, weathered sandstone fragments	, with			.2-0.5 BH1_0.1-0.2			
0.4		Borehole BH1 terminated at 0.5m depth on extrem compacted material	eły			BH1_0	*		
0.6									
0.9 1.0 i Flight Auge ow Flight Au crete Core in Tube	r ger	Consistency Plasticity VS - Very Soft HP - Highlyf S - Soft MP - Mediu F - Firm LP - Low Pla VS - Very Stiff VS - Very Stiff	Plastic m Plasticity sticity	Moistur D - Dry M - Moi W - We	re , st t		Sh Density VL - Very Loose L - Loose MD - Medium Density D - Dense	eet 1 of 1	
	0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.6 0.7 0.8 0.9 0.9 1.0 0.9 1.0 0.9 1.0 0.9 1.0 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0	DLA En Al	Frases Property Australia Interest Property Australia Interet	Image: Second	Image: Second Decision Dispination Dob Type: :::::::::::::::::::::::::::::::::::	Process Property Australia lob Type: 			

C					Borelog						
		D	LA Env A P	vironmental Services actic Environment company				L	ocation BH2		
Client	4 M			Frasers Property Australia	Job Type:		Supplementary Investigation Ivanhoe Estate. Macquarie Park NSW				
Date:	LINU.			24/05/2017	Logged By:				MJ		
Contr	actor:	1		-	Method:				Hand auger		
Hole S	ize			100mm diameter	Co-ordinates:	_			Not surveyed		
Method	Depth (m)	Graphic Log	USCS Classification	Material Description		Moisture	Density / Stiffness	Sampling	Comments		
HA	_			TOPSOIL: sandy loam, brown to pale brown, with r fine to coarse gravel	oadbase and 📃 🔨						
	0.1						-	1000			
	_										
	0.2	and the second						0.4A)			
	-							-0.1-0			
								2H8) t			
	03	None -						0.1-0.4			
	·							BH2_(
	0.4	and the second		Reworked natural; sandy clay, pale brown, fine to a	coarse			264			
	_			sandstone gravel and crushed sandstone							
	0.5							_			
								-0.6			
								12_0.5			
	0.6							BH	22		
	_			Borebole BH2 terminated at 0.6m depth on sandst	one interface						
	0.7										
	_										
	_										
	0.8										
	_										
	0.9										
	_										
	_										
	1.0										
Notes	:				1				Sheet 1		
Meth	od:			Consistency Plasticity	Diretia	Moistur	e		Density		
55 - S HS - F	ollow Flight	Auger ht Auge	er	vs - very soft HP - Highly S - Soft MP - Medi	mastic um Plasticity	D - Dry M - Moi	st		vL - very Loose L - Loose		
CC - C	oncrete Co	ore		F - Firm LP - Low Pl	asticity	W - We	t		MD - Medium Density		
PT - P RC - R	ock Coring	g		H - Hard					VD - Very Dense		
1				Friable - Fb							

fdr

C						Borelog									
		D	LA Env	vironmental Services facile Environment company					L	ocation	BH3				
Client:				Frasers Property Australia		Job Type:				Supplementa	ary Investigation				
Projec	t No:			DL3953		Address:				Ivanhoe Estate, N	Aacquarie Park NSV	V			
Date:				24/05/2017		Logged By:		MJ							
Contra Hole S	actor:			- 100mm diameter		Method:				Not supreved					
Tiole J	120	- 1	5			co-ordinates.				Nots	urveyeu				
Method	Depth (m)	Graphic Log	USCS Classificatio	Material Desc	ription		Moisture	Density / Stiffness	Sampling		Comments				
HA				TOPSOIL: sandy loam, brown to pale bro	own, with ro	adbase and									
	0.1			fine to coarse gravel Reworked natural: sandy clay, pale brow sandstone gravel and crushed sandston	wn, fine to co	barse			BH3_0.0-0.						
	0.2				~				BH3_0.1.0.8						
	0.6														
	0.9 			Borehole BH3 terminated at 0.8m dept compacted material	h on extreme	ely									
Notes Metho SS - So HS - Hi CC - CC PT - Pu RC - Ro	lotes: Aethod: S - Solid Flight Auger IS - Hollow Flight Auger IC - Concrete Core IT - Push Tube IC - Rock Coring		r	Consistency VS - Very Soft S - Soft F - Firm VS - Very Stiff H - Hard Friable - Fb	Plasticity HP - HighlyP MP - Mediun LP - Low Pla:	lastic m Plasticity sticity	Moistur D - Dry M - Moi W - We	e st t		Density VL - Very Loose L - Loose MD - Medium I D - Dense VD - Very Dense	Density	Sheet 1 of 1			

_	11				Borelog						
	DI	A Env	ironmental Services acie Environment company					L	ocation	BH4	
Client:			Frasers Property Australia		Job Type:				Suppleme	entary Investigation	
Project No:			DL3953		Address:				Ivanhoe Estat	e, Macquarie Park NS	W
Date: Contractor:	0				Method:					land auger	
Hole Size			100mm diameter		Co-ordinates:				N	ot surveyed	
Method Depth (m)	Graphic Log	USCS Classification	Material D	Description		Moisture	ensity / Stiffness	Sampling		Comments	
HA			TOPSOIL: sandy loam, brown to pale fine to coarse gravel	e brown, with roa	adbase and		0				
0.2			FILL: sand, yellow Reworked natural: sandy silty clay, f	fine to coarse gra	ined,			BH4_0.1-0.2			
0.3			brown to pale brown, with grey oran	nge siltstone / cla	aystone			BH4_0.2-0.4			
0.5			Reworked natural: sandy clay, pale l sandstone gravel and crushed sands	brown, fine to co	arse						
0.7			Borehole BH4 terminated at 0.6m d compacted material	epth on extreme	ły						Sheet 1 of 1
Notes: Method: SS - Solid Fligh HS - Hollow Fli CC - Concrete PT - Push Tube RC - Rock Cori	otes: Iethod: S - Solid Flight Auger S - Hollow Flight Auger C - Concrete Core T - Push Tube C - Rock Coring		Consistency VS - Very Soft S - Soft F - Firm VS - Very Stiff H - Hard Friable - Fb	Plasticity HP - HighlyPl MP - Mediun LP - Low Plas	astic n Plasticity tticity	Moistu D - Dn M - Mo W - We	re / st		Density VL - Very Loc L - Loose MD - Mediu D - Dense VD - Very De	n Density nse	Sheet 1 of 1

C	-						Borelog					
		D	LA Env	vironmental Services actic Environment company					Lo	ocation BH5	/1	
Client:				Frasers Property Australia		Job Type:				Supplementary Investig	gation	
Projec	t No:			DL3953		Address:				Ivanhoe Estate, Macquarie	Park NSW	
Date:	octor:			24/05/2017		Logged By: Method:				MJ		
Hole S	ize			100mm diameter		Co-ordinates:				Not surveyed		
Method	Depth (m)	Graphic Log	USCS Classification	Material Descrip	otion		Moisture	Density / Stiffness	Sampling	Com	ments	
на	0.1			TOPSOIL: sandy loam, brown to pale brow fine to coarse grave!	b. fine to co	adbase and			BH5/1_0.1.0.5			
	0.6			sandstone gravel and crushed sandstone								
	0.9			Borehole BH5/1 terminated at 0.8m depth compacted material	h on extrei	mely						
Notes Metho SS - Sc HS - H CC - Ci PT - Pi RC - Ri	: od: olid Flight A ollow Fligh oncrete Co ush Tube ock Coring	luger It Auge Pre	r	ConsistencyPlaVS - Very SoftHFS - SoftMIF - FirmLPVS - Very StiffH - HardFriable - Fb	asticity P - HighlyP P - Mediur P - Low Plas	lastic m Plasticity sticity	Moistur D - Dry M - Moi W - We	st t		Density VI Very Loose L - Loose MD - Medium Density D - Dense VD - Very Dense	Sheet 1 of 1	Ξ.

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(maintain)	(1997)					Borelog					
		DI	LA Env A P	ironmental Services actic Environment company				L	ocation BH5 / 2		
Client:				Frasers Property Australia	Job Type:				Supplementary Investigation		
Project	t No:			DL3953	Address:				Ivanhoe Estate, Macquarie Park N	ISW	
Date:				24/05/2017	Logged By:				MJ		
ontra	ictor: ize			- 100mm diameter	Method:				Hand auger		
.ore al.		T	ç	Loomin diemeter	[Co-ordinates:				Not surveyed		
Method	Depth (m)	Graphic Log	USCS Classificatio	Material Descriptio	n	Moisture	Density / Stiffness	Sampling	Comment	5	
HA	0.1			TOPSOIL: sandy loam, brown to pale brown, v fine to coarse gravel Reworked natural: sandy clay, pale brown, fir	with roadbase and		<u>a</u>				
	0.6			sandstone gravel and crushed sandstone				BH5/2_0.5-0.8			
	0.9			Borehole BH5/2 terminated at 0.8m depth or compacted material	n extremely						
Notes: Metho SS - Sol HS - Ho CC - Co PT - Pu RC - Ro	: Iid Flight A ollow Fligh oncrete Co ush Tube ock Coring	Auger ht Auge pre	r	ConsistencyPlastiVS - Very SoftHP - HS - SoftMP -F - FirmLP - LVS - Very StiffH - HardFriable - Fb	icity HighlyPlastic Medium Plasticity ow Plasticity	Moistur D - Dry M - Moi: W - We	e st t		Density VL - Very Loose L - Loose MD - Medium Density D - Dense VD - Very Dense	Sheet 1 of 1	

C		JL	$-\Box$		Borelog						
W		DLA	Environmental Services A Pacific Environment company					L	ocation	BH6	
Client:			Frasers Property Au	ıstralia	Job Type:				Supplem	entary Investigat	ion
Projec	t No:		DL3953		Address:				Ivanhoe Estat	te, Macquarie Par	'k NSW
Date:			24/05/2017		Logged By:					MJ	
Contra Hole S	ictor:		- 100mm diamet	or	Method:				I	Hand auger	
Hole 3	ize		c l	ei	Co-ordinates:				N	lot surveyed	
Method	Depth (m)	Graphic Log	USCS Llassification	Material Description		Moisture	Density / Stiffness	Sampling		Comme	ents
HA	0.1		TOPSOIL: sandy loam, bro	own to pale brown, with ro	adbase and			BH6_01-0.5			
	0.6		Borehole BH6 terminated services	at 0.5m depth on underg	round						
Notes Metho SS - So HS - Ho CC - Co PT - Pu RC - Ro	: Jid Flight A ollow Fligh oncrete Co ush Tube ock Coring	Auger ht Auger ore	Consistency VS - Very Soft S - Soft F - Firm VS - Very Stiff H - Hard Friable - Fb	Plasticity HP - HighlyP MP - Mediu LP - Low Pla	lastic m Plasticity sticity	Moistur D - Dry M - Moi W - We	re / st :t		Density VL - Very Lo L - Loose MD - Mediu D - Dense VD - Very De	iose im Density ense	Sheet 1 of 1

1 der

C					Borelog						
W		D	LA Env	vironmental Services actic En.Formert company	Location BH7						
Client:	:			Frasers Property Australia	Job Type:				Supplementary	Investigation	
Projec	t No:			DL3953	Address:				Ivanhoe Estate, Mac	quarie Park NSW	
Date:				24/05/2017	Logged By:				M. Hand a	1	
Contra Hole S	actor: Size			- 100mm diameter	Co-ordinates:				Hand a Not sup	veyed	
			Ę		se c. unid tes.				Horsun		
Method	Depth (m)	Graphic Log	USCS Classificatio	Material Description		Moisture	Density / Stiffness	Sampling		Comments	
НА	0.1			TOPSOIL: sandy loam, brown to pale brown, with r fine to coarse gravel Reworked natural: sandy clay, pale brown, fine to o sandstone gravel and crushed sandstone	oadbase and						
	0.3			sandstone gravel and crushed sandstone				BH7_0.2-0.7 (BH7_0.2-0.7A)			
	0.8			Borehole BH7 terminated at 0.7m depth on extren compacted material	nely						
Notes	s:										Sheet 1 of 1
Meth	od:			Consistency Plasticity		Moistu	re		Density		
SS - So	olid Flight	Auger		VS - Very Soft HP - Highly	Plastic	D - Dn	1		VL - Very Loose		
HS - H	ollow Fligh	nt Auge	er	S - Soft MP - Medi	um Plasticity	M - Mo	st		L - Loose		
cc - c	Concrete Co	ore		F - Firm LP - Low Pl	asticity	W - We	et		MD - Medium Der	nsity	
PT - P	ush Tube			VS - Very Stiff					D - Dense		
RC - R	lock Coring	1		H - Hard					VD - Very Dense		
				Friable - Fb							
						35				and the second second second second second second second second second second second second second second second	
						-					

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C		JL	14.5-						Borelog		
1			AP	vironmental Services acile Environment company	1			L	ocation	BH8	
Client	:			Frasers Property Australia	Job Type:				Supplement	ary Investigation	
Projec Date:	t No:			DL3953 24/05/2017	Address:				Ivanhoe Estate, I	Macquarie Park NS	w
Contra	actor:	į		-	Method:				Han	id auger	
Hole S	ize			100mm diameter	Co-ordinates:				Not	surveyed	
Method	Depth (m)	Graphic Log	USCS Classification	Material Description		Moisture	Density / Stiffness	Sampling		Comments	
HA	0.1			TOPSOIL: sandy loam, brown to pale brown, with fine to coarse gravel Reworked natural: siltstone / claystone, weather sandstone fragments	roadbase and			BH8_01-0.4 BH8_0.0-0.1			4
	0.4					_					
Notes	0.5			Borehole BH8 terminated at 0.4m depth on extre compacted material	mely				•		Sheet 1 of 1
Metho SS - Sc HS - H CC - C PT - Pu RC - R	od: olid Flight A ollow Fligh oncrete Co ush Tube ock Coring	uger t Auge re	r	ConsistencyPlasticityVS - Very SoftHP - HighS - SoftMP - MedF - FirmLP - Low FVS - Very StiffH - HardFriable - Fb	yPlastic ium Plasticity lasticity	Moistu D - Dn M - Moi W - We	re / ist et		Density VL - Very Loose L - Loose MD - Medium I D - Dense VD - Very Dens	Density e	

C			$-\Box$						Borelog		ž
DLA E	nvironme	ntal Ser	vices					L	ocation	BH1	
Client:			Frasers Property Australia		Job Type:				Supplement	ary Site Investigation	
Project No:	:		DL3953		Address:				Ivanhoe Estate	e, Macquarie Park NS	N
Date:	21/1		27/06/2017		Logged By:				н	MJ	
Hole Size	r:		100mm diameter		Co-ordinates:				No	ot surveyed	
Method Depth (m)	Graphic Log	USCS Classification	Materia	l Description		Moisture	Density / Stiffness	Sampling		Comments	
HA 0.	.2		Woodchip mulch FILL: loamy sand, black								
0.			FILL: sand, coarse grained, brown,	minor clay							
	.0 		FILL: clay, grey, with sand, brown	black, trace sandst	tone fragments						
1.	4	sc	Sandy CLAY: orange brown				,				<i>.</i>
1.			End of borehole at 1.5m depth				×				8
2. Notes: Method:			Consistency VS - Very Soft	Plasticity	Plastic	Moistur D - Dr	re		Density VI - Vervioo	500 D	Sheet 1 of 1
HS - Hollow CC - Concre PT - Push T RC - Rock C	w Flight Auger ete Core Tube Coring	ger	S - Soft F - Firm VS - Very Stiff H - Hard	MP - Mignlyh MP - Mediu LP - Low Pla	m Plasticity sticity	W - We	, ist et		L - Loose MD - Mediur D - Dense VD - Very De	n Density nse	

HA - Ha	and Auger			Friable - Fb								
C									3	Borelog		
D_A	Environ	menta	I Servi	ces					L	ocation	BH2	
Client:				Frasers Property Australia		Job Type:				Supplementa	ary Site Investigation	
Project	No:			DL3953		Address:				Ivanhoe Estate	, Macquarie Park NS	V
Date: Contrac	ctor:			-		Method:				H	and auger	
Hole Siz	ze			100mm diameter		Co-ordinates:				No	t surveyed	
Method	Depth (m)	Graphic Log	USCS Classification	Material D	escription	3	Moisture	Density / Stiffness	Sampling		Comments	
НА	0.1			Woodchip mulch FILL: loamy sand, black								τ.
	0.2			FILL: sand, coarse grained, brown, mi	nor clay							
	0.4			FILL: clay, grey, with sand, brown bla	ck, sandstone o	cobbles				-		
	0.6			Borehole refusal at 0.5m depth								
	0.8											
	0.9			u.								
Notes: Metho SS - Sol HS - Hc CC - Co PT - Pu	d: lid Flight A bllow Fligh oncrete Co sh Tube	Auger ht Auge hre	r	Consistency VS - Very Soft S - Soft F - Firm VS - Very Stiff	Plasticity HP - Highlyf MP - Mediu LP - Low Pla	Plastic ım Plasticity asticity	Moistu D - Dr M - Mo W - W	re Y ist et		Density VL - Very Loo L - Loose MD - Mediun D - Dense	se 1 Density	Sheet 1 of 1

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C - Ro A - Ha	ock Coring and Auger			H - Hard Friable - Fb						VD - Very De	nse	
C	A Environ	menta	I Servi		3				L	Borelog	внз	
ent:				Frasers Property Australia	T dol	ype:				Supplement	ary Site Investigation	
oject	t No:	1		DL3953	Addr	ess:				Ivanhoe Estate	e, Macquarie Park NSW	
te:	ctor			27/06/2017	Logg	ed By:				н	MJ and auger	
le Si	ize			100mm diameter	Co-o	rdinates:				No	ot surveyed	
Method	Depth (m)	Graphic Log	USCS Classification	Material Descript	tion		Moisture	Density / Stiffness	Sampling		Comments	
IA	-			Woodchip mulch								
	0.1			FILL: sand, fine grained, yellow								
	0.2			FILL: loamy sand, black								
	0.3											
	-											
	0.4			FILL: sandstone gravel and cobbles, fine to	coarse, orange		•					
	0.5									÷.		21
	-			Borehole refusal at 0.5m depth								
	0.6											
	-											
	0./											
	0.8											
	0.9			×								
	1.0											
	_										E.	
tes: etho - Sol - Ho	od: lid Flight A ollow Fligh	uger t Auge	r	Consistency Pla VS - Very Soft HP S - Soft MP	s ticity - HighlyPlastic ⁹ - Medium Plas	ticity M	Moistu D - Dr M - Moi	re / st		Density VL - Very Loo L - Loose	se	Sheet 1 of 1

IC - Roo IA - Ha	ck Coring Ind Auger			H - Hard Friable - Fb					VD - Very Dense
	Environ	menta	I Servi					L	Borelog Location BH4
lient:				Frasers Property Australia	Job Type:				Supplementary Site Investigation
roject	No:			DL3953	Address:				Ivanhoe Estate, Macquarie Park NSW
ate:				27/06/2017	Logged By:				MJ Hand auger
ontrac	ze		-52	100mm diameter	Co-ordinate:	s:			Not surveyed
Method	Depth (m)	Graphic Log	USCS Classification	Material Descript	ion	Moisture	Density / Stiffness	Sampling	Comments
HA	0.1			Woodchip mulch					
	0.2			FILL: loamy sand, black FILL: sand, fine grained, yellow					
	0.3								
	0.5			FILL: sandstone gravel and cobbles, fine to	coarse, orange		1		
	0.7			Borehole refusal at 0.6m depth					
	0.8								
	1.0								
otes:	d.			Consistenti	stisity	Maint	ITO		Sheet 1 of 1
iethod	a:			Consistency Pla	sticity	woisti	re		Density

DLA Environm	nental Ser	vices				ı	ocation	BH5	
nt:		Frasers Property Australia	Job Type:				Supplementary	Site Investigation	-
ject No: e:		27/06/2017	Logged By:				Ivannoe Estate, N	Macquarie Park NSW	-
ntractor:		-	Method:				Hand	lauger	7
epth (m)	raphic Log Classification	Material Description	Co-ordinates.	Moisture	ity / Stiffness	Sampling	Nota	Comments	1
A	GUSCS	Woodchip mulch	5 1	-	Dens				 -
		FILL: loamy sand, black							
0.2		FILL: sand, fine grained, yellow							
0.3									
0.4		FILL: sandstone gravel and cobbles, fine to coa	rse. grange						2
0.5			, source and the second s						
		Borehole refusal at 0.5m depth							
0.6									
0.7						•			
0.8	-								
0.9		1							
1.0									

1.40

J_A Environm	iental :	ervices					L	ocation BH6	
ent:		Frasers Property A	istralia	Job Type:				Supplementary Site Investigat	ion NSW
te:		27/06/2017		Logged By:				MJ	NSW .
ntractor:		-		Method:				Hand auger	
Depth (m)	Graphic Log	USCS Classification	Material Description	Teo oralinateo	Moisture	Density / Stiffness	Sampling	Comme	nts
		FILL: loamy sand, black	d cobbles, fine to coarse, o	brange					
0.4 0.4 0.5 0.5 0.5 0.6 0.7 0.7 0.8 0.8 0.9 0.9 1.0		Borehole refusal at 0.4m	depth						

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SS - Solid Flight Auger	VS - Very Soft	HP - HighlyPlastic	D - Dry	VL - Very Loose	
HS - Hollow Flight Auger	S - Soft	MP - Medium Plasticity	M - Moist	L - Loose	
CC - Concrete Core	F - Firm	LP - Low Plasticity	W - Wet	MD - Medium Density	
PT - Push Tube	VS - Very Stiff			D - Dense	
RC - Rock Coring	H - Hard			VD - Very Dense	
HA - Hand Auger	Friable - Fb				

Appendix D

Laboratory Results

and Chain of Custody Documentation



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

CERTIFICATE OF ANALYSIS 179341

Client Details	
Client	Douglas Partners Pty Ltd
Attention	Sally Peacock, David Walker
Address	96 Hermitage Rd, West Ryde, NSW, 2114

Sample Details	
Your Reference	86043.01, Ivanhoe
Number of Samples	17 SOIL
Date samples received	07/11/2017
Date completed instructions received	07/11/2017

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details	
Date results requested by	14/11/2017
Date of Issue	14/11/2017
Reissue Details	This report replaces R00 created on 14/11/2017 due to: sample ID error
NATA Accreditation Number 2901. This do	ocument shall not be reproduced except in full.
Accredited for compliance with ISO/IEC 17	7025 - Testing Tests not covered by NATA are denoted with *

Asbestos Approved By

Analysed by Asbestos Approved Identifier: Matt Tang Authorised by Asbestos Approved Signatory: Paul Ching **Results Approved By** Dragana Tomas, Senior Chemist Long Pham, Team Leader, Metals Paul Ching, Senior Analyst Priya Samarawickrama, Senior Chemist

Steven Luong, Senior Chemist

Authorised By

David Springer, General Manager



vTRH(C6-C10)/BTEXN in Soil					_	1
Our Reference		179341-1	179341-2	179341-3	179341-4	179341-5
Your Reference	UNITS	BH01	BH01	BH02	BH04	BH05
Depth		0.35	1.0	0.5	0-0.1	0.1
Date Sampled		31/10/2017	31/10/2017	01/11/2017	30/10/2017	01/11/2017
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	08/11/2017	08/11/2017	08/11/2017	08/11/2017	08/11/2017
Date analysed	-	09/11/2017	09/11/2017	09/11/2017	09/11/2017	09/11/2017
TRH C6 - C9	mg/kg	<25	<25	<25	<25	<25
TRH C6 - C10	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	112	113	115	111	117
vTRH(C6-C10)/BTEXN in Soil						
vTRH(C6-C10)/BTEXN in Soil Our Reference		179341-6	179341-7	179341-8	179341-9	179341-10
vTRH(C6-C10)/BTEXN in Soil Our Reference Your Reference	UNITS	179341-6 BH05	179341-7 BH10	179341-8 BH10	179341-9 BH11	179341-10 BH11
vTRH(C6-C10)/BTEXN in Soil Our Reference Your Reference Depth	UNITS	179341-6 BH05 1.0	179341-7 BH10 0.5	179341-8 BH10 0.9-1.0	179341-9 BH11 0.5	179341-10 BH11 1.0
vTRH(C6-C10)/BTEXN in Soil Our Reference Your Reference Depth Date Sampled	UNITS	179341-6 BH05 1.0 01/11/2017	179341-7 BH10 0.5 02/11/2017	179341-8 BH10 0.9-1.0 02/11/2017	179341-9 BH11 0.5 02/11/2017	179341-10 BH11 1.0 02/11/2017
vTRH(C6-C10)/BTEXN in Soil Our Reference Your Reference Depth Date Sampled Type of sample	UNITS	179341-6 BH05 1.0 01/11/2017 SOIL	179341-7 BH10 0.5 02/11/2017 SOIL	179341-8 BH10 0.9-1.0 02/11/2017 SOIL	179341-9 BH11 0.5 02/11/2017 SOIL	179341-10 BH11 1.0 02/11/2017 SOIL
VTRH(C6-C10)/BTEXN in Soil Our Reference Your Reference Depth Date Sampled Type of sample Date extracted	UNITS -	179341-6 BH05 1.0 01/11/2017 SOIL 08/11/2017	179341-7 BH10 0.5 02/11/2017 SOIL 08/11/2017	179341-8 BH10 0.9-1.0 02/11/2017 SOIL 08/11/2017	179341-9 BH11 0.5 02/11/2017 SOIL 08/11/2017	179341-10 BH11 1.0 02/11/2017 SOIL 08/11/2017
VTRH(C6-C10)/BTEXN in Soil Our Reference Your Reference Depth Date Sampled Type of sample Date extracted Date analysed	UNITS - -	179341-6 BH05 1.0 01/11/2017 SOIL 08/11/2017 09/11/2017	179341-7 BH10 0.5 02/11/2017 SOIL 08/11/2017 09/11/2017	179341-8 BH10 0.9-1.0 02/11/2017 SOIL 08/11/2017 09/11/2017	179341-9 BH11 0.5 02/11/2017 SOIL 08/11/2017 09/11/2017	179341-10 BH11 1.0 02/11/2017 SOIL 08/11/2017 09/11/2017
VTRH(C6-C10)/BTEXN in Soil Our Reference Your Reference Depth Date Sampled Type of sample Date extracted Date analysed TRH C6 - C9	UNITS - - mg/kg	179341-6 BH05 1.0 01/11/2017 SOIL 08/11/2017 09/11/2017 <25	179341-7 BH10 0.5 02/11/2017 SOIL 08/11/2017 09/11/2017 <25	179341-8 BH10 0.9-1.0 02/11/2017 SOIL 08/11/2017 09/11/2017 <25	179341-9 BH11 0.5 02/11/2017 SOIL 08/11/2017 09/11/2017 <25	179341-10 BH11 1.0 02/11/2017 SOIL 08/11/2017 09/11/2017 <25
VTRH(C6-C10)/BTEXN in Soil Our Reference Your Reference Depth Date Sampled Type of sample Date extracted Date analysed TRH C ₆ - C ₉ TRH C ₆ - C ₁₀	UNITS - mg/kg mg/kg	179341-6 BH05 1.0 01/11/2017 SOIL 08/11/2017 09/11/2017 <25 <25	179341-7 BH10 0.5 02/11/2017 SOIL 08/11/2017 09/11/2017 <25 <25	179341-8 BH10 0.9-1.0 02/11/2017 SOIL 08/11/2017 09/11/2017 <25 <25	179341-9 BH11 0.5 02/11/2017 SOIL 08/11/2017 09/11/2017 <25 <25	179341-10 BH11 1.0 02/11/2017 SOIL 08/11/2017 09/11/2017 <25 <25
VTRH(C6-C10)/BTEXN in Soil Our Reference Your Reference Depth Date Sampled Type of sample Date extracted Date analysed TRH C6 - C9 TRH C6 - C10 vTPH C6 - C10 less BTEX (F1)	UNITS - mg/kg mg/kg mg/kg	179341-6 BH05 1.0 01/11/2017 SOIL 08/11/2017 09/11/2017 <25 <25 <25	179341-7 BH10 0.5 02/11/2017 SOIL 08/11/2017 09/11/2017 <25 <25 <25	179341-8 BH10 0.9-1.0 02/11/2017 SOIL 08/11/2017 09/11/2017 <25 <25 <25	179341-9 BH11 0.5 02/11/2017 SOIL 08/11/2017 09/11/2017 <25 <25 <25	179341-10 BH11 1.0 02/11/2017 SOIL 08/11/2017 09/11/2017 <25 <25 <25
VTRH(C6-C10)/BTEXN in SoilOur ReferenceYour ReferenceDepthDate SampledType of sampleDate extractedDate analysedTRH C6 - C9TRH C6 - C10vTPH C6 - C10 less BTEX (F1)Benzene	UNITS - - mg/kg mg/kg mg/kg mg/kg	179341-6 BH05 1.0 01/11/2017 SOIL 08/11/2017 09/11/2017 <25 <25 <25 <25 <0.2	179341-7 BH10 0.5 02/11/2017 SOIL 08/11/2017 09/11/2017 <25 <25 <25 <25 <0.2	179341-8 BH10 0.9-1.0 02/11/2017 SOIL 08/11/2017 09/11/2017 <25 <25 <25 <25 <25	179341-9 BH11 0.5 02/11/2017 SOIL 08/11/2017 09/11/2017 <25 <25 <25 <25 <0.2	179341-10 BH11 1.0 02/11/2017 SOIL 08/11/2017 09/11/2017 <25 <25 <25 <25 <0.2
VTRH(C6-C10)/BTEXN in SoilOur ReferenceYour ReferenceDepthDate SampledType of sampleDate extractedDate analysedTRH $C_6 - C_9$ TRH $C_6 - C_{10}$ vTPH $C_6 - C_{10}$ less BTEX (F1)BenzeneToluene	UNITS - mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	179341-6 BH05 1.0 01/11/2017 SOIL 08/11/2017 09/11/2017 <25 <25 <25 <25 <0.2 <0.2 <0.5	179341-7 BH10 0.5 02/11/2017 SOIL 08/11/2017 09/11/2017 <25 <25 <25 <25 <0.2 <0.2	179341-8 BH10 0.9-1.0 02/11/2017 SOIL 08/11/2017 09/11/2017 <25 <25 <25 <25 <25 <0.2 <0.2	179341-9 BH11 0.5 02/11/2017 SOIL 08/11/2017 09/11/2017 <25 <25 <25 <25 <25 <0.2	179341-10 BH11 1.0 02/11/2017 SOIL 08/11/2017 09/11/2017 <25 <25 <25 <25 <0.2 <0.2
VTRH(C6-C10)/BTEXN in SoilOur ReferenceYour ReferenceDepthDate SampledType of sampleDate extractedDate analysedTRH C6 - C9TRH C6 - C10vTPH C6 - C10 less BTEX (F1)BenzeneTolueneEthylbenzene	UNITS - - mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	179341-6 BH05 1.0 01/11/2017 SOIL 08/11/2017 09/11/2017 <25 <25 <25 <25 <0.2 <0.5 <1	179341-7 BH10 0.5 02/11/2017 SOIL 08/11/2017 09/11/2017 <25 <25 <25 <25 <0.2 <0.5 <1	179341-8 BH10 0.9-1.0 02/11/2017 SOIL 08/11/2017 09/11/2017 <25 <25 <25 <25 <0.2 <0.5 <1	179341-9 BH11 0.5 02/11/2017 SOIL 08/11/2017 (09/11/2017 <25 <25 <25 <25 <0.2 <0.2 <0.5	179341-10 BH11 1.0 02/11/2017 SOIL 08/11/2017 09/11/2017 <25 <25 <25 <25 <0.2 <0.2 <0.5
VTRH(C6-C10)/BTEXN in SoilOur ReferenceYour ReferenceDepthDate SampledType of sampleDate extractedDate analysedTRH $C_6 - C_9$ TRH $C_6 - C_{10}$ vTPH $C_6 - C_{10}$ less BTEX (F1)BenzeneTolueneEthylbenzenem+p-xylene	UNITS - mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	179341-6 BH05 1.0 01/11/2017 SOIL 08/11/2017 (09/11/2017 <25 <25 <25 <25 <25 <0.2 <0.2 <0.5 <1 <2	179341-7 BH10 0.5 02/11/2017 SOIL 08/11/2017 (09/11/2017 <25 <25 <25 <25 <0.2 <0.2 <0.5 <1 <2	179341-8 BH10 0.9-1.0 02/11/2017 SOIL 08/11/2017 <25 <25 <25 <25 <25 <0.2 <0.2 <0.5 <1 <2	179341-9 BH11 0.5 02/11/2017 SOIL 08/11/2017 (09/11/2017 <25 <25 <25 <25 <25 <0.2 <0.2 <0.5 <1 <1 <2	179341-10 BH11 1.0 02/11/2017 SOIL 08/11/2017 09/11/2017 <25 <25 <25 <25 <25 <0.2 <0.2 <0.5 <1 <2
VTRH(C6-C10)/BTEXN in SoilOur ReferenceYour ReferenceDepthDate SampledType of sampleDate extractedDate analysedTRH $C_6 - C_9$ TRH $C_6 - C_{10}$ vTPH $C_6 - C_{10}$ less BTEX (F1)BenzeneTolueneEthylbenzenem+p-xyleneo-Xylene	UNITS - - mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	179341-6 BH05 1.0 01/11/2017 SOIL 08/11/2017 09/11/2017 <25 <25 <25 <25 <0.2 <0.2 <0.5 <1 <2 <1 <2	179341-7 BH10 0.5 02/11/2017 SOIL 08/11/2017 09/11/2017 <25 <25 <25 <25 <0.2 <0.2 <0.5 <1 <2 <1 <2	179341-8 BH10 0.9-1.0 02/11/2017 SOIL 08/11/2017 09/11/2017 <25 <25 <25 <25 <0.2 <0.2 <0.5 <1 <2 <1 <2	179341-9 BH11 0.5 02/11/2017 SOIL 08/11/2017 09/11/2017 <25 <25 <25 <25 <0.2 <0.2 <0.2 <0.5 <1 <2 <1 <2	179341-10 BH11 1.0 02/11/2017 SOIL 08/11/2017 09/11/2017 <25 <25 <25 <25 <0.2 <0.2 <0.2 <0.5 <1 <2 <1
VTRH(C6-C10)/BTEXN in SoilOur ReferenceYour ReferenceDepthDate SampledType of sampleDate extractedDate analysedTRH $C_6 - C_9$ TRH $C_6 - C_{10}$ vTPH $C_6 - C_{10}$ less BTEX (F1)BenzeneTolueneEthylbenzenem+p-xyleneo-XyleneTotal +ve Xylenes	UNITS UNITS - mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	179341-6 BH05 1.0 01/11/2017 SOIL 08/11/2017 09/11/2017 <25 <25 <25 <25 <0.2 <0.2 <0.2 <0.5 <1 <1 <2 <1 <1	179341-7 BH10 0.5 02/11/2017 SOIL 08/11/2017 09/11/2017 <25 <25 <25 <25 <0.2 <0.2 <0.2 <0.5 <1 <2 <1 <2 <1	179341-8 BH10 0.9-1.0 02/11/2017 SOIL 08/11/2017 09/11/2017 <25 <25 <25 <25 <25 <0.2 <0.2 <0.5 <1 <1 <2 <1 <1	179341-9 BH11 0.5 02/11/2017 SOIL 08/11/2017 (09/11/2017 <25 <25 <25 <25 <25 <0.2 <0.2 <0.5 <1 <1 <2 <1 <1 <1	179341-10 BH11 1.0 02/11/2017 SOIL 08/11/2017 09/11/2017 <25 <25 <25 <25 <0.2 <0.2 <0.5 <1 <2 <0.5
VTRH(C6-C10)/BTEXN in SoilOur ReferenceYour ReferenceDepthDate SampledType of sampleDate extractedDate analysedTRH C6 - C9TRH C6 - C10vTPH C6 - C10vTPH C6 - C10Ethylbenzenem+p-xyleneo-XyleneTotal +ve Xylenesnaphthalene	UNITS - mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	179341-6 BH05 1.0 01/11/2017 SOIL 08/11/2017 09/11/2017 <25 <25 <25 <25 <25 <0.2 <0.2 <0.2 <0.5 <1 <2 <1 <1 <1 <1	179341-7 BH10 0.5 02/11/2017 SOIL 08/11/2017 09/11/2017 <25 <25 <25 <25 <0.2 <0.2 <0.2 <0.5 <1 <2 <1 <1 <1 <1	179341-8 BH10 0.9-1.0 02/11/2017 SOIL 08/11/2017 09/11/2017 <25 <25 <25 <25 <25 <25 <0.2 <0.2 <0.2 <0.5 <1 <2 <1 <1 <1 <1	179341-9 BH11 0.5 02/11/2017 SOIL 08/11/2017 09/11/2017 <25 <25 <25 <25 <25 <0.2 <0.2 <0.2 <0.5 <1 <2 <1 <1 <1 <1	179341-10 BH11 1.0 02/11/2017 SOIL 08/11/2017 09/11/2017 <25 <25 <25 <25 <0.2 <0.2 <0.2 <0.2 <1 <2 <1 <1 <1

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		179341-11	179341-12	179341-13	179341-14	179341-15
Your Reference	UNITS	BH12	BH12	BH13	BH13	BH34
Depth		0.5	1.5	0.15	1.6	0.1-0.2
Date Sampled		03/11/2017	03/11/2017	03/11/2017	03/11/2017	03/11/2017
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	08/11/2017	08/11/2017	08/11/2017	08/11/2017	08/11/2017
Date analysed	-	09/11/2017	09/11/2017	09/11/2017	09/11/2017	09/11/2017
TRH C6 - C9	mg/kg	<25	<25	<25	<25	<25
TRH C6 - C10	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	120	112	112	116	113

VIRH(C6-C10)/BIEXN IN SOII			
Our Reference		179341-16	179341-17
Your Reference	UNITS	BH41	BH41
Depth		0-0.1	0.4-0.5
Date Sampled		30/10/2017	30/10/2017
Type of sample		SOIL	SOIL
Date extracted	-	08/11/2017	08/11/2017
Date analysed	-	09/11/2017	09/11/2017
TRH C6 - C9	mg/kg	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25
Benzene	mg/kg	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1
m+p-xylene	mg/kg	<2	<2
o-Xylene	mg/kg	<1	<1
Total +ve Xylenes	mg/kg	<1	<1
naphthalene	mg/kg	<1	<1
Surrogate aaa-Trifluorotoluene	%	112	108

svTRH (C10-C40) in Soil						
Our Reference		179341-1	179341-2	179341-3	179341-4	179341-5
Your Reference	UNITS	BH01	BH01	BH02	BH04	BH05
Depth		0.35	1.0	0.5	0-0.1	0.1
Date Sampled		31/10/2017	31/10/2017	01/11/2017	30/10/2017	01/11/2017
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	08/11/2017	08/11/2017	08/11/2017	08/11/2017	08/11/2017
Date analysed	-	08/11/2017	08/11/2017	08/11/2017	08/11/2017	08/11/2017
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
TRH >C10 -C16	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	75	71	73	83	83
svTRH (C10-C40) in Soil						

Our Reference		179341-6	179341-7	179341-8	179341-9	179341-10
Your Reference	UNITS	BH05	BH10	BH10	BH11	BH11
Depth		1.0	0.5	0.9-1.0	0.5	1.0
Date Sampled		01/11/2017	02/11/2017	02/11/2017	02/11/2017	02/11/2017
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	08/11/2017	08/11/2017	08/11/2017	08/11/2017	08/11/2017
Date analysed	-	08/11/2017	08/11/2017	08/11/2017	08/11/2017	08/11/2017
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	<50	<50	<50	<50	<50
TRH >C10 - C16 less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	79	79	79	78	77

svTRH (C10-C40) in Soil						
Our Reference		179341-11	179341-12	179341-13	179341-14	179341-15
Your Reference	UNITS	BH12	BH12	BH13	BH13	BH34
Depth		0.5	1.5	0.15	1.6	0.1-0.2
Date Sampled		03/11/2017	03/11/2017	03/11/2017	03/11/2017	03/11/2017
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	08/11/2017	08/11/2017	08/11/2017	08/11/2017	08/11/2017
Date analysed	-	08/11/2017	08/11/2017	08/11/2017	08/11/2017	08/11/2017
TRH C10 - C14	mg/kg	<50	<50	<50	<50	<50
TRH C15 - C28	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C34 -C40	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	80	78	78	83	78

svTRH (C10-C40) in Soil			
Our Reference		179341-16	179341-17
Your Reference	UNITS	BH41	BH41
Depth		0-0.1	0.4-0.5
Date Sampled		30/10/2017	30/10/2017
Type of sample		SOIL	SOIL
Date extracted	-	08/11/2017	08/11/2017
Date analysed	-	08/11/2017	08/11/2017
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50
Surrogate o-Terphenyl	%	79	78

PAHs in Soil						
Our Reference		179341-1	179341-2	179341-3	179341-4	179341-5
Your Reference	UNITS	BH01	BH01	BH02	BH04	BH05
Depth		0.35	1.0	0.5	0-0.1	0.1
Date Sampled		31/10/2017	31/10/2017	01/11/2017	30/10/2017	01/11/2017
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	08/11/2017	08/11/2017	08/11/2017	08/11/2017	08/11/2017
Date analysed	-	08/11/2017	08/11/2017	08/11/2017	08/11/2017	08/11/2017
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Surrogate p-Terphenyl-d14	%	82	83	80	84	86

PAHs in Soil						
Our Reference		179341-6	179341-7	179341-8	179341-9	179341-10
Your Reference	UNITS	BH05	BH10	BH10	BH11	BH11
Depth		1.0	0.5	0.9-1.0	0.5	1.0
Date Sampled		01/11/2017	02/11/2017	02/11/2017	02/11/2017	02/11/2017
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	08/11/2017	08/11/2017	08/11/2017	08/11/2017	08/11/2017
Date analysed	-	08/11/2017	08/11/2017	08/11/2017	08/11/2017	08/11/2017
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	<0.05	0.3	<0.05	<0.05	<0.05
Surrogate p-Terphenyl-d14	%	82	84	81	82	82

PAHs in Soil						
Our Reference		179341-11	179341-12	179341-13	179341-14	179341-15
Your Reference	UNITS	BH12	BH12	BH13	BH13	BH34
Depth		0.5	1.5	0.15	1.6	0.1-0.2
Date Sampled		03/11/2017	03/11/2017	03/11/2017	03/11/2017	03/11/2017
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	08/11/2017	08/11/2017	08/11/2017	08/11/2017	08/11/2017
Date analysed	-	08/11/2017	08/11/2017	08/11/2017	08/11/2017	08/11/2017
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Surrogate p-Terphenyl-d14	%	81	84	83	82	80

PAHs in Soil			
Our Reference		179341-16	179341-17
Your Reference	UNITS	BH41	BH41
Depth		0-0.1	0.4-0.5
Date Sampled		30/10/2017	30/10/2017
Type of sample		SOIL	SOIL
Date extracted	-	08/11/2017	08/11/2017
Date analysed	-	08/11/2017	08/11/2017
Naphthalene	mg/kg	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5
Total +ve PAH's	mg/kg	<0.05	<0.05
Surrogate p-Terphenyl-d14	%	84	82

Organochlorine Pesticides in soil						
Our Reference		179341-1	179341-2	179341-3	179341-4	179341-5
Your Reference	UNITS	BH01	BH01	BH02	BH04	BH05
Depth		0.35	1.0	0.5	0-0.1	0.1
Date Sampled		31/10/2017	31/10/2017	01/11/2017	30/10/2017	01/11/2017
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	08/11/2017	08/11/2017	08/11/2017	08/11/2017	08/11/2017
Date analysed	-	08/11/2017	08/11/2017	08/11/2017	08/11/2017	08/11/2017
НСВ	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	96	92	90	99	86

Organochlorine Pesticides in soil						
Our Reference		179341-6	179341-7	179341-8	179341-9	179341-10
Your Reference	UNITS	BH05	BH10	BH10	BH11	BH11
Depth		1.0	0.5	0.9-1.0	0.5	1.0
Date Sampled		01/11/2017	02/11/2017	02/11/2017	02/11/2017	02/11/2017
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	08/11/2017	08/11/2017	08/11/2017	08/11/2017	08/11/2017
Date analysed	-	08/11/2017	08/11/2017	08/11/2017	08/11/2017	08/11/2017
нсв	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	0.4	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	0.4	<0.1	<0.1
Surrogate TCMX	%	90	112	85	93	97

Organochlorine Pesticides in soil						
Our Reference		179341-11	179341-12	179341-13	179341-14	179341-15
Your Reference	UNITS	BH12	BH12	BH13	BH13	BH34
Depth		0.5	1.5	0.15	1.6	0.1-0.2
Date Sampled		03/11/2017	03/11/2017	03/11/2017	03/11/2017	03/11/2017
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	08/11/2017	08/11/2017	08/11/2017	08/11/2017	08/11/2017
Date analysed	-	08/11/2017	08/11/2017	08/11/2017	08/11/2017	08/11/2017
НСВ	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	0.3	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	0.3	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	94	94	96	91	89

Organochlorine Pesticides in soil						
Our Reference		179341-16	179341-17			
Your Reference	UNITS	BH41	BH41			
Depth		0-0.1	0.4-0.5			
Date Sampled		30/10/2017	30/10/2017			
Type of sample		SOIL	SOIL			
Date extracted	-	08/11/2017	08/11/2017			
Date analysed	-	08/11/2017	08/11/2017			
НСВ	mg/kg	<0.1	<0.1			
alpha-BHC	mg/kg	<0.1	<0.1			
gamma-BHC	mg/kg	<0.1	<0.1			
beta-BHC	mg/kg	<0.1	<0.1			
Heptachlor	mg/kg	<0.1	<0.1			
delta-BHC	mg/kg	<0.1	<0.1			
Aldrin	mg/kg	<0.1	<0.1			
Heptachlor Epoxide	mg/kg	<0.1	<0.1			
gamma-Chlordane	mg/kg	<0.1	<0.1			
alpha-chlordane	mg/kg	<0.1	<0.1			
Endosulfan I	mg/kg	<0.1	<0.1			
pp-DDE	mg/kg	<0.1	<0.1			
Dieldrin	mg/kg	<0.1	<0.1			
Endrin	mg/kg	<0.1	<0.1			
pp-DDD	mg/kg	<0.1	<0.1			
Endosulfan II	mg/kg	<0.1	<0.1			
pp-DDT	mg/kg	<0.1	<0.1			
Endrin Aldehyde	mg/kg	<0.1	<0.1			
Endosulfan Sulphate	mg/kg	<0.1	<0.1			
Methoxychlor	mg/kg	<0.1	<0.1			
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1			
Surrogate TCMX	%	84	86			

Organophosphorus Pesticides					_	
Our Reference		179341-1	179341-3	179341-4	179341-6	179341-7
Your Reference	UNITS	BH01	BH02	BH04	BH05	BH10
Depth		0.35	0.5	0-0.1	1.0	0.5
Date Sampled		31/10/2017	01/11/2017	30/10/2017	01/11/2017	02/11/2017
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	08/11/2017	08/11/2017	08/11/2017	08/11/2017	08/11/2017
Date analysed	-	08/11/2017	08/11/2017	08/11/2017	08/11/2017	08/11/2017
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	96	90	99	90	112

Organophosphorus Pesticides						
Our Reference		179341-9	179341-11	179341-13	179341-15	179341-16
Your Reference	UNITS	BH11	BH12	BH13	BH34	BH41
Depth		0.5	0.5	0.15	0.1-0.2	0-0.1
Date Sampled		02/11/2017	03/11/2017	03/11/2017	03/11/2017	30/10/2017
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	08/11/2017	08/11/2017	08/11/2017	08/11/2017	08/11/2017
Date analysed	-	08/11/2017	08/11/2017	08/11/2017	08/11/2017	08/11/2017
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	93	94	96	89	84
PCBs in Soil						
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Our Reference		179341-1	179341-3	179341-4	179341-6	179341-7
Your Reference	UNITS	BH01	BH02	BH04	BH05	BH10
Depth		0.35	0.5	0-0.1	1.0	0.5
Date Sampled		31/10/2017	01/11/2017	30/10/2017	01/11/2017	02/11/2017
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	08/11/2017	08/11/2017	08/11/2017	08/11/2017	08/11/2017
Date analysed	-	08/11/2017	08/11/2017	08/11/2017	08/11/2017	08/11/2017
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	96	90	99	90	112

PCBs in Soil						
Our Reference		179341-9	179341-11	179341-13	179341-15	179341-16
Your Reference	UNITS	BH11	BH12	BH13	BH34	BH41
Depth		0.5	0.5	0.15	0.1-0.2	0-0.1
Date Sampled		02/11/2017	03/11/2017	03/11/2017	03/11/2017	30/10/2017
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	08/11/2017	08/11/2017	08/11/2017	08/11/2017	08/11/2017
Date analysed	-	08/11/2017	08/11/2017	08/11/2017	08/11/2017	08/11/2017
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	93	94	96	89	84

Acid Extractable metals in soil						
Our Reference		179341-1	179341-2	179341-3	179341-4	179341-5
Your Reference	UNITS	BH01	BH01	BH02	BH04	BH05
Depth		0.35	1.0	0.5	0-0.1	0.1
Date Sampled		31/10/2017	31/10/2017	01/11/2017	30/10/2017	01/11/2017
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date prepared	-	08/11/2017	08/11/2017	08/11/2017	08/11/2017	08/11/2017
Date analysed	-	08/11/2017	08/11/2017	08/11/2017	08/11/2017	08/11/2017
Arsenic	mg/kg	8	12	7	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	24	22	13	10	12
Copper	mg/kg	18	15	15	7	10
Lead	mg/kg	24	23	23	14	8
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	13	2	3	14	3
Zinc	mg/kg	25	8	17	24	14

Acid Extractable metals in soil						
Our Reference		179341-6	179341-7	179341-8	179341-9	179341-10
Your Reference	UNITS	BH05	BH10	BH10	BH11	BH11
Depth		1.0	0.5	0.9-1.0	0.5	1.0
Date Sampled		01/11/2017	02/11/2017	02/11/2017	02/11/2017	02/11/2017
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date prepared	-	08/11/2017	08/11/2017	08/11/2017	08/11/2017	08/11/2017
Date analysed	-	08/11/2017	08/11/2017	08/11/2017	08/11/2017	08/11/2017
Arsenic	mg/kg	<4	5	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	17	17	6	30	17
Copper	mg/kg	3	14	5	10	9
Lead	mg/kg	8	18	6	13	17
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	2	11	1	13	3
Zinc	mg/kg	6	16	8	13	10

Acid Extractable metals in soil					_	
Our Reference		179341-11	179341-12	179341-13	179341-14	179341-15
Your Reference	UNITS	BH12	BH12	BH13	BH13	BH34
Depth		0.5	1.5	0.15	1.6	0.1-0.2
Date Sampled		03/11/2017	03/11/2017	03/11/2017	03/11/2017	03/11/2017
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date prepared	-	08/11/2017	08/11/2017	08/11/2017	08/11/2017	08/11/2017
Date analysed	-	08/11/2017	08/11/2017	08/11/2017	08/11/2017	08/11/2017
Arsenic	mg/kg	4	<4	7	<4	6
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	19	18	13	25	23
Copper	mg/kg	12	4	11	1	10
Lead	mg/kg	42	10	15	8	5
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	6	3	6	1	27
Zinc	mg/kg	41	9	25	6	26

Acid Extractable metals in soil			
Our Reference		179341-16	179341-17
Your Reference	UNITS	BH41	BH41
Depth		0-0.1	0.4-0.5
Date Sampled		30/10/2017	30/10/2017
Type of sample		SOIL	SOIL
Date prepared	-	08/11/2017	08/11/2017
Date analysed	-	08/11/2017	08/11/2017
Arsenic	mg/kg	<4	6
Cadmium	mg/kg	<0.4	<0.4
Chromium	mg/kg	66	27
Copper	mg/kg	16	<1
Lead	mg/kg	9	7
Mercury	mg/kg	<0.1	<0.1
Nickel	mg/kg	44	1
Zinc	mg/kg	32	3

Misc Soil - Inorg						
Our Reference		179341-1	179341-3	179341-4	179341-6	179341-7
Your Reference	UNITS	BH01	BH02	BH04	BH05	BH10
Depth		0.35	0.5	0-0.1	1.0	0.5
Date Sampled		31/10/2017	01/11/2017	30/10/2017	01/11/2017	02/11/2017
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date prepared	-	08/11/2017	08/11/2017	08/11/2017	08/11/2017	08/11/2017
Date analysed	-	08/11/2017	08/11/2017	08/11/2017	08/11/2017	08/11/2017
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5
Misc Soil - Inorg						
Our Reference		179341-9	179341-11	179341-13	179341-15	179341-16
Your Reference	UNITS	BH11	BH12	BH13	BH34	BH41
Depth		0.5	0.5	0.15	0.1-0.2	0-0.1
Data Sampled						
Date Sampleu		02/11/2017	03/11/2017	03/11/2017	03/11/2017	30/10/2017
Type of sample		02/11/2017 SOIL	03/11/2017 SOIL	03/11/2017 SOIL	03/11/2017 SOIL	30/10/2017 SOIL
Type of sample Date prepared	-	02/11/2017 SOIL 08/11/2017	03/11/2017 SOIL 08/11/2017	03/11/2017 SOIL 08/11/2017	03/11/2017 SOIL 08/11/2017	30/10/2017 SOIL 08/11/2017
Type of sample Date prepared Date analysed	-	02/11/2017 SOIL 08/11/2017 08/11/2017	03/11/2017 SOIL 08/11/2017 08/11/2017	03/11/2017 SOIL 08/11/2017 08/11/2017	03/11/2017 SOIL 08/11/2017 08/11/2017	30/10/2017 SOIL 08/11/2017 08/11/2017

Moisture						
Our Reference		179341-1	179341-2	179341-3	179341-4	179341-5
Your Reference	UNITS	BH01	BH01	BH02	BH04	BH05
Depth		0.35	1.0	0.5	0-0.1	0.1
Date Sampled		31/10/2017	31/10/2017	01/11/2017	30/10/2017	01/11/2017
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date prepared	-	08/11/2017	08/11/2017	08/11/2017	08/11/2017	08/11/2017
Date analysed	-	09/11/2017	09/11/2017	09/11/2017	09/11/2017	09/11/2017
Moisture	%	6.3	12	12	7.1	6.0
Moisture						
Our Reference		179341-6	179341-7	179341-8	179341-9	179341-10
Your Reference	UNITS	BH05	BH10	BH10	BH11	BH11
Depth		1.0	0.5	0.9-1.0	0.5	1.0
Date Sampled		01/11/2017	02/11/2017	02/11/2017	02/11/2017	02/11/2017
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date prepared	-	08/11/2017	08/11/2017	08/11/2017	08/11/2017	08/11/2017
Date analysed	-	09/11/2017	09/11/2017	09/11/2017	09/11/2017	09/11/2017
Moisture	%	8.7	8.4	11	21	15
Moisture						
Our Reference		179341-11	179341-12	179341-13	179341-14	179341-15
				DUIZO	DUIAO	RH34
Your Reference	UNITS	BH12	BH12	BH13	BH13	DIIOT
Your Reference Depth	UNITS	BH12 0.5	BH12 1.5	0.15	1.6	0.1-0.2
Your Reference Depth Date Sampled	UNITS	BH12 0.5 03/11/2017	BH12 1.5 03/11/2017	0.15 03/11/2017	1.6 03/11/2017	0.1-0.2
Your Reference Depth Date Sampled Type of sample	UNITS	BH12 0.5 03/11/2017 SOIL	BH12 1.5 03/11/2017 SOIL	0.15 03/11/2017 SOIL	1.6 03/11/2017 SOIL	0.1-0.2 03/11/2017 SOIL
Your Reference Depth Date Sampled Type of sample Date prepared	UNITS	BH12 0.5 03/11/2017 SOIL 08/11/2017	BH12 1.5 03/11/2017 SOIL 08/11/2017	0.15 03/11/2017 SOIL 08/11/2017	BH13 1.6 03/11/2017 SOIL 08/11/2017	0.1-0.2 03/11/2017 SOIL 08/11/2017
Your Reference Depth Date Sampled Type of sample Date prepared Date analysed	UNITS - -	BH12 0.5 03/11/2017 SOIL 08/11/2017 09/11/2017	BH12 1.5 03/11/2017 SOIL 08/11/2017 09/11/2017	0.15 03/11/2017 SOIL 08/11/2017 09/11/2017	BH13 1.6 03/11/2017 SOIL 08/11/2017 09/11/2017	0.1-0.2 03/11/2017 SOIL 08/11/2017 09/11/2017
Your Reference Depth Date Sampled Type of sample Date prepared Date analysed Moisture	UNITS - - %	BH12 0.5 03/11/2017 SOIL 08/11/2017 09/11/2017 13	BH12 1.5 03/11/2017 SOIL 08/11/2017 09/11/2017 11	BH13 0.15 03/11/2017 SOIL 08/11/2017 09/11/2017 8.4	BH13 1.6 03/11/2017 SOIL 08/11/2017 09/11/2017 11	0.1-0.2 03/11/2017 SOIL 08/11/2017 09/11/2017 7.1
Your Reference Depth Date Sampled Type of sample Date prepared Date analysed Moisture	UNITS - - %	BH12 0.5 03/11/2017 SOIL 08/11/2017 09/11/2017 13	BH12 1.5 03/11/2017 SOIL 08/11/2017 09/11/2017 11	BH13 0.15 03/11/2017 SOIL 08/11/2017 09/11/2017 8.4	BH13 1.6 03/11/2017 SOIL 08/11/2017 09/11/2017 11	0.1-0.2 03/11/2017 SOIL 08/11/2017 09/11/2017 7.1
Your Reference Depth Date Sampled Type of sample Date prepared Date analysed Moisture Moisture Our Reference	UNITS - %	BH12 0.5 03/11/2017 SOIL 08/11/2017 09/11/2017 13 179341-16	BH12 1.5 03/11/2017 SOIL 08/11/2017 09/11/2017 11 179341-17	BH13 0.15 03/11/2017 SOIL 08/11/2017 09/11/2017 8.4	BH13 1.6 03/11/2017 SOIL 08/11/2017 09/11/2017 11	0.1-0.2 03/11/2017 SOIL 08/11/2017 09/11/2017 7.1
Your Reference Depth Date Sampled Type of sample Date prepared Date analysed Moisture Our Reference Your Reference	UNITS - % UNITS	BH12 0.5 03/11/2017 SOIL 08/11/2017 09/11/2017 13 179341-16 BH41	BH12 1.5 03/11/2017 SOIL 08/11/2017 09/11/2017 11 179341-17 BH41	BH13 0.15 03/11/2017 SOIL 08/11/2017 09/11/2017 8.4	BH13 1.6 03/11/2017 SOIL 08/11/2017 09/11/2017 11	0.1-0.2 03/11/2017 SOIL 08/11/2017 09/11/2017 7.1
Your Reference Depth Date Sampled Type of sample Date prepared Date analysed Moisture Our Reference Your Reference Depth	UNITS - % UNITS	BH12 0.5 03/11/2017 SOIL 08/11/2017 09/11/2017 13 179341-16 BH41 0-0.1	BH12 1.5 03/11/2017 SOIL 08/11/2017 09/11/2017 11 179341-17 BH41 0.4-0.5	BH13 0.15 03/11/2017 SOIL 08/11/2017 09/11/2017 8.4	BH13 1.6 03/11/2017 SOIL 08/11/2017 09/11/2017 11	0.1-0.2 03/11/2017 SOIL 08/11/2017 09/11/2017 7.1
Your Reference Depth Date Sampled Type of sample Date prepared Date analysed Moisture Moisture Our Reference Your Reference Depth Date Sampled	UNITS - % UNITS	BH12 0.5 03/11/2017 SOIL 08/11/2017 09/11/2017 13 179341-16 BH41 0-0.1 30/10/2017	BH12 1.5 03/11/2017 SOIL 08/11/2017 09/11/2017 11 179341-17 BH41 0.4-0.5 30/10/2017	BH13 0.15 03/11/2017 SOIL 08/11/2017 09/11/2017 8.4	BH13 1.6 03/11/2017 SOIL 08/11/2017 09/11/2017 11	0.1-0.2 03/11/2017 SOIL 08/11/2017 09/11/2017 7.1

08/11/2017

09/11/2017

7.6

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-

%

08/11/2017

09/11/2017

15

Date prepared

Date analysed

Moisture

Asbestos ID - soils						
Our Reference		179341-1	179341-3	179341-4	179341-6	179341-7
Your Reference	UNITS	BH01	BH02	BH04	BH05	BH10
Depth		0.35	0.5	0-0.1	1.0	0.5
Date Sampled		31/10/2017	01/11/2017	30/10/2017	01/11/2017	02/11/2017
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date analysed	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Sample mass tested	g	Approx. 65g	Approx. 50g	Approx. 50g	Approx. 45g	Approx. 55g
Sample Description	-	Brown fine- grained soil & rocks	Brown fine- grained soil & rocks	Brown fine- grained soil & rocks	Brown fine- grained soil & rocks	Brown fine- grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
		Organic fibres detected	Organic fibres detected	Organic fibres detected	Organic fibres detected	Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils						
Our Reference		179341-9	179341-11	179341-13	179341-15	179341-16
Your Reference	UNITS	BH11	BH12	BH13	BH34	BH41
Depth		0.5	0.5	0.15	0.1-0.2	0-0.1
Date Sampled		02/11/2017	03/11/2017	03/11/2017	03/11/2017	30/10/2017
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date analysed	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Sample mass tested	g	Approx. 50g	Approx. 25g	Approx. 40g	Approx. 60g	Approx. 50g
Sample Description	-	Brown fine- grained soil & rocks	Brown fine- grained soil & rocks	Brown fine- grained soil & rocks	Brown fine- grained soil & rocks	Brown fine- grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
		Organic fibres detected	Organic fibres detected	Organic fibres detected	Organic fibres detected	Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Inorg-031	Total Phenolics by segmented flow analyser (in line distillation with colourimetric finish). Solids are extracted in a caustic media prior to analysis.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.
	F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
	Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual
	ECD's. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.

Method ID	Methodology Summary
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <pql actually="" are="" at="" conservative<br="" is="" most="" pql.="" the="" this="">approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <pql and<br="" approach="" are="" conservative="" is="" least="" the="" this="" zero.="">is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <pql a="" are="" half="" hence="" mid-point<br="" pql.="" stipulated="" the="">between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.</pql></pql></pql>
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONT	/BTEXN in Soil			Du	plicate		Spike Re	covery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	179341-3
Date extracted	-			08/11/2017	1	08/11/2017	08/11/2017		08/11/2017	08/11/2017
Date analysed	-			09/11/2017	1	09/11/2017	09/11/2017		09/11/2017	09/11/2017
TRH C ₆ - C ₉	mg/kg	25	Org-016	<25	1	<25	<25	0	106	112
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	<25	1	<25	<25	0	106	112
Benzene	mg/kg	0.2	Org-016	<0.2	1	<0.2	<0.2	0	99	104
Toluene	mg/kg	0.5	Org-016	<0.5	1	<0.5	<0.5	0	106	112
Ethylbenzene	mg/kg	1	Org-016	<1	1	<1	<1	0	107	113
m+p-xylene	mg/kg	2	Org-016	<2	1	<2	<2	0	109	115
o-Xylene	mg/kg	1	Org-016	<1	1	<1	<1	0	104	109
naphthalene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	118	1	112	110	2	111	117

QUALITY CONT	ROL: vTRH	(C6-C10)	/BTEXN in Soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	11	08/11/2017	08/11/2017		[NT]	[NT]
Date analysed	-			[NT]	11	09/11/2017	09/11/2017		[NT]	[NT]
TRH C ₆ - C ₉	mg/kg	25	Org-016	[NT]	11	<25	<25	0	[NT]	[NT]
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	[NT]	11	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-016	[NT]	11	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-016	[NT]	11	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-016	[NT]	11	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-016	[NT]	11	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-016	[NT]	11	<1	<1	0	[NT]	[NT]
naphthalene	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	11	120	112	7	[NT]	[NT]

QUALITY CO	NTROL: svT	RH (C10	-C40) in Soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	179341-3
Date extracted	-			08/11/2017	1	08/11/2017	08/11/2017		08/11/2017	08/11/2017
Date analysed	-			08/11/2017	1	08/11/2017	08/11/2017		08/11/2017	08/11/2017
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	<50	1	<50	<50	0	104	102
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	<100	1	<100	<100	0	102	105
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	<100	1	<100	<100	0	106	82
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	<50	1	<50	<50	0	104	102
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	<100	1	<100	<100	0	102	105
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	<100	1	<100	<100	0	106	82
Surrogate o-Terphenyl	%		Org-003	74	1	75	75	0	84	73

QUALITY CO	NTROL: svT	RH (C10	-C40) in Soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	11	08/11/2017	08/11/2017			
Date analysed	-			[NT]	11	08/11/2017	08/11/2017			
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	[NT]	11	<50	<50	0		
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	[NT]	11	<100	<100	0		
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	[NT]	11	<100	110	10		
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	[NT]	11	<50	<50	0		
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	[NT]	11	<100	110	10		
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	[NT]	11	<100	<100	0		
Surrogate o-Terphenyl	%		Org-003	[NT]	11	80	81	1		

QUALIT	TY CONTRO	L: PAHs	in Soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	179341-3
Date extracted	-			08/11/2017	1	08/11/2017	08/11/2017		08/11/2017	08/11/2017
Date analysed	-			08/11/2017	1	08/11/2017	08/11/2017		08/11/2017	08/11/2017
Naphthalene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	73	73
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	87	84
Phenanthrene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	91	90
Anthracene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	85	85
Pyrene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	93	93
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	93	88
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	1	<0.05	<0.05	0	78	72
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	86	1	82	78	5	102	101

QUALIT	Y CONTRO	L: PAHs	in Soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	11	08/11/2017	08/11/2017		[NT]	[NT]
Date analysed	-			[NT]	11	08/11/2017	08/11/2017		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	[NT]	11	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	[NT]	11	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	[NT]	11	81	81	0	[NT]	[NT]

QUALITY CONTR	ROL: Organo	chlorine l	Pesticides in soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	179341-3
Date extracted	-			08/11/2017	1	08/11/2017	08/11/2017		08/11/2017	08/11/2017
Date analysed	-			08/11/2017	1	08/11/2017	08/11/2017		08/11/2017	08/11/2017
НСВ	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	91	92
gamma-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	89	91
Heptachlor	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	70	72
delta-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	85	88
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	86	88
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	97	101
Dieldrin	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	92	94
Endrin	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	75	76
pp-DDD	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	90	94
Endosulfan II	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	76	80
Methoxychlor	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	100	1	96	91	5	98	101

QUALITY CONTR	ROL: Organo	chlorine l	Pesticides in soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	11	08/11/2017	08/11/2017		[NT]	[NT]
Date analysed	-			[NT]	11	08/11/2017	08/11/2017		[NT]	[NT]
НСВ	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	[NT]	11	0.3	0.5	50	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	[NT]	11	94	109	15	[NT]	[NT]

QUALITY CONT	ROL: Organ	ophosph	orus Pesticides			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	179341-3
Date extracted	-			08/11/2017	1	08/11/2017	08/11/2017		08/11/2017	08/11/2017
Date analysed	-			08/11/2017	1	08/11/2017	08/11/2017		08/11/2017	08/11/2017
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	103	108
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	95	90
Dimethoate	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	124	114
Fenitrothion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	108	104
Malathion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	114	105
Parathion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	102	102
Ronnel	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	122	107
Surrogate TCMX	%		Org-008	100	1	96	91	5	95	100

QUALITY CONT	ROL: Organ	ophospho	orus Pesticides			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	11	08/11/2017	08/11/2017		[NT]	[NT]
Date analysed	-			[NT]	11	08/11/2017	08/11/2017		[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-008	[NT]	11	94	109	15	[NT]	[NT]

QUALIT	Y CONTRO	L: PCBs	in Soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	179341-3
Date extracted	-			08/11/2017	1	08/11/2017	08/11/2017		08/11/2017	08/11/2017
Date analysed	-			08/11/2017	1	08/11/2017	08/11/2017		08/11/2017	08/11/2017
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	101	104
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCLMX	%		Org-006	100	1	96	91	5	95	100

QUALIT	Y CONTRO	L: PCBs	in Soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	11	08/11/2017	08/11/2017		[NT]	[NT]
Date analysed	-			[NT]	11	08/11/2017	08/11/2017		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-006	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-006	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCLMX	%		Org-006	[NT]	11	94	109	15	[NT]	[NT]

QUALITY CONT	ROL: Acid E	xtractabl	e metals in soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	179341-3
Date prepared	-			08/11/2017	1	08/11/2017	08/11/2017		08/11/2017	08/11/2017
Date analysed	-			08/11/2017	1	08/11/2017	08/11/2017		08/11/2017	08/11/2017
Arsenic	mg/kg	4	Metals-020	<4	1	8	10	22	127	108
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	<0.4	<0.4	0	116	107
Chromium	mg/kg	1	Metals-020	<1	1	24	26	8	123	111
Copper	mg/kg	1	Metals-020	<1	1	18	17	6	123	116
Lead	mg/kg	1	Metals-020	<1	1	24	26	8	118	109
Mercury	mg/kg	0.1	Metals-021	<0.1	1	<0.1	<0.1	0	110	101
Nickel	mg/kg	1	Metals-020	<1	1	13	15	14	119	111
Zinc	mg/kg	1	Metals-020	<1	1	25	29	15	123	110

QUALITY CONT	ROL: Acid E	xtractable	e metals in soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-				11	08/11/2017	08/11/2017		[NT]	
Date analysed	-				11	08/11/2017	08/11/2017		[NT]	
Arsenic	mg/kg	4	Metals-020		11	4	<4	0	[NT]	
Cadmium	mg/kg	0.4	Metals-020		11	<0.4	<0.4	0	[NT]	
Chromium	mg/kg	1	Metals-020		11	19	23	19	[NT]	
Copper	mg/kg	1	Metals-020		11	12	11	9	[NT]	
Lead	mg/kg	1	Metals-020		11	42	39	7	[NT]	
Mercury	mg/kg	0.1	Metals-021		11	<0.1	<0.1	0	[NT]	
Nickel	mg/kg	1	Metals-020		11	6	8	29	[NT]	
Zinc	mg/kg	1	Metals-020	[NT]	11	41	36	13	[NT]	[NT]

QUALITY	CONTROL	Misc Soi	I - Inorg			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	179341-3
Date prepared	-			08/11/2017	1	08/11/2017	08/11/2017		08/11/2017	08/11/2017
Date analysed	-			08/11/2017	1	08/11/2017	08/11/2017		08/11/2017	08/11/2017
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	<5	1	<5	<5	0	104	93

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

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

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

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

Report Comments

Asbestos: A portion of the supplied samples were sub-sampled for asbestos analysis according to Envirolab procedures. We cannot guarantee that these sub-samples are indicative of the entire sample. Envirolab recommends supplying 40-50g of sample in its own container. Note: Samples requested for asbestos testing were sub-sampled from jars provided by the client.

Organochlorine Pesticides in soil - The RPD for duplicate results is accepted due to the non homogenous nature of the sample/s.

Douglas Partners		
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CHAIN OF CUSTODY DESPATCH SHEET

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Project Name:	Ivanhoe				Order N	umber					12 Ashley Stre	et, Chatswood NSW 20	67
Project Manager	S Peace	ock (& Dav	vid Walker)		Sample	Ľ	LS		-	Attn:	Aileen		
Emails:	david.v	valker@do	uglaspartne	rs.com.au		N. S. S. S. S.			- /	Phone:	02 9910 6200		
Date Required:	Same d	ay 🗆	24 hours	48 hc	Durs 🗆	72 hours	0 0	Standard of	-	Email:	sydney@env	irolab.com.au	
Prior Storage:	Esky	Fridg	je 🛛 She	elved	Do samp	les contain	'potential'	НВМ? Үе	S 🗆	No 🛛 (If	YES, then handle, tra	insport and store in accordan	se with FPM HAZID)
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Total number of	samples	in contai	iner:	Relin	nquished	by: L	M	Transported	to labo	oratory by		Courier	
Send Results to:	Dou	iglas Partr	ners Pty Lto	Add	ress: 96 H	ermitage	Road, We	st Ryde			Phone:	98090666 Fax:	98094095
Signed:				Paraivad h		· · un				Ċ	10 0 Timo. 7	0.000	

Rev4/October2016

Page 1 of 1

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SAMPLE RECEIPT ADVICE

Client Details	
Client	Douglas Partners Pty Ltd
Attention	Sally Peacock, David Walker

Sample Login Details	
Your reference	86043.01, Ivanhoe
Envirolab Reference	179341
Date Sample Received	07/11/2017
Date Instructions Received	07/11/2017
Date Results Expected to be Reported	14/11/2017

Sample Condition	
Samples received in appropriate condition for analysis	YES
No. of Samples Provided	17 SOIL
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	4.7
Cooling Method	Ice
Sampling Date Provided	YES

Comments
Nil

Please direct any queries to:

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

Analysis Underway, details on the following page:



Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticidesin soil	Organophosphorus Pesticides	PCBsin Soil	Acid Extractable metalsin soil	Total Phenolics (as Phenol)	Asbestos ID - soils
BH01-0.35	\checkmark	\checkmark	\checkmark	✓	\checkmark	\checkmark	✓	✓	\checkmark
BH01-1.0	\checkmark	✓	✓	\checkmark			\checkmark		
BH02-0.5	 ✓ 	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	✓	\checkmark
BH04-0-0.1	✓	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	✓	\checkmark
BH05-0.1	✓	\checkmark	\checkmark	\checkmark			\checkmark		
BH05-1.0	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	✓	\checkmark
BH10-0.5	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	✓	\checkmark
BH10-0.9-1.0	\checkmark	\checkmark	\checkmark	\checkmark			\checkmark		
BH11-0.5	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	✓	\checkmark
BH11-1.0	1	✓	✓	\checkmark			\checkmark		
BH12-0.5	1	✓	✓	\checkmark	\checkmark	✓	\checkmark	✓	\checkmark
BH125	✓	✓	✓	\checkmark			\checkmark		
BH13-0.15	1	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	✓	\checkmark
BH13-1.6	1	\checkmark	\checkmark	\checkmark			✓		
BH34-0.1-0.2	\checkmark	\checkmark	\checkmark	\checkmark	✓	\checkmark	✓	✓	\checkmark
BH41-0-0.1	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	✓	\checkmark
BH41-0.4-0.5	1	✓	✓	✓			✓		

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

Additional Info

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

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



CERTIFICATE OF ANALYSIS 179341-A

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

Sample Details	
Your Reference	<u>86043.01, Ivanhoe</u>
Number of Samples	Additional testing 1 sample
Date samples received	07/11/2017
Date completed instructions received	07/12/2017

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details				
Date results requested by	08/12/2017			
Date of Issue	08/12/2017			
NATA Accreditation Number 2901. This document shall not be reproduced except in full.				
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *				

Results Approved By Long Pham, Team Leader, Metals

Authorised By

کھ

David Springer, General Manager



Metals in TCLP USEPA1311		
Our Reference		179341-A-16
Your Reference	UNITS	BH41
Depth		0-0.1
Date Sampled		30/10/2017
Type of sample		SOIL
Date extracted	-	07/12/2017
Date analysed	-	07/12/2017
pH of soil for fluid# determ.	pH units	9.5
pH of soil TCLP (after HCI)	pH units	1.6
Extraction fluid used	-	1
pH of final Leachate	pH units	6.2
Nickel in TCLP	mg/L	<0.02

Method ID	Methodology Summary
EXTRACT.7	Toxicity Characteristic Leaching Procedure (TCLP) using Zero Headspace Extraction (zHE) using AS4439 and USEPA 1311.
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-004	Toxicity Characteristic Leaching Procedure (TCLP) using in house method INORG-004.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.

QUALITY CONTROL: Metals in TCLP USEPA1311				Duplicate			Spike Recovery %			
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			07/12/2017	[NT]		[NT]	[NT]	07/12/2017	[NT]
Date analysed	-			07/12/2017	[NT]		[NT]	[NT]	07/12/2017	[NT]
Nickel in TCLP	mg/L	0.02	Metals-020 ICP- AES	<0.02	[NT]		[NT]	[NT]	100	[NT]

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

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

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

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

Andrew Fitzsimons

From: Sent: To: Cc: Subject: David Walker <David.Walker@douglaspartners.com.au> Thursday, 7 December 2017 11:10 AM Aileen Hie Samplereceipt TCLP request ELS: 179341 Rec: 7/12/17

ELS: 179341-A Rec: 7/12/17 11:10 TAT: 1 day A

Aileen

If you still have the sample could you please do TCLP for nickel for sample 179341-16 on 24 hour turnaround.

Regards

David Walker | Associate / Environmental Engineer Douglas Partners Pty Ltd | ABN 75 053 980 117 | www.douglaspartners.com.au 96 Hermitage Road West Ryde NSW 2114 | PO Box 472 West Ryde NSW 1685 P: 02 9809 0666 | F: 02 9809 4095 | M: 0407 540 537 | E: David.Walker@douglaspartners.com.au Douglas Partners' offices will be closed over the Christmas/New Year period. To find out when your local Douglas Partners' branch will be open over this period, please go to www.douglaspartners.com.au/contact We wish all our clients a happy festive season and a safe and prosperous New Year.

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SAMPLE RECEIPT ADVICE

Client Details	
Client	Douglas Partners Pty Ltd
Attention	David Walker

Sample Login Details	
Your reference	86043.01, Ivanhoe
Envirolab Reference	179341-A
Date Sample Received	07/11/2017
Date Instructions Received	07/12/2017
Date Results Expected to be Reported	08/12/2017

Sample Condition	
Samples received in appropriate condition for analysis	YES
No. of Samples Provided	Additional testing 1 sample
Turnaround Time Requested	1 day
Temperature on Receipt (°C)	4.7
Cooling Method	Ice
Sampling Date Provided	YES

Comments
Nil

Please direct any queries to:

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

Analysis Underway, details on the following page:



Sample ID	Metals in TCLP USEPA1311	On Hold
BH01-0.35		✓
BH01-1.0		✓
BH02-0.5		\checkmark
BH04-0-0.1		\checkmark
BH05-0.1		\checkmark
BH05-1.0		✓
BH10-0.5		✓
BH10-0.9-1.0		\checkmark
BH11-0.5		✓
BH11-1.0		✓
BH12-0.5		✓
BH12-1.5		✓
BH13-0.15		✓
BH13-1.6		✓
BH34-0.1-0.2		\checkmark
BH41-0-0.1	\checkmark	
BH41-0.4-0.5		✓

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

Additional Info

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

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



CERTIFICATE OF ANALYSIS 179694

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

Sample Details	
Your Reference	86043.01, Ivanhoe
Number of Samples	27 Soil
Date samples received	13/11/2017
Date completed instructions received	13/11/2017

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details Date results requested by 20/11/2017

 Date of Issue
 17/11/2017

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Asbestos Approved By

Paul Ching, Senior Analyst Steven Luong, Senior Chemist

Analysed by Asbestos Approved Identifier: Lucy Zhu Authorised by Asbestos Approved Signatory: Paul Ching **Results Approved By** Dragana Tomas, Senior Chemist Long Pham, Team Leader, Metals Nick Sarlamis, Inorganics Supervisor

Authorised By

David Springer, General Manager



vTRH(C6-C10)/BTEXN in Soil						
Our Reference		179694-1	179694-2	179694-3	179694-4	179694-5
Your Reference	UNITS	BH03	BH03	BH03	BH06	BH06
Depth		0.1	1.0	1.5	0.4-0.5	1.4-1.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Date analysed	-	15/11/2017	15/11/2017	15/11/2017	15/11/2017	15/11/2017
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	86	83	88	87	89
vTRH(C6-C10)/BTEXN in Soil						

Our Reference		179694-6	179694-7	179694-8	179694-9	179694-10
Your Reference	UNITS	BH07	BH07	BH08	BH08	BH08
Depth		0.4-0.5	0.9-1.0	0.1	0.4-0.5	0.9-1.0
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Date analysed	-	15/11/2017	15/11/2017	15/11/2017	15/11/2017	15/11/2017
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	90	89	84	87	90
vTRH(C6-C10)/BTEXN in Soil						
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Our Reference		179694-11	179694-12	179694-13	179694-14	179694-15
Your Reference	UNITS	BH09	BH09	BH33	BH35	BH35
Depth		0.1	1.0	0.1	0.1	0.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Date analysed	-	15/11/2017	15/11/2017	15/11/2017	15/11/2017	15/11/2017
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	93	86	87	82	91

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		179694-16	179694-17	179694-18	179694-19	179694-20
Your Reference	UNITS	BH37	BH38	BH38	BH39	BH40
Depth		0.1	0.1	0.5	0.4	0.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Date analysed	-	15/11/2017	15/11/2017	15/11/2017	15/11/2017	15/11/2017
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	89	89	86	90	84

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		179694-21	179694-22	179694-23	179694-24	179694-25
Your Reference	UNITS	BH40	BH42	BH42	BH44	BH44
Depth		1.2	0.4-0.5	1.4-1.5	0.4-0.5	0.9-1.0
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Date analysed	-	15/11/2017	15/11/2017	15/11/2017	15/11/2017	15/11/2017
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C6 - C10	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	81	86	88	98	86

VIRH(C6-C10)/BIEXN in Soil			
Our Reference		179694-26	179694-27
Your Reference	UNITS	LP1	LP1
Depth		0.1	0.5
Type of sample		Soil	Soil
Date extracted	-	14/11/2017	14/11/2017
Date analysed	-	15/11/2017	15/11/2017
TRH C ₆ - C ₉	mg/kg	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25
Benzene	mg/kg	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1
m+p-xylene	mg/kg	<2	<2
o-Xylene	mg/kg	<1	<1
naphthalene	mg/kg	<1	<1
Total +ve Xylenes	mg/kg	<1	<1
Surrogate aaa-Trifluorotoluene	%	88	84

svTRH (C10-C40) in Soil						
Our Reference		179694-1	179694-2	179694-3	179694-4	179694-5
Your Reference	UNITS	BH03	BH03	BH03	BH06	BH06
Depth		0.1	1.0	1.5	0.4-0.5	1.4-1.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Date analysed	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	<50	<50	<50	<50	<50
TRH >C10 - C16 less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	85	100	79	79	78

svTRH (C10-C40) in Soil						
Our Reference		179694-6	179694-7	179694-8	179694-9	179694-10
Your Reference	UNITS	BH07	BH07	BH08	BH08	BH08
Depth		0.4-0.5	0.9-1.0	0.1	0.4-0.5	0.9-1.0
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Date analysed	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
TRH C10 - C14	mg/kg	<50	<50	<50	<50	<50
TRH C15 - C28	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C34 -C40	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	87	77	78	77	79

svTRH (C10-C40) in Soil						
Our Reference		179694-11	179694-12	179694-13	179694-14	179694-15
Your Reference	UNITS	BH09	BH09	BH33	BH35	BH35
Depth		0.1	1.0	0.1	0.1	0.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Date analysed	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C15 - C28	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
TRH >C10 -C16	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	78	76	78	76	78

svTRH (C10-C40) in Soil						
Our Reference		179694-16	179694-17	179694-18	179694-19	179694-20
Your Reference	UNITS	BH37	BH38	BH38	BH39	BH40
Depth		0.1	0.1	0.5	0.4	0.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Date analysed	-	14/11/2017	14/11/2017	14/11/2017	15/11/2017	15/11/2017
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C10 - C16 less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	76	75	77	78	77

svTRH (C10-C40) in Soil						
Our Reference		179694-21	179694-22	179694-23	179694-24	179694-25
Your Reference	UNITS	BH40	BH42	BH42	BH44	BH44
Depth		1.2	0.4-0.5	1.4-1.5	0.4-0.5	0.9-1.0
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Date analysed	-	15/11/2017	15/11/2017	15/11/2017	15/11/2017	15/11/2017
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C15 - C28	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
TRH >C10 -C16	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	79	78	77	77	77

svTRH (C10-C40) in Soil			
Our Reference		179694-26	179694-27
Your Reference	UNITS	LP1	LP1
Depth		0.1	0.5
Type of sample		Soil	Soil
Date extracted	-	14/11/2017	14/11/2017
Date analysed	-	15/11/2017	15/11/2017
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50
TRH >C10 - C16 less Naphthalene (F2)	mg/kg	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50
Surrogate o-Terphenyl	%	77	77

PAHs in Soil						
Our Reference		179694-1	179694-2	179694-3	179694-4	179694-5
Your Reference	UNITS	BH03	BH03	BH03	BH06	BH06
Depth		0.1	1.0	1.5	0.4-0.5	1.4-1.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Date analysed	-	15/11/2017	15/11/2017	15/11/2017	15/11/2017	15/11/2017
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	87	87	80	89	90

PAHs in Soil						
Our Reference		179694-6	179694-7	179694-8	179694-9	179694-10
Your Reference	UNITS	BH07	BH07	BH08	BH08	BH08
Depth		0.4-0.5	0.9-1.0	0.1	0.4-0.5	0.9-1.0
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Date analysed	-	15/11/2017	15/11/2017	15/11/2017	15/11/2017	15/11/2017
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	91	90	91	88	87

PAHs in Soil						
Our Reference		179694-11	179694-12	179694-13	179694-14	179694-15
Your Reference	UNITS	BH09	BH09	BH33	BH35	BH35
Depth		0.1	1.0	0.1	0.1	0.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Date analysed	-	15/11/2017	15/11/2017	15/11/2017	15/11/2017	15/11/2017
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	85	85	87	85	90

PAHs in Soil						
Our Reference		179694-16	179694-17	179694-18	179694-19	179694-20
Your Reference	UNITS	BH37	BH38	BH38	BH39	BH40
Depth		0.1	0.1	0.5	0.4	0.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Date analysed	-	15/11/2017	15/11/2017	14/11/2017	14/11/2017	14/11/2017
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	0.3	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	0.2	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	1.6	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	93	87	91	87	91

PAHs in Soil						
Our Reference		179694-21	179694-22	179694-23	179694-24	179694-25
Your Reference	UNITS	BH40	BH42	BH42	BH44	BH44
Depth		1.2	0.4-0.5	1.4-1.5	0.4-0.5	0.9-1.0
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Date analysed	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	91	90	91	91	90

PAHs in Soil			
Our Reference		179694-26	179694-27
Your Reference	UNITS	LP1	LP1
Depth		0.1	0.5
Type of sample		Soil	Soil
Date extracted	-	14/11/2017	14/11/2017
Date analysed	-	14/11/2017	14/11/2017
Naphthalene	mg/kg	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	88	89

Organochlorine Pesticides in soil						
Our Reference		179694-1	179694-2	179694-3	179694-4	179694-5
Your Reference	UNITS	BH03	BH03	BH03	BH06	BH06
Depth		0.1	1.0	1.5	0.4-0.5	1.4-1.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Date analysed	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
НСВ	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	98	86	88	98	93

Organochlorine Pesticides in soil						
Our Reference		179694-6	179694-7	179694-8	179694-9	179694-10
Your Reference	UNITS	BH07	BH07	BH08	BH08	BH08
Depth		0.4-0.5	0.9-1.0	0.1	0.4-0.5	0.9-1.0
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Date analysed	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
НСВ	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	92	92	80	92	95

Organochlorine Pesticides in soil						
Our Reference		179694-11	179694-12	179694-13	179694-14	179694-15
Your Reference	UNITS	BH09	BH09	BH33	BH35	BH35
Depth		0.1	1.0	0.1	0.1	0.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Date analysed	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
НСВ	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	92	79	89	93	94

Organochlorine Pesticides in soil						
Our Reference		179694-16	179694-17	179694-18	179694-19	179694-20
Your Reference	UNITS	BH37	BH38	BH38	BH39	BH40
Depth		0.1	0.1	0.5	0.4	0.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Date analysed	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
НСВ	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	79	92	92	97	91

Organochlorine Pesticides in soil						
Our Reference		179694-21	179694-22	179694-23	179694-24	179694-25
Your Reference	UNITS	BH40	BH42	BH42	BH44	BH44
Depth		1.2	0.4-0.5	1.4-1.5	0.4-0.5	0.9-1.0
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Date analysed	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
НСВ	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	96	93	92	96	85

Organochlorine Pesticides in soil			
Our Reference		179694-26	179694-27
Your Reference	UNITS	LP1	LP1
Depth		0.1	0.5
Type of sample		Soil	Soil
Date extracted	-	14/11/2017	14/11/2017
Date analysed	-	14/11/2017	14/11/2017
НСВ	mg/kg	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1
Surrogate TCMX	%	91	94

Organophosphorus Pesticides						
Our Reference		179694-1	179694-4	179694-6	179694-8	179694-11
Your Reference	UNITS	BH03	BH06	BH07	BH08	BH09
Depth		0.1	0.4-0.5	0.4-0.5	0.1	0.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Date analysed	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	98	98	92	80	92

Organophosphorus Pesticides						
Our Reference		179694-13	179694-15	179694-16	179694-17	179694-20
Your Reference	UNITS	BH33	BH35	BH37	BH38	BH40
Depth		0.1	0.5	0.1	0.1	0.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Date analysed	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	89	94	79	92	91

Organophosphorus Pesticides				
Our Reference		179694-22	179694-24	179694-26
Your Reference	UNITS	BH42	BH44	LP1
Depth		0.4-0.5	0.4-0.5	0.1
Type of sample		Soil	Soil	Soil
Date extracted	-	14/11/2017	14/11/2017	14/11/2017
Date analysed	-	14/11/2017	14/11/2017	14/11/2017
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	93	96	91

PCBs in Soil					_	
Our Reference		179694-1	179694-4	179694-6	179694-8	179694-11
Your Reference	UNITS	BH03	BH06	BH07	BH08	BH09
Depth		0.1	0.4-0.5	0.4-0.5	0.1	0.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Date analysed	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	98	98	92	80	92

PCBs in Soil						
Our Reference		179694-13	179694-15	179694-16	179694-17	179694-20
Your Reference	UNITS	BH33	BH35	BH37	BH38	BH40
Depth		0.1	0.5	0.1	0.1	0.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Date analysed	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	89	94	79	92	91

PCBs in Soil				
Our Reference		179694-22	179694-24	179694-26
Your Reference	UNITS	BH42	BH44	LP1
Depth		0.4-0.5	0.4-0.5	0.1
Type of sample		Soil	Soil	Soil
Date extracted	-	14/11/2017	14/11/2017	14/11/2017
Date analysed	-	14/11/2017	14/11/2017	14/11/2017
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1
Surrogate TCLMX	%	93	96	91

Acid Extractable metals in soil						
Our Reference		179694-1	179694-2	179694-3	179694-4	179694-5
Your Reference	UNITS	BH03	BH03	BH03	BH06	BH06
Depth		0.1	1.0	1.5	0.4-0.5	1.4-1.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Date analysed	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Arsenic	mg/kg	5	7	5	6	6
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	54	22	19	26	23
Copper	mg/kg	16	14	8	10	6
Lead	mg/kg	11	17	10	19	13
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	37	9	12	5	2
Zinc	mg/kg	25	18	11	16	8

Acid Extractable metals in soil						
Our Reference		179694-6	179694-7	179694-8	179694-9	179694-10
Your Reference	UNITS	BH07	BH07	BH08	BH08	BH08
Depth		0.4-0.5	0.9-1.0	0.1	0.4-0.5	0.9-1.0
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Date analysed	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Arsenic	mg/kg	<4	8	<4	4	4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	12	30	13	14	17
Copper	mg/kg	6	6	15	6	2
Lead	mg/kg	29	14	14	16	9
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	5	12	15	2	2
Zinc	mg/kg	22	6	65	13	3

Acid Extractable metals in soil						
Our Reference		179694-11	179694-12	179694-13	179694-14	179694-15
Your Reference	UNITS	BH09	BH09	BH33	BH35	BH35
Depth		0.1	1.0	0.1	0.1	0.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Date analysed	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Arsenic	mg/kg	<4	<4	<4	<4	5
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	9	29	13	8	26
Copper	mg/kg	70	1	7	6	5
Lead	mg/kg	2	8	10	7	7
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	120	3	10	8	11
Zinc	mg/kg	42	3	31	26	7
Acid Extractable metals in soil						
Our Reference		179694-16	179694-17	179694-18	179694-19	179694-20
Your Reference						
	UNITS	BH37	BH38	BH38	BH39	BH40
Depth	UNITS	BH37 0.1	BH38 0.1	BH38 0.5	BH39 0.4	BH40 0.1
Depth Type of sample	UNITS	BH37 0.1 Soil	BH38 0.1 Soil	BH38 0.5 Soil	BH39 0.4 Soil	BH40 0.1 Soil
Depth Type of sample Date prepared	UNITS -	BH37 0.1 Soil 14/11/2017	BH38 0.1 Soil 14/11/2017	BH38 0.5 Soil 14/11/2017	BH39 0.4 Soil 14/11/2017	BH40 0.1 Soil 14/11/2017
Depth Type of sample Date prepared Date analysed	UNITS - -	BH37 0.1 Soil 14/11/2017 14/11/2017	BH38 0.1 Soil 14/11/2017 14/11/2017	BH38 0.5 Soil 14/11/2017 14/11/2017	BH39 0.4 Soil 14/11/2017 14/11/2017	BH40 0.1 Soil 14/11/2017 14/11/2017
Depth Type of sample Date prepared Date analysed Arsenic	UNITS - - mg/kg	BH37 0.1 Soil 14/11/2017 14/11/2017 <4	BH38 0.1 Soil 14/11/2017 14/11/2017 5	BH38 0.5 Soil 14/11/2017 14/11/2017 5	BH39 0.4 Soil 14/11/2017 14/11/2017 <4	BH40 0.1 Soil 14/11/2017 14/11/2017 <4
Depth Type of sample Date prepared Date analysed Arsenic Cadmium	UNITS - mg/kg mg/kg	BH37 0.1 Soil 14/11/2017 14/11/2017 <4 <0.4	BH38 0.1 Soil 14/11/2017 14/11/2017 5 <0.4	BH38 0.5 Soil 14/11/2017 14/11/2017 5 <0.4	BH39 0.4 Soil 14/11/2017 14/11/2017 <4 <0.4	BH40 0.1 Soil 14/11/2017 14/11/2017 <4 <0.4
Depth Type of sample Date prepared Date analysed Arsenic Cadmium Chromium	UNITS - mg/kg mg/kg mg/kg	BH37 0.1 Soil 14/11/2017 14/11/2017 <4 <0.4 11	BH38 0.1 Soil 14/11/2017 14/11/2017 5 <0.4 14	BH38 0.5 Soil 14/11/2017 14/11/2017 5 <0.4 21	BH39 0.4 Soil 14/11/2017 14/11/2017 <4 <0.4 10	BH40 0.1 Soil 14/11/2017 14/11/2017 <4 <0.4 12
Depth Type of sample Date prepared Date analysed Arsenic Cadmium Chromium Copper	UNITS - mg/kg mg/kg mg/kg mg/kg	BH37 0.1 Soil 14/11/2017 14/11/2017 <4 <0.4 <0.4 11 8	BH38 0.1 Soil 14/11/2017 14/11/2017 5 <0.4 14 46	BH38 0.5 Soil 14/11/2017 14/11/2017 5 <0.4 21 4	BH39 0.4 Soil 14/11/2017 14/11/2017 <4 <0.4 10 10	BH40 0.1 Soil 14/11/2017 14/11/2017 <4 <0.4 <0.4 12 8
Depth Type of sample Date prepared Date analysed Arsenic Cadmium Chromium Copper Lead	UNITS - - mg/kg mg/kg mg/kg mg/kg	BH37 0.1 Soil 14/11/2017 44 <0.4 <0.4 11 8 19	BH38 0.1 Soil 14/11/2017 14/11/2017 5 <0.4 14 14 46 200	BH38 0.5 Soil 14/11/2017 14/11/2017 5 <0.4 21 4 4 12	BH39 0.4 Soil 14/11/2017 14/11/2017 <4 <0.4 10 10 1 5	BH40 0.1 Soil 14/11/2017 14/11/2017 <4 <0.4 <0.4 12 8 8 14
Depth Type of sample Date prepared Date analysed Arsenic Cadmium Chromium Copper Lead Mercury	UNITS - mg/kg mg/kg mg/kg mg/kg mg/kg	BH37 0.1 Soil 14/11/2017 <4 <0.4 <0.4 11 8 19 19 <0.1	BH38 0.1 Soil 14/11/2017 5 <0.4 14 14 46 200 <0.1	BH38 0.5 Soil 14/11/2017 14/11/2017 5 <0.4 21 21 4 12 12 <0.1	BH39 0.4 Soil 14/11/2017 44/11/2017 <4 <0.4 10 10 1 5 5 <0.1	BH40 0.1 Soil 14/11/2017 44 4 4 4 4 4 4 4 2 4 3 8 12 8 14 14 5 0.1
Depth Type of sample Date prepared Date analysed Arsenic Cadmium Chromium Copper Lead Mercury Nickel	UNITS - - mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	BH37 0.1 Soil 14/11/2017 44 <0.4 11 4 11 8 19 <0.1 4	BH38 0.1 Soil 14/11/2017 14/11/2017 5 <0.4 14 14 46 200 <0.1 22	BH38 0.5 Soil 14/11/2017 14/11/2017 5 <0.4 21 4 21 4 12 <0.1 2	BH39 0.4 Soil 14/11/2017 44 4 4 4 0.4 10 1 1 5 5 <0.1 3	BH40 0.1 Soil 14/11/2017 44 <0.4 12 8 12 8 14 14 <0.1 3

Acid Extractable metals in soil						
Our Reference		179694-21	179694-22	179694-23	179694-24	179694-25
Your Reference	UNITS	BH40	BH42	BH42	BH44	BH44
Depth		1.2	0.4-0.5	1.4-1.5	0.4-0.5	0.9-1.0
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Date analysed	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Arsenic	mg/kg	8	<4	4	<4	4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	48	7	29	18	23
Copper	mg/kg	<1	3	3	2	5
Lead	mg/kg	13	6	7	7	10
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	2	4	2	1	2
Zinc	mg/kg	2	5	9	4	8

Acid Extractable metals in soil			
Our Reference		179694-26	179694-27
Your Reference	UNITS	LP1	LP1
Depth		0.1	0.5
Type of sample		Soil	Soil
Date prepared	-	14/11/2017	14/11/2017
Date analysed	-	14/11/2017	14/11/2017
Arsenic	mg/kg	14	6
Cadmium	mg/kg	<0.4	<0.4
Chromium	mg/kg	20	19
Copper	mg/kg	10	8
Lead	mg/kg	20	21
Mercury	mg/kg	<0.1	<0.1
Nickel	mg/kg	4	4
Zinc	mg/kg	23	25

Misc Soil - Inorg						
Our Reference		179694-1	179694-4	179694-6	179694-8	179694-11
Your Reference	UNITS	BH03	BH06	BH07	BH08	BH09
Depth		0.1	0.4-0.5	0.4-0.5	0.1	0.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Date analysed	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Misc Soil - Inorg						
Our Reference		179694-13	179694-15	179694-16	179694-17	179694-20
Your Reference	UNITS	BH33	BH35	BH37	BH38	BH40
Depth		0.1	0.5	0.1	0.1	0.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Date analysed	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Misc Soil - Inorg				
Our Reference		179694-22	179694-24	179694-26
Your Reference	UNITS	BH42	BH44	LP1
Depth		0.4-0.5	0.4-0.5	0.1
Type of sample		Soil	Soil	Soil
Date prepared	-	14/11/2017	14/11/2017	14/11/2017
Date analysed	-	14/11/2017	14/11/2017	14/11/2017
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5

Moisture						
Our Reference		179694-1	179694-2	179694-3	179694-4	179694-5
Your Reference	UNITS	BH03	BH03	BH03	BH06	BH06
Depth		0.1	1.0	1.5	0.4-0.5	1.4-1.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Date analysed	-	15/11/2017	15/11/2017	15/11/2017	15/11/2017	15/11/2017
Moisture	%	6.8	12	9.7	11	8.7

Moisture						
Our Reference		179694-6	179694-7	179694-8	179694-9	179694-10
Your Reference	UNITS	BH07	BH07	BH08	BH08	BH08
Depth		0.4-0.5	0.9-1.0	0.1	0.4-0.5	0.9-1.0
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Date analysed	-	15/11/2017	15/11/2017	15/11/2017	15/11/2017	15/11/2017
Moisture	%	8.1	13	14	11	9.1

Moisture						
Our Reference		179694-11	179694-12	179694-13	179694-14	179694-15
Your Reference	UNITS	BH09	BH09	BH33	BH35	BH35
Depth		0.1	1.0	0.1	0.1	0.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Date analysed	-	15/11/2017	15/11/2017	15/11/2017	15/11/2017	15/11/2017
Moisture	%	6.7	13	3.6	9.1	5.7

Moisture						
Our Reference		179694-16	179694-17	179694-18	179694-19	179694-20
Your Reference	UNITS	BH37	BH38	BH38	BH39	BH40
Depth		0.1	0.1	0.5	0.4	0.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Date analysed	-	15/11/2017	15/11/2017	15/11/2017	15/11/2017	15/11/2017
Moisture	%	6.6	8.2	13	9.2	11

Moisture						
Our Reference		179694-21	179694-22	179694-23	179694-24	179694-25
Your Reference	UNITS	BH40	BH42	BH42	BH44	BH44
Depth		1.2	0.4-0.5	1.4-1.5	0.4-0.5	0.9-1.0
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/11/2017	14/11/2017	14/11/2017	14/11/2017	14/11/2017
Date analysed	-	15/11/2017	15/11/2017	15/11/2017	15/11/2017	15/11/2017
Moisture	%	20	5.5	11	7.7	11

Moisture			
Our Reference		179694-26	179694-27
Your Reference	UNITS	LP1	LP1
Depth		0.1	0.5
Type of sample		Soil	Soil
Date prepared	-	14/11/2017	14/11/2017
Date analysed	-	15/11/2017	15/11/2017
Moisture	%	11	10

Asbestos ID - soils						
Our Reference		179694-1	179694-4	179694-6	179694-8	179694-9
Your Reference	UNITS	BH03	BH06	BH07	BH08	BH08
Depth		0.1	0.4-0.5	0.4-0.5	0.1	0.4-0.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	17/11/2017	17/11/2017	17/11/2017	17/11/2017	17/11/2017
Sample mass tested	g	Approx. 35g	Approx. 40g	Approx. 30g	Approx. 30g	Approx. 25g
Sample Description	-	Brown coarse- grained soil & rocks	Brown coarse- grained soil & rocks	Brown coarse- grained soil & rocks	Brown coarse- grained soil & rocks	Brown coarse- grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
		detected	detected	detected	detected	detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils						
Our Reference		179694-11	179694-13	179694-15	179694-16	179694-17
Your Reference	UNITS	BH09	BH33	BH35	BH37	BH38
Depth		0.1	0.1	0.5	0.1	0.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	17/11/2017	17/11/2017	17/11/2017	17/11/2017	17/11/2017
Sample mass tested	g	Approx. 25g	Approx. 25g	Approx. 40g	Approx. 30g	Approx. 25g
Sample Description	-	Brown coarse- grained soil & rocks	Brown coarse- grained soil & rocks	Brown coarse- grained soil & rocks	Brown coarse- grained soil & rocks	Brown coarse- grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres	No asbestos detected at reporting limit of 0.1g/kg Organic fibres	No asbestos detected at reporting limit of 0.1g/kg Organic fibres	No asbestos detected at reporting limit of 0.1g/kg Organic fibres	No asbestos detected at reporting limit of 0.1g/kg Organic fibres
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Asbestos ID - soils						1
Our Reference		179694-20	179694-22	179694-24	179694-26	
Your Reference	UNITS	BH40	BH42	BH44	LP1	
Depth		0.1	0.4-0.5	0.4-0.5	0.1	
Type of sample		Soil	Soil	Soil	Soil	
Date analysed	-	17/11/2017	17/11/2017	17/11/2017	17/11/2017	
Sample mass tested	g	Approx. 30g	Approx. 25g	Approx. 25g	Approx. 35g	
Sample Description	-	Brown coarse- grained soil & rocks	Brown coarse- grained soil & rocks	Brown coarse- grained soil & rocks	Brown coarse- grained soil & rocks	
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Inorg-031	Total Phenolics by segmented flow analyser (in line distillation with colourimetric finish). Solids are extracted in a caustic media prior to analysis.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.
	F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
	Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual
	ECD's. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.

Method ID	Methodology Summary
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <pql actually="" are="" at="" conservative<br="" is="" most="" pql.="" the="" this="">approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <pql and<br="" approach="" are="" conservative="" is="" least="" the="" this="" zero.="">is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <pql a="" are="" half="" hence="" mid-point<br="" pql.="" stipulated="" the="">between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.</pql></pql></pql>
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONT	ROL: vTRH	(C6-C10)	/BTEXN in Soil		Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	179694-4
Date extracted	-			14/11/2017	1	14/11/2017	14/11/2017		14/11/2017	14/11/2017
Date analysed	-			15/11/2017	1	15/11/2017	15/11/2017		15/11/2017	15/11/2017
TRH C ₆ - C ₉	mg/kg	25	Org-016	<25	1	<25	<25	0	90	89
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	<25	1	<25	<25	0	90	89
Benzene	mg/kg	0.2	Org-016	<0.2	1	<0.2	<0.2	0	84	82
Toluene	mg/kg	0.5	Org-016	<0.5	1	<0.5	<0.5	0	91	88
Ethylbenzene	mg/kg	1	Org-016	<1	1	<1	<1	0	92	91
m+p-xylene	mg/kg	2	Org-016	<2	1	<2	<2	0	92	91
o-Xylene	mg/kg	1	Org-016	<1	1	<1	<1	0	90	89
naphthalene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	92	1	86	91	6	93	83

QUALITY CONT	ROL: vTRH	(C6-C10)	/BTEXN in Soil		Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	179694-24
Date extracted	-			[NT]	11	14/11/2017	14/11/2017		14/11/2017	14/11/2017
Date analysed	-			[NT]	11	15/11/2017	15/11/2017		15/11/2017	15/11/2017
TRH C ₆ - C ₉	mg/kg	25	Org-016	[NT]	11	<25	<25	0	88	87
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	[NT]	11	<25	<25	0	88	87
Benzene	mg/kg	0.2	Org-016	[NT]	11	<0.2	<0.2	0	81	80
Toluene	mg/kg	0.5	Org-016	[NT]	11	<0.5	<0.5	0	88	87
Ethylbenzene	mg/kg	1	Org-016	[NT]	11	<1	<1	0	89	88
m+p-xylene	mg/kg	2	Org-016	[NT]	11	<2	<2	0	90	90
o-Xylene	mg/kg	1	Org-016	[NT]	11	<1	<1	0	88	87
naphthalene	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	11	93	87	7	91	84

QUALITY CONT		Du	Spike Recovery %							
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	22	14/11/2017	14/11/2017			[NT]
Date analysed	-			[NT]	22	15/11/2017	15/11/2017			[NT]
TRH C ₆ - C ₉	mg/kg	25	Org-016	[NT]	22	<25	<25	0		[NT]
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	[NT]	22	<25	<25	0		[NT]
Benzene	mg/kg	0.2	Org-016	[NT]	22	<0.2	<0.2	0		[NT]
Toluene	mg/kg	0.5	Org-016	[NT]	22	<0.5	<0.5	0		[NT]
Ethylbenzene	mg/kg	1	Org-016	[NT]	22	<1	<1	0		[NT]
m+p-xylene	mg/kg	2	Org-016	[NT]	22	<2	<2	0		[NT]
o-Xylene	mg/kg	1	Org-016	[NT]	22	<1	<1	0		[NT]
naphthalene	mg/kg	1	Org-014	[NT]	22	<1	<1	0		[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	22	86	86	0		[NT]

QUALITY CO		Du	Spike Re	Spike Recovery %						
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	179694-4
Date extracted	-			14/11/2017	1	14/11/2017	14/11/2017		14/11/2017	14/11/2017
Date analysed	-			15/11/2017	1	14/11/2017	14/11/2017		14/11/2017	14/11/2017
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	<50	1	<50	<50	0	100	97
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	<100	1	<100	<100	0	104	97
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	<100	1	<100	<100	0	106	90
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	<50	1	<50	<50	0	100	97
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	<100	1	<100	<100	0	104	97
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	<100	1	<100	<100	0	106	90
Surrogate o-Terphenyl	%		Org-003	78	1	85	86	1	92	79

QUALITY CO	Duplicate S					covery %				
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	179694-24
Date extracted	-			[NT]	11	14/11/2017	14/11/2017		14/11/2017	14/11/2017
Date analysed	-			[NT]	11	14/11/2017	14/11/2017		15/11/2017	15/11/2017
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	[NT]	11	<50	<50	0	95	96
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	[NT]	11	<100	<100	0	97	98
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	[NT]	11	<100	<100	0	91	88
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	[NT]	11	<50	<50	0	95	96
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	[NT]	11	<100	<100	0	97	98
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	[NT]	11	<100	<100	0	91	88
Surrogate o-Terphenyl	%		Org-003	[NT]	11	78	79	1	86	77

QUALITY CO		Du		Spike Recovery %						
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	22	14/11/2017	14/11/2017		[NT]	
Date analysed	-			[NT]	22	15/11/2017	15/11/2017		[NT]	
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	[NT]	22	<50	<50	0	[NT]	
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	[NT]	22	<100	<100	0	[NT]	
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	[NT]	22	<100	<100	0	[NT]	
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	[NT]	22	<50	<50	0	[NT]	
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	[NT]	22	<100	<100	0	[NT]	
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	[NT]	22	<100	<100	0	[NT]	
Surrogate o-Terphenyl	%		Org-003	[NT]	22	78	78	0	[NT]	[NT]

QUALIT		Du	plicate		Spike Recovery %					
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	179694-4
Date extracted	-			14/11/2017	1	14/11/2017	14/11/2017		14/11/2017	14/11/2017
Date analysed	-			15/11/2017	1	15/11/2017	15/11/2017		15/11/2017	15/11/2017
Naphthalene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	86	81
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	89	83
Phenanthrene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	86	81
Anthracene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	89	82
Pyrene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	94	87
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	95	89
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	1	<0.05	<0.05	0	76	75
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	95	1	87	91	4	119	113

QUALIT	Y CONTRO	L: PAHs	in Soil			Du		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	179694-24
Date extracted	-			[NT]	11	14/11/2017	14/11/2017		14/11/2017	14/11/2017
Date analysed	-			[NT]	11	15/11/2017	15/11/2017		15/11/2017	14/11/2017
Naphthalene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	96	89
Acenaphthylene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	94	89
Phenanthrene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	96	88
Anthracene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	96	91
Pyrene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	101	96
Benzo(a)anthracene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	100	92
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	[NT]	11	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	[NT]	11	<0.05	<0.05	0	87	77
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	[NT]	11	85	85	0	117	118

QUALIT		Du		Spike Recovery %						
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	22	14/11/2017	14/11/2017			[NT]
Date analysed	-			[NT]	22	14/11/2017	14/11/2017			[NT]
Naphthalene	mg/kg	0.1	Org-012	[NT]	22	<0.1	<0.1	0		[NT]
Acenaphthylene	mg/kg	0.1	Org-012	[NT]	22	<0.1	<0.1	0		[NT]
Acenaphthene	mg/kg	0.1	Org-012	[NT]	22	<0.1	<0.1	0		[NT]
Fluorene	mg/kg	0.1	Org-012	[NT]	22	<0.1	<0.1	0		[NT]
Phenanthrene	mg/kg	0.1	Org-012	[NT]	22	<0.1	<0.1	0		[NT]
Anthracene	mg/kg	0.1	Org-012	[NT]	22	<0.1	<0.1	0		[NT]
Fluoranthene	mg/kg	0.1	Org-012	[NT]	22	<0.1	<0.1	0		[NT]
Pyrene	mg/kg	0.1	Org-012	[NT]	22	<0.1	<0.1	0		[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	[NT]	22	<0.1	<0.1	0		[NT]
Chrysene	mg/kg	0.1	Org-012	[NT]	22	<0.1	<0.1	0		[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	[NT]	22	<0.2	<0.2	0		[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	[NT]	22	<0.05	<0.05	0		[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	[NT]	22	<0.1	<0.1	0		[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	[NT]	22	<0.1	<0.1	0		[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	[NT]	22	<0.1	<0.1	0		[NT]
Surrogate p-Terphenyl-d14	%		Org-012	[NT]	22	90	91	1		[NT]

QUALIT		Du	Spike Recovery %							
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	17	14/11/2017	14/11/2017		[NT]	[NT]
Date analysed	-			[NT]	17	15/11/2017	15/11/2017		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-012	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-012	[NT]	17	0.1	0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-012	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	[NT]	17	0.2	0.3	40	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-012	[NT]	17	0.2	0.3	40	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	[NT]	17	0.1	0.2	67	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	[NT]	17	0.2	0.2	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	[NT]	17	0.3	0.3	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	[NT]	17	0.2	0.2	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	[NT]	17	0.1	0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	[NT]	17	0.1	0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	[NT]	17	87	91	4	[NT]	[NT]

QUALITY CONTR	ROL: Organo	chlorine I	Pesticides in soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	179694-4
Date extracted	-			14/11/2017	1	14/11/2017	14/11/2017		14/11/2017	14/11/2017
Date analysed	-			14/11/2017	1	14/11/2017	14/11/2017		14/11/2017	14/11/2017
НСВ	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	90	94
gamma-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	89	93
Heptachlor	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	79	84
delta-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	77	83
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	77	83
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	80	95
Dieldrin	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	84	92
Endrin	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	77	84
pp-DDD	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	85	100
Endosulfan II	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	68	76
Methoxychlor	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	85	1	98	81	19	100	99
QUALITY CONTR	ROL: Organo	chlorine I	Pesticides in soil			Du	plicate		Spike Re	covery %
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Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	179694-24
Date extracted	-			[NT]	11	14/11/2017	14/11/2017		14/11/2017	14/11/2017
Date analysed	-			[NT]	11	14/11/2017	14/11/2017		14/11/2017	14/11/2017
НСВ	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	88	99
gamma-BHC	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	85	96
Heptachlor	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	76	91
delta-BHC	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	73	88
Heptachlor Epoxide	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	74	89
gamma-Chlordane	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	76	96
Dieldrin	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	81	96
Endrin	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	73	86
pp-DDD	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	79	99
Endosulfan II	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	78	71
Methoxychlor	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	[NT]	11	92	94	2	99	108

QUALITY CONTR	OL: Organo	chlorine l	Pesticides in soil	_		Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	22	14/11/2017	14/11/2017		[NT]	[NT]
Date analysed	-			[NT]	22	14/11/2017	14/11/2017		[NT]	[NT]
НСВ	mg/kg	0.1	Org-005	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-005	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-005	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-005	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-005	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-005	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-005	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-005	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-005	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-005	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-005	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	[NT]	22	93	87	7	[NT]	[NT]

QUALITY CONT	ROL: Organ	ophosph	orus Pesticides			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	179694-4
Date extracted	-			14/11/2017	1	14/11/2017	14/11/2017		14/11/2017	14/11/2017
Date analysed	-			14/11/2017	1	14/11/2017	14/11/2017		14/11/2017	14/11/2017
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	105	89
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	106	80
Dimethoate	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	108	103
Fenitrothion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	102	102
Malathion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	103	73
Parathion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	115	114
Ronnel	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	121	101
Surrogate TCMX	%		Org-008	85	1	98	81	19	99	81

QUALITY CONT	ROL: Organ	ophospho	orus Pesticides			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	179694-24
Date extracted	-			[NT]	11	14/11/2017	14/11/2017		14/11/2017	14/11/2017
Date analysed	-			[NT]	11	14/11/2017	14/11/2017		14/11/2017	14/11/2017
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	92	95
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	90	95
Dimethoate	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	79	111
Fenitrothion	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	102	93
Malathion	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	82	84
Parathion	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	107	109
Ronnel	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	106	107
Surrogate TCMX	%		Org-008	[NT]	11	92	94	2	101	87

QUALITY CONT	ROL: Organ	ophosph	orus Pesticides			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	22	14/11/2017	14/11/2017		[NT]	[NT]
Date analysed	-			[NT]	22	14/11/2017	14/11/2017		[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-008	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-008	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-008	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-008	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-008	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-008	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-008	[NT]	22	93	87	7	[NT]	[NT]

QUALIT	Y CONTRO	L: PCBs	in Soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	179694-4
Date extracted	-			14/11/2017	1	14/11/2017	14/11/2017		14/11/2017	14/11/2017
Date analysed	-			14/11/2017	1	14/11/2017	14/11/2017		14/11/2017	14/11/2017
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	102	132
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCLMX	%		Org-006	85	1	98	81	19	99	81

QUALIT	Y CONTRO	L: PCBs	in Soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	179694-24
Date extracted	-			[NT]	11	14/11/2017	14/11/2017		14/11/2017	14/11/2017
Date analysed	-			[NT]	11	14/11/2017	14/11/2017		14/11/2017	14/11/2017
Aroclor 1016	mg/kg	0.1	Org-006	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	[NT]	11	<0.1	<0.1	0	124	135
Aroclor 1260	mg/kg	0.1	Org-006	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCLMX	%		Org-006	[NT]	11	92	94	2	101	87

QUALIT	Y CONTRO	L: PCBs	in Soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	22	14/11/2017	14/11/2017		[NT]	[NT]
Date analysed	-			[NT]	22	14/11/2017	14/11/2017		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-006	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-006	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCLMX	%		Org-006	[NT]	22	93	87	7	[NT]	[NT]

QUALITY CONT	ROL: Acid E	xtractabl	e metals in soil			Du	olicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	179694-4
Date prepared	-			14/11/2017	1	14/11/2017	14/11/2017		14/11/2017	14/11/2017
Date analysed	-			14/11/2017	1	14/11/2017	14/11/2017		14/11/2017	14/11/2017
Arsenic	mg/kg	4	Metals-020	<4	1	5	4	22	117	101
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	<0.4	<0.4	0	106	100
Chromium	mg/kg	1	Metals-020	<1	1	54	50	8	114	110
Copper	mg/kg	1	Metals-020	<1	1	16	18	12	112	118
Lead	mg/kg	1	Metals-020	<1	1	11	11	0	107	97
Mercury	mg/kg	0.1	Metals-021	<0.1	1	<0.1	<0.1	0	102	104
Nickel	mg/kg	1	Metals-020	<1	1	37	37	0	106	107
Zinc	mg/kg	1	Metals-020	<1	1	25	26	4	111	101

QUALITY CONT	ROL: Acid E	Extractabl	e metals in soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	179694-24
Date prepared	-			[NT]	11	14/11/2017	14/11/2017		14/11/2017	14/11/2017
Date analysed	-			[NT]	11	14/11/2017	14/11/2017		14/11/2017	14/11/2017
Arsenic	mg/kg	4	Metals-020	[NT]	11	<4	<4	0	118	96
Cadmium	mg/kg	0.4	Metals-020	[NT]	11	<0.4	<0.4	0	108	102
Chromium	mg/kg	1	Metals-020	[NT]	11	9	9	0	117	116
Copper	mg/kg	1	Metals-020	[NT]	11	70	76	8	114	113
Lead	mg/kg	1	Metals-020	[NT]	11	2	4	67	109	101
Mercury	mg/kg	0.1	Metals-021	[NT]	11	<0.1	<0.1	0	103	104
Nickel	mg/kg	1	Metals-020	[NT]	11	120	130	8	108	104
Zinc	mg/kg	1	Metals-020	[NT]	11	42	44	5	112	102

QUALITY CONT	ROL: Acid E	Extractable	e metals in soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	22	14/11/2017	14/11/2017		[NT]	
Date analysed	-			[NT]	22	14/11/2017	14/11/2017		[NT]	
Arsenic	mg/kg	4	Metals-020	[NT]	22	<4	<4	0	[NT]	
Cadmium	mg/kg	0.4	Metals-020	[NT]	22	<0.4	<0.4	0	[NT]	
Chromium	mg/kg	1	Metals-020	[NT]	22	7	11	44	[NT]	
Copper	mg/kg	1	Metals-020	[NT]	22	3	5	50	[NT]	
Lead	mg/kg	1	Metals-020	[NT]	22	6	7	15	[NT]	
Mercury	mg/kg	0.1	Metals-021	[NT]	22	<0.1	<0.1	0	[NT]	
Nickel	mg/kg	1	Metals-020	[NT]	22	4	6	40	[NT]	
Zinc	mg/kg	1	Metals-020	[NT]	22	5	8	46	[NT]	[NT]

QUALITY	CONTROL	Misc Soi	l - Inorg			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	179694-4
Date prepared	-			14/11/2017	1	14/11/2017	14/11/2017		14/11/2017	14/11/2017
Date analysed	-			14/11/2017	1	14/11/2017	14/11/2017		14/11/2017	14/11/2017
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	<5	1	<5	<5	0	99	100
QUALITY	CONTROL:	Misc Soi	I - Inorg			Du	plicate		Spike Re	covery %

Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	22	14/11/2017	14/11/2017		[NT]	[NT]
Date analysed	-			[NT]	22	14/11/2017	14/11/2017		[NT]	[NT]
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	[NT]	22	<5	<5	0	[NT]	[NT]

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

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

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

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

Report Comments

Asbestos: A portion of the supplied sample was sub-sampled for asbestos analysis according to Envirolab procedures. We cannot guarantee that this sub-sample is indicative of the entire sample. Envirolab recommends supplying 40-50g of sample in its own container.

Note: Samples were sub-sampled from jars provided by the client.

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CHAIN OF CUSTODY DESPATCH SHEET

Project Name: Total Name: Cloter Number Cloter Num	Project No:	86043.	01			Suburb		Macqua	arie Park	To:	Envirolab Services	
Project Manager: Explore (A block) Sample: Ls Phone: C0 block Phone: <td>Project Name:</td> <td>Ivanho</td> <td>e</td> <td></td> <td></td> <td>Order N</td> <td>lumber</td> <td></td> <td></td> <td></td> <td>12 Ashley Street, Cha</td> <td>atswood NSW 2067</td>	Project Name:	Ivanho	e			Order N	lumber				12 Ashley Street, Cha	atswood NSW 2067
Email Email Phone: Submet: Subme: Subm	Project Manager	S Peac	sock (& Dav	vid Walker)		Sample	ü	LS		Attn:	Aileen	
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RH65 01 1 2 2 2 4 <td>Sample ID</td> <td>D D</td> <td>gms2 ətsD</td> <td>S - soil W - Water</td> <td>G - glastic P - plastic</td> <td>pg ogna</td> <td>t) ogna</td> <td>341 00-07</td> <td></td> <td></td> <td></td> <td>Notes/preservation</td>	Sample ID	D D	gms2 ətsD	S - soil W - Water	G - glastic P - plastic	pg ogna	t) ogna	341 00-07				Notes/preservation
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CHAIN OF CUSTODY DESPATCH SHEET

Project No:	86043.01	_			Suburb		Macquari	e Park	To:	Envirolab Servic	es	
Project Name:	Ivanhoe				Order N	lumber				12 Ashley Street	, Chatswood NSW 2067	
Project Manager	S Peaco	ck (& Dav	vid Walker)		Sample		S		Attn:	Aileen		
Emails:	david.w	alker@do	uglaspartnei	rs.com.au		•			Phone:	02 9910 6200		
Date Required:	Same da	IV 🗆	24 hours	48 ho	ours 🗆	72 hours	SI	andard 🛛	Email:	sydney@envir	olab.com.au	
Prior Storage:	Esky	Eridg	le 🛛 She	lved	Do samp	les contain '	potential' h	HBM? Yes	□ No □	(If YES, then handle, trans	port and store in accordance with	FPM HAZID)
		pəlc	Sample Type	Container Type				Analy	tes			
Sample ID	Lab	te Samp	- soil water	glass plastic	39	3/ 5					Notes/prese	vation
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BH37 0.1	(b a	Arep.	S	2	1							
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5.0 8648	18					1						
5439 10.4	19					>						
1.010448	20				>							
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BK42 04-0-5	22				1							
9.442 1.4.1.S	23					>						
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191 / 0.5	27		5	\land		>						
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POI = practical o	mantitati	on limit.	If none div	ven default	to l abors	atory Metho	d Detecti	on Limit				
Metals to Analys	e: 8HM u	nless sp	ecified her	e:					Lab R	sport/Reference No:		
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SAMPLE RECEIPT ADVICE

Client Details	
Client	Douglas Partners Pty Ltd
Attention	David Walker

Sample Login Details	
Your reference	86043.01, Ivanhoe
Envirolab Reference	179694
Date Sample Received	13/11/2017
Date Instructions Received	13/11/2017
Date Results Expected to be Reported	20/11/2017

Sample Condition	
Samples received in appropriate condition for analysis	YES
No. of Samples Provided	27 Soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	12.8
Cooling Method	Ice Pack
Sampling Date Provided	Not Provided on the COC

Comments	
Nil	

Please direct any queries to:

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

Analysis Underway, details on the following page:



Envirolab Services Pty Ltd

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

Sample ID	VTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticidesin so	Organophosphorus Pesticides	PCBsin Soil	Acid Extractable metalsin soil	Total Phenolics (as Phenol)	Asbestos ID - soils
BH03-0.1	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	✓	\checkmark
BH03-1.0	✓	\checkmark	\checkmark	\checkmark			\checkmark		
BH03-1.5	✓	\checkmark	\checkmark	\checkmark			\checkmark		
BH06-0.4-0.5	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	✓	\checkmark
BH06-1.4-1.5	✓	\checkmark	\checkmark	\checkmark			\checkmark		
BH07-0.4-0.5	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	✓	\checkmark
BH07-0.9-1.0	\checkmark	\checkmark	\checkmark	\checkmark			\checkmark		
BH08-0.1	✓	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	✓	\checkmark
BH08-0.4-0.5	\checkmark	\checkmark	\checkmark	\checkmark			\checkmark		✓
BH08-0.9-1.0	\checkmark	\checkmark	\checkmark	\checkmark			\checkmark		
BH09-0.1	✓	✓	\checkmark	\checkmark	✓	\checkmark	\checkmark	✓	\checkmark
BH09-1.0	✓	✓	✓	\checkmark			✓		
BH33-0.1	✓	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	✓	✓	\checkmark
BH35-0.1	✓	\checkmark	\checkmark	\checkmark			\checkmark		
BH35-0.5	✓	✓	✓	✓	✓	✓	✓	✓	\checkmark
BH37-0.1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH38-0.1	✓	✓	✓	\checkmark	\checkmark	\checkmark	✓	✓	✓
BH38-0.5	✓	✓	✓	✓			✓		
BH39-0.4	✓	✓	✓	\checkmark			✓		
BH40-0.1	✓	✓	✓	\checkmark	\checkmark	✓	✓	✓	✓
BH40-1.2	✓	✓	✓	✓			✓		
BH42-0.4-0.5	✓	✓	✓	\checkmark	\checkmark	✓	✓	✓	✓
BH42-1.4-1.5	✓	✓	✓	\checkmark			✓		
BH44-0.4-0.5	✓	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	✓	✓	\checkmark
BH44-0.9-1.0	✓	\checkmark	\checkmark	\checkmark			✓		
LP1-0.1	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	✓	✓	\checkmark
LP1-0.5	\checkmark	\checkmark	\checkmark	\checkmark			\checkmark		

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

Additional Info

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

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



CERTIFICATE OF ANALYSIS 179694-A

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

Sample Details	
Your Reference	86043.01, Ivanhoe
Number of Samples	27 Soil
Date samples received	13/11/2017
Date completed instructions received	20/11/2017

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details		
Date results requested by	27/11/2017	
Date of Issue	24/11/2017	
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Results Approved By Long Pham, Team Leader, Metals

Authorised By

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David Springer, General Manager



Metals in TCLP USEPA1311			
Our Reference		179694-A-11	179694-A-17
Your Reference	UNITS	BH09	BH38
Depth		0.1	0.1
Type of sample		Soil	Soil
Date extracted	-	22/11/2017	22/11/2017
Date analysed	-	23/11/2017	23/11/2017
pH of soil for fluid# determ.	pH units	9.3	6.6
pH of soil TCLP (after HCl)	pH units	1.6	1.6
Extraction fluid used	-	1	1
pH of final Leachate	pH units	5.2	5.1
Lead in TCLP	mg/L		<0.03
Nickel in TCLP	mg/L	0.2	[NA]

Method ID	Methodology Summary
EXTRACT.7	Toxicity Characteristic Leaching Procedure (TCLP) using Zero Headspace Extraction (zHE) using AS4439 and USEPA 1311.
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-004	Toxicity Characteristic Leaching Procedure (TCLP) using in house method INORG-004.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.

QUALITY CONTROL: Metals in TCLP USEPA1311			Duplicate			Spike Recovery %				
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			22/11/2017	[NT]		[NT]	[NT]	22/11/2017	[NT]
Date analysed	-			23/11/2017	[NT]		[NT]	[NT]	23/11/2017	[NT]
Lead in TCLP	mg/L	0.03	Metals-020 ICP- AES	<0.03	[NT]		[NT]	[NT]	108	[NT]
Nickel in TCLP	mg/L	0.02	Metals-020 ICP- AES	<0.02	[NT]		[NT]	[NT]	110	[NT]

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

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

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

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

Simon Song

From: Sent: To: Cc: Subject: David Walker <David.Walker@douglaspartners.com.au> Monday, 20 November 2017 7:45 AM Ken Nguyen Samplereceipt RE: Results for Registration 179694 86043.01, Ivanhoe

Hi Ken

Please go ahead with TCLP as follows: -11 BH09, 0.1: Nickel -17 BH38, 0.1: Lead

regards

ELS: 179694-A Rec: 20/11/17 7:45 TAT: 5 daugs

PINANGAL RESERVE

CLIENT CHO

MINNER

David Walker | Associate / Environmental Engineer Douglas Partners Pty Ltd | ABN 75 053 980 117 | www.douglaspartners.com.au 96 Hermitage Road West Ryde NSW 2114 | PO Box 472 West Ryde NSW 1685 P: 02 9809 0666 | F: 02 9809 4095 | M: 0407 540 537 | E: David.Walker@douglaspartners.com.au



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From: Ken Nguyen [mailto:KNguyen@envirolab.com.au]
Sent: Friday, 17 November 2017 5:28 PM
To: David Walker
Subject: Results for Registration 179694 86043.01, Ivanhoe

Please refer to attached for: a copy of the Certificate of Analysis a copy of the COC/paperwork received from you ESDAT Extracts an Excel or .csv file containing the results Please note that a hard copy will not be posted.

We have a new reporting format and would welcome your feedback. Sydney@envirolab.com.au

Enquiries should be made directly to: customerservice@envirolab.com.au

Regards

Envirolab Services 12 Ashley St Chatswood NSW 2067 ph 02 9910 6200 fax 02 9910 6201



SAMPLE RECEIPT ADVICE

Client Details	
Client	Douglas Partners Pty Ltd
Attention	David Walker

Sample Login Details			
Your reference	86043.01, Ivanhoe		
Envirolab Reference	179694-A		
Date Sample Received	13/11/2017		
Date Instructions Received	20/11/2017		
Date Results Expected to be Reported	27/11/2017		

Sample Condition	
Samples received in appropriate condition for analysis	YES
No. of Samples Provided	27 Soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	12.8
Cooling Method	Ice Pack
Sampling Date Provided	Not Provided on the COC

Comments	
Nil	

Please direct any queries to:

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

Analysis Underway, details on the following page:



Sample ID	Metals in TCLP USEPA131	On Hold
BH03-0.1		\checkmark
BH03-1.0		✓
BH03-1.5		\checkmark
BH06-0.4-0.5		\checkmark
BH06-1.4-1.5		\checkmark
BH07-0.4-0.5		✓
BH07-0.9-1.0		\checkmark
BH08-0.1		✓
BH08-0.4-0.5		\checkmark
BH08-0.9-1.0		\checkmark
BH09-0.1	\checkmark	
BH09-1.0		\checkmark
BH33-0.1		✓
BH35-0.1		\checkmark
BH35-0.5		\checkmark
BH37-0.1		\checkmark
BH38-0.1	\checkmark	
BH38-0.5		\checkmark
BH39-0.4		\checkmark
BH40-0.1		\checkmark
BH40-1.2		\checkmark
BH42-0.4-0.5		\checkmark
BH42-1.4-1.5		✓
BH44-0.4-0.5		\checkmark
BH44-0.9-1.0		\checkmark
LP1-0.1		\checkmark
LP1-0.5		\checkmark

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

Additional Info

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

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



CERTIFICATE OF ANALYSIS 180186

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

Sample Details	
Your Reference	86043.01, Ivanhoe
Number of Samples	10 Soil
Date samples received	20/11/2017
Date completed instructions received	20/11/2017

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report DetailsDate results requested by27/11/2017

 Date results requested by
 27/11/2017

 Date of Issue
 24/11/2017

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Asbestos Approved By

Paul Ching, Senior Analyst Steven Luong, Senior Chemist

Nick Sarlamis, Inorganics Supervisor

Analysed by Asbestos Approved Identifier: Matt Tang Authorised by Asbestos Approved Signatory: Paul Ching **<u>Results Approved By</u>** Dragana Tomas, Senior Chemist Long Pham, Team Leader, Metals

Authorised By

David Springer, General Manager



vTRH(C6-C10)/BTEXN in Soil						
Our Reference		180186-1	180186-2	180186-3	180186-4	180186-5
Your Reference	UNITS	BH31	BH31	BH32	BH39	BH43
Depth		0.1	0.5	0.1	0.1	0.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/11/2017	21/11/2017	21/11/2017	21/11/2017	21/11/2017
Date analysed	-	22/11/2017	22/11/2017	22/11/2017	22/11/2017	22/11/2017
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	80	87	71	73	82

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		180186-6	180186-7	180186-8	180186-9	180186-10
Your Reference	UNITS	BH45	BH46	BH47	BH47	BH47
Depth		0.1	0.3	0.5	1.0	1.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/11/2017	21/11/2017	21/11/2017	21/11/2017	21/11/2017
Date analysed	-	22/11/2017	22/11/2017	24/11/2017	22/11/2017	22/11/2017
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	70	78	96	77	76

svTRH (C10-C40) in Soil						
Our Reference		180186-1	180186-2	180186-3	180186-4	180186-5
Your Reference	UNITS	BH31	BH31	BH32	BH39	BH43
Depth		0.1	0.5	0.1	0.1	0.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/11/2017	21/11/2017	21/11/2017	21/11/2017	21/11/2017
Date analysed	-	21/11/2017	21/11/2017	21/11/2017	21/11/2017	21/11/2017
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	130	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	250	<100	<100
TRH >C10 -C16	mg/kg	<50	<50	55	<50	<50
TRH >C10 - C16 less Naphthalene (F2)	mg/kg	<50	<50	55	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	260	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	150	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	460	<50	<50
Surrogate o-Terphenyl	%	93	92	72	91	71

svTRH (C10-C40) in Soil						
Our Reference		180186-6	180186-7	180186-8	180186-9	180186-10
Your Reference	UNITS	BH45	BH46	BH47	BH47	BH47
Depth		0.1	0.3	0.5	1.0	1.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/11/2017	21/11/2017	21/11/2017	21/11/2017	21/11/2017
Date analysed	-	21/11/2017	21/11/2017	21/11/2017	21/11/2017	21/11/2017
TRH C10 - C14	mg/kg	<50	<50	<50	<50	<50
TRH C15 - C28	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C34 -C40	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	74	71	71	73	92

PAHs in Soil						
Our Reference		180186-1	180186-2	180186-3	180186-4	180186-5
Your Reference	UNITS	BH31	BH31	BH32	BH39	BH43
Depth		0.1	0.5	0.1	0.1	0.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/11/2017	21/11/2017	21/11/2017	21/11/2017	21/11/2017
Date analysed	-	21/11/2017	21/11/2017	21/11/2017	21/11/2017	21/11/2017
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	96	95	82	93	89

PAHs in Soil						
Our Reference		180186-6	180186-7	180186-8	180186-9	180186-10
Your Reference	UNITS	BH45	BH46	BH47	BH47	BH47
Depth		0.1	0.3	0.5	1.0	1.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/11/2017	21/11/2017	21/11/2017	21/11/2017	21/11/2017
Date analysed	-	21/11/2017	21/11/2017	21/11/2017	21/11/2017	21/11/2017
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	0.2	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	94	90	87	87	92

Organochlorine Pesticides in soil						
Our Reference		180186-1	180186-2	180186-3	180186-4	180186-5
Your Reference	UNITS	BH31	BH31	BH32	BH39	BH43
Depth		0.1	0.5	0.1	0.1	0.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/11/2017	21/11/2017	21/11/2017	21/11/2017	21/11/2017
Date analysed	-	22/11/2017	22/11/2017	22/11/2017	22/11/2017	22/11/2017
НСВ	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	86	80	99	80	85

Organochlorine Pesticides in soil						
Our Reference		180186-6	180186-7	180186-8	180186-9	180186-10
Your Reference	UNITS	BH45	BH46	BH47	BH47	BH47
Depth		0.1	0.3	0.5	1.0	1.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/11/2017	21/11/2017	21/11/2017	21/11/2017	21/11/2017
Date analysed	-	22/11/2017	22/11/2017	22/11/2017	22/11/2017	22/11/2017
НСВ	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	0.1	0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	0.1	0.1
Surrogate TCMX	%	88	77	74	84	85

Organophosphorus Pesticides						
Our Reference		180186-1	180186-3	180186-4	180186-5	180186-6
Your Reference	UNITS	BH31	BH32	BH39	BH43	BH45
Depth		0.1	0.1	0.1	0.1	0.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/11/2017	21/11/2017	21/11/2017	21/11/2017	21/11/2017
Date analysed	-	22/11/2017	22/11/2017	22/11/2017	22/11/2017	22/11/2017
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	86	99	80	85	88

Organophosphorus Pesticides			
Our Reference		180186-7	180186-8
Your Reference	UNITS	BH46	BH47
Depth		0.3	0.5
Type of sample		Soil	Soil
Date extracted	-	21/11/2017	21/11/2017
Date analysed	-	22/11/2017	22/11/2017
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1
Surrogate TCMX	%	77	74

PCBs in Soil						
Our Reference		180186-1	180186-3	180186-4	180186-5	180186-6
Your Reference	UNITS	BH31	BH32	BH39	BH43	BH45
Depth		0.1	0.1	0.1	0.1	0.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/11/2017	21/11/2017	21/11/2017	21/11/2017	21/11/2017
Date analysed	-	22/11/2017	22/11/2017	22/11/2017	22/11/2017	22/11/2017
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	86	99	80	85	88

PCBs in Soil			
Our Reference		180186-7	180186-8
Your Reference	UNITS	BH46	BH47
Depth		0.3	0.5
Type of sample		Soil	Soil
Date extracted	-	21/11/2017	21/11/2017
Date analysed	-	22/11/2017	22/11/2017
Aroclor 1016	mg/kg	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1
Surrogate TCLMX	%	77	74

Acid Extractable metals in soil						
Our Reference		180186-1	180186-2	180186-3	180186-4	180186-5
Your Reference	UNITS	BH31	BH31	BH32	BH39	BH43
Depth		0.1	0.5	0.1	0.1	0.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	21/11/2017	21/11/2017	21/11/2017	21/11/2017	21/11/2017
Date analysed	-	21/11/2017	21/11/2017	21/11/2017	21/11/2017	21/11/2017
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	13	10	7	14	29
Copper	mg/kg	10	4	16	10	17
Lead	mg/kg	20	13	17	15	21
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	6	2	15	14	22
Zinc	mg/kg	29	8	65	44	66

Acid Extractable metals in soil						
Our Reference		180186-6	180186-7	180186-8	180186-9	180186-10
Your Reference	UNITS	BH45	BH46	BH47	BH47	BH47
Depth		0.1	0.3	0.5	1.0	1.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	21/11/2017	21/11/2017	21/11/2017	21/11/2017	21/11/2017
Date analysed	-	21/11/2017	21/11/2017	21/11/2017	21/11/2017	21/11/2017
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	9	12	12	12	12
Copper	mg/kg	31	4	8	8	8
Lead	mg/kg	19	11	14	13	14
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	9	5	6	5	5
Zinc	mg/kg	52	13	17	18	16

Misc Soil - Inorg						
Our Reference		180186-1	180186-3	180186-4	180186-5	180186-6
Your Reference	UNITS	BH31	BH32	BH39	BH43	BH45
Depth		0.1	0.1	0.1	0.1	0.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/11/2017	23/11/2017	23/11/2017	23/11/2017	23/11/2017
Date analysed	-	23/11/2017	23/11/2017	23/11/2017	23/11/2017	23/11/2017
Total Phenolics (as Phenol)	mg/kg	<5	9	<5	<5	<5

Misc Soil - Inorg			
Our Reference		180186-7	180186-8
Your Reference	UNITS	BH46	BH47
Depth		0.3	0.5
Type of sample		Soil	Soil
Date prepared	-	23/11/2017	23/11/2017
Date analysed	-	23/11/2017	23/11/2017
Total Phenolics (as Phenol)	mg/kg	<5	<5

Moisture						
Our Reference		180186-1	180186-2	180186-3	180186-4	180186-5
Your Reference	UNITS	BH31	BH31	BH32	BH39	BH43
Depth		0.1	0.5	0.1	0.1	0.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	21/11/2017	21/11/2017	21/11/2017	21/11/2017	21/11/2017
Date analysed	-	22/11/2017	22/11/2017	22/11/2017	22/11/2017	22/11/2017
Moisture	%	10	6.2	13	9.1	5.4
Moisture						
Our Reference		180186-6	180186-7	180186-8	180186-9	180186-10
Your Reference	UNITS	BH45	BH46	BH47	BH47	BH47

Your Reference	UNITS	BH45	BH46	BH47	BH47	BH47
Depth		0.1	0.3	0.5	1.0	1.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	21/11/2017	21/11/2017	21/11/2017	21/11/2017	21/11/2017
Date analysed	-	22/11/2017	22/11/2017	22/11/2017	22/11/2017	22/11/2017
Moisture	%	7.0	8.5	10	8.0	8.2

Asbestos ID - soils						
Our Reference		180186-1	180186-3	180186-4	180186-5	180186-6
Your Reference	UNITS	BH31	BH32	BH39	BH43	BH45
Depth		0.1	0.1	0.1	0.1	0.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	24/11/2017	24/11/2017	24/11/2017	24/11/2017	24/11/2017
Sample mass tested	g	Approx. 40g	Approx. 40g	Approx. 40g	Approx. 40g	Approx. 40g
Sample Description	-	Brown coarse- grained soil & rocks	Brown coarse- grained soil & rocks	Brown coarse- grained soil & rocks	Brown coarse- grained soil & rocks	Brown coarse- grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres	No asbestos detected at reporting limit of 0.1g/kg Organic fibres	No asbestos detected at reporting limit of 0.1g/kg Organic fibres	No asbestos detected at reporting limit of 0.1g/kg Organic fibres	No asbestos detected at reporting limit of 0.1g/kg Organic fibres
Trace Analysia	_	detected	detected	detected	detected	detected
	-	detected	detected	detected	detected	detected
Asbestos ID - soils						
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Our Reference		180186-7	180186-8			
Your Reference	UNITS	BH46	BH47			
Depth		0.3	0.5			
Type of sample		Soil	Soil			
Date analysed	-	24/11/2017	24/11/2017			
Sample mass tested	g	Approx. 40g	Approx. 35g			
Sample Description	-	Brown coarse- grained soil & rocks	Brown coarse- grained soil & rocks			
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres	No asbestos detected at reporting limit of 0.1g/kg Organic fibres			
Trace Analysis	-	No asbestos detected	No asbestos detected			

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Inorg-031	Total Phenolics by segmented flow analyser (in line distillation with colourimetric finish). Solids are extracted in a caustic media prior to analysis.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.
	F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
	Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual
	ECD's. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.

Method ID	Methodology Summary
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <pql actually="" are="" at="" conservative<br="" is="" most="" pql.="" the="" this="">approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <pql and<br="" approach="" are="" conservative="" is="" least="" the="" this="" zero.="">is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <pql a="" are="" half="" hence="" mid-point<br="" pql.="" stipulated="" the="">between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.</pql></pql></pql>
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate Spike Re				
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	180186-3
Date extracted	-			21/11/2017	1	21/11/2017	21/11/2017		21/11/2017	21/11/2017
Date analysed	-			22/11/2017	1	22/11/2017	22/11/2017		22/11/2017	22/11/2017
TRH C ₆ - C ₉	mg/kg	25	Org-016	<25	1	<25	<25	0	90	90
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	<25	1	<25	<25	0	90	90
Benzene	mg/kg	0.2	Org-016	<0.2	1	<0.2	<0.2	0	76	76
Toluene	mg/kg	0.5	Org-016	<0.5	1	<0.5	<0.5	0	80	80
Ethylbenzene	mg/kg	1	Org-016	<1	1	<1	<1	0	94	92
m+p-xylene	mg/kg	2	Org-016	<2	1	<2	<2	0	101	100
o-Xylene	mg/kg	1	Org-016	<1	1	<1	<1	0	95	94
naphthalene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	83	1	80	75	6	83	74

QUALITY CO		Du	Spike Recovery %							
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	180186-3
Date extracted	-			21/11/2017	1	21/11/2017	21/11/2017		21/11/2017	21/11/2017
Date analysed	-			21/11/2017	1	21/11/2017	21/11/2017		21/11/2017	21/11/2017
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	<50	1	<50	<50	0	96	#
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	<100	1	<100	<100	0	93	#
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	<100	1	<100	<100	0	91	#
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	<50	1	<50	<50	0	96	#
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	<100	1	<100	<100	0	93	#
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	<100	1	<100	<100	0	91	#
Surrogate o-Terphenyl	%		Org-003	77	1	93	92	1	78	72

QUALIT	Y CONTRO	L: PAHs	in Soil			Du	plicate	Spike Recovery %			
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	180186-3	
Date extracted	-			21/11/2017	1	21/11/2017	21/11/2017		21/11/2017	21/11/2017	
Date analysed	-			21/11/2017	1	21/11/2017	21/11/2017		21/11/2017	21/11/2017	
Naphthalene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	91	89	
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]	
Acenaphthene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]	
Fluorene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	96	89	
Phenanthrene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	96	92	
Anthracene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]	
Fluoranthene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	96	91	
Pyrene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	102	96	
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]	
Chrysene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	105	98	
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	<0.2	1	<0.2	<0.2	0	[NT]	[NT]	
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	1	<0.05	<0.05	0	93	93	
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]	
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]	
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]	
Surrogate p-Terphenyl-d14	%		Org-012	89	1	96	90	6	121	113	

QUALITY CONTR	ROL: Organo	chlorine I	Pesticides in soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	180186-3
Date extracted	-			21/11/2017	1	21/11/2017	21/11/2017		21/11/2017	21/11/2017
Date analysed	-			22/11/2017	1	22/11/2017	22/11/2017		22/11/2017	22/11/2017
НСВ	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	109	97
gamma-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	110	101
Heptachlor	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	100	92
delta-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	106	92
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	112	106
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	124	109
Dieldrin	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	125	113
Endrin	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	115	111
pp-DDD	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	128	71
Endosulfan II	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	114	99
Methoxychlor	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	95	1	86	81	6	112	111

QUALITY CONT	ROL: Organ	ophosph	orus Pesticides			Du	plicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	180186-3	
Date extracted	-			21/11/2017	1	21/11/2017	21/11/2017		21/11/2017	21/11/2017	
Date analysed	-			22/11/2017	1	22/11/2017	22/11/2017		22/11/2017	22/11/2017	
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]	
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]	
Chlorpyriphos	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	99	93	
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]	
Diazinon	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]	
Dichlorvos	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	106	99	
Dimethoate	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]	
Ethion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	106	106	
Fenitrothion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	92	84	
Malathion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	96	65	
Parathion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	106	85	
Ronnel	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	113	99	
Surrogate TCMX	%		Org-008	95	1	86	81	6	91	81	

QUALIT	Duplicate Spike					covery %				
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	180186-3
Date extracted	-			21/11/2017	1	21/11/2017	21/11/2017		21/11/2017	21/11/2017
Date analysed	-			22/11/2017	1	22/11/2017	22/11/2017		22/11/2017	22/11/2017
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	114	118
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCLMX	%		Org-006	95	1	86	81	6	91	81

QUALITY CONT		Du	Spike Recovery %							
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	180186-3
Date prepared	-			21/11/2017	1	21/11/2017	21/11/2017		21/11/2017	21/11/2017
Date analysed	-			21/11/2017	1	21/11/2017	21/11/2017		21/11/2017	21/11/2017
Arsenic	mg/kg	4	Metals-020	<4	1	<4	4	0	109	103
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	<0.4	<0.4	0	103	100
Chromium	mg/kg	1	Metals-020	<1	1	13	11	17	107	105
Copper	mg/kg	1	Metals-020	<1	1	10	11	10	107	109
Lead	mg/kg	1	Metals-020	<1	1	20	19	5	103	105
Mercury	mg/kg	0.1	Metals-021	<0.1	1	<0.1	<0.1	0	99	99
Nickel	mg/kg	1	Metals-020	<1	1	6	5	18	103	102
Zinc	mg/kg	1	Metals-020	<1	1	29	36	22	106	101

QUALITY	Duplicate				Spike Recovery %					
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date prepared	-			23/11/2017	1	23/11/2017	23/11/2017		23/11/2017	[NT]
Date analysed	-			23/11/2017	1	23/11/2017	23/11/2017		23/11/2017	[NT]
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	<5	1	<5	<5	0	100	[NT]

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

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

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

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

Report Comments

svTRH (C10-C40) in Soil (Sample 3ms) - # Percent recovery is not possible to report as the high concentration of analytes in the sample/s

have caused interference.

Asbestos: A portion of the supplied samples were sub-sampled for asbestos analysis according to Envirolab procedures. We cannot guarantee that these sub-samples are indicative of the entire sample. Envirolab recommends supplying 40-50g of sample in its own container. Note: Samples requested for asbestos analysis were sub-sampled from jars provided by the client.

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CHAIN OF CUSTODY DESPATCH SHEET

Project Name: /∪ Project Manager:				SUBULD	1 LU	caphene	fore	1.0	To:	Envirolab Servic	Ses	
Project Manager: < Emails: <u>d</u> Date Required: Sal	arbe			Order N	umber	7				12 Ashley Stree	t, Chatswood N	VSW 2067
Emails: d	Devicite	(& David	(whe).	Sample					Attn:			
Date Required: Sal	avid.walker@d	louglaspartnei	rs.com.au					/	Phone:	02 9910 6200		
non inchair and	ne day 🛛	24 hours	48 ho	nurs 🛛	72 hours	0	standard L	1	Email:	sydney@envir	olab.com.au	
Prior Storage:	sky 🛛 Frid	lge 🛛 She	lved	Do samp	les contain	'potential'	HBM?	Yes 🛛	No 🛛 (I	f YES, then handle, tran:	sport and store in a	accordance with FPM HA
	pəlc	Sample Type	Container Type				A	Inalytes				
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el 5.1 1448					1						Job No:	Polek
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PQL (S) mg/kg										ANZECC	PQLs req'd fo	or all water analytes
PQL = practical quar	ntitation limit	t. If none give	ven, default	to Labora	Itory Meth	od Detect	tion Limit		I ah Re	ort/Reference No:		
Metals to Analyse: 8	HM unless s	pecified her	:e:						Lab Ne			
Total number of san	ples in cont	ainer:	Relir	nquished	by: L	M	Transport	ted to lat	oratory	y:	Col	urier
Send Results to:	Douglas Par	rtners Pty Lto	Add	ress: 96 H	ermitage I	Road, We	st Ryde			Phone:	9809066	36 Fax: 9809409
Signed:		-	Received b	Y: MI	A				_	Date & Time: 24	2/11/17 1.	22 Kr.

FPM - ENVID/Form COC 02

Page 1 of 1

Rev4/October2016



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

SAMPLE RECEIPT ADVICE

Client Details	
Client	Douglas Partners Pty Ltd
Attention	David Walker

Sample Login Details	
Your reference	86043.01, Ivanhoe
Envirolab Reference	180186
Date Sample Received	20/11/2017
Date Instructions Received	20/11/2017
Date Results Expected to be Reported	27/11/2017

Sample Condition	
Samples received in appropriate condition for analysis	YES
No. of Samples Provided	10 Soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	10.8
Cooling Method	Ice Pack
Sampling Date Provided	Not Provided on the COC

Comments	
Nil	

Please direct any queries to:

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

Analysis Underway, details on the following page:

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

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticidesin soil	Organophosphorus Pesticides	PCBsin Soil	Acid Extractable metalsin soil	Total Phenolics (as Phenol)	Asbestos ID - soils
BH31-0.1	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	✓	\checkmark
BH31-0.5	✓	\checkmark	✓	\checkmark			\checkmark		
BH32-0.1	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	✓	\checkmark
BH39-0.1	✓	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	✓	\checkmark
BH43-0.1	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	✓	\checkmark
BH45-0.1	\checkmark	\checkmark	\checkmark	\checkmark	✓	✓	✓	✓	✓
BH46-0.3	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	✓	✓	\checkmark
BH47-0.5	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	✓	\checkmark
BH47-1.0	\checkmark	\checkmark	\checkmark	\checkmark			✓		
BH47-1.5	\checkmark	\checkmark	\checkmark	\checkmark			\checkmark		

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

Additional Info

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

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



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

CERTIFICATE OF ANALYSIS 180186-A

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

Sample Details	
Your Reference	86043.01, Ivanhoe
Number of Samples	10 Soil
Date samples received	20/11/2017
Date completed instructions received	27/11/2017

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details	
Date results requested by	04/12/2017
Date of Issue	30/11/2017
NATA Accreditation Number 2901. This do	ocument shall not be reproduced except in full.
Accredited for compliance with ISO/IEC 17	7025 - Testing. Tests not covered by NATA are denoted with *

<u>Results Approved By</u> Dragana Tomas, Senior Chemist

Authorised By

کھ

David Springer, General Manager



sTPH in Soil (C10-C40)-Silica		
Our Reference		180186-A-3
Your Reference	UNITS	BH32
Depth		0.1
Type of sample		Soil
Date extracted	-	28/11/2017
Date analysed	-	29/11/2017
TPH C ₁₀ - C ₁₄	mg/kg	<50
TPH C15 - C28	mg/kg	<100
TPH C ₂₉ - C ₃₆	mg/kg	<100
TPH >C ₁₀ -C ₁₆	mg/kg	<50
TPH >C ₁₆ -C ₃₄	mg/kg	<100
TPH >C ₃₄ -C ₄₀	mg/kg	<100
Surrogate o-Terphenyl	%	100

Method ID	Methodology Summary
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.

QUALITY CONT	ROL: sTPH	in Soil (C	10-C40)-Silica			Du	olicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	[NT]
Date extracted	-			28/11/2017	[NT]			[NT]	28/11/2017	
Date analysed	-			29/11/2017	[NT]			[NT]	29/11/2017	
TPH C ₁₀ - C ₁₄	mg/kg	50	Org-003	<50	[NT]			[NT]	99	
TPH C ₁₅ - C ₂₈	mg/kg	100	Org-003	<100	[NT]			[NT]	108	
TPH C ₂₉ - C ₃₆	mg/kg	100	Org-003	<100	[NT]			[NT]	105	
TPH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	<50	[NT]			[NT]	99	
TPH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	<100	[NT]			[NT]	108	
TPH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	<100	[NT]			[NT]	105	
Surrogate o-Terphenyl	%		Org-003	97	[NT]	[NT]	[NT]	[NT]	100	[NT]

Result Definiti	ons
NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
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Australian Drinking	Nator Quidalinga recommand that Thermatalerant Caliform, Ecosal Entergagesi, & E. Cali Javala are less than

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

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Measurement Uncertainty estimates are available for most tests upon request.

Andrew Fitzsimons

From: Sent: To: Cc: Subject:

David Walker < David.Walker@douglaspartners.com.au> oe ELS: 180186-A Rec: 27/11/17 13:30 TAT: 5 days Monday, 27 November 2017 1:24 PM Nancy Zhang Samplereceipt RE: Results for Registration 180186 86043.01, Ivanhoe

Nancy,

Please go ahead with TRH with silica gel cleanup for sample -3 (BH32 0.1m).

thanks

David Walker | Associate / Environmental Engineer Douglas Partners Pty Ltd | ABN 75 053 980 117 | www.douglaspartners.com.au 96 Hermitage Road West Ryde NSW 2114 | PO Box 472 West Ryde NSW 1685 P: 02 9809 0666 | F: 02 9809 4095 | M: 0407 540 537 | E: David.Walker@douglaspartners.com.au

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CLIENT CHO

WINNER

From: Nancy Zhang [mailto:NZhang@envirolab.com.au] Sent: Friday, 24 November 2017 5:40 PM To: Sally Peacock; David Walker Subject: Results for Registration 180186 86043.01, Ivanhoe

Please refer to attached for: a copy of the Certificate of Analysis a copy of the COC/paperwork received from you **ESDAT** Extracts an Excel or .csv file containing the results Please note that a hard copy will not be posted.

We have a new reporting format and would welcome your feedback. Sydney@envirolab.com.au

Enquiries should be made directly to: customerservice@envirolab.com.au

Regards

Envirolab Services 12 Ashley St Chatswood NSW 2067 ph 02 9910 6200 fax 02 9910 6201 customerservice@envirolab.com.au www.envirolab.com.au



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

SAMPLE RECEIPT ADVICE

Client Details	
Client	Douglas Partners Pty Ltd
Attention	David Walker

Sample Login Details	
Your reference	86043.01, Ivanhoe
Envirolab Reference	180186-A
Date Sample Received	20/11/2017
Date Instructions Received	27/11/2017
Date Results Expected to be Reported	04/12/2017

Sample Condition	
Samples received in appropriate condition for analysis	YES
No. of Samples Provided	10 Soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	10.8
Cooling Method	Ice Pack
Sampling Date Provided	Not Provided on the COC

Comments	
Nil	

Please direct any queries to:

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

Analysis Underway, details on the following page:



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Sample ID	sTPH in Soil (C10-C40)-Silica	On Hold
BH31-0.1		\checkmark
BH31-0.5		\checkmark
BH32-0.1	\checkmark	
BH39-0.1		\checkmark
BH43-0.1		✓
BH45-0.1		✓
BH46-0.3		✓
BH47-0.5		\checkmark
BH47-1.0		✓
BH47-1.5		\checkmark

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

Additional Info

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

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