



Douglas Partners

Geotechnics | Environment | Groundwater

Report on
Supplementary Contamination Investigation

Proposed Commercial/Industrial Subdivision
144 - 228 Aldington Road, Kemps Creek, NSW

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

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Report on Supplementary Contamination Investigation

Proposed Commercial/Industrial Subdivision

144 - 228 Aldington Road, Kemps Creek, NSW

1. Introduction

Douglas Partners Pty Ltd (DP) was commissioned by Stockland Commercial Property Pty Ltd to undertake a Supplementary Contamination Investigation (SCI) for due diligence purposes prior to the purchase of 144 - 228 Aldington Road, Kemps Creek, NSW (the site as shown on Drawing 1, Appendix B).

DP previously undertook a preliminary site investigation (PSI) for the site as reported in DP's Report on Preliminary Site Investigation – Due Diligence, Proposed Commercial/Industrial Subdivision, 144 - 228 Aldington Road, Kemps Creek, NSW, Project 92364.00.R.001.Rev0 dated 11 October 2019 (PSI). The PSI identified seven Areas of Environmental Concern (AEC) at the site which required further investigation and/or remediation. The findings of the PSI are detailed in Section 4.

The SCI comprised a review of the PSI, a site walkover, intrusive sampling, limited laboratory analysis of selected soil samples for contaminants of concern and interpretation of the results with reference to current NSW Environment Protection Authority (EPA) endorsed guidelines. Due to time constraints and the requested scope for due diligence, the purpose of this SCI was to obtain additional data from AEC1, AEC3, AEC4 and AEC5 to allow calculation of approximate fill volumes (reported separately - 92364.02.R.001.Rev0). As such, only limited analytical testing was completed as part of this assessment, with the view of further analytical investigations to be completed at a later date to confirm (or otherwise) the suitability of the AEC to remain within the proposed development.

The remaining AEC were not further investigated for due diligence purposes for the following reasons:

- AEC2 - The inspection and (if required) investigation of building footprints (AEC2) is usually carried out after demolition due to access restrictions and will require inspection for any possible residual demolition materials including (amongst other things) fragments of bonded asbestos containing materials;
- AEC6 - Further data is required to inform a dedicated investigation of any possible ACM pipe network and is not ordinarily required if no evidence of such a network is recorded; and
- AEC7 - Refuse was observed on the ground surface within the site and largely comprised of inert materials that can be removed by the earthworks contractor. Inspections of refuse material can be carried out at a later stage, prior to earthworks.

2. Scope of Works

DP carried out the following scope of work as part of the SCI:

- Review of the PSI report;
- Excavation of 50 test pits (TP136 to TP186) within AEC4, to a minimum depth of 0.5 m into natural material or prior refusal;
- Collection of representative soil samples from the test pits at regular depth intervals (typically 0 - 0.1 m, 0.4 m - 0.5 m and where filling was encountered, from regular depth intervals based on field observations);
- Collection of 22 surface samples within AEC1 (SS201 to SS222), 11 surface samples within AEC3 (SS119 - SS129), six surface samples within AEC4 (SS187 to SS192) and 10 surface samples within AEC5 (SS101 to SS110);
- Collection of seven dam sediment samples within AEC1 (DS111 to DS115 and DS117 to DS118);
- Field sampling and laboratory analysis in compliance with standard environmental protocols, including a Quality Assurance / Quality Control (QA/QC) plan consisting of 10% replicate sampling and appropriate Chain-of-Custody procedures and in-house laboratory QA/QC testing;
- Laboratory analysis of selected soil samples for selected contaminants of potential concern (COPC) including:
 - o Heavy metals comprising arsenic (As), cadmium (Cd), chromium (Cr), copper (Cu), lead (Pb), mercury (Hg), nickel (Ni) and zinc (Zn);
 - o Polycyclic aromatic hydrocarbons (PAH);
 - o Phenols;
 - o Total recoverable hydrocarbons (TRH);
 - o Benzene, toluene, ethylbenzene and xylene (BTEX);
 - o Organochlorine and organophosphorous pesticides (OCP and OPP);
 - o Polychlorinated biphenyls (PCB); and
 - o Asbestos.
- Interpretation of results in accordance with current NSW Environment Protection Authority (EPA) endorsed guidelines; and
- Preparation of this report detailing the methodology and results of the investigation and assessment of the suitability of the site for the proposed commercial land use.

3. Site Description

The site comprises the following land parcels as detailed in Table 1 and shown on Drawing 1 (Appendix A).

Table 1: Study Area Identification

Address	Lot / Deposited Plan	Approx. Area (ha)
144-160 Aldington Road	Lot 30 DP 258949	9.9
162-178 Aldington Road	Lot 23 DP 255560	10.1
180-196 Aldington Road	Lot 22 DP 255560	10
198-212 Aldington Road	Lot 21 DP 255560	10
214-228 Aldington Road	Lot 20 DP 255560	10
Total Approximate Area		50 ha

At the time of the investigation, the site was observed to be of similar condition to that described in the PSI. The site was mostly grass-covered paddocks and market gardens and was largely cleared of trees. Houses, sheds, and multiple farm dams, were present on each lot. Greenhouses were present on Lots 20, 22 and 30. As the site was predominately grass covered, a detailed inspection of the ground surface could not be undertaken.

Details of the site walkover, geology, hydrogeology and site history are provided in Section 3, 4 and 7 of the PSI.

4. Previous Investigation

The PSI comprised a site history review, site walkover, excavation of test pits, collection of surface samples, laboratory testing and reporting. Based on the site history review and the walkover, seven types of AEC were identified within the site (as shown on Drawing 1, Appendix B).

Details of the site history review completed as part of the PSI are provided in Section 4 of the PSI (DP 2019). Photographs taken during the PSI are provided in Appendix H.

Nineteen test pits (TP1 to TP19) were excavated and 26 surface samples (SS1 to SS26) were collected as part of the PSI. Due to the preliminary nature of the PSI, not all samples collected were selected for analysis of the contaminants of concern. Samples that were selected for analysis are shown within Table 5, Section 7.3.

Based on the results of the PSI, it was determined that the identified AEC required a more detailed investigation to confirm the contamination status of the site and any requirements for remediation. These AEC are shown in Table 1, below.

Table 1: Summary of Identified AEC

AEC #	Description
1	Market Gardening Activities
2	Building Construction, Desegregation and Demolition of Structures
3	Chemical and Fuel Use and Storage
4	Stockpiles, Fill and Ground Disturbances
5	Timber Power Poles
6	Possible Asbestos Pipe Network
7	General Refuse

5. Conceptual Site Model

A review of potential sources, pathways and receptors associated with the proposed development was conducted as part of the PSI, and a preliminary conceptual site model (CSM) was developed (see Table 2).

Table 2: Preliminary Conceptual Site Model

Potential Source and assigned AEC	Exposure Pathway	Receptor	Requirement for Additional Data and/or Management
AEC 1: Market Gardening Activities (Pesticides)	P1 – Ingestion and dermal contact;	R1 – Current residents and workers	Given the identified potential contaminant sources, the initial fate (lay down mechanism) of most of the potential contaminants is likely to be expressed firstly in surface soils. An intrusive investigation is therefore required to assess potential contamination impact to surface soils.
AEC 2: Building Construction, Degradation and Demolition Structures (Hazardous building materials)	P2 – Inhalation of fibres and/or dust and/or vapours	R2 – Future construction and maintenance workers.	
AEC 3: Chemical and Fuel Use and Storage (Potential Chemical and Fuel Spills)	P3 – Leaching of contaminants and vertical migration into groundwater.	R3 – Future site users following development of the site.	
	P4 – Surface water run-off.	R4 – Land users in adjacent areas.	
	P5 – Lateral migration of groundwater providing baseflow to watercourses.	R5 – Surface water bodies.	
		R6 – Local groundwater and receiving water bodies.	

Potential Source and assigned AEC	Exposure Pathway	Receptor	Requirement for Additional Data and/or Management
AEC 4: Stockpiles, Fill and Ground Disturbances (unknown contamination status) AEC 5: Presence of Timber Power Poles AEC 6: Possible Asbestos Pipe Network AEC 7: Refuse	P6 – Direct contact of contaminated ground with ecological receptors.	R7 – Local ecology.	(A further assessment of deeper soils and groundwater may be deemed necessary should significant contamination be identified in surface soils).

6. Revised Areas of Environmental Concern

Subsequent to the completion of the PSI and as part of this SCI, AEC4 as described in Table 1, has been further divided into individual AECs based on site observations and locality and are provided in Table 3 (following page) and are shown on Drawing 2, Appendix B.

Table 3: Revised AEC

AEC	AEC Description	Estimated Area / Stockpile Footprint Area (based on site observations)
AEC1	Market Gardening	40 Ha – less AECs listed below
AEC2	Building Construction, Degradation and Demolition of Structures	Based on estimated extent of residential structures and sheds (10,000 m ²)
AEC3	Chemical and Fuel Use Storage	Estimated 25 m ² surrounding each location
AEC4A	Anthropogenic Impacted Stockpile	50 m ²
AEC4B	Anthropogenic Impacted Stockpile	440 m ²
AEC4C	Area of filling, stockpiles and Market Gardens	50,000 m ²

AEC	AEC Description	Estimated Area / Stockpile Footprint Area (based on site observations)
AEC4D	Topsoil Fill stockpile	110 m ²
AEC4E	Topsoil Fill Stockpiles	65 m ² 200 m ² 35 m ² 35 m ²
AEC4F	Anthropogenic Impacted Stockpile	75 m ²
AEC4G	Anthropogenic Impacted Stockpile	4 m ²
AEC4H	Roadbase Stockpile	4 m ²
AEC4I	Possible Area of fill / former building / structure footprint	2,100 m ²
AEC4J	Area of Fill	3,900 m ²
AEC4K	Area of Fill	420 m ²
AEC4L	Road / Pavement / Driveway	3700 lineal m x assumed width of 3m
AEC5	Timber Power Poles	-
AEC6	Possible Asbestos Pipe Network	-
AEC7	General Refuse	-

7. Field Work Methods

7.1 Fieldwork Rationale

Field investigations were undertaken on 13, 16, 17, 18 and 19 September 2019 by a DP environmental scientist. The field investigation was designed in accordance with the seven step data quality objectives (DQO) process provided in Appendix B, Schedule B2 of the National Environment Protection (Assessment of Site Contamination) Measure 1999 as amended 2013 (NEPC, 2013). The DQO adopted for this investigation is provided in Appendix C

Fifty test pits were excavated (TP136 to TP186) and 56 surface samples were collected (SS101 to SS135, SS187 to SS192 and SS201 to 222) targeting AEC1, AEC3, AEC4 and AEC5 to gain a better understanding of the ground conditions and observed fill depths. No further investigation of AEC2, AEC6 and AEC7 were completed as part of this SCI.

All test pits locations were positioned on-site using a handheld GPS and were excavated to a minimum depth of 0.5 m into natural material for contamination assessment purposes. Within each AEC, test pits were positioned in a general grid pattern for overall coverage.

Soil samples collected from test pits were generally collected at depths of 0.0 m to 0.1 m, 0.4 m to 0.5 m, and all fill layers, where encountered. The geological profile of the test pits were logged on-site by an experienced DP environmental scientist. The test pit logs are provided in Appendix D.

The locations of the test pits and surface samples, both for this SCI and the PSI, are shown on Drawing 2 (Appendix B). Surface levels of the test pits were determined via interpolation of 2 m contours.

7.2 Field Sampling Procedure

Sampling data was recorded to comply with routine chain-of-custody requirements and DP's standard operating procedures. The general sampling, handling, transport and tracking procedures are detailed below:

- Sample locations were pre-determined using GIS prior to field work and were located in the field using a handheld GPS unit;
- A John Deere 31SSE backhoe fitted with a 450 mm bucket was used to excavate all test pits. Samples were collected from the walls of the test pit for laboratory analysis.
- At surface sampling locations, samples were collected from soils that had not come into contact with hand tools;
- Disposable nitrile gloves were used to collect all samples. Gloves were replaced prior to the collection of each sample in order to prevent cross-contamination;
- Samples collected for laboratory analysis were transferred into a new laboratory prepared glass jar, with minimal headspace, and sealed with a Teflon lined lid. Each jar was individually sealed to reduce the potential for cross contamination during transportation to the laboratory;
- Sample containers were labelled with individual and unique identification including project number, sample ID, depth and date of sampling;
- Logs were completed for all test pits indicating the geological profile observed within each test pit. Test pit logs included, where relevant, sample identification, coordinates, date of collection, a description of the substrate conditions encountered, visual or olfactory evidence of contamination, the depth of samples and QA/QC samples collected, the sampler and equipment used; and
- For the purpose of asbestos sieving, 10 L bulk samples were collected where fill was observed within the test pits. These samples were not field screened and were placed on hold and not screened as part of this assessment.

7.3 Analytical Rationale

All samples requiring analysis were submitted to Envirolab Services Pty Ltd (Envirolab). Based on the field observations, samples were selected for analysis of COPC. Based on the scope of this assessment, only limited samples were selected for analysis and as such not all samples collected were analysed. Samples not analysed were kept on "hold" pending results of initial analysis.

The rationale for the sampling locations and analytes tested is provided in Table 5. For completeness, the PSI sampling location and analytes tested have also been provided in Table 5.

Table 5: Summary of Sampling and Analysis Rationale

TP / Surface Sample Locations	Sample ID / Depth	Sample Target	Analytes	Location Target
PSI				
SS1, SS5, SS6, SS13, SS21		Surficial waste (batteries, metal, paint tins and household refuse) stored adjacent to and within storage sheds	TRH, BTEX, metals, PAHs, OCP, OPP and asbestos (500ml sample)	AEC2
SS2, SS20 and SS25		Area beneath the ASTs in Lots 20, 21 and 22.	TRH, BTEX, metals and PAH and asbestos* (500ml sample)	AEC2 / AEC3
SS3, SS6, SS7, SS8, SS10, SS15, SS22, SS23 and SS26		Chemical mixing and refuelling areas	TRH, BTEX, metals, PAHs, OCP, OPP and asbestos (500ml sample)	AEC3
SS9, SS11, SS12, SS16, SS24, TP2, TP14		Market gardens	OCP, OPP, metals and asbestos (500ml sample)	AEC1
SS4, SS14, SS17, SS18 and SS19		Timber power poles	TRH, BTEX, heavy metals (9), PAHs, OCPs and asbestos* (500ml sample)	AEC5
TP8, TP9, TP10		Fill area	TRH, BTEX, metals, PAHs, OCP, OPP, PCB and asbestos (500ml sample)	AEC4C
TP1, TP3 – TP7, TP11 – TP13 and TP15 – TP19	Observation Test Pits			

TP / Surface Sample Locations	Sample ID / Depth	Sample Target	Analytes	Location Target
SCI				
TP101 to TP110	TP101 to TP110	Soils at the base of observed power poles	Heavy metals, TRH/BTEX and PAH	AEC5
DS111 to DS115 and DS117 to 118	DS111 to DS115 and DS117 to 118	Dam Sediment	Heavy metals and OCP	AEC1
TP119 – TP129	TP119 – TP129	Surface Sample at Chemical storage/mixing areas	Heavy metals, TRH, BTEX, OCP, PAH*	AEC3
188	188/0-0.1,	Fill	Heavy metals, TRH, BTEX, OCP, PAH, Asbestos (500ml sample)	AEC4A
189, 187	189/0-0.1, 187/0-0.1,	Stockpiled Fill	Heavy metals, TRH, BTEX, OCP, PAH, Asbestos (500ml sample)	AEC4B
136, 141, 144, 156, 160 169	136/0-0.1, 141/0.3-0.4, 144/0-0.1, 156/1.0, 160/0.3-0.4, 169/0-0.1,	Fill	Heavy metals, TRH, BTEX, OCP, PAH, Asbestos (500ml sample)	AEC4C
137 -140, 142, 143, 145 – 155, 157 – 159, 161 – 163, 170 and 171	Observation Test Pits			AEC4C
168,	168/0-0.1,	Stockpiled Fill	Heavy metals, TRH, BTEX, OCP, PAH, Asbestos (500ml sample)	AEC4D
164, 165,	164/0-0.1, 165/0-0.2,	Stockpiled Fill	Heavy metals, TRH, BTEX, OCP, PAH, Asbestos (500ml sample)	AEC4E
166 and 167	Observation Test Pits			AEC4E
190, ,	190/0-0.1, ,	Stockpiled Fill	Heavy metals, TRH, BTEX, OCP, PAH, Asbestos (500ml sample)	AEC4F
191	191/0-0.1	Stockpiled Fill	Heavy metals, TRH, BTEX, OCP, PAH, Asbestos (500ml sample)	AEC4G

TP / Surface Sample Locations	Sample ID / Depth	Sample Target	Analytes	Location Target
192	192/0-0.1,	Stockpiled Fill	Heavy metals, TRH, BTEX, OCP, PAH, Asbestos (500ml sample)	AEC4H
172, 174	172/0-0.1, 174/0-0.1,	Fill	Heavy metals, TRH, BTEX, OCP, PAH, Asbestos (500ml sample)	AEC4I
173, 175 - 178	Observation Test Pits			AEC4I
179, 181, 183	179/0-0.1, 181/1.0, 183/0-0.1,	Fill	Heavy metals, TRH, BTEX, OCP, PAH, Asbestos (500ml sample)	AEC4J
180, 182, 184 and 185	Observation Test Pits			AEC4J
130, 123, 131, 133, 134,	130/0-0.1, 123/0-0.1, 131/0-0.1, 133/0-0.1, 134/0-0.1	Fill within Access Tracks	Heavy metals, TRH, BTEX, OCP, PAH, Asbestos* (500ml sample)	AEC4L
201, 211,, 214, 213, 205,, 206, 207, 208,, 209, 210, 212,, 215, 216, 217, 218, 219, 220,, 221, 222,	201/0-0.1, 211/0-0.1, 214/0-0.1, 213/0-0.1, 205/0-0.1, 206/0-0.1, 207/0-0.1, 208/0-0.1, 209/0-0.1, 210/0-0.1, 212/0-0.1, 215/0-0.1, 216/0-0.1, 217/0-0.1, 218/0-0.1, 219/0-0.1, 220/0-0.1, 221/0-0.1, 222/0-0.1	Surface Soils within former and current Market Gardens	Heavy metals and OCP,	AEC1
202, 203 and 204	Additional surface samples 202, 203, and 204 were also collected targeting market gardens, however they were located within AEC4 and as such were not selected for analysis.			AEC1

* Selected samples analysed for asbestos.

8. Site Assessment Criteria

The Site Assessment Criteria (SAC) applied in this SCI have been informed by the proposed land use (i.e. commercial/industrial) and the CSM - which identified human and ecological receptors to potential contamination on the site. Analytical results are to be assessed (as a Tier 1 assessment) against the investigation and screening levels as per Schedule B1, National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended 2013 (NEPC, 2013).

As the site is proposed to be redeveloped for commercial/industrial use, the investigation and screening levels adopted were consistent with a generic commercial/industrial land use scenario. The derivation of the SAC is included in Appendix C and the adopted SAC are listed in the analytical results tables (Tables E1 and E2 in Appendix E).

9. Results

9.1 Fieldwork Observations

The test pit logs are included in Appendix D together with notes defining classification methods and descriptive terms. Relatively uniform conditions were encountered across each of the AEC, with filling observed in the majority of test pit locations. It should be noted that the relevant field observations from the PSI have also been incorporated into the summary.

No free groundwater was observed in any of the pits during sampling for the short time that they were left open. It is noted, however, that the pits were immediately backfilled following excavation which precluded longer term assessment of any groundwater levels that might be present. Groundwater levels are affected by factors such as soil permeability and weather conditions and will vary with time.

Further discussion of the observed fill composition and its depth within each AEC is provided in Section 10.

9.2 Analytical Results

The analytical results for the soil samples collected during this SCI are summarised in Table E1 and Table E2, Appendix E together with the adopted SAC. The laboratory certificates of analysis along with chain-of-custody documentation and sample receipt notification are provided in Appendix F.

It should be noted that the results from the PSI have also been incorporated in the summary. In addition, due to the preliminary scope of the assessment, not all surface samples collected were submitted to the laboratory for analytical testing.

9.3 Quality Assurance and Quality Control

A review of the adopted QA/QC procedures and results (Appendix G) indicates that the DQIs have generally been met. On this basis, the sampling and laboratory methods used during the investigation were found to meet DQOs for this project.

10. Discussion

10.1 AEC 1 – Market Gardening

AEC1 represents all areas of the site where market gardening activities (both former and current) have been completed and are not located within a subsequent AEC (i.e. AEC2 to AEC5).

Within AEC 1, 19 surface samples and seven dam sediment samples were collected as part of this investigation and five surface samples and two test pits were excavated as part of the PSI. Surface samples generally comprised of brown silty clay topsoil / fill with rootlets.

A summary of the results is provided below:

- Concentrations of heavy metals, OCP, OPP and PCB were either below the LOR and/or the SAC in all samples tested; and
- Asbestos was not detected at the limit of reporting in the 500 ml soil samples submitted for analysis as part of the PSI.

Based on the results of the PSI and SCI, no broad scale OCP or metals impacts were observed within AEC1.

Please note that the investigation comprised collection of samples using hand tools. Although building demolition material (including asbestos) were not observed at the sampling locations, the majority of AEC1 was over grown with grass or intensively cropped, and as such, a detailed site inspection of the ground surface could not be completed.

As such, there is a high potential for unexpected finds being encountered within the current and former market garden areas during development works. As ACM have been identified in various areas of the larger site and within access roads and fill areas within the site, there is a potential for numerous ACM unexpected finds to be encountered. As such, unexpected ACM contamination and remediation should be factored into development costs.

10.2 AEC 3 - Chemical Storage/Mixing Areas

AEC3 represents the identified chemical storage/mixing areas within the site. As a result of the storage/mixing of chemicals within these areas, surface soils may be impacted.

Within AEC 3, 11 surface samples were collected targeting chemical storage/mixing areas as part of this investigation and nine surface samples were collected as part of the PSI. Surface samples generally comprised of orange/brown silty clay fill with mixed gravel.

A summary of the results is provided below:

- Concentrations of TRH, BTEX, PAH, OCP, OPP and PCB were either below the LOR and/or the SAC in all samples tested;
- Concentrations of arsenic, cadmium, chromium, lead, mercury and nickel were either below the LOR and/or the SAC in all samples tested;
- Concentrations of zinc were below the SAC in all samples, with the exception of sample SS20 (780 mg/kg), SS15 (2400 mg/kg), and 122 (1200 mg/kg) which exceeded the EIL criteria (670 mg/kg) but below the HIL (400,000 mg/kg); and
- Concentrations of copper were below the SAC in all samples, with the exception of sample SS120 (290 mg/kg) which exceeded the EIL criteria (280 mg/kg) but below the HIL (240,000 mg/kg).

Based on the results of the PSI and SCI, DP considers that surface soils in the vicinity of the chemical storage/mixing areas where samples SS20, SS15, TP120 and TP122 were collected will require further investigation and/or remediation. Remediation will require chase out excavation to remediate all impacted fill or alternatively a supplementary delineation assessment could be completed to determine the lateral extent.

With regards to the balance of the tested AEC3 locations, based on the results, no further investigation or remediation is considered to be required for these locations.

10.3 AEC 4 – Areas of Fill / Stockpiles

10.3.1 AEC 4C

AEC4C is an approximate 5 Ha portion of the site which has been identified to have anthropogenic and ACM impacted fill. At the time of this investigation, a large portion of AEC4C was inaccessible for intrusive test pitting, due to current market gardening activities and associated greenhouses present.

A total of 31 test pits were excavated as part of this investigation and three test pits were excavated as part of the PSI.

Fill with anthropogenic inclusions was encountered in all test pits except TP10, TP147, TP153 and TP154. The fill generally comprised silty clay and clayey silt with varying concentrations of sand and siltstone, shale and sandstone gravel inclusions to depths of between 0.3 m and >2.0 m bgl.

The anthropogenic materials encountered within AEC4C comprised building demolition rubble (including brick, concrete, terracotta and ceramic fragments), plastics, asphalt, glass and suspected Asbestos Containing material (ACM) fragments. These suspected ACM fragments were observed in TP136, TP137, TP141, TP144, TP145, TP169 and TP170 as well as on the ground surface at various locations within AEC4C. The approximate locations of observed suspected ACM fragments are shown on Drawing 3, Appendix B.

The fill material was generally underlain by mottled brown, orange, red and grey silty clay, with trace ironstone gravels, which was observed to the depth of test pit termination.

Due to the preliminary nature of this investigation, limited analytical testing has been completed for this AEC. A summary of the results of the limited analytical testing is provided below:

- Concentrations of Metals, TRH, BTEX, PAH, OCP, OPP and PCB were either below the LOR and/or the SAC in all samples tested;
- Asbestos was not detected at the limit of reporting in the soil samples submitted for analysis; and
- Selected suspected ACM fragments collected from AEC4C were confirmed to contain asbestos.

Due to the limited analytical testing completed for this SCI and that ACM and anthropogenic impacted fill has been identified to depths of between 0.3 m and >2.0 m bgl, DP considers that further investigation and/or remediation of AEC 4C is required.

10.3.2 AEC4I

Within AEC4I, seven test pits were excavated as part of this investigation. The general strata observed across AEC4I comprised brown silty clay filling to depths of between 0.3 m and 0.6 m bgl which was underlain by natural red mottled brown and red brown silty clay to depths of test pit termination.

Anthropogenic material comprising plastic and PVC pipe fragments were observed within the fill.

A summary of the results of the limited analytical testing is provided below:

- Concentrations of metals, TRH, BTEX, PAH, OCP, OPP and PCB were either below the LOR and/or the SAC in all samples tested; and
- Asbestos was not detected at the limit of reporting in the 500 ml soil samples submitted for analysis.

Based on the results of the PSI and SCI, the filling identified within AEC4I, which generally comprised silty clay filling to depths of between 0.3 m and 0.6 m bgl is considered to have a low potential for contamination. However, due to the limited analytical testing completed, further investigation of the fill will be required to confirm suitability for on-site retention.

10.3.3 AEC4J

Within AEC4J, seven test pits were excavated as part of this investigation. The general strata observed across AEC4J comprised silty clay filling with sand and siltstone and shale gravels to depths of between 1.0 m and 2.7 m bgl which was underlain by natural silty clay to depths of test pit termination.

A concrete pipe fragment was observed within the fill at both TP182 and TP184.

In addition, fly tipped material including building demolition waste was observed dumped on the surface in areas of this AEC.

A summary of the results of the limited analytical testing is provided below:

- Concentrations of metals, TRH, BTEX, PAH, OCP, OPP and PCB were either below the LOR and/or the SAC in all samples tested; and
- Asbestos was not detected at the limit of reporting in the soil samples submitted for analysis.

Based on the results of the PSI and SCI, the fill identified within AEC4J, is considered to have a low potential for contamination. However, due to the limited analytical testing completed, further investigation of the fill will be required to confirm suitability for on-site retention.

Fly tipped material including building demolition waste was observed dumped on the surface in parts of this AEC. This should be addressed as per AEC7.

10.3.4 AEC4K

Within AEC4K, one test pit was excavated as part of the PSI. The strata observed comprised brown silty clay fill with some gravel to a depth of 0.9 m bgl which was underlain by natural brown silty clay to the depth of test pit termination.

A summary of the results of the limited analytical testing is provided below:

- Concentrations of metals, TRH, BTEX, PAH, OCP, OPP and PCB were either below the LOR and/or the SAC in all samples tested; and
- Asbestos was not detected at the limit of reporting in the soil samples submitted for analysis.

Based on the results of the PSI and SCI, the fill identified within AEC4K is considered to have a low potential for contamination. However, due to the limited intrusive and analytical testing completed, further investigation of the fill will be required to confirm suitability for on-site retention.

10.3.5 AEC4L

AEC4L comprises all the roads, pavements and access tracks located within the site. Ten surface samples were collected as part of this investigation and five surface samples were collected as part of the PSI targeting these access tracks and roads. Due to the preliminary nature of this assessment, a detailed inspection of all pavements and access tracks as well as fill beneath any sealed pavements was not completed.

Building demolition rubble/aggregate (comprising concrete, brick and tile) were observed within some unsealed driveways and access tracks within the site. In addition, inspection of fill beneath sealed pavements was not undertaken.

Three suspected ACM fragments were observed within access tracks within the site with their locations shown on Drawing 3, Appendix B.

A summary of the results of the limited analytical testing is provided below:

- Concentrations of metals, TRH, BTEX, PAH, OCP, OPP and PCB were either below the LOR and/or the SAC in all samples tested;

- Asbestos was not detected at the limit of reporting in the soil samples submitted for analysis; and
- Selected suspected ACM fragments collected from AEC4L were confirmed to contain asbestos.

As ACM fragments and building demolition materials were observed within the access tracks, DP considers that further investigation and remediation of all access tracks is required.

10.3.6 AEC 4 – Stockpiles (AEC4A, AEC4B, and AEC4D – AEC4H)

As part of this SCA, one test pit was excavated within AEC4D, four in AEC4E, and one in AEC4H. Filling within the AEC4D and AEC4E stockpiles were observed to comprise a topsoil like fill material and filling within AEC4H was observed to comprise roadbase gravels.

Due to site access restrictions and inclement weather, hand dug pits were excavated to collect surface samples from AEC4A, AEC4B, AEC4F and AEC4G. Anthropogenic materials comprising bricks, concrete, wood, and general household refuse were observed within the stockpiled material within AEC4A and concrete was observed within AEC4G.

A summary of the results of the limited analytical testing is provided below:

- Concentrations of metals, TRH, BTEX, PAH, OCP, OPP and PCB were either below the LOR and/or the SAC in all samples tested; and
- Asbestos was not detected at the limit of reporting in the soil samples submitted for analysis.

Based on the results of the PSI and SCI, DP considers that the stockpiled material within AEC4D, AEC4E, and AEC4H is suitable for reuse on-site, from a contamination perspective.

With regards to AEC4A, AEC4B, AEC4F and AEC4G, due to the limited assessment completed and based on the on-site observations, further investigation of the fill will be required to confirm suitability for on-site retention.

As ACM have been identified in various areas of the larger site and within access roads and fill areas within the site, and that anthropogenic materials including building demolition materials were observed within AEC4A and AEC4G stockpiles, there is a potential for ACM unexpected finds to be encountered. As such, unexpected ACM contamination and remediation should be factored into development costs.

10.4 AEC 5

Within AEC 5, 10 surface samples were collected as part of this investigation and five surface samples were collected as part of the PSI targeting the timber power poles located within the site. Surface samples generally comprised of brown clayey silt and silty clay fill with rootlets and a trace of mixed gravel.

A summary of the results of the analytical testing is provided below:

- Concentrations of cadmium, chromium, lead, mercury, nickel, zinc, TRH and BTEX were either below the LOR and/or the SAC in all samples tested;

- Concentrations of arsenic were below the SAC in all samples, with the exception of sample SS14 (230 mg/kg), SS102 (300 mg/kg), and SS105 (210 mg/kg) which exceeded the EIL criterion (160 mg/kg) but below the HIL (3000 mg/kg).
- Concentrations of PAH were below the SAC in all samples, with the exception of:
 - o Benzo(a)pyrene in sample SS18 (39 mg/kg), sample SS103 (9.3 mg/kg) and sample SS105 (76 mg/kg) which exceeded the EIL criterion (1.4 mg/kg); and
 - o Benzo(a)pyrene TEQ in sample SS18 (61 mg/kg), and sample SS105 (120 mg/kg) which exceeded the HIL criterion (40 mg/kg).

Based on the results of this assessment, the soils at the base of five sampled timber power poles within the site were identified to be impacted with arsenic and PAH. Although concentrations did not exceed the adopted criteria at all power pole locations, each alignment of power poles had at least one power pole which did exceed the criteria, and the power poles were observed to be of the same materials (i.e. treated timber) and approximate age within each alignment, as such, DP considers that remediation of the *in-situ* soils at the base all timber power poles is required.

Remediation will require chase out excavation to remove all impacted fill or alternatively, a supplementary delineation assessment could be completed to determine the lateral and vertical extent of contamination at each power pole.

11. Conclusions and Recommendations

Based on the findings of the PSI and this investigation, it is considered that the site can be made suitable for the proposed residential development; however, further investigation and remediation/management is required for select areas within AEC3, AEC4 and AEC5.

In addition, although not investigated as part of this SCI, further investigation should be undertaken in AEC2 following demolition of the buildings to assess for the presence of COPC.

With respect to site contamination, the recommended further assessment should build on the information provided in this report with reference to National Environment Protection Council (NEPC, 1999) National Environment Protection Council (Assessment of Site Contamination) Measure 1999 (amended 2013) (ASC NEPM). Further assessment should include intrusive investigations, sampling, analysis and assessment to determine the proposed land use suitability.

With regards to the fly tipped material and general refuse (AEC7), DP considers that removal will be required as part of initial site development works, as would normally occur for urban development sites. Based on the field observations, the possibility of asbestos contamination within fly tipped material across the site should be factored into disposal / remediation costs.

As the site is predominately grass covered, a detailed inspection of the ground surface could not be undertaken. It is recognised that, due to the typical random nature of asbestos contamination in soil, and that ACM has been observed within AEC at the site, no unequivocal statement can be made on the absence of asbestos in the soil within AEC1. However, no signs of widespread asbestos contamination, or significant pockets asbestos debris, were noted within AEC1. In this regard, whilst the potential presence of isolated fragments cannot be ruled out (as in the case on any site), the potential health impacts due to asbestos contamination associated with the site was assessed to be low. Isolated fragments/debris can usually be effectively managed and removed during development works, and would not affect the outcome of the assessment.

DP considers that any such finds could be addressed under an unexpected finds protocol. Alternatively, a more detailed investigation could be completed within areas of the site including AEC1 to limit the risk of identifying such finds during development works. Nevertheless, DP recommends that additional ACM contamination remediation costs should be factored into proposed development budgets.

12. Limitations

Douglas Partners Pty Ltd (DP) has prepared this report for this project at 144 - 228 Aldington Road, Kemps Creek in accordance with DP's proposal MAC190214 dated 23 July 2019. The work was carried out under a Stockland Service Instruction. This report is provided for the exclusive use of Stockland Commercial Property 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, brick, tile [list as appropriate to the field work findings], were, however, located in previous below-ground filling and/or above-ground stockpiles [as appropriate], 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 [where appropriate], or to vegetation preventing visual inspection and reasonable access [where appropriate]. 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 environmental 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

About This Report

About this Report

Douglas Partners



Introduction

This report was prepared to provide Douglas Partners with information regarding the proposed project and the results of the field investigation conducted in accordance with the report.

The report was prepared on behalf of the client from the field investigation conducted and the data collected. The report was prepared for the client and is not intended to be used for any other purpose. The report was prepared for the client and is not intended to be used for any other purpose.

Copyright

This report is the property of Douglas Partners and is not to be reproduced or used for any other purpose without the written consent of Douglas Partners. The report is the property of Douglas Partners and is not to be reproduced or used for any other purpose without the written consent of Douglas Partners.

Borehole and Test Pit Logs

The borehole and test pit logs were prepared in accordance with the report and are not to be used for any other purpose. The borehole and test pit logs were prepared in accordance with the report and are not to be used for any other purpose.

The interpretation of the field data and the application of the data to the project is the responsibility of the client. The interpretation of the field data and the application of the data to the project is the responsibility of the client.

Groundwater

Where groundwater was encountered in the field, the results of the investigation are reported in the report.

- The proposed project is not intended to be used for any other purpose.

- The proposed project is not intended to be used for any other purpose.
- Where groundwater was encountered in the field, the results of the investigation are reported in the report.
- The proposed project is not intended to be used for any other purpose.

More information regarding the project is available in the report. More information regarding the project is available in the report.

Reports

The report was prepared in accordance with the report and is not to be used for any other purpose. The report was prepared in accordance with the report and is not to be used for any other purpose.

The report was prepared in accordance with the report and is not to be used for any other purpose. The report was prepared in accordance with the report and is not to be used for any other purpose.

- The proposed project is not intended to be used for any other purpose.
- The proposed project is not intended to be used for any other purpose.
- The proposed project is not intended to be used for any other purpose.

About this Report

Site Anomalies

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contract being reported from the forward rate
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error related related to the contract are
reported rather than the contract for
the contract.

Information for Contractual Purposes

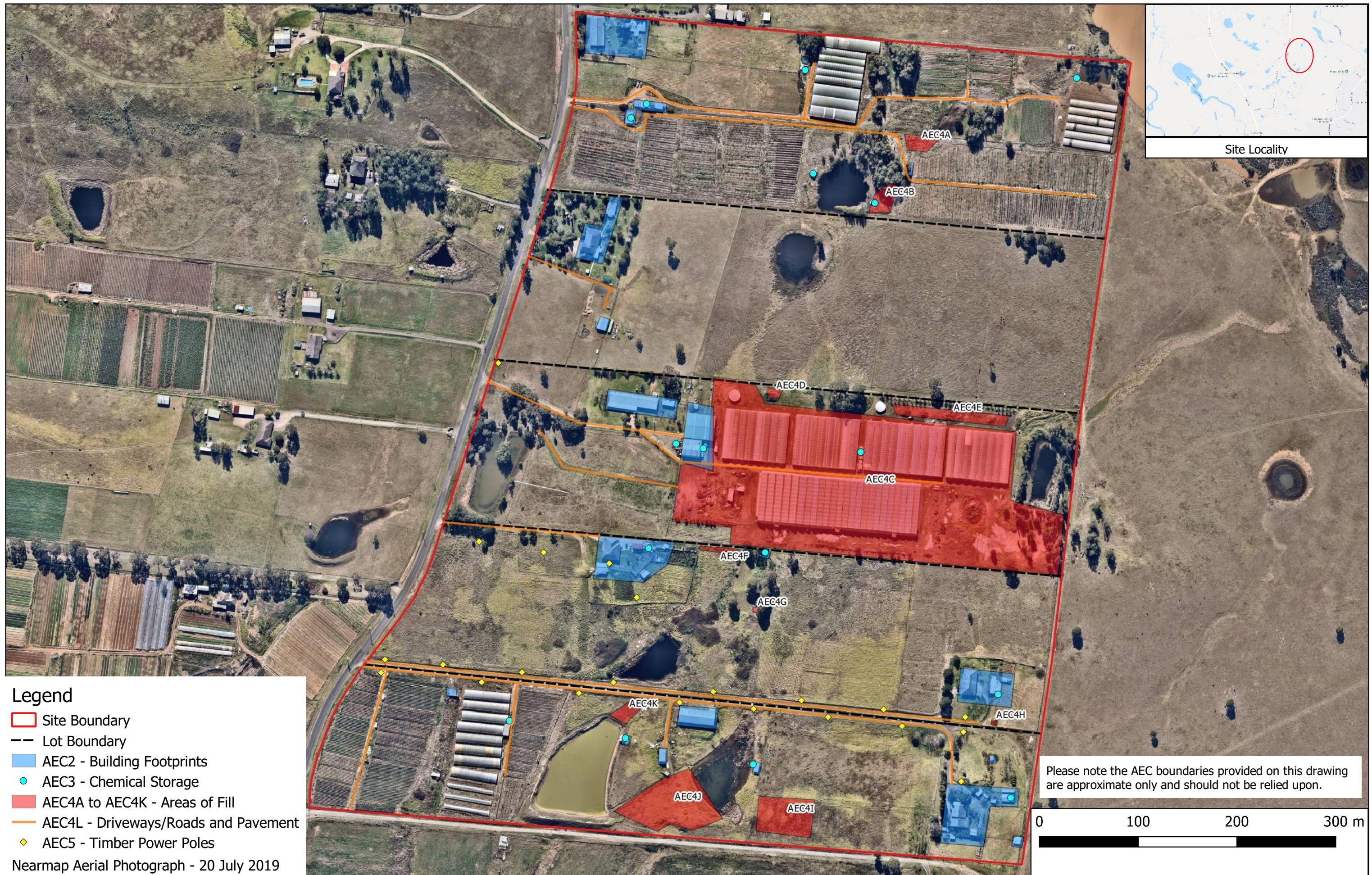
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Site Inspection

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Appendix B

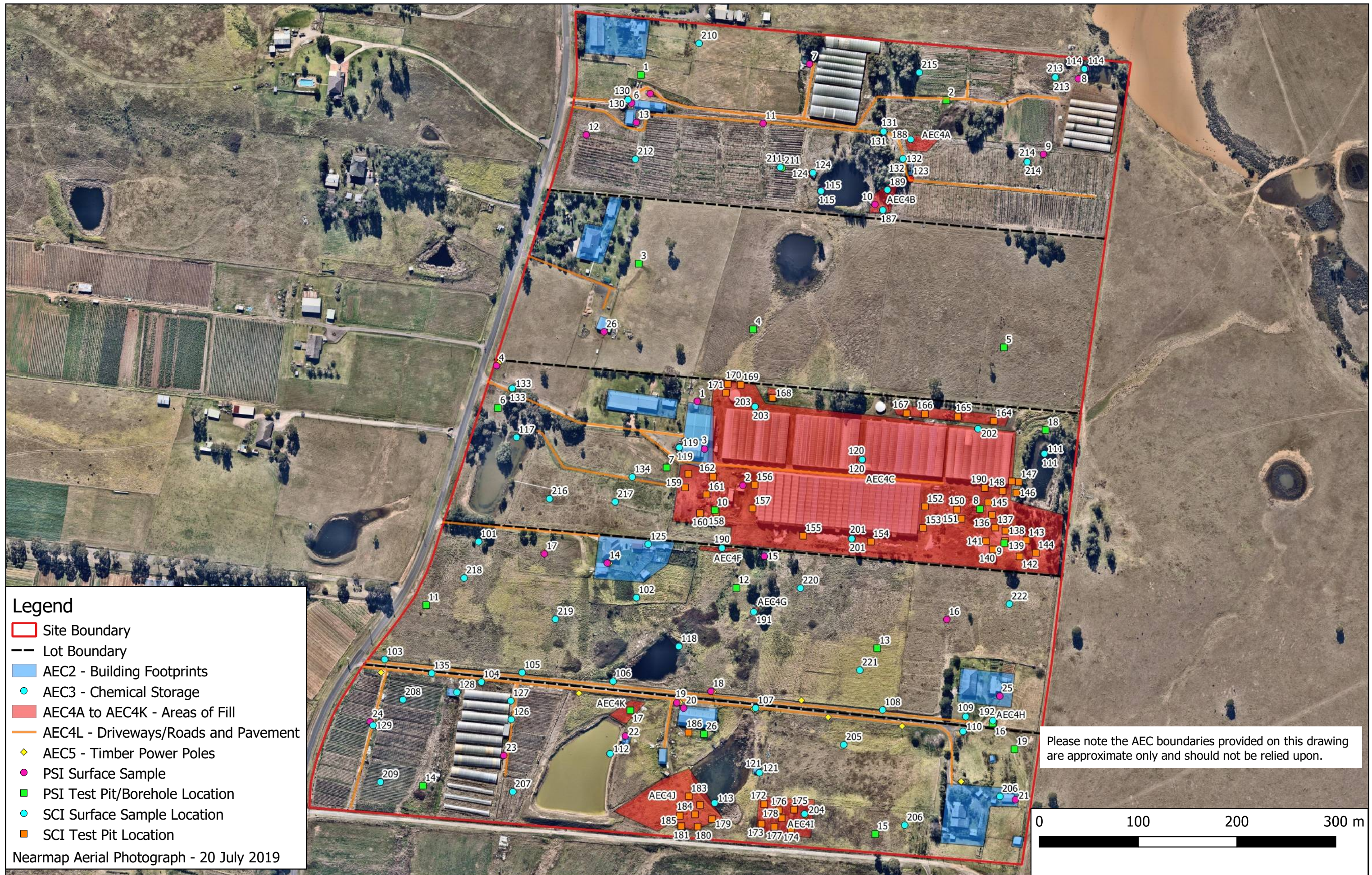
Drawings 1 to 3

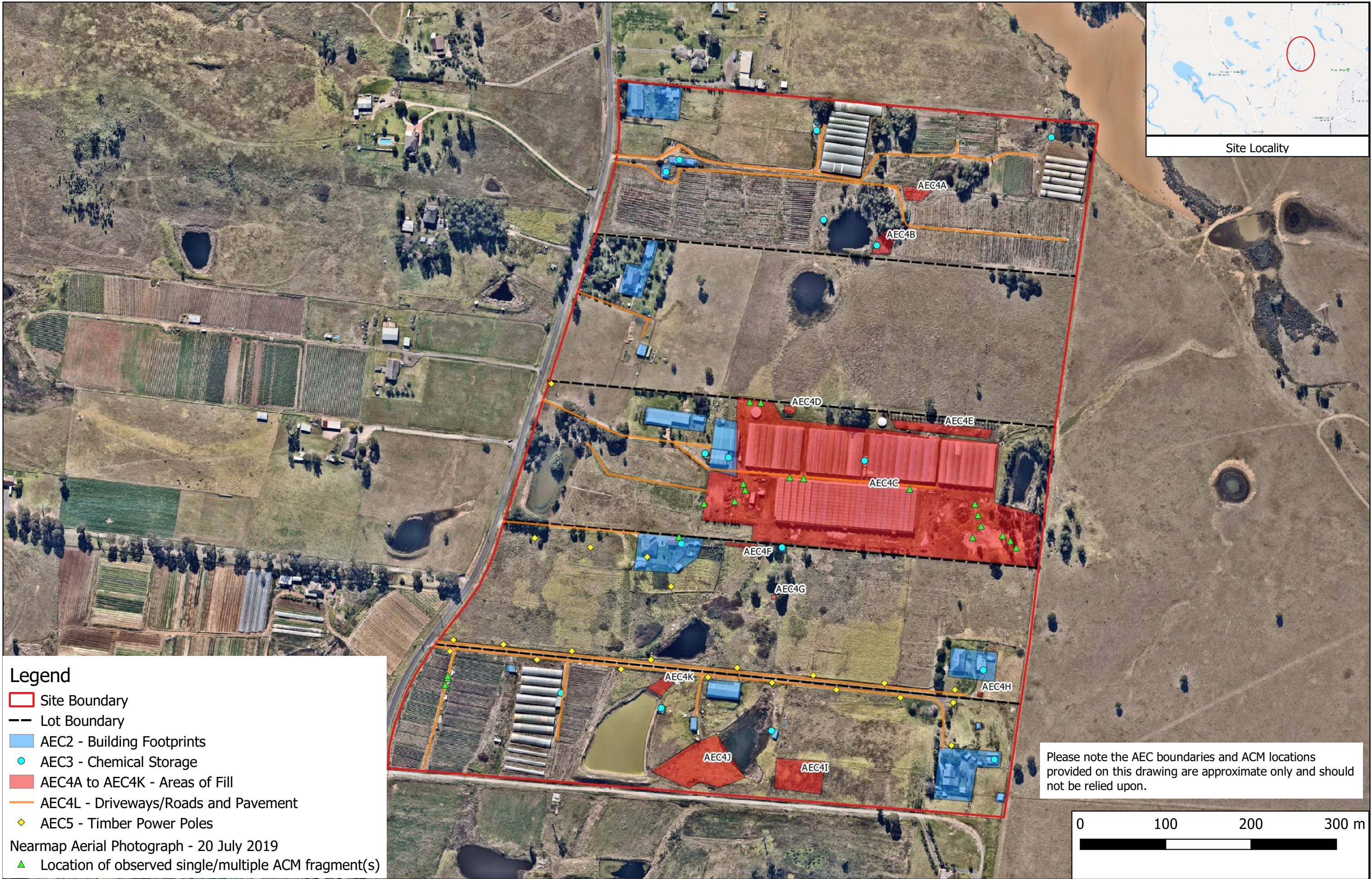


Legend

- Site Boundary
- Lot Boundary
- AEC2 - Building Footprints
- AEC3 - Chemical Storage
- AEC4A to AEC4K - Areas of Fill
- AEC4L - Driveways/Roads and Pavement
- AEC5 - Timber Power Poles

Nearmap Aerial Photograph - 20 July 2019





Legend

- Site Boundary
- Lot Boundary
- AEC2 - Building Footprints
- AEC3 - Chemical Storage
- AEC4A to AEC4K - Areas of Fill
- AEC4L - Driveways/Roads and Pavement
- AEC5 - Timber Power Poles

Nearmap Aerial Photograph - 20 July 2019

- Location of observed single/multiple ACM fragment(s)

Appendix C

Data Quality Objectives and Site Assessment Criteria

Appendix C - 1 Data Quality Objectives

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

C1.1 State the Problem

Stockland Commercial Property (Stockland) is proposing purchase and redevelopment of the site for commercial/industrial purposes.

Review of the PSI and a site inspection identified that a total of seven AECs were previously identified at the site, requiring further investigation.

The “problem” to be addressed is the extent and nature of potential contamination at the site which is unknown, and as such, it is unclear whether the site is suitable for the proposed development.

The objectives of the investigation are as follows:

- Undertake intrusive investigations of AEC1, AEC3, AEC4 and AEC5 to assess and describe the nature and extent of contamination;
- Determine the suitability of the AEC’s for the proposed land use; and
- Recommend further investigation where the investigation found the site to be unsuitable for the proposed land use.

C1.2 Identify the Decision/Goal of the Study

The suitability of the site for the proposed commercial/industrial land use was assessed based on the findings of the site walkover and a comparison of the analytical results for contaminants of potential concern (COPC) with the adopted site assessment criteria (SAC). The adopted SAC are provided in Section C2 below.

Based on the identified areas and activities of concern, the main COPC are expected to be total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene and xylenes (BTEX), polycyclic aromatic hydrocarbons (PAH), organochlorine pesticides (OCP), organophosphate pesticides (OPP) heavy metals and asbestos. Other commonly found contaminants which may be present include phenols and polychlorinated biphenyls (PCB).

The following specific decisions were considered as part of the SCI:

- Did field observation and analytical results identify potential contamination sources which were not included in the preliminary CSM?
- Were COPC present in soil at concentrations that pose a potential risk to identified receptors?
- Is the data sufficient to make a decision regarding the abovementioned risks, the suitability of the site for the proposed development?
- Does contamination at the site, if encountered, trigger the Duty to Report requirements under the CLM Act 1997?
- Are there any off-site migration issues that need to be considered?

C1.3 Identify Information Inputs

Inputs into the decisions are as follows:

- Review of regional geology, topography and hydrogeology information;
- Review of site history information;
- Completion of a site inspection;
- Limited soil samples were collected targeting AEC1, AEC3, AEC4 and AEC5;
- The lithology of the site as described in the test pit and bore logs;
- Field and laboratory QA/QC data to assess the suitability of the environmental data for the DSI (Appendix G);
- All analysis was undertaken at a NATA accredited laboratory; and
- Laboratory reported concentrations of contaminants of concern were compared with the ASC NEPM criteria as discussed in Section C2.

C1.4 Define the Study Boundaries

The site covers an approximate total area of 50 ha and the following land parcels

- 144-160 Aldington Road – Lot 30 DP 258949;
- 162-178 Aldington Road – Lot 23 DP 255560;
- 180-196 Aldington Road – Lot 22 DP 255560;
- 198-212 Aldington Road – Lot 21 DP 255560; and
- 214-228 Aldington Road – Lot 20 DP 255560.

The site location and boundaries are shown on Drawing 1, Appendix A.

Field investigations were undertaken on 13, 16, 17, 18 and 19 September 2019 by DP Environmental Scientists.

C1.5 Develop the Analytical Approach (or decision rule)

The information obtained during the assessment was used to characterise the site in terms of contamination issues and risk to human health and the environment. The decision rules used in characterising the site were as follows:

- The adopted SAC was the NSW Environment Protection Authority (EPA) endorsed criteria; and
- The contaminant concentrations in soil were compared to the adopted SAC to determine whether further investigation or remedial action was required.

Laboratory test results were considered useable for the assessment after evaluation against the following data quality indicators (DQIs):

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

The specific limits are outlined in the data QA/QC procedures and results (Appendix G).

C1.6 Specify the Performance or Acceptable Criteria

Decision errors for the respective COPC for filling and natural soils are:

1. Deciding that fill and natural soil at the site exceeds the adopted SAC when they truly do not; and
2. Deciding that fill and natural soil at the site is within the adopted SAC when they truly do not.

Decision errors for the DSI were minimised and measured by the following:

- The sampling regime targeted each stratum identified to account for site variability;
- Sample collection and handling techniques were in accordance with DP’s *Field Procedures Manual*;
- Samples were prepared and analysed by a NATA-accredited laboratory with the acceptance limits for laboratory QA/QC parameters based on the laboratory reported acceptance limits and those stated in ASC NEPM;
- The analyte selection is based on the available site history, past site activities and site features. The potential for contaminants other than those proposed to be analysed is considered to be low;

- The SAC were adopted from established and NSW EPA endorsed guidelines. The SAC have risk probabilities already incorporated; and
- A NATA accredited laboratory using NATA endorsed methods are used to perform laboratory analysis. Where NATA endorsed methods are not used, the reasons are stated. The effect of using non-NATA methods on the decision making process are explained.

C1.7 Optimise the design for obtaining data

Sampling design and procedures that were implemented to optimise data collection for achieving the DQOs included the following;

- A NATA accredited laboratory using NATA endorsed methods were used to perform laboratory analysis;
- Additional soil samples were collected but kept 'on hold' pending details of initial analysis so that they could be analysed if further delineation was required; and
- Adequately experienced environmental scientists/engineers were chosen to conduct field work and sample analysis interpretation.

Appendix C – 2 Site Assessment Criteria

The Site Assessment Criteria (SAC) applied in the current investigation are adopted from the PSI which was informed by the CSM which identified human and environmental receptors to potential contamination on the site (refer to Section 7 of the PSI). Analytical results are assessed (as a Tier 1 assessment) against the SAC comprising investigation and screening levels as per Schedule B1, *National Environment Protection (Assessment of Site Contamination) Measure 1999*, as amended 2013 (ASC NEPM).

The investigation and screening levels applied in the current investigation comprise levels adopted for a generic commercial/industrial land use scenario.

C2.1 Health Investigation and Screening Levels

The generic Health Investigation Levels (HILs) and Health Screening Levels (HSLs) are considered to be appropriate for the assessment of human health risk associated with contamination at the site. The adopted soil HILs and HSLs for the potential contaminants of concern are presented in Table C2, with inputs into their derivation shown in Table C1.

As shown in Table C2 the adopted HSLs are based on a potential vapour intrusion pathway, as identified in the CSM. Although the CSM also identifies a direct contact pathway as well as construction worker receptors, the corresponding HSLs are significantly higher than those for the vapour intrusion pathway and are therefore not drivers for further assessment and/or remediation. As such the direct contact and intrusive maintenance worker HSLs have not been listed.

Table C1: Inputs to the Derivation of HSLs

Variable	Input	Rationale
Potential exposure pathway	Inhalation of vapours	Potential exposure pathways
Soil Type	Silt and clay	Dominant soil type in surface soils
Depth to contamination	0 m to <1 m	Potential contamination sources likely to impact surface soils

Table C2: HIL and HSL in mg/kg Unless Otherwise Indicated

Contaminants		HIL- D	HSL- D
Metals	Arsenic	3000	-
	Cadmium	900	-
	Chromium (VI)	3600	-
	Copper	240000	-
	Lead	1500	-
	Mercury (inorganic)	730	-
	Nickel	6000	-
	Zinc	400000	-
PAH	Benzo(a)pyrene TEQ ¹	40	-
	Total PAH	4000	-
	Naphthalene	-	NL ³
TRH	C6 – C10 (less BTEX) [F1]	-	310
	>C10-C16 (less Naphthalene) [F2]	-	NL
	>C16-C34 [F3]	-	-
	>C34-C40 [F4]	-	-
BTEX	Benzene	-	4
	Toluene	-	NL ³
	Ethylbenzene	-	NL ³
	Xylenes	-	NL ³

Contaminants		HIL- D	HSL- D
OCP	Aldrin + Dieldrin	45	-
	Chlordane	530	-
	DDT+DDE+DDD	3600	-
	Endosulfan	2000	-
	Endrin	100	-
	Heptachlor	50	-
	HCB	80	-
	Methoxychlor	2500	-
OPP	Chlorpyrifos	2000	-
PCB ²		7	-

Notes:

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

C2.2 Ecological Investigation Levels

Ecological Investigation Levels (EILs) and Added Contaminant Limits (ACLs), where appropriate, have been derived in NEPC (2013) for only a short list of contaminants comprising As, Cu, Cr (III), DDT, naphthalene, Ni, Pb and Zn. The adopted EILs, derived using the *Interactive (Excel) Calculation Spreadsheet* (Standing Council on Environment and Water (SCEW) website (<http://www.scew.gov.au/node/941>)) are shown in the following Table C4, with inputs into their derivation shown on Table C3.

Table C3: Inputs to the Derivation of EILs

Variable	Input	Rationale
Age of contaminants	"Aged" (>2 years)	Given the potential sources of soil contamination are from historic use, the contamination is considered as "aged" (>2 years);
pH	6.16	Four selected samples from the PSI were tested for pH. The average pH value has been used as an initial screening. The pH value adopted is a pH of 6.16
CEC	9.44 cmolc/kg	Four selected samples from the PSI were tested for CEC. The average CEC value has been used as an initial screening. The CEC value adopted is 9.44 cmolc/kg.
Clay content	10%	Conservative value for initial screen

Variable	Input	Rationale
Traffic volumes	low	The site is considered to be located within a low traffic area
State / Territory	New South Wales	-

Table C4: EIL in mg/kg

Analyte		EIL
Metals	Arsenic	160
	Copper	280
	Nickel	250
	Chromium III	670
	Lead	1800
	Zinc	670
PAH	Naphthalene	370
OCP	DDT	640

C2.3 Ecological Screening Levels

Ecological Screening Levels (ESLs) are used to assess the risk of selected petroleum hydrocarbon compounds, BTEX and benzo(a)pyrene to terrestrial ecosystems. The adopted ESLs, based on a fine soil type are shown in the following Table C5.

Table C5: ESL in mg/kg

Analyte		ESL ¹	Comments
TRH	C6 – C10 (less BTEX) [F1]	215*	All ESLs are low reliability apart from those marked with * which are moderate reliability
	>C10-C16 (less Naphthalene) [F2]	170*	
	>C16-C34 [F3]	2500	
	>C34-C40 [F4]	6600	
BTEX	Benzene	95	
	Toluene	135	
	Ethylbenzene	185	
	Xylenes	95	
PAH	Benzo(a)pyrene	1.4	

C2.4 Management Limits

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

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

The adopted management limits, based on a fine soil type, are shown in the following Table C6.

Table C6: Management Limits in mg/kg

Analyte		Management Limit
TRH	C ₆ – C ₁₀ (F1) [#]	800
	>C ₁₀ -C ₁₆ (F2) [#]	1000
	>C ₁₆ -C ₃₄ (F3)	5000
	>C ₃₄ -C ₄₀ (F4)	10 000

Separate management limits for BTEX and naphthalene are not available hence these have not been subtracted from the relevant fractions to obtain F1 and F2

C2.5 Asbestos in Soil

NEPC (2013) defines the various asbestos types as follows:

Bonded ACM: Asbestos containing material which is in sound condition, bound in a matrix of cement or resin, and cannot pass a 7 mm x 7 mm sieve.

FA: Fibrous asbestos material including severely weathered cement sheet, insulation products and woven asbestos material. This material is typically unbonded or was previously bonded and is now significantly degraded and crumbling.

AF: Asbestos fines including free fibres, small fibre bundles and also small fragments of bonded ACM that pass through a 7 mm x 7 mm sieve.

Health Screening Levels (HSLs) for asbestos in soil, which are based on likely exposure levels for different scenarios, have been adopted in NEPC (2013) from the Western Australian Department of Health (WA DoH) publication Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia 2009 (WA DoH 2009).

On the basis of the proposed land use, and in accordance with Table 7, Schedule B1, NEPC (2013) the following asbestos HSLs have been adopted:

Table C7: Health Screening Levels for Asbestos Contamination in Soil (% w/w)

Form of Asbestos	HSL
Bonded ACM	0.05%
FA and AF	0.001%
All Forms of Asbestos	No visible asbestos for surface soil

Appendix D

Test Pit and Bore Hole Logs

TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 74 mAHD
EASTING: 296810
NORTHING: 6252610

PIT No: 136
PROJECT No: 92364.02
DATE: 13/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
74		FILL/Silty CLAY: dark brown, with sand, siltstone, shale and sandstone gravel and concrete, asphalt, glass, plastic and multiple ACM fragments		E	0.0							
					0.1							
73	1			E	1.0							
	1.1	Silty CLAY: red mottled brown										
	1.4	Pit discontinued at 1.4m - limit of investigation										
72	2											
71	3											

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface levels interpolated from 2m contour map

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	G	Gas sample
B	Bulk sample	P	Piston sample
BLK	Block sample	U	Tube sample (x mm dia.)
C	Core drilling	W	Water sample
D	Disturbed sample	W	Water seep
E	Environmental sample	W	Water level
		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)
		S	Standard penetration test
		V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 74 mAHD
EASTING: 296809
NORTHING: 6252599

PIT No: 137
PROJECT No: 92364.02
DATE: 13/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
74		FILL/Silty CLAY: brown, with fine sand, mixed gravel, trace ceramic tile, terracotta tile, asphalt, glass, whole bricks and ACM		E*	0.0							
					0.1							
	0.8	Silty CLAY: mottled red and brown, trace sand and ironstone gravel										
73	1											
	1.2	Pit discontinued at 1.2m - limit of investigation										
72	2											
71	3											

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: * Replicate sample BD1/130919 collected; Surface levels interpolated from 2m contour map

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	G	Gas sample
B	Bulk sample	P	Piston sample
BLK	Block sample	U _s	Tube sample (x mm dia.)
C	Core drilling	W	Water sample
D	Disturbed sample	W _s	Water seep
E	Environmental sample	W _l	Water level
		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)
		S	Standard penetration test
		V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 74 mAHD
EASTING: 296822
NORTHING: 6252953

PIT No: 138
PROJECT No: 92364.02
DATE: 13/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
74		FILL/Silty CLAY: brown, with sand, mixed gravel, trace asphalt, glass, concrete, metal, porcelain, terracotta tiles, ceramic tiles, brick and plastic piping		E	0.0							
					0.1							
73	1											
	1.05	Silty CLAY: brown, with sand, trace ironstone and mixed gravel										
	1.3	Pit discontinued at 1.3m - limit of investigation										
72	2											
71	3											

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface levels interpolated from 2m contour map

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

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	pp	Pocket penetrometer (kPa)
D	Disturbed sample	>	Water seep	S	Standard penetration test
E	Environmental sample	≡	Water level	V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 74 mAHD
EASTING: 296821
NORTHING: 6252580

PIT No: 139
PROJECT No: 92364.02
DATE: 13/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
74		FILL/Sandy SILT: grey, with shale gravel and cobbles, trace metal		E	0.0								
					0.1								
0.3		FILL/Silty CLAY: brown, with sand, mixed gravel and cobbles, trace terracotta tile		E	0.3								
					0.4								
0.8		Silty CLAY: red mottled brown, trace ironstone and mixed gravel and rootlets											
73	1	Pit discontinued at 1.0m - limit of investigation							1				
72	2								2				
71	3								3				

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface levels interpolated from 2m contour map

- ☐ Sand Penetrometer AS1289.6.3.3
- ☐ Cone Penetrometer AS1289.6.3.2

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



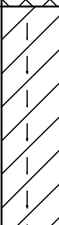
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TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 74 mAHd
EASTING: 296811
NORTHING: 6252571

PIT No: 140
PROJECT No: 92364.02
DATE: 13/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
74		FILL/Sandy SILT: grey, with shale gravel and cobbles, trace rootlets		E	0.0							
					0.1							
	0.2	FILL/Silty CLAY: red brown, with sand, mixed gravel and cobbles, trace plastic bags		E	0.3							
					0.4							
	0.6	Silty CLAY: brown and red, with shale gravel, trace rootlets										
73	1											
	1.2	Pit discontinued at 1.2m - limit of investigation										
72	2											
71	3											

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface levels interpolated from 2m contour map

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

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	pp	Pocket penetrometer (kPa)
D	Disturbed sample	W	Water seep	S	Standard penetration test
E	Environmental sample	W	Water level	V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 74 mAHD
EASTING: 296819
NORTHING: 6252575

PIT No: 141
PROJECT No: 92364.02
DATE: 13/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
74	0.1	FILL/Sandy SILT: grey, with shale gravel and cobbles, trace terracotta tile and rootlets		E	0.3							
		FILL/Silty CLAY: brown, with mixed gravel and cobbles, one ACM fragment, brick, plastic and terracotta - layer of grass at 0.2m			0.4							
	0.5	Silty CLAY: red, with ironstone and trace mixed gravel										
73	1											
	1.1	Pit discontinued at 1.1m - limit of investigation										
72	2											
71	3											

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface levels interpolated from 2m contour map

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

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	pp	Pocket penetrometer (kPa)
D	Disturbed sample	>	Water seep	sp	Standard penetration test
E	Environmental sample	≡	Water level	S	Shear vane (kPa)
				V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 74 mAHD
EASTING: 296831
NORTHING: 6252561

PIT No: 142
PROJECT No: 92364.02
DATE: 13/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
74		FILL/Sandy SILT: grey, with mixed gravel and cobbles, trace rootlets										
	0.25	FILL/Silty CLAY: brown, with sand, mixed gravel and cobbles, trace plastic and rootlets		E	0.3							
					0.4							
	0.55	Silty CLAY: red mottled brown, trace ironstone and rootlets										
73	1.0	Pit discontinued at 1.0m - limit of investigation										
72	2											
71	3											

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Demolition refuse on surface adjacent to test pit; Surface levels interpolated from 2m contour map

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

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	pp	Pocket penetrometer (kPa)
D	Disturbed sample	>	Water seep	S	Standard penetration test
E	Environmental sample	≡	Water level	V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 74 mAHD
EASTING: 296838
NORTHING: 6252572

PIT No: 143
PROJECT No: 92364.02
DATE: 13/9/2019
SHEET 1 OF 1

[illegible]

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Terracotta tiles, glass, plastic and brick on surface; Surface levels interpolated from 2m contour map

- ☐ Sand Penetrometer AS1289.6.3.3
- ☐ Cone Penetrometer AS1289.6.3.2

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



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TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 74 mAHD
EASTING: 296841
NORTHING: 6252565

PIT No: 144
PROJECT No: 92364.02
DATE: 13/9/2019
SHEET 1 OF 1

[illegible]

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Brick, plastic, terracotta tile and 1 ACM fragment on surface; Surface levels interpolated from 2m contour map

- ☐ Sand Penetrometer AS1289.6.3.3
- ☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	G	Gas sample
B	Bulk sample	P	Piston sample
BLK	Block sample	U	Tube sample (x mm dia.)
C	Core drilling	W	Water sample
D	Disturbed sample	W	Water seep
E	Environmental sample	W	Water level
		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)
		S	Standard penetration test
		V	Shear vane (kPa)



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TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 74 mAHD
EASTING:
NORTHING:

PIT No: 145
PROJECT No: 92364.02
DATE: 13/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
74		FILL/Silty CLAY: brown, with ironstone, mixed gravel and cobbles, trace polystyrene, plastic and 1 ACM fragment		E*	0.0							
					0.1							
	0.4	Silty CLAY: red mottled brown, with ironstone and gravel, trace rootlets										
73	1.0	Pit discontinued at 1.0m - limit of investigation										
72	2											
71	3											

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: * Replicate sample BD2/130919 collected: ACM (MAT2) on surface; Surface levels interpolated from 2m contour map

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

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	pp	Pocket penetrometer (kPa)
D	Disturbed sample	>	Water seep	S	Standard penetration test
E	Environmental sample	≡	Water level	V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 73 mAHD
EASTING: 296817
NORTHING: 6252635

PIT No: 146
PROJECT No: 92364.02
DATE: 13/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
73		FILL/Silty CLAY: brown, with sand, mixed cobbles and gravel, trace plastic - polystyrene refuse layer at 0.2m		E	0.0							
					0.1							
72	1											
	1.4	FILL/Silty CLAY: brown and red, with ironstone and some gravel, trace plastic and polystyrene, reworked										
71	2	Pit discontinued at 2.0m - limit of investigation										
	2.0											
70	3											

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Test pit excavated on dam wall; Surface levels interpolated from 2m contour map

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

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	pp	Pocket penetrometer (kPa)
D	Disturbed sample	W	Water seep	S	Standard penetration test
E	Environmental sample	WL	Water level	V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 73 mAHD
EASTING: 296830
NORTHING: 6252640

PIT No: 147
PROJECT No: 92364.02
DATE: 13/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
73		FILL/Silty CLAY: red brown and grey, trace rootlets										
72	1											
71	2	Pit discontinued at 2.0m - limit of investigation										
70	3											

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Test pit excavated on dam wall; Surface levels interpolated from 2m contour map

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

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	pp	Pocket penetrometer (kPa)
D	Disturbed sample	>	Water seep	S	Standard penetration test
E	Environmental sample	≡	Water level	V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 74 mAHD
EASTING: 296818
NORTHING: 6252631

PIT No: 148
PROJECT No: 92364.02
DATE: 13/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
74		FILL/Silty SAND: grey, with mixed gravel, trace concrete, asphalt and brick		E	0.0							
					0.1							
	0.5	FILL/Silty CLAY: orange mottled brown, with ironstone and mixed gravel, trace polystyrene, brick, concrete and timber										
73	1.0	FILL/Silty CLAY: brown, trace concrete, plastic and branch - becoming red mottled brown below 1.2m						1				
	1.5	Silty CLAY: red mottled brown										
72	2.0	Pit discontinued at 2.0m - limit of investigation						2				
71	3							3				

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Test pit excavated on driveway, slight hydrocarbon odour; Surface levels interpolated from 2m contour map

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

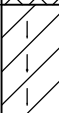
SAMPLING & IN SITU TESTING LEGEND					
A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket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

TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 73 mAHD
EASTING: 296826
NORTHING: 9252640

PIT No: 149
PROJECT No: 92364.02
DATE: 13/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
73		FILL/Silty CLAY: brown, trace ironstone gravel, plastic, sheeting and rootlets										
	0.5	SILTY CLAY: mottled orange and grey brown, trace siltstone gravel										
	0.8	Pit discontinued at 0.8m - limit of investigation										
72	1											
71	2											
70	3											

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface levels interpolated from 2m contour map

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

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	pp	Pocket penetrometer (kPa)
D	Disturbed sample	>	Water seep	S	Standard penetration test
E	Environmental sample	≡	Water level	V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 75 mAHD
EASTING: 296774
NORTHING: 6252609

PIT No: 150
PROJECT No: 92364.02
DATE: 13/9/2019
SHEET 1 OF 1

[illegible]

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface levels interpolated from 2m contour map

- ☐ Sand Penetrometer AS1289.6.3.3
- ☐ Cone Penetrometer AS1289.6.3.2

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



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TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 75 mAHD
EASTING: 296778
NORTHING: 6252598

PIT No: 151
PROJECT No: 92364.02
DATE: 13/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
75		FILL/Silty CLAY: brown, with sand and siltstone gravel, trace polystyrene, plastic and wood		E	0.0							
					0.1							
	0.4	Silty CLAY: red, with ironstone, trace rootlets										
74	1.0	Pit discontinued at 1.0m - limit of investigation										
73	2											
72	3											

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface levels interpolated from 2m contour map

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

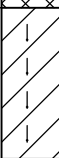
SAMPLING & IN SITU TESTING LEGEND					
A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket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

TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 76 mAHD
EASTING: 296734
NORTHING: 6252615

PIT No: 152
PROJECT No: 92364.02
DATE: 13/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
76		FILL/Silty CLAY: brown and red, with sand and mixed gravel and cobbles, trace plastic and terracotta tile		E	0.0							
					0.1							
	0.9	Silty CLAY: red, trace ironstone gravel										
75	1											
	1.3	Pit discontinued at 1.3m - limit of investigation										
74	2											
73	3											

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface levels interpolated from 2m contour map

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

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 _s	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	W	Water seep	S	Standard penetration test
E	Environmental sample	W	Water level	V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 76 mAHD
EASTING: 296736
NORTHING: 6252593

PIT No: 153
PROJECT No: 92364.02
DATE: 13/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
76		FILL/Silty CLAY: brown, with sand, trace ironstone gravel and rootlets		E	0.0							
					0.1							
	0.4	Silty CLAY: brown and red, trace ironstone gravel and rootlets										
76	1.0	Pit discontinued at 1.0m - limit of investigation										
74	2											
72	3											

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface levels interpolated from 2m contour map

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

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	pp	Pocket penetrometer (kPa)
D	Disturbed sample	>	Water seep	S	Standard penetration test
E	Environmental sample	≡	Water level	V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 76 mAHD
EASTING: 296685
NORTHING: 6252580

PIT No: 154
PROJECT No: 92364.02
DATE: 13/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
76		FILL/Silty CLAY: brown, with trace ironstone and rootlets		E	0.0							
					0.1							
	0.6	Silty CLAY: orange, trace ironstone										
76-1	1.0	Pit discontinued at 1.0m - limit of investigation										
74	2											
72	3											

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface levels interpolated from 2m contour map

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

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	pp	Pocket penetrometer (kPa)
D	Disturbed sample	>	Water seep	sp	Standard penetration test
E	Environmental sample	≡	Water level	V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 75 mAHD
EASTING: 296617
NORTHING: 6252586

PIT No: 155
PROJECT No: 92364.02
DATE: 13/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
75		FILL/Silty CLAY: grey and orange mottled, with sand, trace shale gravel, mixed cobbles and plastic		E	0.0							
					0.1							
74	1			E	1.0							
					1.1							
	1.3	Silty CLAY: brown and red, with ironstone gravel										
	1.5	Pit discontinued at 1.5m - limit of investigation										
73	2											
72	3											

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface levels interpolated from 2m contour map

- ☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

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	pp	Pocket penetrometer (kPa)
D	Disturbed sample	>	Water seep	S	Standard penetration test
E	Environmental sample	≡	Water level	V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 74 mAHD
EASTING: 296546
NORTHING: 6252628

PIT No: 156
PROJECT No: 92364.02
DATE: 13/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
74		FILL/Silty CLAY: brown, with orange sandy clay, mixed gravel and sandstone gravel, trace concrete, tile and terracotta piping		E	0.0							
					0.1							
	0.55	FILL/Silty CLAY: red brown, trace brick										
73	1			E	1.0							
	1.5	Silty CLAY: red, orange and grey, trace siltstone gravel										
	1.8	Pit discontinued at 1.8m - limit of investigation										
72	2											
71	3											

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface levels interpolated from 2m contour map

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

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	pp	Pocket penetrometer (kPa)
D	Disturbed sample	>	Water seep	S	Standard penetration test
E	Environmental sample	≡	Water level	V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 74 mAHD
EASTING: 296564
NORTHING: 6252613

PIT No: 157
PROJECT No: 92364.02
DATE: 13/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
74		FILL/Silty CLAY: brown, with sand, trace rootlets		E	0.0							
					0.1							
	0.2	FILL/Clayey SAND: brown, trace plastic and brick										
73	1			E	1.0							
72	2	- plastic layer at 2.1m										
	2.1	Silty CLAY: orange and brown mottled, with sand, trace siltstone gravel										
71	3											
	3.2	Pit discontinued at 3.2m - limit of investigation										

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface levels interpolated from 2m contour map

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

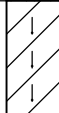
SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	G	Gas sample
B	Bulk sample	P	Piston sample
BLK	Block sample	U	Tube sample (x mm dia.)
C	Core drilling	W	Water sample
D	Disturbed sample	W	Water seep
E	Environmental sample	W	Water level
		PID	Photo ionisation detector (ppm)
		PL(A)	Point load axial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

TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 74 mAHD
EASTING: 296524
NORTHING: 6252611

PIT No: 158
PROJECT No: 92364.02
DATE: 13/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
74		FILL/Silty CLAY: brown, with sand and mixed gravel, trace terracotta tile and pipe, glass and plastic		F	0.0								
			0.1										
73	0.9	Silty CLAY: red mottled grey							1				
	1.2	Pit discontinued at 1.2m - limit of investigation											
72	2								2				
71	3								3				

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface levels interpolated from 2m contour map

- ☐ Sand Penetrometer AS1289.6.3.3
- ☐ Cone Penetrometer AS1289.6.3.2

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



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TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 75 mAHD
EASTING: 296491
NORTHING: 6252635

PIT No: 159
PROJECT No: 92364.02
DATE: 16/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
75		FILL/ROADBASE: grey, gravel, sand and asphalt		E	0.0							
					0.1							
	0.3	FILL/Silty CLAY: orange brown and red, with shale and ironstone gravel, reworked										
	0.4	Silty CLAY: red mottled orange brown, trace ironstone gravel										
	0.7	Pit discontinued at 0.7m - limit of investigation										
74	1											
73	2											
72	3											

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface levels interpolated from 2m contour map

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

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	pp	Pocket penetrometer (kPa)
D	Disturbed sample	W	Water seep	S	Standard penetration test
E	Environmental sample	W	Water level	V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 74 mAHD
EASTING: 296515
NORTHING: 6252608

PIT No: 160
PROJECT No: 92364.02
DATE: 16/9/2019
SHEET 1 OF 1

[illegible]

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Demolition refuse on surface; Surface levels interpolated from 2m contour map

- ☐ Sand Penetrometer AS1289.6.3.3
- ☐ Cone Penetrometer AS1289.6.3.2

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



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TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 75 mAHD
EASTING: 296518
NORTHING: 6252627

PIT No: 161
PROJECT No: 92364.02
DATE: 16/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
75		FILL/Silty CLAY: mottled grey brown and red, with mixed gravel		E	0.0							
					0.1							
	0.4	FILL/Silty CLAY: brown, with organic matter, trace plastic										
	0.6	Silty CLAY: red mottled brown and grey, trace ironstone gravel										
74	1.0	Pit discontinued at 1.0m - limit of investigation										
73	2											
72	3											

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Demolition refuse on surface; Surface levels interpolated from 2m contour map

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

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	pp	Pocket penetrometer (kPa)
D	Disturbed sample	>	Water seep	S	Standard penetration test
E	Environmental sample	≡	Water level	V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 75 mAHD
EASTING: 296525
NORTHING: 6252645

PIT No: 162
PROJECT No: 92364.02
DATE: 16/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
75		FILL/Silty CLAY: mottled grey brown and red, with mixed gravel, sandstone cobbles, trace plastic and asphalt		E	0.0							
					0.1							
	0.2	FILL/Silty CLAY: brown and red, reworked										
	0.3	Silty CLAY: red mottled brown, trace ironstone gravel										
	0.6	Pit discontinued at 0.6m - limit of investigation										
74	1											
73	2											
72	3											

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface levels interpolated from 2m contour map

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

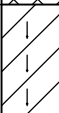
SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	G	Gas sample
B	Bulk sample	P	Piston sample
BLK	Block sample	U _s	Tube sample (x mm dia.)
C	Core drilling	W	Water sample
D	Disturbed sample	W _s	Water seep
E	Environmental sample	W _L	Water level
		PID	Photo ionisation detector (ppm)
		PL(A)	Point load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

TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 75 mAHD
EASTING: 296499
NORTHING: 6252647

PIT No: 163
PROJECT No: 92364.02
DATE: 16/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
75		FILL/ROADBASE: grey sand, gravel and brown silty clay, trace wire and plastic		E	0.0							
					0.1							
	0.3	Silty CLAY: red mottled brown and grey, trace ironstone gravel										
	0.6	Pit discontinued at 0.6m - limit of investigation										
74	1											
73	2											
72	3											

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface levels interpolated from 2m contour map

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

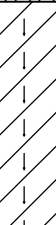
SAMPLING & IN SITU TESTING LEGEND					
A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket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

TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 76 mAHD
EASTING: 296810
NORTHING: 6252699

PIT No: 164
PROJECT No: 92364.02
DATE: 16/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
76		FILL: dark brown sand, silt, organic matter, charcoal, trace sandstone and shale gravel and metal pipe, manufactured soil		E	0.1							
75	1											
	1.8	Silty CLAY: mottled grey, red and orange, trace siltstone gravel										
74	2											
	2.4	Pit discontinued at 2.4m - limit of investigation										
73	3											

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Stockpile 9m x 7m x 1.8m high; Surface levels interpolated from 2m contour map

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

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	pp	Pocket penetrometer (kPa)
D	Disturbed sample	W	Water seep	S	Standard penetration test
E	Environmental sample	W	Water level	V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 73.5 mAHD
EASTING:
NORTHING:

PIT No: 165
PROJECT No: 92364.02
DATE: 16/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
73		FILL: vegetable/organic matter, dark brown humus, trace sand and silt										
72												
71	1											
70												
69												
68												
67												
66												
65												
64												
63												
62												
61												
60												
59												
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12												
11												
10												
9												
8												
7												
6												
5												
4												
3												
2												
1												
0												

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Stockpile 2.0m high; Surface levels interpolated from 2m contour map

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

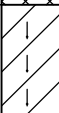
SAMPLING & IN SITU TESTING LEGEND					
A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket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

TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 73 mAHD
EASTING: 296745
NORTHING: 6252707

PIT No: 166
PROJECT No: 92364.02
DATE: 16/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
73		FILL: vegetable/organic matter, dark brown humus, rootlets, trace sand, silt and charcoal										
72	1											
71	2	2.0 FILL/Silty CLAY: brown and red, reworked										
		2.2 Silty CLAY: red mottled grey										
		2.5 Pit discontinued at 2.5m - limit of investigation										
70	3											

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Stockpile 7m x 5m x 2.0m high; Surface levels interpolated from 2m contour map

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

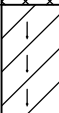
SAMPLING & IN SITU TESTING LEGEND					
A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket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

TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 73 mAHD
EASTING: 296725
NORTHING: 6252706

PIT No: 167
PROJECT No: 92364.02
DATE: 16/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
73		FILL: vegetable/organic matter, dark brown humus, rootlets, trace sand, silt and charcoal										
72	1											
71	2	2.0 FILL/Silty CLAY: brown and red, reworked										
		2.2 Silty CLAY: red mottled grey										
		2.5 Pit discontinued at 2.5m - limit of investigation										
70	3											

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Stockpile 7m x 5m x 2.0m high; Surface levels interpolated from 2m contour map

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

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	pp	Pocket penetrometer (kPa)
D	Disturbed sample	>	Water seep	S	Standard penetration test
E	Environmental sample	≡	Water level	V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 74 mAHD
EASTING: 296590
NORTHING: 6252720

PIT No: 168
PROJECT No: 92364.02
DATE: 16/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
74		FILL: vegetable/organic matter, dark brown humus, rootlets, trace sand, silt and charcoal		E	0.0							
					0.1							
73	1											
72	2	FILL/Silty CLAY: brown and red, reworked										
	2.2	Silty CLAY: red mottled grey										
	2.5	Pit discontinued at 2.5m - limit of investigation										
71	3											

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Stockpile 7m x 5m x 2.0m high; Surface levels interpolated from 2m contour map

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

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	pp	Pocket penetrometer (kPa)
D	Disturbed sample	W	Water seep	S	Standard penetration test
E	Environmental sample	WL	Water level	V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 74 mAHD
EASTING: 296549
NORTHING: 6252738

PIT No: 169
PROJECT No: 92364.02
DATE: 16/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
74		FILL/Silty CLAY: dark brown, with mixed gravel, tile, brick, concrete, glass, terracotta tile, ACM fragment, trace sand		E	0.0							
					0.1							
	0.6	Silty CLAY: orange brown, trace siltstone and ironstone gravel										
	0.9	Pit discontinued at 0.9m - limit of investigation										
73	1											
72	2											
71	3											

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Test pit excavated on drainage line along boundary

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

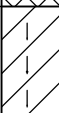
SAMPLING & IN SITU TESTING LEGEND					
A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U _s	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket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

TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 74 mAHD
EASTING: 296543
NORTHING: 6252738

PIT No: 170
PROJECT No: 92364.02
DATE: 16/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
74		FILL/Silty CLAY: dark brown, with mixed gravel, tile, brick, concrete, glass, terracotta tile, ACM fragment, trace sand										
	0.6	Silty CLAY: orange brown, trace siltstone and ironstone gravel										
	0.9	Pit discontinued at 0.9m - limit of investigation										
73	1											
72	2											
71	3											

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Test pit excavated on drainage line along boundary

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

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 _s	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	W _s	Water seep	S	Standard penetration test
E	Environmental sample	W _l	Water level	V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 74 mAHD
EASTING: 296539
NORTHING: 6252731

PIT No: 171
PROJECT No: 92364.02
DATE: 16/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
74		FILL: mottled brown, grey and red, with shale and ironstone gravel, trace rope		E	0.0							
					0.1							
	0.4	Silty CLAY: red mottled grey, with ironstone gravel										
	0.8	Pit discontinued at 0.8m - limit of investigation										
73	1											
72	2											
71	3											

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface levels interpolated from 2m contour map

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

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	pp	Pocket penetrometer (kPa)
D	Disturbed sample	W	Water seep	S	Standard penetration test
E	Environmental sample	W	Water level	V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 68 mAHD
EASTING: 296575
NORTHING: 6252309

PIT No: 172
PROJECT No: 92364.02
DATE: 16/9/2019
SHEET 1 OF 1

[illegible]

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface levels interpolated from 2m contour map

- ☐ Sand Penetrometer AS1289.6.3.3
- ☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	G	Gas sample
B	Bulk sample	P	Piston sample
BLK	Block sample	U	Tube sample (x mm dia.)
	Core drilling	W	Water sample
C	Disturbed sample	W	Water seep
E	Environmental sample	W	Water level
		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)
		S	Standard penetration test
		V	Shear vane (kPa)



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TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 68 mAHD
EASTING: 296575
NORTHING: 6252295

PIT No: 173
PROJECT No: 92364.02
DATE: 16/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
68	0.0	FILL/Silty CLAY: brown, trace ironstone gravel, sand and plastic sheet		E	0.0							
	0.1				0.1							
	0.5	Silty CLAY: mottled red and brown										
	0.8	Pit discontinued at 0.8m - limit of investigation										
68	1											
66	2											
64	3											

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface levels interpolated from 2m contour map

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

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	pp	Pocket penetrometer (kPa)
D	Disturbed sample	>	Water seep	S	Standard penetration test
E	Environmental sample	≡	Water level	V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 71 mAHD
EASTING: 296595
NORTHING: 6252285

PIT No: 174
PROJECT No: 92364.02
DATE: 16/9/2019
SHEET 1 OF 1

[illegible]

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface levels interpolated from 2m contour map

- ☐ Sand Penetrometer AS1289.6.3.3
- ☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	G	Gas sample
B	Bulk sample	P	Piston sample
BLK	Block sample	U	Tube sample (x mm dia.)
C	Core drilling	W	Water sample
D	Disturbed sample	W	Water seep
E	Environmental sample	W	Water level
		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)
		S	Standard penetration test
		V	Shear vane (kPa)



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TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 70 mAHD
EASTING: 296595
NORTHING: 6252297

PIT No: 175
PROJECT No: 92364.02
DATE: 16/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing			Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample		Results & Comments	5	10	15	20
70		FILL/Silty CLAY: brown, trace sand		E	0.0							
		- gravel bedding layer for PVC pipe at 0.4m			0.1							
	0.6	Silty CLAY: red mottled brown, trace ironstone gravel										
	0.9	Pit discontinued at 0.9m - limit of investigation										
68	1							1				
68	2							2				
67	3							3				

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface levels interpolated from 2m contour map

- ☐ Sand Penetrometer AS1289.6.3.3
- ☐ Cone Penetrometer AS1289.6.3.2

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



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TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 69 mAHD
EASTING: 296586
NORTHING: 6252297

PIT No: 176
PROJECT No: 92364.02
DATE: 16/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
68		FILL/Silty CLAY: brown, with sand, trace mixed gravel and plastic		E	0.0							
					0.1							
	0.5	Silty CLAY: red mottled brown, trace ironstone gravel										
	0.8	Pit discontinued at 0.8m - limit of investigation										
68-1												
67-2												
68-3												

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface levels interpolated from 2m contour map

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

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	pp	Pocket penetrometer (kPa)
D	Disturbed sample	>	Water seep	S	Standard penetration test
E	Environmental sample	≡	Water level	V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 69 mAHD
EASTING: 296579
NORTHING: 6252295

PIT No: 177
PROJECT No: 92364.02
DATE: 16/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
68		FILL/Silty CLAY: brown, with siltstone and ironstone gravel, trace sand, plastic sheeting and plastic pipe		E	0.0							
					0.1							
	0.3	Silty CLAY: red brown, trace ironstone										
	0.5	Pit discontinued at 0.5m - limit of investigation										
68	-1											
67	-2											
66	-3											

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface levels interpolated from 2m contour map

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

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 _s	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	W	Water seep	S	Standard penetration test
E	Environmental sample	W	Water level	V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 69 mAHD
EASTING: 296582
NORTHING: 6252294

PIT No: 178
PROJECT No: 92364.02
DATE: 16/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
68	0.0	FILL/Silty CLAY: brown, trace sand, siltstone gravel, plastic sheeting and piping		E	0.0							
	0.1				0.1							
	0.4	Silty CLAY: red brown, with ironstone gravel										
	0.8	Pit discontinued at 0.8m - limit of investigation										
67	1											
	2											
	3											

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface levels interpolated from 2m contour map

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

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	pp	Pocket penetrometer (kPa)
D	Disturbed sample	>	Water seep	S	Standard penetration test
E	Environmental sample	≡	Water level	V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 66 mAHD
EASTING: 296526
NORTHING: 6252299

PIT No: 179
PROJECT No: 92364.02
DATE: 16/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
68		FILL/Silty CLAY: brown, with sand, siltstone and shale gravel		E	0.0							
					0.1							
	0.7	FILL/Silty CLAY: grey and brown, with dark grey shale gravel, trace sand and charcoal		E	0.7							
					0.8							
68-1	1.0	Silty CLAY: red mottled brown										
	1.3	Pit discontinued at 1.3m - limit of investigation										
68-2												
68-3												

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface levels interpolated from 2m contour map

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

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	pp	Pocket penetrometer (kPa)
D	Disturbed sample	W	Water seep	S	Standard penetration test
E	Environmental sample	W	Water level	V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 63.5 mAHD
EASTING: 296511
NORTHING: 6252290

PIT No: 180
PROJECT No: 92364.02
DATE: 16/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
		FILL/Silty CLAY: grey, with sand, siltstone and shale		E	0.0							
					0.1							
0.9		FILL/Silty CLAY: brown, orange and grey, with siltstone and shale gravel		E	1.0							
1.8		Silty CLAY: mottled brown and red, trace ironstone gravel										
2.2		Pit discontinued at 2.2m - limit of investigation										

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface levels interpolated from 2m contour map

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

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 _s	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	W _s	Water seep	S	Standard penetration test
E	Environmental sample	W _l	Water level	V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 62.5 mAHD
EASTING: 296497
NORTHING: 6252291

PIT No: 181
PROJECT No: 92364.02
DATE: 16/9/2019
SHEET 1 OF 1

[illegible]

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: Free groundwater observed at 2.65m

REMARKS: Surface levels interpolated from 2m contour map

- ☐ Sand Penetrometer AS1289.6.3.3
- ☐ Cone Penetrometer AS1289.6.3.2

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



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TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 64 mAHD
EASTING: 296512
NORTHING: 6252314

PIT No: 182
PROJECT No: 92364.02
DATE: 16/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
64		FILL/Silty CLAY/Clayey SILT: grey, with siltstone and shale gravel, trace concrete water pipe		E	0.0							
					0.1							
63	1.0	FILL/Silty CLAY: orange brown and grey, with siltstone and shale gravel		E	1.0							
	1.4	Silty CLAY: orange brown										
	1.8	Pit discontinued at 1.8m - limit of investigation										
62	2											
60	3											

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface levels interpolated from 2m contour map

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

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	pp	Pocket penetrometer (kPa)
D	Disturbed sample	>	Water seep	sp	Standard penetration test
E	Environmental sample	≡	Water level	S	Shear vane (kPa)
		V		V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 64 mAHD
EASTING: 296500
NORTHING: 6252317

PIT No: 183
PROJECT No: 92364.02
DATE: 16/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
64		FILL/Silty CLAY/Clayey SILT: grey, with siltstone and shale gravel		E	0.0							
					0.1							
	0.6	FILL/Silty CLAY: grey and orange, with siltstone gravel										
63	1			E	1.0							
	1.8	Silty CLAY: grey mottled orange, brown and red, with siltstone gravel and cobbles, trace sand										
62	2											
	2.6	Pit discontinued at 2.6m - limit of investigation										
60	3											

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Test pit excavated adjacent to dam; Surface levels interpolated from 2m contour map

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

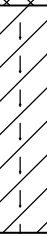
SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	G	Gas sample
B	Bulk sample	P	Piston sample
BLK	Block sample	U	Tube sample (x mm dia.)
C	Core drilling	W	Water sample
D	Disturbed sample	W	Water seep
E	Environmental sample	W	Water level
		PID	Photo ionisation detector (ppm)
		PL(A)	Point load axial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

TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 63.5 mAHD
EASTING: 296490
NORTHING: 6252315

PIT No: 184
PROJECT No: 92364.02
DATE: 16/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
		FILL/Silty CLAY/Clayey SILT: grey, with siltstone and shale gravel, sand, trace concrete pipe		E	0.0							
					0.1							
	0.4	FILL/Silty CLAY: orange brown, with shale and siltstone gravel										
	1			E	1.0							
		- becoming grey brown with siltstone cobbles below 1.4m										
	1.9	Silty CLAY: red mottled orange brown										
	2											
	2.5	Pit discontinued at 2.5m - limit of investigation										
	3											
	6.0											

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface levels interpolated from 2m contour map

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	G	Gas sample
B	Bulk sample	P	Piston sample
BLK	Block sample	U	Tube sample (x mm dia.)
C	Core drilling	W	Water sample
D	Disturbed sample	W	Water seep
E	Environmental sample	W	Water level
		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)
		S	Standard penetration test
		V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 63 mAHD
EASTING: 296490
NORTHING: 6252307

PIT No: 185
PROJECT No: 92364.02
DATE: 16/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
63	0.0	FILL/Silty CLAY: brown and grey, with shale, siltstone and sandstone gravel and sand		E	0.0							
	0.1				0.1							
63	1.0	- becoming grey with shale gravel below 0.8m		E	1.0							
	1.9				1.9							
62	2.0	Silty CLAY: mottled red and orange brown and grey, with ironstone gravel										
62	2.5	Pit discontinued at 2.5m - limit of investigation										
	3.0											

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface levels interpolated from 2m contour map

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

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	pp	Pocket penetrometer (kPa)
D	Disturbed sample	W	Water seep	S	Standard penetration test
E	Environmental sample	W	Water level	V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Stockland Commercial Property
PROJECT: Proposed Commercial/Industrial Subdivision
LOCATION: 144 - 228 Aldington Road, Kemps Creek

SURFACE LEVEL: 68 mAHD
EASTING: 296498
NORTHING: 6252382

PIT No: 186
PROJECT No: 92364.02
DATE: 16/9/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
68		FILL/Silty CLAY: brown and orange, trace sand, ironstone and siltstone gravel		E	0.0							
					0.1							
	0.3	Silty CLAY: orange mottled brown										
	0.9	Pit discontinued at 0.9m - limit of investigation										
68	1											
66	2											
64	3											

RIG: John Deere 315SE backhoe - 450mm bucket

LOGGED: CKM

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface levels interpolated from 2m contour map

- ☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

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	pp	Pocket penetrometer (kPa)
D	Disturbed sample	>	Water seep	sp	Standard penetration test
E	Environmental sample	≡	Water level	S	Shear vane (kPa)
				V	Shear vane (kPa)

Sampling Methods

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Sampling

Core pits are carried out either drilled or augered to obtain representative samples from the ground surface to the required depth of the borehole.

Drilled core pits using direct drilling provide information on borehole depth, groundwater depth, position of the ground surface and the nature of the ground.

Drilled core pits are used to provide a continuous record of the ground surface and the nature of the ground. They are used to provide a continuous record of the ground surface and the nature of the ground. They are used to provide a continuous record of the ground surface and the nature of the ground.

Test Pits

Test pits are excavated to a depth of 1m or more to provide a continuous record of the ground surface and the nature of the ground. They are used to provide a continuous record of the ground surface and the nature of the ground.

Large Diameter Augers

Large diameter augers are used to provide a continuous record of the ground surface and the nature of the ground. They are used to provide a continuous record of the ground surface and the nature of the ground.

Continuous Spiral Flight Augers

Continuous spiral flight augers are used to provide a continuous record of the ground surface and the nature of the ground. They are used to provide a continuous record of the ground surface and the nature of the ground.

Continuous spiral flight augers are used to provide a continuous record of the ground surface and the nature of the ground. They are used to provide a continuous record of the ground surface and the nature of the ground.

Non-core Rotary Drilling

Non-core rotary drilling is used to provide a continuous record of the ground surface and the nature of the ground. They are used to provide a continuous record of the ground surface and the nature of the ground.

Continuous Core Drilling

Continuous core drilling is used to provide a continuous record of the ground surface and the nature of the ground. They are used to provide a continuous record of the ground surface and the nature of the ground.

Standard Penetration Tests

Standard penetration tests are used to provide a continuous record of the ground surface and the nature of the ground. They are used to provide a continuous record of the ground surface and the nature of the ground.

Standard penetration tests are used to provide a continuous record of the ground surface and the nature of the ground. They are used to provide a continuous record of the ground surface and the nature of the ground.

Standard penetration tests are used to provide a continuous record of the ground surface and the nature of the ground. They are used to provide a continuous record of the ground surface and the nature of the ground.

- The test results are reported in the following form:
 - The test results are reported in the following form:
- The test results are reported in the following form:

Standard penetration tests

Sampling Methods

The reliability of the test results can be improved by providing to the contractor the proper use of the cone.

Dynamic Cone Penetrometer Tests / Perth Sand Penetrometer Tests

Dynamic cone penetrometer tests (DCT) or cone tests are carried out by dropping a weighted rod into the ground through a standard opening of 100 mm or forming a preformed diameter in the rod penetration test cone. The test is of cone resistance to penetration. The test is a depth of penetration recorded for a given depth of the cone. The test is a depth of penetration recorded for a given depth of the cone. The test is a depth of penetration recorded for a given depth of the cone.

- The test is a depth of penetration recorded for a given depth of the cone. The test is a depth of penetration recorded for a given depth of the cone. The test is a depth of penetration recorded for a given depth of the cone.
- The test is a depth of penetration recorded for a given depth of the cone. The test is a depth of penetration recorded for a given depth of the cone. The test is a depth of penetration recorded for a given depth of the cone.



Description and Classification Methods

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

Soil Types

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

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

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

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

The proportions of secondary constituents of soils are described as:

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

Definitions of grading terms used are:

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

Cohesive Soils

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

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

Cohesionless Soils

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

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

Soil Descriptions

Soil Origin

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

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

Transported soils may be further subdivided into:

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

Symbols & Abbreviations

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Introduction

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

Drilling or Excavation Methods

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

Water

▷	Water seep
▽	Water level

Sampling and Testing

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

Description of Defects in Rock

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

Defect Type

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

Orientation

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

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

Coating or Infilling Term

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

Coating Descriptor

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

Shape

cu	curved
ir	irregular
pl	planar
st	stepped
un	undulating

Roughness

po	polished
ro	rough
sl	slickensided
sm	smooth
vr	very rough

Other

fg	fragmented
bnd	band
qtz	quartz

Symbols & Abbreviations

Graphic Symbols for Soil and Rock

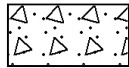
General



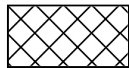
Asphalt



Road base



Concrete



Filling

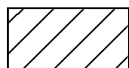
Soils



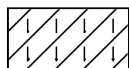
Topsoil



Peat



Clay



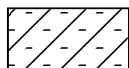
Silty clay



Sandy clay



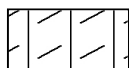
Gravelly clay



Shaly clay



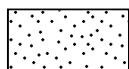
Silt



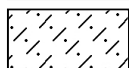
Clayey silt



Sandy silt



Sand



Clayey sand



Silty sand



Gravel



Sandy gravel



Cobbles, boulders



Talus

Sedimentary Rocks



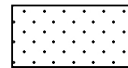
Boulder conglomerate



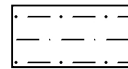
Conglomerate



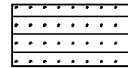
Conglomeratic sandstone



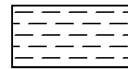
Sandstone



Siltstone



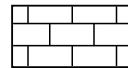
Laminite



Mudstone, claystone, shale

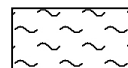


Coal

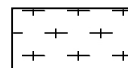


Limestone

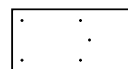
Metamorphic Rocks



Slate, phyllite, schist

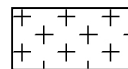


Gneiss

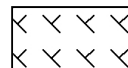


Quartzite

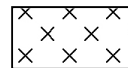
Igneous Rocks



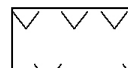
Granite



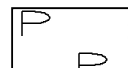
Dolerite, basalt, andesite



Dacite, epidote



Tuff, breccia



Porphyry

Appendix E

Summary Tables 1 and 2

Table 1: Summary of Laboratory Results – Metals, TRH, BTEX, PAH

			Metals								TRH						BTEX				PAH				
			Arsenic	Cadmium	Chromium (VI)	Copper	Lead	Mercury (inorganic)	Nickel	Zinc	TRH C6 - C10	TRH >C10-C16	F1 ((C6-C10)-BTEX)	F2 (>C10-C16 less Naphthalene)	F3 (>C16-C34)	F4 (>C34-C40)	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene ^b	Benzo(a)pyrene (BaP)	Benzo(a)pyrene TEQ	Total PAHs	
		PQL	4	0.4	1	1	1	0.1	1	1	25	50	25	50	100	100	0.2	0.5	1	1	1	0.05	0.5	0.05	
Sample ID ^a	Depth	Sampled Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
AEC1 - Market Gardens																									
SS24	0 - 0.1m	30/07/2019	9 3000 160	<0.4 900 NC	15 3600 670	64 2E+05 280	17 1500 1800	<0.1 730 NC	10 6000 250	63 4E+05 670	NT NC NC	NT NC NC	NT 310 215	NT NL 170	NT NC 2500	NT NC 6600	NT 4 95	NT NL 135	NT NL 185	NT NL 95	NT NL 370	NT NC 1.4	NT 40 NC	NT 4000 NC	
TP2/0.1	0 - 0.1m	30/07/2019	7 3000 160	<0.4 900 NC	17 3600 670	8 2E+05 280	16 1500 1800	<0.1 730 NC	3 6000 250	10 4E+05 670	NT NC NC	NT NC NC	NT 310 215	NT NL 170	NT NC 2500	NT NC 6600	NT 4 95	NT NL 135	NT NL 185	NT NL 95	NT NL 370	NT NC 1.4	NT 40 NC	NT 4000 NC	
TP6	0 - 0.1m	30/07/2019	4 3000 160	<0.4 900 NC	15 3600 670	31 2E+05 280	15 1500 1800	0.1 730 NC	16 6000 250	40 4E+05 670	NT NC NC	NT NC NC	NT 310 215	NT NL 170	NT NC 2500	NT NC 6600	NT 4 95	NT NL 135	NT NL 185	NT NL 95	NT NL 370	NT NC 1.4	NT 40 NC	NT 4000 NC	
BD4	0 - 0.1m	30/07/2019	5 3000 160	<0.4 900 NC	14 3600 670	29 2E+05 280	15 1500 1800	<0.1 730 NC	14 6000 250	35 4E+05 670	NT NC NC	NT NC NC	NT 310 215	NT NL 170	NT NC 2500	NT NC 6600	NT 4 95	NT NL 135	NT NL 185	NT NL 95	NT NL 370	NT NC 1.4	NT 40 NC	NT 4000 NC	
TP14/0.1	0 - 0.1m	31/07/2019	9 3000 160	<0.4 900 NC	17 3600 670	48 2E+05 280	18 1500 1800	<0.1 730 NC	11 6000 250	190 4E+05 670	NT NC NC	NT NC NC	NT 310 215	NT NL 170	NT NC 2500	NT NC 6600	NT 4 95	NT NL 135	NT NL 185	NT NL 95	NT NL 370	NT NC 1.4	NT 40 NC	NT 4000 NC	
DS111	0 - 0.1m	13/09/2019	12 3000 160	<0.4 900 NC	26 3600 670	32 2E+05 280	27 1500 1800	<0.1 730 NC	15 6000 250	81 4E+05 670	NT NC NC	NT NC NC	NT 310 215	NT NL 170	NT NC 2500	NT NC 6600	NT 4 95	NT NL 135	NT NL 185	NT NL 95	NT NL 370	NT NC 1.4	NT 40 NC	NT 4000 NC	
DS112	0 - 0.1m	13/09/2019	<4 3000 160	<0.4 900 NC	6 3600 670	52 2E+05 280	12 1500 1800	<0.1 730 NC	13 6000 250	46 4E+05 670	NT NC NC	NT NC NC	NT 310 215	NT NL 170	NT NC 2500	NT NC 6600	NT 4 95	NT NL 135	NT NL 185	NT NL 95	NT NL 370	NT NC 1.4	NT 40 NC	NT 4000 NC	
DS113	0 - 0.1m	13/09/2019	12 3000 160	<0.4 900 NC	22 3600 670	18 2E+05 280	16 1500 1800	<0.1 730 NC	8 6000 250	21 4E+05 670	NT NC NC	NT NC NC	NT 310 215	NT NL 170	NT NC 2500	NT NC 6600	NT 4 95	NT NL 135	NT NL 185	NT NL 95	NT NL 370	NT NC 1.4	NT 40 NC	NT 4000 NC	
DS114	0 - 0.1m	13/09/2019	4 3000 160	<0.4 900 NC	15 3600 670	51 2E+05 280	17 1500 1800	<0.1 730 NC	9 6000 250	77 4E+05 670	NT NC NC	NT NC NC	NT 310 215	NT NL 170	NT NC 2500	NT NC 6600	NT 4 95	NT NL 135	NT NL 185	NT NL 95	NT NL 370	NT NC 1.4	NT 40 NC	NT 4000 NC	
DS115	0 - 0.1m	13/09/2019	<4 3000 160	<0.4 900 NC	15 3600 670	32 2E+05 280	13 1500 1800	<0.1 730 NC	7 6000 250	35 4E+05 670	NT NC NC	NT NC NC	NT 310 215	NT NL 170	NT NC 2500	NT NC 6600	NT 4 95	NT NL 135	NT NL 185	NT NL 95	NT NL 370	NT NC 1.4	NT 40 NC	NT 4000 NC	
DS117	0 - 0.1m	18/09/2019	6 3000 160	<0.4 900 NC	14 3600 670	23 2E+05 280	15 1500 1800	<0.1 730 NC	13 6000 250	83 4E+05 670	NT NC NC	NT NC NC	NT 310 215	NT NL 170	NT NC 2500	NT NC 6600	NT 4 95	NT NL 135	NT NL 185	NT NL 95	NT NL 370	NT NC 1.4	NT 40 NC	NT 4000 NC	
DS118	0 - 0.1m	19/09/2019	5 3000 160	<0.4 900 NC	12 3600 670	46 2E+05 280	18 1500 1800	<0.1 730 NC	12 6000 250	120 4E+05 670	NT NC NC	NT NC NC	NT 310 215	NT NL 170	NT NC 2500	NT NC 6600	NT 4 95	NT NL 135	NT NL 185	NT NL 95	NT NL 370	NT NC 1.4	NT 40 NC	NT 4000 NC	
SS201	0 - 0.1m	13/09/2019	<4 3000 160	<0.4 900 NC	10 3600 670	18 2E+05 280	14 1500 1800	<0.1 730 NC	6 6000 250	42 4E+05 670	NT NC NC	NT NC NC	NT 310 215	NT NL 170	NT NC 2500	NT NC 6600	NT 4 95	NT NL 135	NT NL 185	NT NL 95	NT NL 370	NT NC 1.4	NT 40 NC	NT 4000 NC	
SS205	0 - 0.1m	18/09/2019	10 3000 160	<0.4 900 NC	15 3600 670	17 2E+05 280	19 1500 1800	<0.1 730 NC	10 6000 250	45 4E+05 670	NT NC NC	NT NC NC	NT 310 215	NT NL 170	NT NC 2500	NT NC 6600	NT 4 95	NT NL 135	NT NL 185	NT NL 95	NT NL 370	NT NC 1.4	NT 40 NC	NT 4000 NC	
SS206	0 - 0.1m	18/09/2019	15 3000 160	<0.4 900 NC	20 3600 670	24 2E+05 280	18 1500 1800	<0.1 730 NC	11 6000 250	44 4E+05 670	NT NC NC	NT NC NC	NT 310 215	NT NL 170	NT NC 2500	NT NC 6600	NT 4 95	NT NL 135	NT NL 185	NT NL 95	NT NL 370	NT NC 1.4	NT 40 NC	NT 4000 NC	
SS207	0 - 0.1m	18/09/2019	15 3000 160	<0.4 900 NC	19 3600 670	52 2E+05 280	21 1500 1800	<0.1 730 NC	11 6000 250	150 4E+05 670	NT NC NC	NT NC NC	NT 310 215	NT NL 170	NT NC 2500	NT NC 6600	NT 4 95	NT NL 135	NT NL 185	NT NL 95	NT NL 370	NT NC 1.4	NT 40 NC	NT 4000 NC	
SS208	0 - 0.1m	18/09/2019	11 3000 160	<0.4 900 NC	16 3600 670	55 2E+05 280	14 1500 1800	<0.1 730 NC	6 6000 250	74 4E+05 670	NT NC NC	NT NC NC	NT 310 215	NT NL 170	NT NC 2500	NT NC 6600	NT 4 95	NT NL 135	NT NL 185	NT NL 95	NT NL 370	NT NC 1.4	NT 40 NC	NT 4000 NC	
SS209	0 - 0.1m	18/09/2019	12 3000 160	<0.4 900 NC	18 3600 670	42 2E+05 280	25 1500 1800	<0.1 730 NC	11 6000 250	58 4E+05 670	NT NC NC	NT NC NC	NT 310 215	NT NL 170	NT NC 2500	NT NC 6600	NT 4 95	NT NL 135	NT NL 185	NT NL 95	NT NL 370	NT NC 1.4	NT 40 NC	NT 4000 NC	
SS210	0 - 0.1m	19/09/2019	7 3000 160	<0.4 900 NC	20 3600 670	40 2E+05 280	14 1500 1800	<0.1 730 NC	5 6000 250	43 4E+05 670	NT NC NC	NT NC NC	NT 310 215	NT NL 170	NT NC 2500	NT NC 6600	NT 4 95	NT NL 135	NT NL 185	NT NL 95	NT NL 370	NT NC 1.4	NT 40 NC	NT 4000 NC	
SS211	0 - 0.1m	13/09/2019	13 3000 160	<0.4 900 NC	17 3600 670	43 2E+05 280	17 1500 1800	<0.1 730 NC	7 6000 250	36 4E+05 670	NT NC NC	NT NC NC	NT 310 215	NT NL 170	NT NC 2500	NT NC 6600	NT 4 95	NT NL 135	NT NL 185	NT NL 95	NT NL 370	NT NC 1.4	NT 40 NC	NT 4000 NC	
SS212	0 - 0.1m	19/09/2019	6 3000 160	<0.4 900 NC	16 3600 670	64 2E+05 280	15 1500 1800	<0.1 730 NC	6 6000 250	57 4E+05 670	NT NC NC	NT NC NC	NT 310 215	NT NL 170	NT NC 2500	NT NC 6600	NT 4 95	NT NL 135	NT NL 185	NT NL 95	NT NL 370	NT NC 1.4	NT 40 NC	NT 4000 NC	
SS213	0 - 0.1m	13/09/2019	11 3000 160	<0.4 900 NC	20 3600 670	24 2E+05 280	25 1500 1800	<0.1 730 NC	8 6000 250	42 4E+05 670	NT NC NC	NT NC NC	NT 310 215	NT NL 170	NT NC 2500	NT NC 6600	NT 4 95	NT NL 135	NT NL 185	NT NL 95	NT NL 370	NT NC 1.4	NT 40 NC	NT 4000 NC	
SS214	0 - 0.1m	13/09/2019	8 3000 160	<0.4 900 NC	22 3600 670	42 2E+05 280	24 1500 1800	<0.1 730 NC	9 6000 250	76 4E+05 670	NT NC NC	NT NC NC	NT 310 215	NT NL 170	NT NC 2500	NT NC 6600	NT 4 95	NT NL 135	NT NL 185	NT NL 95	NT NL 370	NT NC 1.4	NT 40 NC	NT 4000 NC	

Table 1: Summary of Laboratory Results – Metals, TRH, BTEX, PAH

			Metals								TRH						BTEX				PAH			
			Arsenic	Cadmium	Chromium (VI)	Copper	Lead	Mercury (inorganic)	Nickel	Zinc	TRH C6 - C10	TRH >C10-C16	F1 ((C6-C10)-BTEX)	F2 (>C10-C16 less Naphthalene)	F3 (>C16-C34)	F4 (>C34-C40)	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene ^b	Benzo(a)pyrene (BaP)	Benzo(a)pyrene TEQ	Total PAHs
		PQL	4	0.4	1	1	1	0.1	1	1	25	50	25	50	100	100	0.2	0.5	1	1	1	0.05	0.5	0.05
Sample ID ^a	Depth	Sampled Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SS215	0 - 0.1m	19/09/2019	10 3000 160	<0.4 900 NC	16 3600 670	19 2E+05 280	21 1500 1800	<0.1 730 NC	8 6000 250	52 4E+05 670	NT NC NC	NT NC NC	NT 310 215	NT NL 170	NT NC 2500	NT NC 6600	NT 4 95	NT NL 135	NT NL 185	NT NL 95	NT NL 370	NT NC 1.4	NT 40 NC	NT 4000 NC
SS216	0 - 0.1m	19/09/2019	8 3000 160	<0.4 900 NC	17 3600 670	19 2E+05 280	19 1500 1800	<0.1 730 NC	9 6000 250	51 4E+05 670	NT NC NC	NT NC NC	NT 310 215	NT NL 170	NT NC 2500	NT NC 6600	NT 4 95	NT NL 135	NT NL 185	NT NL 95	NT NL 370	NT NC 1.4	NT 40 NC	NT 4000 NC
SS217	0 - 0.1m	19/09/2019	9 3000 160	<0.4 900 NC	17 3600 670	25 2E+05 280	17 1500 1800	<0.1 730 NC	12 6000 250	48 4E+05 670	NT NC NC	NT NC NC	NT 310 215	NT NL 170	NT NC 2500	NT NC 6600	NT 4 95	NT NL 135	NT NL 185	NT NL 95	NT NL 370	NT NC 1.4	NT 40 NC	NT 4000 NC
SS218	0 - 0.1m	18/09/2019	21 3000 160	<0.4 900 NC	21 3600 670	26 2E+05 280	26 1500 1800	<0.1 730 NC	12 6000 250	64 4E+05 670	NT NC NC	NT NC NC	NT 310 215	NT NL 170	NT NC 2500	NT NC 6600	NT 4 95	NT NL 135	NT NL 185	NT NL 95	NT NL 370	NT NC 1.4	NT 40 NC	NT 4000 NC
SS219	0 - 0.1m	18/09/2019	8 3000 160	<0.4 900 NC	18 3600 670	47 2E+05 280	23 1500 1800	<0.1 730 NC	14 6000 250	59 4E+05 670	NT NC NC	NT NC NC	NT 310 215	NT NL 170	NT NC 2500	NT NC 6600	NT 4 95	NT NL 135	NT NL 185	NT NL 95	NT NL 370	NT NC 1.4	NT 40 NC	NT 4000 NC
SS220	0 - 0.1m	18/09/2019	9 3000 160	<0.4 900 NC	18 3600 670	35 2E+05 280	19 1500 1800	<0.1 730 NC	9 6000 250	44 4E+05 670	NT NC NC	NT NC NC	NT 310 215	NT NL 170	NT NC 2500	NT NC 6600	NT 4 95	NT NL 135	NT NL 185	NT NL 95	NT NL 370	NT NC 1.4	NT 40 NC	NT 4000 NC
SS221	0 - 0.1m	18/09/2019	7 3000 160	<0.4 900 NC	18 3600 670	36 2E+05 280	20 1500 1800	0.1 730 NC	12 6000 250	62 4E+05 670	NT NC NC	NT NC NC	NT 310 215	NT NL 170	NT NC 2500	NT NC 6600	NT 4 95	NT NL 135	NT NL 185	NT NL 95	NT NL 370	NT NC 1.4	NT 40 NC	NT 4000 NC
SS222	0 - 0.1m	18/09/2019	6 3000 160	<0.4 900 NC	17 3600 670	33 2E+05 280	22 1500 1800	<0.1 730 NC	14 6000 250	54 4E+05 670	NT NC NC	NT NC NC	NT 310 215	NT NL 170	NT NC 2500	NT NC 6600	NT 4 95	NT NL 135	NT NL 185	NT NL 95	NT NL 370	NT NC 1.4	NT 40 NC	NT 4000 NC
AEC2 - Building Construction and Demolition of Structures																								
SS1	0 - 0.1m	30/07/2019	7 3000 160	<0.4 900 NC	30 3600 670	17 2E+05 280	73 1500 1800	0.2 730 NC	7 6000 250	110 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	<100 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	<0.05 NC 1.4	<0.5 40 NC	<0.05 4000 NC
SS5	0 - 0.1m	30/07/2019	6 3000 160	4.1 900 NC	19 3600 670	110 2E+05 280	43 1500 1800	0.4 730 NC	9 6000 250	380 4E+05 670	<25 NC NC	170 NC NC	<25 310 215	170 NL 170	1500 NC 2500	560 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	<0.05 NC 1.4	<0.5 40 NC	1.7 4000 NC
SS13	0 - 0.1m	30/07/2019	7 3000 160	2 900 NC	20 3600 670	71 2E+05 280	24 1500 1800	<0.1 730 NC	8 6000 250	110 4E+05 670	<25 NC NC	67 NC NC	<25 310 215	67 NL 170	360 NC 2500	240 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	<0.05 NC 1.4	<0.5 40 NC	0.3 4000 NC
SS21	0 - 0.1m	30/07/2019	5 3000 160	<0.4 900 NC	11 3600 670	23 2E+05 280	15 1500 1800	<0.1 730 NC	8 6000 250	130 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	320 NC 2500	120 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	<0.05 NC 1.4	<0.5 40 NC	0.2 4000 NC
BD3	0 - 0.1m	30/07/2019	6 3000 160	<0.4 900 NC	11 3600 670	24 2E+05 280	14 1500 1800	<0.1 730 NC	9 6000 250	130 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	400 NC 2500	120 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	<0.05 NC 1.4	<0.5 40 NC	0.1 4000 NC
AEC3 - Chemical and Fuel Use Storage																								
SS2	0 - 0.1m	30/07/2019	16 3000 160	<0.4 900 NC	19 3600 670	24 2E+05 280	12 1500 1800	<0.1 730 NC	19 6000 250	60 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	180 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	<0.05 NC 1.4	<0.5 40 NC	<0.05 4000 NC
SS3	0 - 0.1m	30/07/2019	<4 3000 160	0.7 900 NC	170 3600 670	200 2E+05 280	59 1500 1800	<0.1 730 NC	51 6000 250	350 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	190 NC 2500	120 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	0.4 NC 1.4	<0.5 40 NC	4.3 4000 NC
SS6	0 - 0.1m	30/07/2019	7 3000 160	<0.4 900 NC	16 3600 670	30 2E+05 280	14 1500 1800	<0.1 730 NC	8 6000 250	160 4E+05 670	<25 NC NC	56 NC NC	<25 310 215	56 NL 170	210 NC 2500	100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	<0.05 NC 1.4	<0.5 40 NC	<0.05 4000 NC
SS7	0 - 0.1m	30/07/2019	8 3000 160	<0.4 900 NC	20 3600 670	50 2E+05 280	23 1500 1800	0.1 730 NC	7 6000 250	50 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	220 NC 2500	100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	<0.05 NC 1.4	<0.5 40 NC	<0.05 4000 NC
SS8	0 - 0.1m	30/07/2019	4 3000 160	<0.4 900 NC	16 3600 670	150 2E+05 280	13 1500 1800	<0.1 730 NC	8 6000 250	160 4E+05 670	<25 NC NC	66 NC NC	<25 310 215	66 NL 170	630 NC 2500	220 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	<0.05 NC 1.4	<0.5 40 NC	<0.05 4000 NC
SS10	0 - 0.1m	30/07/2019	9 3000 160	<0.4 900 NC	23 3600 670	13 2E+05 280	17 1500 1800	<0.1 730 NC	4 6000 250	67 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	<100 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	<0.05 NC 1.4	<0.5 40 NC	<0.05 4000 NC
SS15	0 - 0.1m	30/07/2019	9 3000 160	0.9 900 NC	17 3600 670	63 2E+05 280	110 1500 1800	<0.1 730 NC	11 6000 250	2400 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	120 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	<0.05 NC 1.4	<0.5 40 NC	<0.05 4000 NC
SS20	0 - 0.1m	30/07/2019	5 3000 160	5.6 900 NC	16 3600 670	31 2E+05 280	35 1500 1800	<0.1 730 NC	11 6000 250	780 4E+05 670	<25 NC NC	160 NC NC	<25 310 215	160 NL 170	1400 NC 2500	490 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	0.08 NC 1.4	<0.5 40 NC	2.9 4000 NC

Table 1: Summary of Laboratory Results – Metals, TRH, BTEX, PAH

			Metals								TRH						BTEX				PAH			
			Arsenic	Cadmium	Chromium (VI)	Copper	Lead	Mercury (inorganic)	Nickel	Zinc	TRH C6 - C10	TRH >C10-C16	F1 ((C6-C10)-BTEX)	F2 (>C10-C16 less Naphthalene)	F3 (>C16-C34)	F4 (>C34-C40)	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene ^b	Benzo(a)pyrene (BaP)	Benzo(a)pyrene TEQ	Total PAHs
		PQL	4	0.4	1	1	1	0.1	1	1	25	50	25	50	100	100	0.2	0.5	1	1	1	0.05	0.5	0.05
Sample ID ^a	Depth	Sampled Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SS22	0 - 0.1m	30/07/2019	8 3000 160	<0.4 900 NC	16 3600 670	41 2E+05 280	23 1500 1800	<0.1 730 NC	15 6000 250	220 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	150 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	<0.05 NC 1.4	<0.5 40 NC	<0.05 4000 NC
SS23	0 - 0.1m	30/07/2019	10 3000 160	<0.4 900 NC	19 3600 670	88 2E+05 280	26 1500 1800	<0.1 730 NC	9 6000 250	110 4E+05 670	<25 NC NC	50 NC NC	<25 310 215	50 NL 170	220 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	<0.05 NC 1.4	<0.5 40 NC	<0.05 4000 NC
SS25/0.1	0 - 0.1m	31/07/2019	6 3000 160	<0.4 900 NC	18 3600 670	26 2E+05 280	56 1500 1800	<0.1 730 NC	15 6000 250	400 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	<100 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	<0.05 NC 1.4	<0.5 40 NC	<0.05 4000 NC
SS119	0 - 0.1m	13/09/2019	<4 3000 160	<0.4 900 NC	97 3600 670	32 2E+05 280	12 1500 1800	<0.1 730 NC	81 6000 250	60 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	110 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	NT NC 1.4	NT 40 NC	NT 4000 NC
SS120	0 - 0.1m	13/09/2019	7 3000 160	<0.4 900 NC	66 3600 670	290 2E+05 280	29 1500 1800	<0.1 730 NC	14 6000 250	550 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	110 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	NT NC 1.4	NT 40 NC	NT 4000 NC
SS121	0 - 0.1m	13/09/2019	11 3000 160	<0.4 900 NC	16 3600 670	110 2E+05 280	22 1500 1800	<0.1 730 NC	10 6000 250	80 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	<100 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	NT NC 1.4	NT 40 NC	NT 4000 NC
SS122	0 - 0.1m	18/09/2019	8 3000 160	<0.4 900 NC	22 3600 670	24 2E+05 280	27 1500 1800	<0.1 730 NC	9 6000 250	180 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	<100 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	<0.05 NC 1.4	<0.5 40 NC	<0.05 4000 NC
SS124	0 - 0.1m	13/09/2019	5 3000 160	<0.4 900 NC	14 3600 670	36 2E+05 280	17 1500 1800	<0.1 730 NC	19 6000 250	170 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	<100 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	NT NC 1.4	NT 40 NC	NT 4000 NC
BD3/18919	0 - 0.1m	18/09/2019	10 3000 160	<0.4 900 NC	15 3600 670	47 2E+05 280	18 1500 1800	<0.1 730 NC	9 6000 250	57 4E+05 670	NT NC NC	NT NC NC	NT 310 215	NT NL 170	NT NC 2500	NT NC 6600	NT 4 95	NT NL 135	NT NL 185	NT NL 95	NT NL 370	NT NC 1.4	NT 40 NC	NT 4000 NC
SS125	0 - 0.1m	18/09/2019	12 3000 160	0.8 900 NC	22 3600 670	160 2E+05 280	58 1500 1800	<0.1 730 NC	17 6000 250	1200 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	<100 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	<0.05 NC 1.4	<0.5 40 NC	<0.05 4000 NC
SS126	0 - 0.1m	18/09/2019	12 3000 160	<0.4 900 NC	24 3600 670	61 2E+05 280	42 1500 1800	<0.1 730 NC	10 6000 250	170 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	<100 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	<0.05 NC 1.4	<0.5 40 NC	<0.05 4000 NC
SS127	0 - 0.1m	18/09/2019	5 3000 160	<0.4 900 NC	7 3600 670	39 2E+05 280	13 1500 1800	<0.1 730 NC	15 6000 250	190 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	<100 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	NT NC 1.4	NT 40 NC	NT 4000 NC
SS128	0 - 0.1m	18/09/2019	8 3000 160	<0.4 900 NC	17 3600 670	47 2E+05 280	26 1500 1800	0.2 730 NC	14 6000 250	140 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	<100 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	<0.05 NC 1.4	<0.5 40 NC	<0.05 4000 NC
BD5/18919	0 - 0.1m	18/09/2019	9 3000 160	<0.4 900 NC	19 3600 670	51 2E+05 280	30 1500 1800	0.2 730 NC	14 6000 250	150 4E+05 670	NT NC NC	NT NC NC	NT 310 215	NT NL 170	NT NC 2500	NT NC 6600	NT 4 95	NT NL 135	NT NL 185	NT NL 95	NT NL 370	NT NC 1.4	NT 40 NC	NT 4000 NC
SS129	0 - 0.1m	18/09/2019	10 3000 160	<0.4 900 NC	16 3600 670	44 2E+05 280	20 1500 1800	<0.1 730 NC	9 6000 250	53 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	<100 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	<0.05 NC 1.4	<0.5 40 NC	<0.05 4000 NC
AEC4 - Fill Areas																								
TP8/0.1	0 - 0.1m	31/07/2019	6 3000 160	<0.4 900 NC	16 3600 670	25 2E+05 280	24 1500 1800	<0.1 730 NC	12 6000 250	41 4E+05 670	NT NC NC	NT NC NC	NT 310 215	NT NL 170	NT NC 2500	NT NC 6600	NT 4 95	NT NL 135	NT NL 185	NT NL 95	NT NL 370	NT NC 1.4	NT 40 NC	NT 4000 NC
TP9/0.1	0 - 0.1m	31/07/2019	5 3000 160	<0.4 900 NC	4 3600 670	59 2E+05 280	7 1500 1800	<0.1 730 NC	2 6000 250	9 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	<100 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	NT NC 1.4	NT 40 NC	NT 4000 NC
TP10/0.1	0 - 0.1m	31/07/2019	<4 3000 160	<0.4 900 NC	7 3600 670	24 2E+05 280	54 1500 1800	<0.1 730 NC	9 6000 250	74 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	<100 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	<0.05 NC 1.4	<0.5 40 NC	<0.05 4000 NC
TP136/0-0.1	0 - 0.1m	13/09/2019	7 3000 160	0.4 900 NC	16 3600 670	40 2E+05 280	170 1500 1800	0.2 730 NC	10 6000 250	240 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	<100 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	<0.05 NC 1.4	<0.5 40 NC	<0.05 4000 NC
TP141/0.3-0.4	0.3 - 0.4m	13/09/2019	6 3000 160	<0.4 900 NC	19 3600 670	19 2E+05 280	25 1500 1800	<0.1 730 NC	9 6000 250	41 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	<100 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	<0.05 NC 1.4	<0.5 40 NC	<0.05 4000 NC
TP144/0-0.1	0 - 0.1m	13/09/2019	6 3000 160	<0.4 900 NC	20 3600 670	16 2E+05 280	21 1500 1800	<0.1 730 NC	7 6000 250	37 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	<100 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	<0.05 NC 1.4	<0.5 40 NC	<0.05 4000 NC
TP156/1.0	1 - 1m	13/09/2019	<4 3000 160	<0.4 900 NC	9 3600 670	7 2E+05 280	13 1500 1800	<0.1 730 NC	7 6000 250	16 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	<100 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	<0.05 NC 1.4	<0.5 40 NC	<0.05 4000 NC
TP160/0.3-0.4	0.3 - 0.4m	13/09/2019	5 3000 160	<0.4 900 NC	9 3600 670	46 2E+05 280	29 1500 1800	<0.1 730 NC	19 6000 250	110 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	<100 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	<0.05 NC 1.4	<0.5 40 NC	<0.05 4000 NC
TP164/0-0.1	0 - 0.1m	13/09/2019	<4 3000 160	<0.4 900 NC	6 3600 670	34 2E+05 280	20 1500 1800	<0.1 730 NC	4 6000 250	69 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	280 NC 2500	220 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	0.2 NC 1.4	<0.5 40 NC	1.8 4000 NC

Table 1: Summary of Laboratory Results – Metals, TRH, BTEX, PAH

			Metals								TRH						BTEX				PAH			
			Arsenic	Cadmium	Chromium (VI)	Copper	Lead	Mercury (inorganic)	Nickel	Zinc	TRH C6 - C10	TRH >C10-C16	F1 ((C6-C10)-BTEX)	F2 (>C10-C16 less Naphthalene)	F3 (>C16-C34)	F4 (>C34-C40)	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene ^b	Benzo(a)pyrene (BaP)	Benzo(a)pyrene TEQ	Total PAHs
		PQL	4	0.4	1	1	1	0.1	1	1	25	50	25	50	100	100	0.2	0.5	1	1	1	0.05	0.5	0.05
Sample ID ^a	Depth	Sampled Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
TP165/0-0.2	0m	13/09/2019	<4 3000 160	<0.4 900 NC	8 3600 670	160 2E+05 280	20 1500 1800	<0.1 730 NC	4 6000 250	200 4E+05 670	<25 NC NC	55 NC NC	<25 310 215	55 NL 170	640 NC 2500	300 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	0.08 NC 1.4	<0.5 40 NC	0.08 4000 NC
TP168/0-0.1	0 - 0.1m	13/09/2019	<4 3000 160	<0.4 900 NC	5 3600 670	30 2E+05 280	29 1500 1800	<0.1 730 NC	4 6000 250	81 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	380 NC 2500	290 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	0.57 NC 1.4	0.8 40 NC	8.1 4000 NC
TP169/0-0.1	0 - 0.1m	16/09/2019	10 3000 160	<0.4 900 NC	18 3600 670	25 2E+05 280	79 1500 1800	0.1 730 NC	5 6000 250	120 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	<100 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	0.4 NC 1.4	<0.5 40 NC	4.1 4000 NC
TP172/0-0.1	0 - 0.1m	16/09/2019	18 3000 160	<0.4 900 NC	20 3600 670	24 2E+05 280	21 1500 1800	<0.1 730 NC	10 6000 250	38 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	<100 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	<0.05 NC 1.4	<0.5 40 NC	<0.05 4000 NC
TP174/0-0.1	0 - 0.1m	16/09/2019	13 3000 160	<0.4 900 NC	22 3600 670	22 2E+05 280	18 1500 1800	<0.1 730 NC	10 6000 250	36 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	<100 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	<0.05 NC 1.4	<0.5 40 NC	<0.05 4000 NC
TP179/0-0.1	0 - 0.1m	16/09/2019	13 3000 160	<0.4 900 NC	38 3600 670	19 2E+05 280	58 1500 1800	<0.1 730 NC	6 6000 250	73 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	<100 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	<0.05 NC 1.4	<0.5 40 NC	<0.05 4000 NC
TP181/1.0	1 - 1m	16/09/2019	21 3000 160	<0.4 900 NC	6 3600 670	40 2E+05 280	16 1500 1800	<0.1 730 NC	10 6000 250	45 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	<100 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	<0.05 NC 1.4	<0.5 40 NC	<0.05 4000 NC
TP183/0-0.1	0 - 0.1m	16/09/2019	10 3000 160	<0.4 900 NC	10 3600 670	28 2E+05 280	30 1500 1800	<0.1 730 NC	9 6000 250	42 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	<100 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	<0.05 NC 1.4	<0.5 40 NC	<0.05 4000 NC
SS123	0 - 0.1m	13/09/2019	9 3000 160	<0.4 900 NC	24 3600 670	39 2E+05 280	18 1500 1800	<0.1 730 NC	5 6000 250	37 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	<100 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	NT NC 1.4	NT 40 NC	NT 4000 NC
SS130	0 - 0.1m	13/09/2019	7 3000 160	<0.4 900 NC	14 3600 670	25 2E+05 280	16 1500 1800	<0.1 730 NC	7 6000 250	67 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	<100 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	<0.05 NC 1.4	<0.5 40 NC	<0.05 4000 NC
SS131	0 - 0.1m	13/09/2019	<4 3000 160	<0.4 900 NC	28 3600 670	79 2E+05 280	7 1500 1800	<0.1 730 NC	25 6000 250	34 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	150 NC 2500	230 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	0.2 NC 1.4	<0.5 40 NC	1.6 4000 NC
SS133	0 - 0.1m	19/09/2019	<4 3000 160	<0.4 900 NC	36 3600 670	57 2E+05 280	8 1500 1800	<0.1 730 NC	31 6000 250	38 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	190 NC 2500	220 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	<0.05 NC 1.4	<0.5 40 NC	<0.05 4000 NC
SS134	0 - 0.1m	19/09/2019	<4 3000 160	<0.4 900 NC	110 3600 670	29 2E+05 280	20 1500 1800	<0.1 730 NC	99 6000 250	70 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	<100 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	<0.05 NC 1.4	<0.5 40 NC	<0.05 4000 NC
SS135	0 - 0.1m	18/09/2019	<4 3000 160	<0.4 900 NC	20 3600 670	28 2E+05 280	5 1500 1800	<0.1 730 NC	20 6000 250	30 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	<100 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	0.2 NC 1.4	<0.5 40 NC	1.5 4000 NC
BD2/18919	0 - 0.1m	19/09/2019	<4 3000 160	<0.4 900 NC	75 3600 670	35 2E+05 280	4 1500 1800	<0.1 730 NC	12 6000 250	19 4E+05 670	NT NC NC	NT NC NC	NT 310 215	NT NL 170	NT NC 2500	NT NC 6600	NT 4 95	NT NL 135	NT NL 185	NT NL 95	NT NL 370	NT NC 1.4	NT 40 NC	NT 4000 NC
SS187	0 - 0.1m	19/09/2019	11 3000 160	<0.4 900 NC	24 3600 670	18 2E+05 280	19 1500 1800	<0.1 730 NC	4 6000 250	30 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	<100 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	<0.05 NC 1.4	<0.5 40 NC	<0.05 4000 NC
SS188	0 - 0.1m	19/09/2019	9 3000 160	<0.4 900 NC	17 3600 670	27 2E+05 280	16 1500 1800	<0.1 730 NC	13 6000 250	71 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	<100 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	<0.05 NC 1.4	<0.5 40 NC	<0.05 4000 NC
SS189	0 - 0.1m	19/09/2019	13 3000 160	<0.4 900 NC	26 3600 670	13 2E+05 280	18 1500 1800	<0.1 730 NC	5 6000 250	24 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	<100 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	<0.05 NC 1.4	<0.5 40 NC	<0.05 4000 NC
SS190	0 - 0.1m	19/09/2019	<4 3000 160	<0.4 900 NC	13 3600 670	60 2E+05 280	17 1500 1800	<0.1 730 NC	14 6000 250	32 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	<100 NC 2500	110 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	<0.05 NC 1.4	<0.5 40 NC	<0.05 4000 NC
SS191	0 - 0.1m	19/09/2019	<4 3000 160	<0.4 900 NC	9 3600 670	15 2E+05 280	10 1500 1800	<0.1 730 NC	12 6000 250	67 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	<100 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	<0.05 NC 1.4	<0.5 40 NC	<0.05 4000 NC
SS192	0 - 0.1m	18/09/2019	<4 3000 160	<0.4 900 NC	3 3600 670	24 2E+05 280	15 1500 1800	<0.1 730 NC	19 6000 250	28 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	<100 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	<0.05 NC 1.4	<0.5 40 NC	<0.05 4000 NC
AEC5 - Timber Power Poles																								
SS4	0 - 0.1m	30/07/2019	7 3000 160	<0.4 900 NC	18 3600 670	28 2E+05 280	21 1500 1800	0.2 730 NC	13 6000 250	150 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	170 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	0.56 NC 1.4	0.9 40 NC	4.7 4000 NC
SS14	0 - 0.1m	30/07/2019	230 3000 160	<0.4 900 NC	40 3600 670	79 2E+05 280	20 1500 1800	<0.1 730 NC	12 6000 250	180 4E+05 670	NT NC NC	NT NC NC	NT 310 215	NT NL 170	NT NC 2500	NT NC 6600	NT 4 95	NT NL 135	NT NL 185	NT NL 95	<0.1 NL 370	<0.05 NC 1.4	<0.5 40 NC	<0.05 4000 NC
SS17	0 - 0.1m	30/07/2019	NT 3000 160	NT 900 NC	NT 3600 670	NT 2E+05 280	NT 1500 1800	NT 730 NC	NT 6000 250	NT 4E+05 670	NT NC NC	NT NC NC	NT 310 215	NT NL 170	NT NC 2500	NT NC 6600	NT 4 95	NT NL 135	NT NL 185	NT NL 95	<0.1 NL 370	<0.05 NC 1.4	<0.5 40 NC	<0.05 4000 NC

Table 1: Summary of Laboratory Results – Metals, TRH, BTEX, PAH

			Metals								TRH						BTEX				PAH			
			Arsenic	Cadmium	Chromium (VI)	Copper	Lead	Mercury (inorganic)	Nickel	Zinc	TRH C6 - C10	TRH >C10-C16	F1 ((C6-C10)-BTEX)	F2 (>C10-C16 less Naphthalene)	F3 (>C16-C34)	F4 (>C34-C40)	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene ^b	Benzo(a)pyrene (BaP)	Benzo(a)pyrene TEQ	Total PAHs
		PQL	4	0.4	1	1	1	0.1	1	1	25	50	25	50	100	100	0.2	0.5	1	1	1	0.05	0.5	0.05
Sample ID ^a	Depth	Sampled Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SS18	0 - 0.1m	30/07/2019	NT 3000 160	NT 900 NC	NT 3600 670	NT 2E+05 280	NT 1500 1800	NT 730 NC	NT 6000 250	NT 4E+05 670	<25 NC NC	72 NC NC	<25 310 215	72 NL 170	1700 NC 2500	220 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	39 NC 1.4	61 40 NC	300 4000 NC
SS19	0 - 0.1m	30/07/2019	NT 3000 160	NT 900 NC	NT 3600 670	NT 2E+05 280	NT 1500 1800	NT 730 NC	NT 6000 250	NT 4E+05 670	NT NC NC	NT NC NC	NT 310 215	NT NL 170	NT NC 2500	NT NC 6600	NT 4 95	NT NL 135	NT NL 185	NT NL 95	<0.1 NL 370	0.4 NC 1.4	<0.5 40 NC	1.1 4000 NC
BD2	0 - 0.1m	30/07/2019	NT 3000 160	NT 900 NC	NT 3600 670	NT 2E+05 280	NT 1500 1800	NT 730 NC	NT 6000 250	NT 4E+05 670	NT NC NC	NT NC NC	NT 310 215	NT NL 170	NT NC 2500	NT NC 6600	NT 4 95	NT NL 135	NT NL 185	NT NL 95	<0.1 NL 370	0.5 NC 1.4	0.6 40 NC	1.5 4000 NC
SS101	0 - 0.1m	18/09/2019	9 3000 160	<0.4 900 NC	17 3600 670	23 2E+05 280	23 1500 1800	0.2 730 NC	11 6000 250	51 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	<100 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	<0.05 NC 1.4	<0.5 40 NC	<0.05 4000 NC
SS102	0 - 0.1m	18/09/2019	300 3000 160	<0.4 900 NC	50 3600 670	67 2E+05 280	21 1500 1800	<0.1 730 NC	12 6000 250	150 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	<100 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	<0.05 NC 1.4	<0.5 40 NC	<0.05 4000 NC
SS103	0 - 0.1m	18/09/2019	150 3000 160	<0.4 900 NC	36 3600 670	42 2E+05 280	22 1500 1800	<0.1 730 NC	9 6000 250	56 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	350 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	9.3 NC 1.4	15 40 NC	81 4000 NC
BD1/18919	0 - 0.1m	19/09/2019	110 3000 160	<0.4 900 NC	31 3600 670	27 2E+05 280	20 1500 1800	<0.1 730 NC	8 6000 250	46 4E+05 670	NT NC NC	NT NC NC	NT 310 215	NT NL 170	NT NC 2500	NT NC 6600	NT 4 95	NT NL 135	NT NL 185	NT NL 95	NT NL 370	NT NC 1.4	NT 40 NC	NT 4000 NC
SS104	0 - 0.1m	18/09/2019	22 3000 160	<0.4 900 NC	26 3600 670	37 2E+05 280	25 1500 1800	<0.1 730 NC	17 6000 250	76 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	<100 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	0.2 NC 1.4	<0.5 40 NC	0.6 4000 NC
BD4/18919	0 - 0.1m	18/09/2019	21 3000 160	<0.4 900 NC	26 3600 670	36 2E+05 280	23 1500 1800	<0.1 730 NC	19 6000 250	79 4E+05 670	NT NC NC	NT NC NC	NT 310 215	NT NL 170	NT NC 2500	NT NC 6600	NT 4 95	NT NL 135	NT NL 185	NT NL 95	NT NL 370	NT NC 1.4	NT 40 NC	NT 4000 NC
SS105	0 - 0.1m	18/09/2019	210 3000 160	<0.4 900 NC	91 3600 670	94 2E+05 280	14 1500 1800	<0.1 730 NC	13 6000 250	82 4E+05 670	<25 NC NC	71 NC NC	<25 310 215	71 NL 170	2300 NC 2500	380 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	76 NC 1.4	120 40 NC	690 4000 NC
SS106	0 - 0.1m	18/09/2019	9 3000 160	<0.4 900 NC	18 3600 670	24 2E+05 280	19 1500 1800	<0.1 730 NC	16 6000 250	150 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	<100 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	<0.05 NC 1.4	<0.5 40 NC	<0.05 4000 NC
SS107	0 - 0.1m	18/09/2019	32 3000 160	<0.4 900 NC	38 3600 670	41 2E+05 280	22 1500 1800	<0.1 730 NC	14 6000 250	110 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	200 NC 2500	140 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	<0.05 NC 1.4	<0.5 40 NC	0.2 4000 NC
SS108	0 - 0.1m	18/09/2019	6 3000 160	<0.4 900 NC	26 3600 670	17 2E+05 280	14 1500 1800	<0.1 730 NC	22 6000 250	68 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	<100 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	<0.05 NC 1.4	<0.5 40 NC	<0.05 4000 NC
SS109	0 - 0.1m	18/09/2019	85 3000 160	<0.4 900 NC	33 3600 670	44 2E+05 280	39 1500 1800	<0.1 730 NC	14 6000 250	71 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	<100 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	<0.05 NC 1.4	<0.5 40 NC	0.3 4000 NC
SS110	0 - 0.1m	18/09/2019	25 3000 160	<0.4 900 NC	29 3600 670	27 2E+05 280	17 1500 1800	<0.1 730 NC	11 6000 250	140 4E+05 670	<25 NC NC	<50 NC NC	<25 310 215	<50 NL 170	<100 NC 2500	<100 NC 6600	<0.2 4 95	<0.5 NL 135	<1 NL 185	<1 NL 95	<1 NL 370	<0.05 NC 1.4	<0.5 40 NC	<0.05 4000 NC

Lab result

HIL/HSL valueEIL/ESL value

HIL/HSL exceedance

EIL/ESL exceedance

HIL/HSL and EIL/ESL exceedance

ML exceedance

ML and HIL/HSL or EIL/ESL exceedance

Indicates that asbestos has been detected by the lab below the PQL, refer to the lab report

Blue = DC exceedance

Bold = Lab detections

NT = Not tested

NL = Non limiting

NC = No criteria

NA = Not applicable

NAD = No asbestos detected

Notes:

HIL/HSL/DC

NEPC, Schedule B1 - HIL D (Commercial / Industrial), HSL D (Commercial / Industrial), DC HSL D (Direct contact HSL D Commercial/Industrial)

EIL/ESL

NEPC, Schedule B1 - EIL C/Ind (Commercial and Industrial), ESL C/Ind (Commercial and Industrial)

ML

NEPC, Schedule B1 - ML C/Ind (Commercial and Industrial)

a

QA/QC replicate of sample listed directly below the primary sample

b

reported naphthalene laboratory result obtained from BTEXN suite

c

criteria applies to DDT only

Supplementary Contamintaion Investigation
Proposed Commercia/Industrial Subdivision
144 - 228 Aldington Road, Kemps Creek, NSW

Project 92364.02
October 2019

Table 2: Summary of Laboratory Results – OCP, Asbestos

Sample ID ^a	Depth	PQL	OCP								Asbestos
			DDT+DDE+DDD c	Aldrin & Dieldrin	Total Chlordane	Total Endosulfan	Endrin	Heptachlor	HCB	Methoxychlor	Asbestos (500 ml)
			0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	-
AEC1 - Market Gardens											
SS9	0 - 0.1m	30/07/2019	NT 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	NT
SS11	0 - 0.1m	30/07/2019	NT 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	NT
SS12	0 - 0.1m	30/07/2019	NT 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	NT
SS16	0 - 0.1m	30/07/2019	NT 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	NT
SS24	0 - 0.1m	30/07/2019	NT 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	NAD
TP2/0.1	0 - 0.1m	30/07/2019	NT 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	NT
TP14/0.1	0 - 0.1m	31/07/2019	NT 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	NAD
DS111	0 - 0.1m	13/09/2019	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<0.1 2500 NC	NT
DS112	0 - 0.1m	13/09/2019	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<0.1 2500 NC	NT
DS113	0 - 0.1m	13/09/2019	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<0.1 2500 NC	NT
DS114	0 - 0.1m	13/09/2019	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<0.1 2500 NC	NT
DS115	0 - 0.1m	13/09/2019	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<0.1 2500 NC	NT
DS117	0 - 0.1m	18/09/2019	NT 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<NT
DS118	0 - 0.1m	19/09/2019	NT 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<NT
SS201	0 - 0.1m	13/09/2019	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<0.1 2500 NC	NT
SS205	0 - 0.1m	18/09/2019	NT 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<NT
SS206	0 - 0.1m	18/09/2019	NT 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<NT
SS207	0 - 0.1m	18/09/2019	NT 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<NT
SS208	0 - 0.1m	18/09/2019	NT 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<NT
SS209	0 - 0.1m	18/09/2019	NT 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<NT
SS210	0 - 0.1m	19/09/2019	NT 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<NT
SS211	0 - 0.1m	13/09/2019	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<0.1 2500 NC	NT
SS212	0 - 0.1m	19/09/2019	NT 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<NT
SS213	0 - 0.1m	13/09/2019	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<0.1 2500 NC	NT
SS214	0 - 0.1m	13/09/2019	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<0.1 2500 NC	NT
SS215	0 - 0.1m	19/09/2019	NT 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<NT
SS216	0 - 0.1m	19/09/2019	NT 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<NT
SS217	0 - 0.1m	19/09/2019	NT 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<NT

Table 2: Summary of Laboratory Results – OCP, Asbestos

Sample ID ^a	Depth	PQL	OCP								Asbestos (500 ml)
			DDT+DDE+DDD _c	Aldrin & Dieldrin	Total Chlordane	Total Endosulfan	Endrin	Heptachlor	HCB	Methoxychlor	
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	-
SS218	0 - 0.1m	18/09/2019	NT 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<NT
SS219	0 - 0.1m	18/09/2019	NT 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<NT
SS220	0 - 0.1m	18/09/2019	NT 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<NT
SS221	0 - 0.1m	18/09/2019	NT 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<NT
SS222	0 - 0.1m	18/09/2019	NT 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<NT
AEC2 - Building Construction and Demolition of Structures											
SS1	0 - 0.1m	30/07/2019	NT 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	NAD
SS5	0 - 0.1m	30/07/2019	NT 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	NAD
SS6	0 - 0.1m	30/07/2019	NT 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	NAD
SS13	0 - 0.1m	30/07/2019	<5 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	NAD
SS21	0 - 0.1m	30/07/2019	NT 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	NAD
AEC3 - Chemical and Fuel Use Storage											
SS2	0 - 0.1m	30/07/2019	NT 660 NC	NT 3600 640	NT 45 NC	NT 530 NC	NT 2000 NC	NT 100 NC	NT 50 NC	NT 80 NC	NAD
SS3	0 - 0.1m	30/07/2019	<5 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	NAD
SS7	0 - 0.1m	30/07/2019	NT 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	NAD
SS8	0 - 0.1m	30/07/2019	NT 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	2.4 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	NT
SS10	0 - 0.1m	30/07/2019	NT 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	NAD
SS15	0 - 0.1m	30/07/2019	NT 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	NAD
SS20	0 - 0.1m	30/07/2019	<5 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	NAD
SS22	0 - 0.1m	30/07/2019	NT 660 NC	<0.1 3600 640	0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	NAD
SS23	0 - 0.1m	30/07/2019	NT 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	NAD
SS25/0.1	0 - 0.1m	31/07/2019	NT 660 NC	NT 3600 640	NT 45 NC	NT 530 NC	NT 2000 NC	NT 100 NC	NT 50 NC	NT 80 NC	NAD
SS119	0 - 0.1m	13/09/2019	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<0.1 2500 NC	NT
SS120	0 - 0.1m	13/09/2019	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	2.9 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<0.1 2500 NC	NT
SS121	0 - 0.1m	13/09/2019	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<0.1 2500 NC	NT
SS122	0 - 0.1m	18/09/2019	NT 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	NT
SS123	0 - 0.1m	13/09/2019	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<0.1 2500 NC	NT
SS124	0 - 0.1m	13/09/2019	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<0.1 2500 NC	NT

Table 2: Summary of Laboratory Results – OCP, Asbestos

			OCP								Asbestos
			DDT+DDE+DDD _c	Aldrin & Dieldrin	Total Chlordane	Total Endosulfan	Endrin	Heptachlor	HCB	Methoxychlor	Asbestos (500 ml)
		PQL	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
Sample ID ^a	Depth	Sampled Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	-
SS125	0 - 0.1m	18/09/2019	NT 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	NT
SS126	0 - 0.1m	18/09/2019	NT 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	NT
SS127	0 - 0.1m	18/09/2019	NT 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	NT
SS128	0 - 0.1m	18/09/2019	NT 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	NT
SS129	0 - 0.1m	18/09/2019	NT 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	NT
SS130	0 - 0.1m	13/09/2019	NT 3600 640	NT 45 NC	NT 530 NC	NT 2000 NC	NT 100 NC	NT 50 NC	NT 80 NC	NT 2500 NC	NT
SS131	0 - 0.1m	13/09/2019	NT 3600 640	NT 45 NC	NT 530 NC	NT 2000 NC	NT 100 NC	NT 50 NC	NT 80 NC	NT 2500 NC	NT
AEC4 - Fill Areas											
TP8/0.1	0 - 0.1m	31/07/2019	NT 660 NC	NT 3600 640	NT 45 NC	NT 530 NC	NT 2000 NC	NT 100 NC	NT 50 NC	NT 80 NC	NAD
TP9/0.1	0 - 0.1m	31/07/2019	NT 660 NC	NT 3600 640	NT 45 NC	NT 530 NC	NT 2000 NC	NT 100 NC	NT 50 NC	NT 80 NC	NAD
TP10/0.1	0 - 0.1m	31/07/2019	NT 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	NAD
SS133	0 - 0.1m	19/09/2019	NT 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<NT
SS134	0 - 0.1m	19/09/2019	NT 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<NT
SS134	0 - 0.1m	18/09/2019	NT 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<NT
TP136/0-0.1	0 - 0.1m	13/09/2019	<0.1 3600 640	0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<0.1 2500 NC	NAD
TP141/0.3-0.4	0.3 - 0.4m	13/09/2019	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<0.1 2500 NC	NAD
TP144/0-0.1	0 - 0.1m	13/09/2019	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<0.1 2500 NC	NAD
TP156/1.0	1 - 1m	13/09/2019	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<0.1 2500 NC	NAD
TP160/0.3-0.4	0.3 - 0.4m	13/09/2019	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<0.1 2500 NC	NAD
TP164/0-0.1	0 - 0.1m	13/09/2019	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<0.1 2500 NC	NAD
TP165/0-0.2	0m	13/09/2019	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<0.1 2500 NC	NAD
TP168/0-0.1	0 - 0.1m	13/09/2019	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<0.1 2500 NC	NAD
TP169/0-0.1	0 - 0.1m	16/09/2019	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<0.1 2500 NC	NAD
TP172/0-0.1	0 - 0.1m	16/09/2019	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<0.1 2500 NC	NAD
TP174/0-0.1	0 - 0.1m	16/09/2019	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<0.1 2500 NC	NAD
TP179/0-0.1	0 - 0.1m	16/09/2019	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<0.1 2500 NC	NAD
TP181/1.0	1 - 1m	16/09/2019	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<0.1 2500 NC	NAD
TP183/0-0.1	0 - 0.1m	16/09/2019	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	<0.1 2500 NC	NAD
SS187	0 - 0.1m	19/09/2019	NT 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	NAD
SS188	0 - 0.1m	19/09/2019	<5 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	NAD
SS189	0 - 0.1m	19/09/2019	NT 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	NAD

Table 2: Summary of Laboratory Results – OCP, Asbestos

			OCP								Asbestos
			DDT+DDE+DDD ^c	Aldrin & Dieldrin	Total Chlordane	Total Endosulfan	Endrin	Heptachlor	HCB	Methoxychlor	Asbestos (500 ml)
		PQL	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
Sample ID ^a	Depth	Sampled Date	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	-
SS190	0 - 0.1m	19/09/2019	<5 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	NAD
SS191	0 - 0.1m	19/09/2019	<5 660 NC	<0.1 3600 640	<0.1 45 NC	0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	NAD
SS192	0 - 0.1m	18/09/2019	<5 660 NC	<0.1 3600 640	<0.1 45 NC	<0.1 530 NC	<0.1 2000 NC	<0.1 100 NC	<0.1 50 NC	<0.1 80 NC	NAD
AEC5 - Timber Power Poles											
SS14	0 - 0.1m	30/07/2019	NT 660 NC	NT 3600 640	NT 45 NC	NT 530 NC	NT 2000 NC	NT 100 NC	NT 50 NC	NT 80 NC	NAD

Lab result	
HIL/HSL value	EIL/ESL value

■ HIL/HSL exceedance
 ■ EIL/ESL exceedance
 ■ HIL/HSL and EIL/ESL exceedance
 ■ ML exceedance
 ■

■ Indicates that asbestos has been detected by the lab below the PQL, refer to the lab report
 ■ = DC exceedance

Bold = Lab detections NT = Not tested NL = Non limiting NC = No criteria NA = Not applicable NAD = Not detected

Notes:

HIL/HSL/DC	NEPC, Schedule B1 - HIL D (Commercial / Industrial), HSL D (Commercial / Industrial), DC HSL D (Direct contact HSL D Commercial)
EIL/ESL	NEPC, Schedule B1 - EIL C/Ind (Commercial and Industrial), ESL C/Ind (Commercial and Industrial)
ML	NEPC, Schedule B1 - ML C/Ind (Commercial and Industrial)
a	QA/QC replicate of sample listed directly below the primary sample
b	reported naphthalene laboratory result obtained from BTEXN suite
c	criteria applies to DDT only
NAD	No Asbestos Detected at laboratory reporting limit

Appendix F

Laboratory Certificates and Chain-of-Custody documentation

CERTIFICATE OF ANALYSIS 226437

Client Details

Client	Douglas Partners Pty Ltd Smeaton Grange
Attention	Bradley Harris
Address	18 Waler Crescent, Smeaton Grange, NSW, 2567

Sample Details

Your Reference	<u>92364.02, Kemps Creek</u>
Number of Samples	85 soil, 5 MATERIAL
Date samples received	17/09/2019
Date completed instructions received	18/09/2019

Analysis Details

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

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

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

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

Report Details

Date results requested by	19/09/2019
Date of Issue	19/09/2019
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Asbestos Approved By

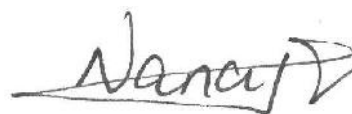
Analysed by Asbestos Approved Identifier: Panika Wongchanda,
 Wonnie Condos

Authorised by Asbestos Approved Signatory: Lucy Zhu

Results Approved By

Josh Williams, Chemist
 Loren Bardwell, Senior Chemist
 Lucy Zhu, Senior Asbestos Analyst
 Steven Luong, Organics Supervisor

Authorised By



Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil

Our Reference		226437-1	226437-9	226437-13	226437-24	226437-25
Your Reference	UNITS	TP136/0-0.1	TP141/0.3-0.4	TP144/0-0.1	SS119	SS120
Date Sampled		13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
Date analysed	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
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	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	94	92	70	88	90

vTRH(C6-C10)/BTEXN in Soil

Our Reference		226437-29	226437-35	226437-39	226437-41	226437-42
Your Reference	UNITS	TP156/1.0	TP160/0.3-0.4	TP164/0-0.1	TP169/0-0.1	TP172/0-0.1
Date Sampled		13/09/2019	13/09/2019	13/09/2019	16/09/2019	16/09/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
Date analysed	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
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	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	97	94	91	96	98

vTRH(C6-C10)/BTEXN in Soil

Our Reference		226437-44	226437-49	226437-53	226437-57	226437-67
Your Reference	UNITS	TP174/0-0.1	TP179/0-0.1	TP181/1.0	TP183/0-0.1	SS121
Date Sampled		16/09/2019	16/09/2019	16/09/2019	16/09/2019	13/09/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
Date analysed	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
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	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	83	96	96	99	101

vTRH(C6-C10)/BTEXN in Soil

Our Reference		226437-71	226437-77	226437-79	226437-81	226437-82
Your Reference	UNITS	TP165/0-0.2	SS124	SS130	SS123	SS131
Date Sampled		13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
Date analysed	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
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	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	96	100	96	97	100

vTRH(C6-C10)/BTEXN in Soil		
Our Reference		226437-84
Your Reference	UNITS	TP168/0-0.1
Date Sampled		13/09/2019
Type of sample		soil
Date extracted	-	18/09/2019
Date analysed	-	19/09/2019
TRH C ₆ - C ₉	mg/kg	<25
TRH C ₆ - C ₁₀	mg/kg	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
naphthalene	mg/kg	<1
Total +ve Xylenes	mg/kg	<3
Surrogate aaa-Trifluorotoluene	%	96

svTRH (C10-C40) in Soil						
Our Reference	UNITS	226437-1	226437-9	226437-13	226437-24	226437-25
Your Reference		TP136/0-0.1	TP141/0.3-0.4	TP144/0-0.1	SS119	SS120
Date Sampled		13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
Date analysed	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
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 >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	110	110
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	110	110
Surrogate o-Terphenyl	%	84	85	88	92	87

svTRH (C10-C40) in Soil						
Our Reference	UNITS	226437-29	226437-35	226437-39	226437-41	226437-42
Your Reference		TP156/1.0	TP160/0.3-0.4	TP164/0-0.1	TP169/0-0.1	TP172/0-0.1
Date Sampled		13/09/2019	13/09/2019	13/09/2019	16/09/2019	16/09/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
Date analysed	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	140	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	240	<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	280	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	220	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	500	<50	<50
Surrogate o-Terphenyl	%	88	89	100	82	87

svTRH (C10-C40) in Soil

Our Reference		226437-44	226437-49	226437-53	226437-57	226437-67
Your Reference	UNITS	TP174/0-0.1	TP179/0-0.1	TP181/1.0	TP183/0-0.1	SS121
Date Sampled		16/09/2019	16/09/2019	16/09/2019	16/09/2019	13/09/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
Date analysed	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
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 >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	%	89	87	88	88	82

svTRH (C10-C40) in Soil

Our Reference		226437-71	226437-77	226437-79	226437-81	226437-82
Your Reference	UNITS	TP165/0-0.2	SS124	SS130	SS123	SS131
Date Sampled		13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
Date analysed	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	290	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	550	<100	<100	<100	170
TRH >C ₁₀ -C ₁₆	mg/kg	55	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	55	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	640	<100	<100	<100	150
TRH >C ₃₄ -C ₄₀	mg/kg	300	<100	<100	<100	230
Total +ve TRH (>C10-C40)	mg/kg	990	<50	<50	<50	380
Surrogate o-Terphenyl	%	100	85	84	87	86

svTRH (C10-C40) in Soil		
Our Reference		226437-84
Your Reference	UNITS	TP168/0-0.1
Date Sampled		13/09/2019
Type of sample		soil
Date extracted	-	18/09/2019
Date analysed	-	19/09/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50
TRH C ₁₅ - C ₂₈	mg/kg	170
TRH C ₂₉ - C ₃₆	mg/kg	320
TRH >C ₁₀ -C ₁₆	mg/kg	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50
TRH >C ₁₆ -C ₃₄	mg/kg	380
TRH >C ₃₄ -C ₄₀	mg/kg	290
Total +ve TRH (>C ₁₀ -C ₄₀)	mg/kg	670
Surrogate o-Terphenyl	%	90

PAHs in Soil						
Our Reference		226437-1	226437-9	226437-13	226437-29	226437-35
Your Reference	UNITS	TP136/0-0.1	TP141/0.3-0.4	TP144/0-0.1	TP156/1.0	TP160/0.3-0.4
Date Sampled		13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
Date analysed	-	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate <i>p</i> -Terphenyl-d14	%	87	88	84	94	96

PAHs in Soil						
Our Reference		226437-39	226437-41	226437-42	226437-44	226437-49
Your Reference	UNITS	TP164/0-0.1	TP169/0-0.1	TP172/0-0.1	TP174/0-0.1	TP179/0-0.1
Date Sampled		13/09/2019	16/09/2019	16/09/2019	16/09/2019	16/09/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
Date analysed	-	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.3	0.9	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.4	0.7	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.3	0.4	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.2	0.3	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	0.4	0.6	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.2	0.4	<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	0.2	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	1.8	4.1	<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	0.6	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	96	86	90	89	87

PAHs in Soil						
Our Reference		226437-53	226437-57	226437-71	226437-79	226437-82
Your Reference	UNITS	TP181/1.0	TP183/0-0.1	TP165/0-0.2	SS130	SS131
Date Sampled		16/09/2019	16/09/2019	13/09/2019	13/09/2019	13/09/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
Date analysed	-	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
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	0.2
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	0.08	<0.05	0.2
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	0.2
Total +ve PAH's	mg/kg	<0.05	<0.05	0.08	<0.05	1.6
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate <i>p</i> -Terphenyl-d14	%	90	86	81	85	88

PAHs in Soil		
Our Reference		226437-84
Your Reference	UNITS	TP168/0-0.1
Date Sampled		13/09/2019
Type of sample		soil
Date extracted	-	18/09/2019
Date analysed	-	18/09/2019
Naphthalene	mg/kg	<0.1
Acenaphthylene	mg/kg	0.2
Acenaphthene	mg/kg	<0.1
Fluorene	mg/kg	0.1
Phenanthrene	mg/kg	1.1
Anthracene	mg/kg	0.3
Fluoranthene	mg/kg	1.7
Pyrene	mg/kg	1.4
Benzo(a)anthracene	mg/kg	0.7
Chrysene	mg/kg	0.6
Benzo(b,j+k)fluoranthene	mg/kg	0.9
Benzo(a)pyrene	mg/kg	0.57
Indeno(1,2,3-c,d)pyrene	mg/kg	0.2
Dibenzo(a,h)anthracene	mg/kg	<0.1
Benzo(g,h,i)perylene	mg/kg	0.2
Total +ve PAH's	mg/kg	8.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	0.8
Benzo(a)pyrene TEQ calc(half)	mg/kg	0.8
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	0.9
Surrogate <i>p</i> -Terphenyl-d14	%	86

Organochlorine Pesticides in soil						
Our Reference		226437-1	226437-9	226437-13	226437-23	226437-24
Your Reference	UNITS	TP136/0-0.1	TP141/0.3-0.4	TP144/0-0.1	SS201	SS119
Date Sampled		13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
Date analysed	-	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	88	90	88	89	91

Organochlorine Pesticides in soil						
Our Reference		226437-25	226437-29	226437-35	226437-39	226437-41
Your Reference	UNITS	SS120	TP156/1.0	TP160/0.3-0.4	TP164/0-0.1	TP169/0-0.1
Date Sampled		13/09/2019	13/09/2019	13/09/2019	13/09/2019	16/09/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
Date analysed	-	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	0.4	<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	1.6	<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	0.9	<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	%	105	89	92	94	89

Organochlorine Pesticides in soil						
Our Reference		226437-42	226437-44	226437-49	226437-53	226437-57
Your Reference	UNITS	TP172/0-0.1	TP174/0-0.1	TP179/0-0.1	TP181/1.0	TP183/0-0.1
Date Sampled		16/09/2019	16/09/2019	16/09/2019	16/09/2019	16/09/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
Date analysed	-	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	91	92	90	89	89

Organochlorine Pesticides in soil						
Our Reference		226437-67	226437-68	226437-71	226437-72	226437-73
Your Reference	UNITS	SS121	SS113	TP165/0-0.2	SS112	SS111
Date Sampled		13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
Date analysed	-	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	86	90	103	74	76

Organochlorine Pesticides in soil						
Our Reference		226437-74	226437-75	226437-77	226437-78	226437-80
Your Reference	UNITS	SS211	SS115	SS124	SS114	SS214
Date Sampled		13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
Date analysed	-	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	63	64	100	118	93

Organochlorine Pesticides in soil				
Our Reference		226437-81	226437-83	226437-84
Your Reference	UNITS	SS123	SS213	TP168/0-0.1
Date Sampled		13/09/2019	13/09/2019	13/09/2019
Type of sample		soil	soil	soil
Date extracted	-	18/09/2019	18/09/2019	18/09/2019
Date analysed	-	18/09/2019	18/09/2019	18/09/2019
HCB	mg/kg	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	69	94	90

Acid Extractable metals in soil

Our Reference		226437-1	226437-9	226437-13	226437-23	226437-24
Your Reference	UNITS	TP136/0-0.1	TP141/0.3-0.4	TP144/0-0.1	SS201	SS119
Date Sampled		13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Date analysed	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Arsenic	mg/kg	7	6	6	<4	<4
Cadmium	mg/kg	0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	16	19	20	10	97
Copper	mg/kg	40	19	16	18	32
Lead	mg/kg	170	25	21	14	12
Mercury	mg/kg	0.2	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	10	9	7	6	81
Zinc	mg/kg	240	41	37	42	60

Acid Extractable metals in soil

Our Reference		226437-25	226437-29	226437-35	226437-39	226437-41
Your Reference	UNITS	SS120	TP156/1.0	TP160/0.3-0.4	TP164/0-0.1	TP169/0-0.1
Date Sampled		13/09/2019	13/09/2019	13/09/2019	13/09/2019	16/09/2019
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Date analysed	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Arsenic	mg/kg	7	<4	5	<4	10
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	66	9	9	6	18
Copper	mg/kg	290	7	46	34	25
Lead	mg/kg	29	13	29	20	79
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Nickel	mg/kg	14	7	19	4	5
Zinc	mg/kg	550	16	110	69	120

Acid Extractable metals in soil

Our Reference		226437-42	226437-44	226437-49	226437-53	226437-57
Your Reference	UNITS	TP172/0-0.1	TP174/0-0.1	TP179/0-0.1	TP181/1.0	TP183/0-0.1
Date Sampled		16/09/2019	16/09/2019	16/09/2019	16/09/2019	16/09/2019
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Date analysed	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Arsenic	mg/kg	18	13	13	21	10
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	20	22	38	6	10
Copper	mg/kg	24	22	19	40	28
Lead	mg/kg	21	18	58	16	30
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	10	10	6	10	9
Zinc	mg/kg	38	36	73	45	42

Acid Extractable metals in soil

Our Reference		226437-67	226437-68	226437-71	226437-72	226437-73
Your Reference	UNITS	SS121	SS113	TP165/0-0.2	SS112	SS111
Date Sampled		13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Date analysed	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Arsenic	mg/kg	11	12	<4	<4	12
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	16	22	8	6	26
Copper	mg/kg	110	18	160	52	32
Lead	mg/kg	22	16	20	12	27
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	10	8	4	13	15
Zinc	mg/kg	80	21	200	46	81

Acid Extractable metals in soil

Our Reference		226437-74	226437-75	226437-77	226437-78	226437-79
Your Reference	UNITS	SS211	SS115	SS124	SS114	SS130
Date Sampled		13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Date analysed	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Arsenic	mg/kg	13	<4	5	4	7
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	17	15	14	15	14
Copper	mg/kg	43	32	36	51	25
Lead	mg/kg	17	13	17	17	16
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	7	7	19	9	7
Zinc	mg/kg	36	35	170	77	67

Acid Extractable metals in soil

Our Reference		226437-80	226437-81	226437-82	226437-83	226437-84
Your Reference	UNITS	SS214	SS123	SS131	SS213	TP168/0-0.1
Date Sampled		13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Date analysed	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Arsenic	mg/kg	8	9	<4	11	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	22	24	28	20	5
Copper	mg/kg	42	39	79	24	30
Lead	mg/kg	24	18	7	25	29
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	9	5	25	8	4
Zinc	mg/kg	76	37	34	42	81

Moisture						
Our Reference	UNITS	226437-1	226437-9	226437-13	226437-23	226437-24
Your Reference		TP136/0-0.1	TP141/0.3-0.4	TP144/0-0.1	SS201	SS119
Date Sampled		13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
Date analysed	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Moisture	%	14	12	9.2	8.2	2.3

Moisture						
Our Reference	UNITS	226437-25	226437-29	226437-35	226437-39	226437-41
Your Reference		SS120	TP156/1.0	TP160/0.3-0.4	TP164/0-0.1	TP169/0-0.1
Date Sampled		13/09/2019	13/09/2019	13/09/2019	13/09/2019	16/09/2019
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
Date analysed	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Moisture	%	27	8.9	13	29	14

Moisture						
Our Reference	UNITS	226437-42	226437-44	226437-49	226437-53	226437-57
Your Reference		TP172/0-0.1	TP174/0-0.1	TP179/0-0.1	TP181/1.0	TP183/0-0.1
Date Sampled		16/09/2019	16/09/2019	16/09/2019	16/09/2019	16/09/2019
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
Date analysed	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Moisture	%	11	9.3	11	12	15

Moisture						
Our Reference	UNITS	226437-67	226437-68	226437-71	226437-72	226437-73
Your Reference		SS121	SS113	TP165/0-0.2	SS112	SS111
Date Sampled		13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
Date analysed	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Moisture	%	13	22	34	15	39

Moisture						
Our Reference	UNITS	226437-74	226437-75	226437-77	226437-78	226437-79
Your Reference		SS211	SS115	SS124	SS114	SS130
Date Sampled		13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
Date analysed	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Moisture	%	31	39	9.1	47	23

Client Reference: 92364.02, Kemps Creek

Moisture						
Our Reference		226437-80	226437-81	226437-82	226437-83	226437-84
Your Reference	UNITS	SS214	SS123	SS131	SS213	TP168/0-0.1
Date Sampled		13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
Date analysed	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Moisture	%	20	17	8.9	17	5.7

Asbestos ID - soils NEPM						
Our Reference	UNITS	226437-1	226437-9	226437-13	226437-29	226437-35
Your Reference		TP136/0-0.1	TP141/0.3-0.4	TP144/0-0.1	TP156/1.0	TP160/0.3-0.4
Date Sampled		13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Type of sample		soil	soil	soil	soil	soil
Date analysed	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Sample mass tested	g	550.63	574.74	694.73	689.69	588.58
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 (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos ^{#1}	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	—	—	—	—	—
FA and AF Estimation*	g	—	—	—	—	—
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

Asbestos ID - soils NEPM

Our Reference		226437-39	226437-41	226437-42	226437-44	226437-49
Your Reference	UNITS	TP164/0-0.1	TP169/0-0.1	TP172/0-0.1	TP174/0-0.1	TP179/0-0.1
Date Sampled		13/09/2019	16/09/2019	16/09/2019	16/09/2019	16/09/2019
Type of sample		soil	soil	soil	soil	soil
Date analysed	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Sample mass tested	g	221.91	628.53	572.56	487.12	675.62
Sample Description	-	Brown fine-grained soil & debris	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos ^{#1}	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	—	—	—	—	—
FA and AF Estimation*	g	—	—	—	—	—
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

Asbestos ID - soils NEPM					
Our Reference		226437-53	226437-57	226437-71	226437-84
Your Reference	UNITS	TP181/1.0	TP183/0-0.1	TP165/0-0.2	TP168/0-0.1
Date Sampled		16/09/2019	16/09/2019	13/09/2019	13/09/2019
Type of sample		soil	soil	soil	soil
Date analysed	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Sample mass tested	g	633.87	576.27	151.74	117.04
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown fine-grained soil & debris	Brown fine-grained soil & debris
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos ^{#1}	g/kg	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	—	—	—	—
FA and AF Estimation*	g	—	—	—	—
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001

Asbestos ID - materials						
Our Reference	UNITS	226437-86	226437-87	226437-88	226437-89	226437-90
Your Reference		MAT1	MAT2	MAT3	MAT4	MAT5
Date Sampled		13/09/2019	13/09/2019	13/09/2019	13/09/2019	13/09/2019
Type of sample		MATERIAL	MATERIAL	MATERIAL	MATERIAL	MATERIAL
Date analysed	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Mass / Dimension of Sample	-	150x80x5mm	70x60x5mm	90x70x5mm	40x30x5mm	90x70x5mm
Sample Description	-	Beige fibre cement material	Beige fibre cement material	Beige fibre cement material	Beige fibre cement material	Grey fibre cement material
Asbestos ID in materials	-	Chrysotile asbestos detected	Chrysotile asbestos detected	Chrysotile asbestos detected	Chrysotile asbestos detected	Chrysotile asbestos detected
		Amosite asbestos detected	Amosite asbestos detected	Amosite asbestos detected	Amosite asbestos detected	

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
ASB-001	Asbestos ID - Identification of asbestos in soil samples using Polarised Light Microscopy and Dispersion Staining Techniques. Minimum 500mL soil sample was analysed as recommended by "National Environment Protection (Assessment of site contamination) Measure, Schedule B1 and "The Guidelines from the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009" with a reporting limit of 0.1g/kg (0.01% w/w) as per Australian Standard AS4964-2004. Results reported denoted with * are outside our scope of NATA accreditation. NOTE #1 Total Asbestos g/kg was analysed and reported as per Australian Standard AS4964 (This is the sum of ACM >7mm, <7mm and FA/AF) NOTE #2 The screening level of 0.001% w/w asbestos in soil for FA and AF only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres. Estimation = Estimated asbestos weight Results reported with "--" is equivalent to no visible asbestos identified using Polarised Light microscopy and Dispersion Staining Techniques.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-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.

Method ID	Methodology Summary
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-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 are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-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)-BTX 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)-BTX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-13	226437-9
Date extracted	-			18/09/2019	1	18/09/2019	18/09/2019		18/09/2019	18/09/2019
Date analysed	-			19/09/2019	1	19/09/2019	19/09/2019		19/09/2019	19/09/2019
TRH C ₆ - C ₉	mg/kg	25	Org-016	<25	1	<25	<25	0	87	97
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	<25	1	<25	<25	0	87	97
Benzene	mg/kg	0.2	Org-016	<0.2	1	<0.2	<0.2	0	70	82
Toluene	mg/kg	0.5	Org-016	<0.5	1	<0.5	<0.5	0	80	95
Ethylbenzene	mg/kg	1	Org-016	<1	1	<1	<1	0	97	106
m+p-xylene	mg/kg	2	Org-016	<2	1	<2	<2	0	94	102
o-Xylene	mg/kg	1	Org-016	<1	1	<1	<1	0	91	100
naphthalene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	92	1	94	96	2	81	97

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-14	[NT]
Date extracted	-			[NT]	41	18/09/2019	18/09/2019		18/09/2019	[NT]
Date analysed	-			[NT]	41	19/09/2019	19/09/2019		19/09/2019	[NT]
TRH C ₆ - C ₉	mg/kg	25	Org-016	[NT]	41	<25	<25	0	100	[NT]
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	[NT]	41	<25	<25	0	100	[NT]
Benzene	mg/kg	0.2	Org-016	[NT]	41	<0.2	<0.2	0	90	[NT]
Toluene	mg/kg	0.5	Org-016	[NT]	41	<0.5	<0.5	0	97	[NT]
Ethylbenzene	mg/kg	1	Org-016	[NT]	41	<1	<1	0	105	[NT]
m+p-xylene	mg/kg	2	Org-016	[NT]	41	<2	<2	0	103	[NT]
o-Xylene	mg/kg	1	Org-016	[NT]	41	<1	<1	0	102	[NT]
naphthalene	mg/kg	1	Org-014	[NT]	41	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	41	96	96	0	94	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	67	18/09/2019	18/09/2019		[NT]	[NT]
Date analysed	-			[NT]	67	19/09/2019	19/09/2019		[NT]	[NT]
TRH C ₆ - C ₉	mg/kg	25	Org-016	[NT]	67	<25	<25	0	[NT]	[NT]
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	[NT]	67	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-016	[NT]	67	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-016	[NT]	67	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-016	[NT]	67	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-016	[NT]	67	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-016	[NT]	67	<1	<1	0	[NT]	[NT]
naphthalene	mg/kg	1	Org-014	[NT]	67	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	67	101	99	2	[NT]	[NT]

Client Reference: 92364.02, Kemps Creek

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	84	18/09/2019	18/09/2019		[NT]	[NT]
Date analysed	-			[NT]	84	19/09/2019	19/09/2019		[NT]	[NT]
TRH C ₆ - C ₉	mg/kg	25	Org-016	[NT]	84	<25	<25	0	[NT]	[NT]
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	[NT]	84	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-016	[NT]	84	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-016	[NT]	84	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-016	[NT]	84	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-016	[NT]	84	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-016	[NT]	84	<1	<1	0	[NT]	[NT]
naphthalene	mg/kg	1	Org-014	[NT]	84	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	84	96	100	4	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-13	226437-9
Date extracted	-			18/09/2019	1	18/09/2019	18/09/2019		18/09/2019	18/09/2019
Date analysed	-			19/09/2019	1	19/09/2019	19/09/2019		18/09/2019	19/09/2019
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	<50	1	<50	<50	0	90	82
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	<100	1	<100	<100	0	80	74
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	<100	1	<100	<100	0	91	98
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	<50	1	<50	<50	0	90	82
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	<100	1	<100	<100	0	80	74
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	<100	1	<100	<100	0	91	98
Surrogate o-Terphenyl	%		Org-003	92	1	84	84	0	102	95

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-14	[NT]
Date extracted	-			[NT]	41	18/09/2019	18/09/2019		18/09/2019	[NT]
Date analysed	-			[NT]	41	19/09/2019	19/09/2019		19/09/2019	[NT]
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	[NT]	41	<50	<50	0	83	[NT]
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	[NT]	41	<100	<100	0	79	[NT]
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	[NT]	41	<100	<100	0	106	[NT]
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	[NT]	41	<50	<50	0	83	[NT]
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	[NT]	41	<100	<100	0	79	[NT]
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	[NT]	41	<100	<100	0	106	[NT]
Surrogate o-Terphenyl	%		Org-003	[NT]	41	82	88	7	91	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	67	18/09/2019	18/09/2019		[NT]	[NT]
Date analysed	-			[NT]	67	19/09/2019	19/09/2019		[NT]	[NT]
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	[NT]	67	<50	<50	0	[NT]	[NT]
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	[NT]	67	<100	<100	0	[NT]	[NT]
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	[NT]	67	<100	100	0	[NT]	[NT]
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	[NT]	67	<50	<50	0	[NT]	[NT]
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	[NT]	67	<100	100	0	[NT]	[NT]
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	[NT]	67	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-003	[NT]	67	82	88	7	[NT]	[NT]

Client Reference: 92364.02, Kemps Creek

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	84	18/09/2019	18/09/2019		[NT]	[NT]
Date analysed	-			[NT]	84	19/09/2019	19/09/2019		[NT]	[NT]
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	[NT]	84	<50	<50	0	[NT]	[NT]
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	[NT]	84	170	190	11	[NT]	[NT]
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	[NT]	84	320	330	3	[NT]	[NT]
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	[NT]	84	<50	<50	0	[NT]	[NT]
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	[NT]	84	380	400	5	[NT]	[NT]
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	[NT]	84	290	280	4	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-003	[NT]	84	90	99	10	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-13	226437-9
Date extracted	-			18/09/2019	1	18/09/2019	18/09/2019		18/09/2019	18/09/2019
Date analysed	-			18/09/2019	1	18/09/2019	18/09/2019		18/09/2019	18/09/2019
Naphthalene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	102	94
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	100	92
Phenanthrene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	94	88
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	88
Pyrene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	98	90
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	100	92
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	0.06	18	106	94
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	107	1	87	94	8	90	82

QUALITY CONTROL: PAHs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-14	[NT]
Date extracted	-			[NT]	41	18/09/2019	18/09/2019		18/09/2019	[NT]
Date analysed	-			[NT]	41	18/09/2019	18/09/2019		18/09/2019	[NT]
Naphthalene	mg/kg	0.1	Org-012	[NT]	41	<0.1	<0.1	0	110	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	[NT]	41	<0.1	<0.1	0	106	[NT]
Phenanthrene	mg/kg	0.1	Org-012	[NT]	41	0.2	0.2	0	100	[NT]
Anthracene	mg/kg	0.1	Org-012	[NT]	41	0.2	0.2	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	[NT]	41	0.9	0.8	12	100	[NT]
Pyrene	mg/kg	0.1	Org-012	[NT]	41	0.7	0.7	0	104	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	[NT]	41	0.4	0.4	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	[NT]	41	0.3	0.3	0	106	[NT]
Benzo(b,j,k)fluoranthene	mg/kg	0.2	Org-012	[NT]	41	0.6	0.6	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	[NT]	41	0.4	0.4	0	110	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	[NT]	41	0.1	0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	[NT]	41	0.2	0.2	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	[NT]	41	86	86	0	93	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	84	18/09/2019	18/09/2019		[NT]	[NT]
Date analysed	-			[NT]	84	18/09/2019	18/09/2019		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-012	[NT]	84	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	[NT]	84	0.2	<0.1	67	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	[NT]	84	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	[NT]	84	0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-012	[NT]	84	1.1	0.3	114	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-012	[NT]	84	0.3	<0.1	100	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	[NT]	84	1.7	0.4	124	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-012	[NT]	84	1.4	0.4	111	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	[NT]	84	0.7	0.2	111	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	[NT]	84	0.6	0.2	100	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	[NT]	84	0.9	0.3	100	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	[NT]	84	0.57	0.2	96	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	[NT]	84	0.2	<0.1	67	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	[NT]	84	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	[NT]	84	0.2	0.1	67	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	[NT]	84	86	86	0	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-13	226437-9
Date extracted	-			18/09/2019	1	18/09/2019	18/09/2019		18/09/2019	18/09/2019
Date analysed	-			18/09/2019	1	18/09/2019	18/09/2019		18/09/2019	18/09/2019
HCB	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	98	93
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	96	90
Heptachlor	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	90	86
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	98	98
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	99	97
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	105	105
Dieldrin	mg/kg	0.1	Org-005	<0.1	1	0.1	0.1	0	118	116
Endrin	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	98	93
pp-DDD	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	83	81
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	115	98
Methoxychlor	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	92	1	88	89	1	87	85

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-14	[NT]
Date extracted	-			[NT]	25	18/09/2019	18/09/2019		18/09/2019	[NT]
Date analysed	-			[NT]	25	18/09/2019	18/09/2019		18/09/2019	[NT]
HCB	mg/kg	0.1	Org-005	[NT]	25	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	[NT]	25	<0.1	<0.1	0	87	[NT]
gamma-BHC	mg/kg	0.1	Org-005	[NT]	25	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	[NT]	25	<0.1	<0.1	0	89	[NT]
Heptachlor	mg/kg	0.1	Org-005	[NT]	25	<0.1	<0.1	0	74	[NT]
delta-BHC	mg/kg	0.1	Org-005	[NT]	25	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	[NT]	25	<0.1	<0.1	0	97	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-005	[NT]	25	<0.1	<0.1	0	96	[NT]
gamma-Chlordane	mg/kg	0.1	Org-005	[NT]	25	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	[NT]	25	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	[NT]	25	0.4	0.6	40	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	[NT]	25	<0.1	<0.1	0	104	[NT]
Dieldrin	mg/kg	0.1	Org-005	[NT]	25	<0.1	<0.1	0	116	[NT]
Endrin	mg/kg	0.1	Org-005	[NT]	25	<0.1	<0.1	0	90	[NT]
pp-DDD	mg/kg	0.1	Org-005	[NT]	25	<0.1	<0.1	0	77	[NT]
Endosulfan II	mg/kg	0.1	Org-005	[NT]	25	1.6	1.6	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	[NT]	25	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	[NT]	25	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	[NT]	25	0.9	1.2	29	76	[NT]
Methoxychlor	mg/kg	0.1	Org-005	[NT]	25	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	[NT]	25	105	94	11	85	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	41	18/09/2019	18/09/2019		[NT]	[NT]
Date analysed	-			[NT]	41	18/09/2019	18/09/2019		[NT]	[NT]
HCB	mg/kg	0.1	Org-005	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-005	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-005	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-005	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-005	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-005	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-005	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-005	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-005	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-005	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-005	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	[NT]	41	89	91	2	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	67	18/09/2019	18/09/2019		[NT]	[NT]
Date analysed	-			[NT]	67	18/09/2019	18/09/2019		[NT]	[NT]
HCB	mg/kg	0.1	Org-005	[NT]	67	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	[NT]	67	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-005	[NT]	67	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	[NT]	67	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-005	[NT]	67	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-005	[NT]	67	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	[NT]	67	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-005	[NT]	67	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-005	[NT]	67	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	[NT]	67	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	[NT]	67	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	[NT]	67	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-005	[NT]	67	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-005	[NT]	67	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-005	[NT]	67	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-005	[NT]	67	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	[NT]	67	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	[NT]	67	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	[NT]	67	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-005	[NT]	67	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	[NT]	67	86	87	1	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	84	18/09/2019	18/09/2019		[NT]	[NT]
Date analysed	-			[NT]	84	18/09/2019	18/09/2019		[NT]	[NT]
HCB	mg/kg	0.1	Org-005	[NT]	84	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	[NT]	84	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-005	[NT]	84	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	[NT]	84	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-005	[NT]	84	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-005	[NT]	84	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	[NT]	84	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-005	[NT]	84	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-005	[NT]	84	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	[NT]	84	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	[NT]	84	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	[NT]	84	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-005	[NT]	84	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-005	[NT]	84	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-005	[NT]	84	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-005	[NT]	84	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	[NT]	84	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	[NT]	84	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	[NT]	84	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-005	[NT]	84	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	[NT]	84	90	89	1	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-13	226437-9
Date prepared	-			19/09/2019	1	19/09/2019	19/09/2019		19/09/2019	19/09/2019
Date analysed	-			19/09/2019	1	19/09/2019	19/09/2019		19/09/2019	19/09/2019
Arsenic	mg/kg	4	Metals-020	<4	1	7	5	33	102	91
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	0.4	0.5	22	102	88
Chromium	mg/kg	1	Metals-020	<1	1	16	23	36	107	86
Copper	mg/kg	1	Metals-020	<1	1	40	33	19	103	109
Lead	mg/kg	1	Metals-020	<1	1	170	130	27	105	92
Mercury	mg/kg	0.1	Metals-021	<0.1	1	0.2	0.2	0	97	81
Nickel	mg/kg	1	Metals-020	<1	1	10	8	22	102	89
Zinc	mg/kg	1	Metals-020	<1	1	240	220	9	110	84

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-14	226437-84
Date prepared	-			[NT]	41	19/09/2019	19/09/2019		19/09/2019	19/09/2019
Date analysed	-			[NT]	41	19/09/2019	19/09/2019		19/09/2019	19/09/2019
Arsenic	mg/kg	4	Metals-020	[NT]	41	10	11	10	105	107
Cadmium	mg/kg	0.4	Metals-020	[NT]	41	<0.4	<0.4	0	108	91
Chromium	mg/kg	1	Metals-020	[NT]	41	18	19	5	105	96
Copper	mg/kg	1	Metals-020	[NT]	41	25	29	15	106	106
Lead	mg/kg	1	Metals-020	[NT]	41	79	83	5	106	91
Mercury	mg/kg	0.1	Metals-021	[NT]	41	0.1	0.1	0	98	97
Nickel	mg/kg	1	Metals-020	[NT]	41	5	6	18	107	92
Zinc	mg/kg	1	Metals-020	[NT]	41	120	130	8	105	94

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	67	19/09/2019	19/09/2019		[NT]	[NT]
Date analysed	-			[NT]	67	19/09/2019	19/09/2019		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	67	11	11	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	67	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	67	16	17	6	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	67	110	100	10	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	67	22	20	10	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	67	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	67	10	10	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	67	80	74	8	[NT]	[NT]

Result Definitions

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

Quality Control Definitions

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

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 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.

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

Report Comments

Asbestos-ID in soil: NEPM

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

Note: All samples analysed as received. However, samples 226437-39, 71, 84 are below the minimum 500mL sample volume as per National Environment Protection (Assessment of Site Contamination) Measure, Schedule B1, May 2013.

OC_S: Sample 25 rpt endosulfans.

PAHs in Soil - The RPD for duplicate results is accepted due to the non homogenous nature of sample 226437-84.


Douglas Partners

Geotechnics | Environment | Groundwater

CHAIN OF CUSTODY

Project Name: KEMPS CREEK, Contamination Assessment										To: Envirolab Services				
Project No: 92364.02					Sampler: Cindy Murphy					12 Ashley Street, Chatswood NSW 2067				
Project Mgr: Bradley Harris					Mob. Phone: 0412 754 162					Attn: Tania Notaras				
Email: Bradley.Harris@douglaspartners.com.au; Cindy.Murphy@douglaspartners.com.au										Phone: (02) 9910 6200 Fax: (02) 9910 6201				
Date Required: Standard 24 hrs										Email: tnotaras@envirolabservices.com.au				

Sample ID	Lab ID	Date Sampled	Sample Type	Container Type	Analytes										Notes/preservation
			S - soil W - water	G - glass P - plastic	Metals	PAH	TRH & BTEX	OCP	OPP & PCB	Asbestos (500ml)	CEC		Hold		
TP136/0-0.1	1	13.9.19	S	G & P	x	x	x	x			x				
TP136/1.0	2	13.9.19	S	G & P										x	
TP137/0-0.1	3	13.9.19	S	G & P										x	
TP138/0-0.1	4	13.9.19	S	G & P										x	
TP139/0-0.1	5	13.9.19	S	G & P										x	
TP139/0.3-0.4	6	13.9.19	S	G & P										x	
TP140/0-0.1	7	13.9.19	S	G & P										x	
TP140/0.3-0.4	8	13.9.19	S	G & P										x	
TP141/0.3-0.4	9	13.9.19	S	G & P	x	x	x	x			x				
TP142/0.3-0.4	10	13.9.19	S	G & P										x	
TP143/0-0.1	11	13.9.19	S	G & P										x	
TP143/0.4-0.5	12	13.9.19	S	G & P										x	
TP144/0-0.1	13	13.9.19	S	G & P	x	x	x	x			x				

Lab Report No: _____
Send Results to: Douglas Partners Pty Ltd **Address:** 18 Waler Crescent, Smeaton Grange 2567 **Phone:** (02) 4647 0075 **Fax:** (02) 4646 1886
Relinquished by: Cindy Murphy **Transported to laboratory by:** _____
Signed: _____ **Date & Time:** 17.9.19 **Received by:** Jason Day ELS SD JADA 17/9/19 16:45

226437

Project Name: KEMPS CREEK, Contamination Assessment										To: Envirolab Services			
Project No: 92364.02					Sampler: Cindy Murphy					12 Ashley Street, Chatswood NSW 2067			
Project Mgr: Bradley Harris					Mob. Phone: 0412 754 162					Attn: Tania Notaras			
Email: Bradley.Harris@douglaspartners.com.au; Cindy.Murphy@douglaspartners.com										Phone: (02) 9910 6200		Fax: (02) 9910 6201	
Date Required: Standard										Email: tnotaras@envirolabservices.com.au			

Sample ID	Lab ID	Date Sampled	Sample Type	Container Type	Analytes										Notes/preservation
			S - soil W - water	G - glass P - plastic	Metals	PAH	TRH & BTEX	OCP	OPP & PCB	Asbestos (500ml)	CEC		Hold		
TP145/0-0.1	14	13.9.19	S	G & P										x	
TP146/0-0.1	15	13.9.19	S	G & P										x	
TP148/0-0.1	16	13.9.19	S	G & P										x	
TP150/0-0.1	17	13.9.19	S	G & P										x	
TP151/0-0.1	18	13.9.19	S	G & P										x	
TP152/0-0.1	19	13.9.19	S	G & P										x	
TP153/0-0.1	20	13.9.19	S	G & P										x	
TP154/0-0.1	21	13.9.19	S	G & P										x	
TP155/0-0.1	22	13.9.19	S	G & P										x	
SS201	23	13.9.19	S	G & P	x				x						
SS119	24	13.9.19	S	G & P	x			x	x						
SS120	25	13.9.19	S	G & P	x			x	x						
SS203	26	13.9.19	S	G & P										x	

Lab Report No:			Send Results to: Douglas Partners Pty Ltd			Address: 18 Waler Crescent, Smeaton Grange 2567			Phone: (02) 4647 0075			Fax: (02) 4646 1886					
Relinquished by: Cindy Murphy						Transported to laboratory by:											
Signed:						Date & Time: 17.9.19						Received by: Susan Day JMS ELS SRD 17/9/19 16:45					

226437

Project Name: KEMPS CREEK, Contamination Assessment										To: Envirolab Services						
Project No: 92364.02					Sampler: Cindy Murphy					12 Ashley Street, Chatswood NSW 2067						
Project Mgr: Bradley Harris					Mob. Phone: 0412 754 162					Attn: Tania Notaras						
Email: Bradley.Harris@douglaspartners.com.au; Cindy.Murphy@douglaspartners.com										Phone: (02) 9910 6200					Fax: (02) 9910 6201	
Date Required: Standard										Email: tnotaras@envirolabservices.com.au						

Sample ID	Lab ID	Date Sampled	Sample Type	Container Type	Analytes										Notes/preservation	
			S - soil W - water	G - glass P - plastic	Metals	PAH	TRH & BTEX	OCP	OPP & PCB	Asbestos (500ml)	CEC		Hold			
TP155/1.0-1.1	27	13.9.19	S	G & P											x	
TP156/0-0.1	28	13.9.19	S	G & P											x	
TP156/1.0	29	13.9.19	S	G & P	x	x	x	x			x					
TP157/0-0.1	30	13.9.19	S	G & P											x	
TP157/1.0	31	13.9.19	S	G & P											x	
TP158/0-0.1	32	13.9.19	S	G & P											x	
TP159/0-0.1	33	16.7.19	S	G & P											x	
TP160/0-0.1	34	16.7.19	S	G & P											x	
TP160/0.3-0.4	35	16.7.19	S	G & P	x	x	x	x			x					
TP161/0-0.1	36	16.7.19	S	G & P											x	
TP162/0-0.1	37	16.7.19	S	G & P											x	
TP163/0-0.1	38	16.7.19	S	G & P											x	
TP164/0-0.1	39	16.7.19	S	G & P	x	x	x	x			x					

Lab Report No:			Send Results to: Douglas Partners Pty Ltd			Address: 18 Waler Crescent, Smeaton Grange 2567			Phone: (02) 4647 0075			Fax: (02) 4646 1886		
Relinquished by: Cindy Murphy						Transported to laboratory by:								
Signed:			Date & Time: 17.9.19			Received by: Jason Day EAA EW SID 17/9/19 16:45								

226437

Project Name: KEMPS CREEK, Contamination Assessment										To: Envirolab Services						
Project No: 92364.02					Sampler: Cindy Murphy					12 Ashley Street, Chatswood NSW 2067						
Project Mgr: Bradley Harris					Mob. Phone: 0412 754 162					Attn: Tania Notaras						
Email: Bradley.Harris@douglaspartners.com.au; Cindy.Murphy@douglaspartners.com.au										Phone: (02) 9910 6200					Fax: (02) 9910 6201	
Date Required: Standard										Email: tnotaras@envirolabservices.com.au						

Sample ID	Lab ID	Date Sampled	Sample Type	Container Type	Analytes										Notes/preservation	
			S - soil W - water	G - glass P - plastic	Metals	PAH	TRH & BTEX	OCP	OPP & PCB	Asbestos (500ml)	CEC		Hold			
SS202	40	13.9.19	S	G & P											x	
TP169/0-0.1	41	16.7.19	S	G & P	x	x	x	x			x					
TP171/0-0.1	MR	16.7.19	S	G & P											x	
TP172/0-0.1	42	16.7.19	S	G & P	x	x	x	x			x					
TP173/0-0.1	43	16.7.19	S	G & P											x	
TP174/0-0.1	44	16.7.19	S	G & P	x	x	x	x			x					
TP175/0-0.1	45	16.7.19	S	G & P											x	
TP176/0-0.1	46	16.7.19	S	G & P											x	
TP177/0-0.1	47	16.7.19	S	G & P											x	
TP178/0-0.1	48	16.7.19	S	G & P											x	
TP179/0-0.1	49	16.7.19	S	G & P	x	x	x	x			x					
TP180/0-0.1	50	16.7.19	S	G & P											x	
TP180/1.0	51	16.7.19	S	G & P											x	

Lab Report No:			Send Results to: Douglas Partners Pty Ltd			Address 18 Waler Crescent, Smeaton Grange 2567			Phone: (02) 4647 0075			Fax: (02) 4646 1886		
Relinquished by: Cindy Murphy						Transported to laboratory by:								
Signed:			Date & Time: 17.9.19			Received by: Jason Day Jara ELS SYD 17/9/19 16:45								

226437



Douglas Partners

Geotechnics | Environment | Groundwater

CHAIN OF CUSTODY

Project Name: KEMPS CREEK, Contamination Assessment					To: Envirolab Services				
Project No: 92364.02			Sampler: Cindy Murphy		12 Ashley Street, Chatswood NSW 2067				
Project Mgr: Bradley Harris			Mob. Phone: 0412 754 162		Attn: Tania Notaras				
Email: Bradley.Harris@douglaspartners.com.au; Cindy.Murphy@douglaspartners.com					Phone: (02) 9910 6200		Fax: (02) 9910 6201		
Date Required: Standard					Email: tnotaras@envirolabservices.com.au				

Sample ID	Lab ID	Date Sampled	Sample Type	Container Type	Analytes									Notes/preservation	
			S - soil W - water	G - glass P - plastic	Metals	PAH	TRH & BTEX	OCP	OPP & PCB	Asbestos (500ml)	CEC	Hold			
TP181/0-0.1	52	16.9.19	S	G & P										x	
TP181/1.0	53	16.7.19	S	G & P	x	x	x	x		x					
TP181/2.0	54	16.7.19	S	G & P										x	
TP182/0-0.1	55	16.7.19	S	G & P										x	
TP182/1.0	56	16.7.19	S	G & P										x	
TP183/0-0.1	57	16.7.19	S	G & P	x	x	x	x		x					
TP183/1.0	58	16.7.19	S	G & P										x	
TP184/0-0.1	59	16.7.19	S	G & P										x	
TP184/1.0	60	16.7.19	S	G & P										x	
TP185/0-0.1	61	16.7.19	S	G & P										x	
TP185/1.0	62	16.7.19	S	G & P										x	
TP186/0-0.1	63	16.7.19	S	G & P										x	
BD1/13919	64	13.9.19	S	G & P										x	

Lab Report No:			Address 18 Waler Crescent, Smeaton Grange 2567			Phone: (02) 4647 0075		Fax: (02) 4646 1886		
Send Results to: Douglas Partners Pty Ltd			Relinquished by: Cindy Murphy			Transported to laboratory by:				
Signed:			Date & Time: 17.9.19			Received by: Jason Day <i>2019</i> ELS S/D 17/9/19 11:45				

226437

Project Name: KEMPS CREEK, Contamination Assessment										To: Envirolab Services			
Project No: 92364.02				Sampler: Cindy Murphy				12 Ashley Street, Chatswood NSW 2067					
Project Mgr: Bradley Harris				Mob. Phone: 0412 754 162				Attn: Tania Notaras					
Email: Bradley.Harris@douglaspartners.com.au; Cindy.Murphy@douglaspartners.com.au										Phone: (02) 9910 6200		Fax: (02) 9910 6201	
Date Required: Standard										Email: tnotaras@envirolabservices.com.au			

Sample ID	Lab ID	Date Sampled	Sample Type	Container Type	Analytes										Notes/preservation	
			S - soil W - water	G - glass P - plastic	Metals	PAH	TRH & BTEX	OCP	OPP & PCB	Asbestos (500ml)	CEC		Hold			
BD2/13919	65	13.9.19	S	G & P											x	
TP169/0-0.1	NR	16.7.19	S	G & P											x	
TP179/0.7-0.8	66	16.7.19	S	G & P											x	
SS121	67	16.7.19	S	G & P	x			x	x							
SS113	68	16.7.19	S	G & P	x				x							
SS204	NR	13.7.19	S	G & P											x	
BD1/16919	69	16.7.19	S	G & P											x	
TP161/0.4-0.5	70	16.7.19	S	G & P											x	
TP165/0-0.2	71	16.7.19	S	G & P	x		x	x	x		x					
SS112	72	16.7.19	S	G & P	x				x							
SS111	73	16.7.19	S	G & P	x				x							
SS211	74	17.7.19	S	G & P	x				x							
SS115	75	17.7.19	S	G & P	x				x							

Lab Report No:				Send Results to: Douglas Partners Pty Ltd				Address 18 Waler Crescent, Smeaton Grange 2567				Phone: (02) 4647 0075		Fax: (02) 4646 1886	
Relinquished by: Cindy Murphy								Transported to laboratory by:							
Signed:				Date & Time: 17.9.19				Received by: Jason Day ELS SIO JAA 17/9/19 16:45							

226437

Project Name: KEMPS CREEK, Contamination Assessment										To: Envirolab Services			
Project No: 92364.02					Sampler: Cindy Murphy					12 Ashley Street, Chatswood NSW 2067			
Project Mgr: Bradley Harris					Mob. Phone: 0412 754 162					Attn: Tania Notaras			
Email: Bradley.Harris@douglaspartners.com.au; Cindy.Murphy@douglaspartners.com										Phone: (02) 9910 6200		Fax: (02) 9910 6201	
Date Required: Standard										Email: tnotaras@envirolabservices.com.au			

Sample ID	Lab ID	Date Sampled	Sample Type	Container Type	Analytes										Notes/preservation	
			S - soil W - water	G - glass P - plastic	Metals	PAH	TRH & BTEX	OCP	OPP & PCB	Asbestos (500ml)	CEC	Asbestos ID	Hold			
SS132	76	17.7.19	S	G & P											x	
SS124	77	17.7.19	S	G & P	x		x	x								
SS114	78	17.7.19	S	G & P	x			x								
SS130	79	17.7.19	S	G & P	x	x	x									
SS214	80	17.7.19	S	G & P	x			x								
SS123	81	17.7.19	S	G & P	x		x	x								
SS131	82	17.7.19	S	G & P	x	x	x									
SS213	83	17.7.19	S	G & P	x			x								
TP167/0-0.1	NR	17.7.19	S	G & P	x	x	x	x			x					
TP168/0-0.1	84	17.7.19	S	G & P	x	x	x	x			x					
TP164/0-0.2	85	16.9.19	S	P												
MAT1 - MAT5	86-90		M	P									x			

Lab Report No:			Address 18 Waler Crescent, Smeaton Grange 2567			Phone: (02) 4647 0075		Fax: (02) 4646 1886	
Send Results to: Douglas Partners Pty Ltd			Relinquished by: Cindy Murphy			Transported to laboratory by:			
Signed:			Date & Time: 17.9.19			Received by: Jason Day ELS SYD 2019 17/9/19 16:45 226437			

CERTIFICATE OF ANALYSIS 226519

Client Details

Client	Douglas Partners Pty Ltd Smeaton Grange
Attention	Bradley Harris, Emily McGinty
Address	18 Waler Crescent, Smeaton Grange, NSW, 2567

Sample Details

Your Reference	<u>92364.02, Kemps Creek Contam. Assessment</u>
Number of Samples	49 Soil, 2 Water
Date samples received	19/09/2019
Date completed instructions received	19/09/2019

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	23/09/2019
Date of Issue	23/09/2019
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Asbestos Approved By

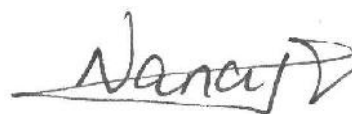
Analysed by Asbestos Approved Identifier: Panika Wongchanda, Aida Marnier

Authorised by Asbestos Approved Signatory: Lucy Zhu

Results Approved By

Diego Bigolin, Team Leader, Inorganics
 Jaimie Loa-Kum-Cheung, Metals Supervisor
 Josh Williams, Chemist
 Ken Nguyen, Reporting Supervisor
 Lucy Zhu, Senior Asbestos Analyst
 Steven Luong, Organics Supervisor

Authorised By



Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil

Our Reference		226519-1	226519-2	226519-3	226519-4	226519-5
Your Reference	UNITS	101	102	103	104	105
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Date analysed	-	20/09/2019	20/09/2019	20/09/2019	20/09/2019	20/09/2019
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	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	81	103	87	98	105

vTRH(C6-C10)/BTEXN in Soil

Our Reference		226519-6	226519-7	226519-8	226519-9	226519-10
Your Reference	UNITS	106	107	108	109	110
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Date analysed	-	20/09/2019	20/09/2019	20/09/2019	20/09/2019	20/09/2019
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	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	99	98	96	104	104

vTRH(C6-C10)/BTEXN in Soil

Our Reference		226519-13	226519-14	226519-15	226519-16	226519-17
Your Reference	UNITS	122	125	126	127	128
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Date analysed	-	20/09/2019	20/09/2019	20/09/2019	20/09/2019	20/09/2019
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	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	97	102	107	97	97

vTRH(C6-C10)/BTEXN in Soil

Our Reference		226519-18	226519-19	226519-20	226519-21	226519-37
Your Reference	UNITS	129	133	134	134	190
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		18/09/2019	19/09/2019	19/09/2019	18/09/2019	19/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Date analysed	-	20/09/2019	20/09/2019	20/09/2019	20/09/2019	20/09/2019
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	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	101	85	105	91	102

vTRH(C6-C10)/BTEXN in Soil

Our Reference		226519-38	226519-39	226519-41	226519-42	226519-43
Your Reference	UNITS	191	192	SS189	SS187	SS188
Depth		0-0.1	0-0.1	-	-	-
Date Sampled		19/09/2019	18/09/2019	19/09/2019	19/09/2019	19/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Date analysed	-	20/09/2019	20/09/2019	20/09/2019	20/09/2019	20/09/2019
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	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	94	92	89	93	105

svTRH (C10-C40) in Soil						
Our Reference	UNITS	226519-1	226519-2	226519-3	226519-4	226519-5
Your Reference		101	102	103	104	105
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Date analysed	-	20/09/2019	20/09/2019	20/09/2019	20/09/2019	20/09/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	210	<100	1,500
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	180	<100	1,200
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	71
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	71
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	350	<100	2,300
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	380
Total +ve TRH (C10-C36)	mg/kg	<50	<50	390	<50	2,600
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	350	<50	2,800
Surrogate o-Terphenyl	%	81	87	88	80	111

svTRH (C10-C40) in Soil						
Our Reference	UNITS	226519-6	226519-7	226519-8	226519-9	226519-10
Your Reference		106	107	108	109	110
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Date analysed	-	20/09/2019	20/09/2019	20/09/2019	20/09/2019	20/09/2019
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	190	<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	200	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	140	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	190	<50	<50	<50
Total +ve TRH (>C10-C40)	mg/kg	<50	350	<50	<50	<50
Surrogate o-Terphenyl	%	94	98	89	82	89

svTRH (C10-C40) in Soil

Our Reference		226519-13	226519-14	226519-15	226519-16	226519-17
Your Reference	UNITS	122	125	126	127	128
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Date analysed	-	20/09/2019	20/09/2019	20/09/2019	20/09/2019	20/09/2019
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 >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-C36)	mg/kg	<50	<50	<50	<50	<50
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	84	83	78	90	84

svTRH (C10-C40) in Soil

Our Reference		226519-18	226519-19	226519-20	226519-21	226519-37
Your Reference	UNITS	129	133	134	134	190
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		18/09/2019	19/09/2019	19/09/2019	18/09/2019	19/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Date analysed	-	20/09/2019	20/09/2019	20/09/2019	20/09/2019	20/09/2019
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	200	<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	190	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	220	<100	<100	110
Total +ve TRH (C10-C36)	mg/kg	<50	200	<50	<50	<50
Total +ve TRH (>C10-C40)	mg/kg	<50	420	<50	<50	110
Surrogate o-Terphenyl	%	86	80	86	84	83

svTRH (C10-C40) in Soil

Our Reference		226519-38	226519-39	226519-41	226519-42	226519-43
Your Reference	UNITS	191	192	SS189	SS187	SS188
Depth		0-0.1	0-0.1	-	-	-
Date Sampled		19/09/2019	18/09/2019	19/09/2019	19/09/2019	19/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Date analysed	-	20/09/2019	20/09/2019	20/09/2019	20/09/2019	20/09/2019
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 >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-C36)	mg/kg	<50	<50	<50	<50	<50
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	73	71	74	73	71

PAHs in Soil						
Our Reference		226519-1	226519-2	226519-3	226519-4	226519-5
Your Reference	UNITS	101	102	103	104	105
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Date analysed	-	20/09/2019	20/09/2019	20/09/2019	20/09/2019	20/09/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	0.7	<0.1	3.3
Acenaphthene	mg/kg	<0.1	<0.1	0.1	<0.1	0.4
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.4
Phenanthrene	mg/kg	<0.1	<0.1	0.2	<0.1	0.8
Anthracene	mg/kg	<0.1	<0.1	0.7	<0.1	5.6
Fluoranthene	mg/kg	<0.1	<0.1	5.4	<0.1	50
Pyrene	mg/kg	<0.1	<0.1	7.4	<0.1	66
Benzo(a)anthracene	mg/kg	<0.1	<0.1	7.5	<0.1	23
Chrysene	mg/kg	<0.1	<0.1	10	0.1	120
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	30	0.3	270
Benzo(a)pyrene	mg/kg	<0.05	<0.05	9.3	0.2	76
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	4.4	<0.1	33
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	1.2	<0.1	7.4
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	4.1	<0.1	31
Total +ve PAH's	mg/kg	<0.05	<0.05	81	0.60	690
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	15	<0.5	120
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	15	<0.5	120
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	15	<0.5	120
Surrogate <i>p</i> -Terphenyl-d14	%	83	88	98	85	107

PAHs in Soil						
Our Reference		226519-6	226519-7	226519-8	226519-9	226519-10
Your Reference	UNITS	106	107	108	109	110
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Date analysed	-	20/09/2019	20/09/2019	20/09/2019	20/09/2019	20/09/2019
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	0.2	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	0.3	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<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	0.2	<0.05	0.3	<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	89	87	86	91

PAHs in Soil						
Our Reference		226519-13	226519-14	226519-15	226519-17	226519-18
Your Reference	UNITS	122	125	126	128	129
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Date analysed	-	20/09/2019	20/09/2019	20/09/2019	20/09/2019	20/09/2019
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	%	89	88	85	88	84

PAHs in Soil						
Our Reference		226519-19	226519-20	226519-21	226519-37	226519-38
Your Reference	UNITS	133	134	134	190	191
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		19/09/2019	19/09/2019	18/09/2019	19/09/2019	19/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Date analysed	-	20/09/2019	20/09/2019	20/09/2019	20/09/2019	20/09/2019
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	0.2	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	0.2	<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	0.3	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	0.2	<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	0.2	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	1.5	<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	%	81	85	88	83	80

PAHs in Soil					
Our Reference		226519-39	226519-41	226519-42	226519-43
Your Reference	UNITS	192	SS189	SS187	SS188
Depth		0-0.1	-	-	-
Date Sampled		18/09/2019	19/09/2019	19/09/2019	19/09/2019
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Date analysed	-	20/09/2019	20/09/2019	20/09/2019	20/09/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5
Surrogate <i>p</i> -Terphenyl-d14	%	82	90	92	81

Organochlorine Pesticides in soil						
Our Reference		226519-11	226519-12	226519-13	226519-14	226519-15
Your Reference	UNITS	117	DS118	122	125	126
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		18/09/2019	19/09/2019	18/09/2019	18/09/2019	18/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Date analysed	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	93	104	99	93	96

Organochlorine Pesticides in soil						
Our Reference		226519-16	226519-17	226519-18	226519-19	226519-20
Your Reference	UNITS	127	128	129	133	134
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		18/09/2019	18/09/2019	18/09/2019	19/09/2019	19/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Date analysed	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	91	98	88	95	90

Organochlorine Pesticides in soil						
Our Reference		226519-21	226519-22	226519-23	226519-24	226519-25
Your Reference	UNITS	134	205	206	207	208
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Date analysed	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	92	89	86	91	88

Organochlorine Pesticides in soil						
Our Reference		226519-26	226519-27	226519-28	226519-29	226519-30
Your Reference	UNITS	209	210	212	215	216
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		18/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Date analysed	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	89	89	88	92	91

Organochlorine Pesticides in soil						
Our Reference		226519-31	226519-32	226519-33	226519-34	226519-35
Your Reference	UNITS	217	218	219	220	221
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		19/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Date analysed	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	89	87	90	89	88

Organochlorine Pesticides in soil						
Our Reference		226519-36	226519-37	226519-38	226519-39	226519-41
Your Reference	UNITS	222	190	191	192	SS189
Depth		0-0.1	0-0.1	0-0.1	0-0.1	-
Date Sampled		18/09/2019	19/09/2019	19/09/2019	18/09/2019	19/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Date analysed	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	88	90	91	88	87

Organochlorine Pesticides in soil			
Our Reference		226519-42	226519-43
Your Reference	UNITS	SS187	SS188
Depth		-	-
Date Sampled		19/09/2019	19/09/2019
Type of sample		Soil	Soil
Date extracted	-	19/09/2019	19/09/2019
Date analysed	-	19/09/2019	19/09/2019
HCB	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	93

Organophosphorus Pesticides				
Our Reference		226519-37	226519-38	226519-39
Your Reference	UNITS	190	191	192
Depth		0-0.1	0-0.1	0-0.1
Date Sampled		19/09/2019	19/09/2019	18/09/2019
Type of sample		Soil	Soil	Soil
Date extracted	-	19/09/2019	19/09/2019	19/09/2019
Date analysed	-	19/09/2019	19/09/2019	19/09/2019
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1
Chlorpyrifos-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	%	90	91	88

PCBs in Soil				
Our Reference		226519-37	226519-38	226519-39
Your Reference	UNITS	190	191	192
Depth		0-0.1	0-0.1	0-0.1
Date Sampled		19/09/2019	19/09/2019	18/09/2019
Type of sample		Soil	Soil	Soil
Date extracted	-	19/09/2019	19/09/2019	19/09/2019
Date analysed	-	19/09/2019	19/09/2019	19/09/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	90	91	88

Acid Extractable metals in soil

Our Reference		226519-1	226519-2	226519-3	226519-4	226519-5
Your Reference	UNITS	101	102	103	104	105
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	20/09/2019	20/09/2019	20/09/2019	20/09/2019	20/09/2019
Date analysed	-	20/09/2019	20/09/2019	20/09/2019	20/09/2019	20/09/2019
Arsenic	mg/kg	9	300	150	22	210
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	17	50	36	26	91
Copper	mg/kg	23	67	42	37	94
Lead	mg/kg	23	21	22	25	14
Mercury	mg/kg	0.2	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	11	12	9	17	13
Zinc	mg/kg	51	150	56	76	82

Acid Extractable metals in soil

Our Reference		226519-6	226519-7	226519-8	226519-9	226519-10
Your Reference	UNITS	106	107	108	109	110
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	20/09/2019	20/09/2019	20/09/2019	20/09/2019	20/09/2019
Date analysed	-	20/09/2019	20/09/2019	20/09/2019	20/09/2019	20/09/2019
Arsenic	mg/kg	9	32	6	85	25
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	18	38	26	33	29
Copper	mg/kg	24	41	17	44	27
Lead	mg/kg	19	22	14	39	17
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	16	14	22	14	11
Zinc	mg/kg	150	110	68	71	140

Acid Extractable metals in soil

Our Reference		226519-11	226519-12	226519-13	226519-14	226519-15
Your Reference	UNITS	117	DS118	122	125	126
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		18/09/2019	19/09/2019	18/09/2019	18/09/2019	18/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	20/09/2019	20/09/2019	20/09/2019	20/09/2019	20/09/2019
Date analysed	-	20/09/2019	20/09/2019	20/09/2019	20/09/2019	20/09/2019
Arsenic	mg/kg	6	5	8	12	12
Cadmium	mg/kg	<0.4	<0.4	<0.4	0.8	<0.4
Chromium	mg/kg	14	12	22	22	24
Copper	mg/kg	23	46	24	160	61
Lead	mg/kg	15	18	27	58	42
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	13	12	9	17	10
Zinc	mg/kg	83	120	180	1,200	170

Acid Extractable metals in soil

Our Reference		226519-16	226519-17	226519-18	226519-19	226519-20
Your Reference	UNITS	127	128	129	133	134
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		18/09/2019	18/09/2019	18/09/2019	19/09/2019	19/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	20/09/2019	20/09/2019	20/09/2019	20/09/2019	20/09/2019
Date analysed	-	20/09/2019	20/09/2019	20/09/2019	20/09/2019	20/09/2019
Arsenic	mg/kg	5	8	10	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	7	17	16	36	110
Copper	mg/kg	39	47	44	57	29
Lead	mg/kg	13	26	20	8	20
Mercury	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Nickel	mg/kg	15	14	9	31	99
Zinc	mg/kg	190	140	53	38	70

Acid Extractable metals in soil

Our Reference		226519-21	226519-22	226519-23	226519-24	226519-25
Your Reference	UNITS	134	205	206	207	208
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	20/09/2019	20/09/2019	20/09/2019	20/09/2019	20/09/2019
Date analysed	-	20/09/2019	20/09/2019	20/09/2019	20/09/2019	20/09/2019
Arsenic	mg/kg	<4	10	15	15	11
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	20	15	20	19	16
Copper	mg/kg	28	17	24	52	55
Lead	mg/kg	5	19	18	21	14
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	20	10	11	11	6
Zinc	mg/kg	30	45	44	150	74

Acid Extractable metals in soil

Our Reference		226519-26	226519-27	226519-28	226519-29	226519-30
Your Reference	UNITS	209	210	212	215	216
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		18/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	20/09/2019	20/09/2019	20/09/2019	20/09/2019	20/09/2019
Date analysed	-	20/09/2019	20/09/2019	20/09/2019	20/09/2019	20/09/2019
Arsenic	mg/kg	12	7	6	10	8
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	18	20	16	16	17
Copper	mg/kg	42	40	64	19	19
Lead	mg/kg	25	14	15	21	19
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	11	5	6	8	9
Zinc	mg/kg	58	43	57	52	51

Acid Extractable metals in soil

Our Reference		226519-31	226519-32	226519-33	226519-34	226519-35
Your Reference	UNITS	217	218	219	220	221
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		19/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	20/09/2019	20/09/2019	20/09/2019	20/09/2019	20/09/2019
Date analysed	-	20/09/2019	20/09/2019	20/09/2019	20/09/2019	20/09/2019
Arsenic	mg/kg	9	21	8	9	7
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	17	21	18	18	18
Copper	mg/kg	25	26	47	35	36
Lead	mg/kg	17	26	23	19	20
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Nickel	mg/kg	12	12	14	9	12
Zinc	mg/kg	48	64	59	44	62

Acid Extractable metals in soil

Our Reference		226519-36	226519-37	226519-38	226519-39	226519-41
Your Reference	UNITS	222	190	191	192	SS189
Depth		0-0.1	0-0.1	0-0.1	0-0.1	-
Date Sampled		18/09/2019	19/09/2019	19/09/2019	18/09/2019	19/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	20/09/2019	20/09/2019	20/09/2019	20/09/2019	20/09/2019
Date analysed	-	20/09/2019	20/09/2019	20/09/2019	20/09/2019	20/09/2019
Arsenic	mg/kg	6	<4	<4	<4	13
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	17	13	9	3	26
Copper	mg/kg	33	60	15	24	13
Lead	mg/kg	22	17	10	15	18
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	14	14	12	19	5
Zinc	mg/kg	54	32	67	28	24

Acid Extractable metals in soil

Our Reference		226519-42	226519-43	226519-44	226519-45	226519-46
Your Reference	UNITS	SS187	SS188	BD1/18919	BD2/18919	BD3/18919
Depth		-	-	-	-	-
Date Sampled		19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	20/09/2019	20/09/2019	20/09/2019	20/09/2019	20/09/2019
Date analysed	-	20/09/2019	20/09/2019	20/09/2019	20/09/2019	20/09/2019
Arsenic	mg/kg	11	9	110	<4	10
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	24	17	31	75	15
Copper	mg/kg	18	27	27	35	47
Lead	mg/kg	19	16	20	4	18
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	4	13	8	12	9
Zinc	mg/kg	30	71	46	19	57

Acid Extractable metals in soil

Our Reference		226519-47	226519-48
Your Reference	UNITS	BD4/18919	BD5/18919
Depth		-	-
Date Sampled		19/09/2019	19/09/2019
Type of sample		Soil	Soil
Date prepared	-	20/09/2019	20/09/2019
Date analysed	-	20/09/2019	20/09/2019
Arsenic	mg/kg	21	9
Cadmium	mg/kg	<0.4	<0.4
Chromium	mg/kg	26	19
Copper	mg/kg	36	51
Lead	mg/kg	23	30
Mercury	mg/kg	<0.1	0.2
Nickel	mg/kg	19	14
Zinc	mg/kg	79	150

Moisture						
Our Reference	UNITS	226519-1	226519-2	226519-3	226519-4	226519-5
Your Reference		101	102	103	104	105
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Date analysed	-	20/09/2019	20/09/2019	20/09/2019	20/09/2019	20/09/2019
Moisture	%	21	27	25	23	10

Moisture						
Our Reference	UNITS	226519-6	226519-7	226519-8	226519-9	226519-10
Your Reference		106	107	108	109	110
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Date analysed	-	20/09/2019	20/09/2019	20/09/2019	20/09/2019	20/09/2019
Moisture	%	31	40	23	28	25

Moisture						
Our Reference	UNITS	226519-11	226519-12	226519-13	226519-14	226519-15
Your Reference		117	DS118	122	125	126
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		18/09/2019	19/09/2019	18/09/2019	18/09/2019	18/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Date analysed	-	20/09/2019	20/09/2019	20/09/2019	20/09/2019	20/09/2019
Moisture	%	24	66	38	31	28

Moisture						
Our Reference	UNITS	226519-16	226519-17	226519-18	226519-19	226519-20
Your Reference		127	128	129	133	134
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		18/09/2019	18/09/2019	18/09/2019	19/09/2019	19/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Date analysed	-	20/09/2019	20/09/2019	20/09/2019	20/09/2019	20/09/2019
Moisture	%	28	38	20	11	11

Moisture						
Our Reference	UNITS	226519-21	226519-22	226519-23	226519-24	226519-25
Your Reference		134	205	206	207	208
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		18/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Date analysed	-	20/09/2019	20/09/2019	20/09/2019	20/09/2019	20/09/2019
Moisture	%	7.5	21	26	31	20

Moisture						
Our Reference	UNITS	226519-26	226519-27	226519-28	226519-29	226519-30
Your Reference		209	210	212	215	216
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		18/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Date analysed	-	20/09/2019	20/09/2019	20/09/2019	20/09/2019	20/09/2019
Moisture	%	21	21	20	19	26

Moisture						
Our Reference	UNITS	226519-31	226519-32	226519-33	226519-34	226519-35
Your Reference		217	218	219	220	221
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		19/09/2019	18/09/2019	18/09/2019	18/09/2019	18/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Date analysed	-	20/09/2019	20/09/2019	20/09/2019	20/09/2019	20/09/2019
Moisture	%	20	27	19	21	23

Moisture						
Our Reference	UNITS	226519-36	226519-37	226519-38	226519-39	226519-41
Your Reference		222	190	191	192	SS189
Depth		0-0.1	0-0.1	0-0.1	0-0.1	-
Date Sampled		18/09/2019	19/09/2019	19/09/2019	18/09/2019	19/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Date analysed	-	20/09/2019	20/09/2019	20/09/2019	20/09/2019	20/09/2019
Moisture	%	26	8.8	14	11	13

Moisture						
Our Reference		226519-42	226519-43	226519-44	226519-45	226519-46
Your Reference	UNITS	SS187	SS188	BD1/18919	BD2/18919	BD3/18919
Depth		-	-	-	-	-
Date Sampled		19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	19/09/2019	19/09/2019	19/09/2019	19/09/2019	19/09/2019
Date analysed	-	20/09/2019	20/09/2019	20/09/2019	20/09/2019	20/09/2019
Moisture	%	19	19	23	7.6	20

Moisture			
Our Reference		226519-47	226519-48
Your Reference	UNITS	BD4/18919	BD5/18919
Depth		-	-
Date Sampled		19/09/2019	19/09/2019
Type of sample		Soil	Soil
Date prepared	-	19/09/2019	19/09/2019
Date analysed	-	20/09/2019	20/09/2019
Moisture	%	26	40

Misc Soil - Inorg					
Our Reference		226519-37	226519-38	226519-39	226519-43
Your Reference	UNITS	190	191	192	SS188
Depth		0-0.1	0-0.1	0-0.1	-
Date Sampled		19/09/2019	19/09/2019	18/09/2019	19/09/2019
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	20/09/2019	20/09/2019	20/09/2019	20/09/2019
Date analysed	-	20/09/2019	20/09/2019	20/09/2019	20/09/2019
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5

Asbestos ID - soils				
Our Reference		226519-37	226519-38	226519-39
Your Reference	UNITS	190	191	192
Depth		0-0.1	0-0.1	0-0.1
Date Sampled		19/09/2019	19/09/2019	18/09/2019
Type of sample		Soil	Soil	Soil
Date analysed	-	20/09/2019	20/09/2019	20/09/2019
Sample mass tested	g	Approx. 30g	Approx. 40g	Approx. 35g
Sample Description	-	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
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils NEPM				
Our Reference		226519-41	226519-42	226519-43
Your Reference	UNITS	SS189	SS187	SS188
Depth		-	-	-
Date Sampled		19/09/2019	19/09/2019	19/09/2019
Type of sample		Soil	Soil	Soil
Date analysed	-	20/09/2019	20/09/2019	20/09/2019
Sample mass tested	g	397.89	485.52	559.01
Sample Description	-	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos ^{#1}	g/kg	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	—	—	—
FA and AF Estimation*	g	—	—	—
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001

Triazine Herbicides in Soil				
Our Reference		226519-15	226519-16	226519-17
Your Reference	UNITS	126	127	128
Depth		0-0.1	0-0.1	0-0.1
Date Sampled		18/09/2019	18/09/2019	18/09/2019
Type of sample		Soil	Soil	Soil
Date extracted	-	19/09/2019	19/09/2019	19/09/2019
Date analysed	-	20/09/2019	20/09/2019	20/09/2019
Simazine	mg/kg	<0.5	<0.5	<0.5
Atrazine	mg/kg	<0.5	<0.5	<0.5
Propazine	mg/kg	<0.5	<0.5	<0.5
Terbuthylazine	mg/kg	<0.5	<0.5	<0.5
Metribuzin	mg/kg	<0.5	<0.5	<0.5
Ametryn	mg/kg	<0.5	<0.5	<0.5
Prometryn	mg/kg	<0.5	<0.5	<0.5
Terbutryn	mg/kg	<0.5	<0.5	<0.5
Cyanazine	mg/kg	<0.5	<0.5	<0.5
Irgarol	mg/kg	<0.5	<0.5	<0.5
Hexazinone	mg/kg	<0.5	<0.5	<0.5
Surrogate <i>p</i> -Terphenyl-d14	%	84	88	87

Phenoxy Acid Herbicides in Soil				
Our Reference		226519-15	226519-16	226519-17
Your Reference	UNITS	126	127	128
Depth		0-0.1	0-0.1	0-0.1
Date Sampled		18/09/2019	18/09/2019	18/09/2019
Type of sample		Soil	Soil	Soil
Date extracted	-	23/09/2019	23/09/2019	23/09/2019
Date analysed	-	23/09/2019	23/09/2019	23/09/2019
Clopyralid	mg/kg	<0.5	<0.5	<0.5
3,5-Dichlorobenzoic acid	mg/kg	<0.5	<0.5	<0.5
o-chlorophenoxy acetic acid	mg/kg	<0.5	<0.5	<0.5
4-CPA	mg/kg	<0.5	<0.5	<0.5
Dicamba	mg/kg	<0.5	<0.5	<0.5
MCPP	mg/kg	<0.5	<0.5	<0.5
MCPA	mg/kg	<0.5	<0.5	<0.5
Dichlorprop	mg/kg	<0.5	<0.5	<0.5
2,4-D	mg/kg	<0.5	<0.5	<0.5
Bromoxynil	mg/kg	<0.5	<0.5	<0.5
Triclopyr	mg/kg	<0.5	<0.5	<0.5
2,4,5-TP	mg/kg	<0.5	<0.5	<0.5
2,4,5-T	mg/kg	<0.5	<0.5	<0.5
MCPB	mg/kg	<0.5	<0.5	<0.5
Dinoseb	mg/kg	<1	<1	<1
2,4-DB	mg/kg	<0.5	<0.5	<0.5
Ioxynil	mg/kg	<1	<1	<1
Picloram	mg/kg	<0.5	<0.5	<0.5
DCPA (Chlorthal) Diacid	mg/kg	<0.5	<0.5	<0.5
Acifluorfen	mg/kg	<2	<2	<2
2,4,6-T	mg/kg	<0.5	<0.5	<0.5
2,6-D	mg/kg	<0.5	<0.5	<0.5
Surrogate 2,4- DCPA	%	74	78	78

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
ASB-001	Asbestos ID - Identification of asbestos in soil samples using Polarised Light Microscopy and Dispersion Staining Techniques. Minimum 500mL soil sample was analysed as recommended by "National Environment Protection (Assessment of site contamination) Measure, Schedule B1 and "The Guidelines from the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009" with a reporting limit of 0.1g/kg (0.01% w/w) as per Australian Standard AS4964-2004. Results reported denoted with * are outside our scope of NATA accreditation. NOTE #1 Total Asbestos g/kg was analysed and reported as per Australian Standard AS4964 (This is the sum of ACM >7mm, <7mm and FA/AF) NOTE #2 The screening level of 0.001% w/w asbestos in soil for FA and AF only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres. Estimation = Estimated asbestos weight Results reported with "--" is equivalent to no visible asbestos identified using Polarised Light microscopy and Dispersion Staining Techniques.
Ext-054	Analysed by MPL Envirolab
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.

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. 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.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
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 are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-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)-BTX 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)-BTX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

Client Reference: 92364.02, Kemps Creek Contam. Assessment

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-15	226519-2
Date extracted	-			19/09/2019	1	19/09/2019	19/09/2019		19/09/2019	19/09/2019
Date analysed	-			20/09/2019	1	20/09/2019	20/09/2019		20/09/2019	20/09/2019
TRH C ₆ - C ₉	mg/kg	25	Org-016	<25	1	<25	<25	0	97	100
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	<25	1	<25	<25	0	97	100
Benzene	mg/kg	0.2	Org-016	<0.2	1	<0.2	<0.2	0	87	90
Toluene	mg/kg	0.5	Org-016	<0.5	1	<0.5	<0.5	0	95	99
Ethylbenzene	mg/kg	1	Org-016	<1	1	<1	<1	0	102	105
m+p-xylene	mg/kg	2	Org-016	<2	1	<2	<2	0	100	103
o-Xylene	mg/kg	1	Org-016	<1	1	<1	<1	0	100	103
naphthalene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	112	1	81	93	14	97	95

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-16	226519-38
Date extracted	-			[NT]	13	19/09/2019	19/09/2019		19/09/2019	19/09/2019
Date analysed	-			[NT]	13	20/09/2019	20/09/2019		20/09/2019	20/09/2019
TRH C ₆ - C ₉	mg/kg	25	Org-016	[NT]	13	<25	<25	0	103	90
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	[NT]	13	<25	<25	0	103	90
Benzene	mg/kg	0.2	Org-016	[NT]	13	<0.2	<0.2	0	91	72
Toluene	mg/kg	0.5	Org-016	[NT]	13	<0.5	<0.5	0	100	79
Ethylbenzene	mg/kg	1	Org-016	[NT]	13	<1	<1	0	110	101
m+p-xylene	mg/kg	2	Org-016	[NT]	13	<2	<2	0	109	100
o-Xylene	mg/kg	1	Org-016	[NT]	13	<1	<1	0	106	99
naphthalene	mg/kg	1	Org-014	[NT]	13	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	13	97	97	0	104	86

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	37	19/09/2019	19/09/2019		[NT]	[NT]
Date analysed	-			[NT]	37	20/09/2019	20/09/2019		[NT]	[NT]
TRH C ₆ - C ₉	mg/kg	25	Org-016	[NT]	37	<25	<25	0	[NT]	[NT]
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	[NT]	37	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-016	[NT]	37	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-016	[NT]	37	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-016	[NT]	37	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-016	[NT]	37	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-016	[NT]	37	<1	<1	0	[NT]	[NT]
naphthalene	mg/kg	1	Org-014	[NT]	37	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	37	102	93	9	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-15	226519-2
Date extracted	-			19/09/2019	1	19/09/2019	19/09/2019		19/09/2019	19/09/2019
Date analysed	-			20/09/2019	1	20/09/2019	20/09/2019		20/09/2019	20/09/2019
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	<50	1	<50	<50	0	90	84
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	<100	1	<100	<100	0	83	77
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	<100	1	<100	<100	0	91	83
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	<50	1	<50	<50	0	90	84
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	<100	1	<100	<100	0	83	77
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	<100	1	<100	<100	0	91	83
Surrogate o-Terphenyl	%		Org-003	90	1	81	80	1	112	106

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-16	226519-38
Date extracted	-			[NT]	13	19/09/2019	19/09/2019		19/09/2019	19/09/2019
Date analysed	-			[NT]	13	20/09/2019	20/09/2019		20/09/2019	20/09/2019
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	[NT]	13	<50	<50	0	97	100
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	[NT]	13	<100	<100	0	90	79
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	[NT]	13	<100	<100	0	106	75
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	[NT]	13	<50	<50	0	97	100
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	[NT]	13	<100	<100	0	90	79
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	[NT]	13	<100	<100	0	106	75
Surrogate o-Terphenyl	%		Org-003	[NT]	13	84	89	6	118	112

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	37	19/09/2019	19/09/2019		[NT]	[NT]
Date analysed	-			[NT]	37	20/09/2019	20/09/2019		[NT]	[NT]
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	[NT]	37	<50	<50	0	[NT]	[NT]
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	[NT]	37	<100	<100	0	[NT]	[NT]
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	[NT]	37	<100	<100	0	[NT]	[NT]
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	[NT]	37	<50	<50	0	[NT]	[NT]
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	[NT]	37	<100	<100	0	[NT]	[NT]
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	[NT]	37	110	120	9	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-003	[NT]	37	83	84	1	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-15	226519-2
Date extracted	-			19/09/2019	1	19/09/2019	19/09/2019		19/09/2019	19/09/2019
Date analysed	-			20/09/2019	1	20/09/2019	20/09/2019		20/09/2019	20/09/2019
Naphthalene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	106	104
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	102	98
Phenanthrene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	100	96
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	98	94
Pyrene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	100	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	112	106
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	108	100
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	87	1	83	86	4	91	90

QUALITY CONTROL: PAHs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-16	226519-38
Date extracted	-			[NT]	13	19/09/2019	19/09/2019		19/09/2019	19/09/2019
Date analysed	-			[NT]	13	20/09/2019	20/09/2019		20/09/2019	20/09/2019
Naphthalene	mg/kg	0.1	Org-012	[NT]	13	<0.1	<0.1	0	108	106
Acenaphthylene	mg/kg	0.1	Org-012	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	[NT]	13	<0.1	<0.1	0	102	102
Phenanthrene	mg/kg	0.1	Org-012	[NT]	13	<0.1	<0.1	0	100	98
Anthracene	mg/kg	0.1	Org-012	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	[NT]	13	<0.1	<0.1	0	98	98
Pyrene	mg/kg	0.1	Org-012	[NT]	13	<0.1	<0.1	0	98	98
Benzo(a)anthracene	mg/kg	0.1	Org-012	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	[NT]	13	<0.1	<0.1	0	112	110
Benzo(b,j,k)fluoranthene	mg/kg	0.2	Org-012	[NT]	13	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	[NT]	13	<0.05	<0.05	0	108	106
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	[NT]	13	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	[NT]	13	89	91	2	90	88

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	37	19/09/2019	19/09/2019		[NT]	[NT]
Date analysed	-			[NT]	37	20/09/2019	20/09/2019		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-012	[NT]	37	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	[NT]	37	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	[NT]	37	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	[NT]	37	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-012	[NT]	37	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-012	[NT]	37	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	[NT]	37	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-012	[NT]	37	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	[NT]	37	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	[NT]	37	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	[NT]	37	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	[NT]	37	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	[NT]	37	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	[NT]	37	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	[NT]	37	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	[NT]	37	83	85	2	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-15	226519-23
Date extracted	-			19/09/2019	13	19/09/2019	19/09/2019		19/09/2019	19/09/2019
Date analysed	-			19/09/2019	13	19/09/2019	19/09/2019		19/09/2019	19/09/2019
HCB	mg/kg	0.1	Org-005	<0.1	13	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	13	<0.1	<0.1	0	90	92
gamma-BHC	mg/kg	0.1	Org-005	<0.1	13	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	<0.1	13	<0.1	<0.1	0	93	94
Heptachlor	mg/kg	0.1	Org-005	<0.1	13	<0.1	<0.1	0	89	85
delta-BHC	mg/kg	0.1	Org-005	<0.1	13	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	<0.1	13	<0.1	<0.1	0	97	100
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	13	<0.1	<0.1	0	97	96
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	13	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	13	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	13	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	<0.1	13	<0.1	<0.1	0	102	101
Dieldrin	mg/kg	0.1	Org-005	<0.1	13	<0.1	<0.1	0	115	112
Endrin	mg/kg	0.1	Org-005	<0.1	13	<0.1	<0.1	0	98	92
pp-DDD	mg/kg	0.1	Org-005	<0.1	13	<0.1	<0.1	0	97	92
Endosulfan II	mg/kg	0.1	Org-005	<0.1	13	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	<0.1	13	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	13	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	13	<0.1	<0.1	0	102	96
Methoxychlor	mg/kg	0.1	Org-005	<0.1	13	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	94	13	99	94	5	85	88

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-16	226519-38
Date extracted	-			[NT]	22	19/09/2019	19/09/2019		19/09/2019	19/09/2019
Date analysed	-			[NT]	22	19/09/2019	19/09/2019		19/09/2019	19/09/2019
HCB	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	88	91
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	90	91
Heptachlor	mg/kg	0.1	Org-005	[NT]	22	<0.1	<0.1	0	82	87
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	99	98
Heptachlor Epoxide	mg/kg	0.1	Org-005	[NT]	22	<0.1	<0.1	0	95	94
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	101	102
Dieldrin	mg/kg	0.1	Org-005	[NT]	22	<0.1	<0.1	0	113	115
Endrin	mg/kg	0.1	Org-005	[NT]	22	<0.1	<0.1	0	90	94
pp-DDD	mg/kg	0.1	Org-005	[NT]	22	<0.1	<0.1	0	92	96
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	80	96
Methoxychlor	mg/kg	0.1	Org-005	[NT]	22	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	[NT]	22	89	89	0	86	82

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	26	19/09/2019	19/09/2019		[NT]	[NT]
Date analysed	-			[NT]	26	19/09/2019	19/09/2019		[NT]	[NT]
HCB	mg/kg	0.1	Org-005	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-005	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-005	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-005	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-005	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-005	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-005	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-005	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-005	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-005	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-005	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	[NT]	26	89	93	4	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	37	19/09/2019	19/09/2019		[NT]	[NT]
Date analysed	-			[NT]	37	19/09/2019	19/09/2019		[NT]	[NT]
HCB	mg/kg	0.1	Org-005	[NT]	37	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	[NT]	37	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-005	[NT]	37	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	[NT]	37	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-005	[NT]	37	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-005	[NT]	37	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	[NT]	37	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-005	[NT]	37	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-005	[NT]	37	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	[NT]	37	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	[NT]	37	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	[NT]	37	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-005	[NT]	37	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-005	[NT]	37	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-005	[NT]	37	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-005	[NT]	37	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	[NT]	37	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	[NT]	37	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	[NT]	37	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-005	[NT]	37	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	[NT]	37	90	90	0	[NT]	[NT]

QUALITY CONTROL: Organophosphorus Pesticides						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-15	226519-38
Date extracted	-			19/09/2019	37	19/09/2019	19/09/2019		19/09/2019	19/09/2019
Date analysed	-			19/09/2019	37	19/09/2019	19/09/2019		19/09/2019	19/09/2019
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	<0.1	37	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	37	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos	mg/kg	0.1	Org-008	<0.1	37	<0.1	<0.1	0	104	94
Chlorpyrifos-methyl	mg/kg	0.1	Org-008	<0.1	37	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	<0.1	37	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	<0.1	37	<0.1	<0.1	0	93	90
Dimethoate	mg/kg	0.1	Org-008	<0.1	37	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	<0.1	37	<0.1	<0.1	0	102	98
Fenitrothion	mg/kg	0.1	Org-008	<0.1	37	<0.1	<0.1	0	108	94
Malathion	mg/kg	0.1	Org-008	<0.1	37	<0.1	<0.1	0	108	105
Parathion	mg/kg	0.1	Org-008	<0.1	37	<0.1	<0.1	0	102	110
Ronnel	mg/kg	0.1	Org-008	<0.1	37	<0.1	<0.1	0	101	106
Surrogate TCMX	%		Org-008	94	37	90	90	0	85	82

Client Reference: 92364.02, Kemps Creek Contam. Assessment

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-15	226519-38
Date extracted	-			19/09/2019	37	19/09/2019	19/09/2019		19/09/2019	19/09/2019
Date analysed	-			19/09/2019	37	19/09/2019	19/09/2019		19/09/2019	19/09/2019
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	37	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	37	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	37	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	37	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	37	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	37	<0.1	<0.1	0	125	100
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	37	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-006	94	37	90	90	0	85	82

Client Reference: 92364.02, Kemps Creek Contam. Assessment

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-15	226519-2
Date prepared	-			20/09/2019	1	20/09/2019	20/09/2019		20/09/2019	20/09/2019
Date analysed	-			20/09/2019	1	20/09/2019	20/09/2019		20/09/2019	20/09/2019
Arsenic	mg/kg	4	Metals-020	<4	1	9	8	12	116	71
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	<0.4	<0.4	0	111	95
Chromium	mg/kg	1	Metals-020	<1	1	17	18	6	118	97
Copper	mg/kg	1	Metals-020	<1	1	23	25	8	111	103
Lead	mg/kg	1	Metals-020	<1	1	23	21	9	116	116
Mercury	mg/kg	0.1	Metals-021	<0.1	1	0.2	0.1	67	109	86
Nickel	mg/kg	1	Metals-020	<1	1	11	10	10	111	95
Zinc	mg/kg	1	Metals-020	<1	1	51	46	10	114	94

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-16	226519-23
Date prepared	-			[NT]	13	20/09/2019	20/09/2019		20/09/2019	20/09/2019
Date analysed	-			[NT]	13	20/09/2019	20/09/2019		20/09/2019	20/09/2019
Arsenic	mg/kg	4	Metals-020	[NT]	13	8	8	0	113	98
Cadmium	mg/kg	0.4	Metals-020	[NT]	13	<0.4	<0.4	0	109	94
Chromium	mg/kg	1	Metals-020	[NT]	13	22	21	5	118	96
Copper	mg/kg	1	Metals-020	[NT]	13	24	26	8	111	102
Lead	mg/kg	1	Metals-020	[NT]	13	27	27	0	115	89
Mercury	mg/kg	0.1	Metals-021	[NT]	13	<0.1	<0.1	0	103	95
Nickel	mg/kg	1	Metals-020	[NT]	13	9	10	11	110	94
Zinc	mg/kg	1	Metals-020	[NT]	13	180	200	11	113	94

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-17	226519-38
Date prepared	-			[NT]	22	20/09/2019	20/09/2019		20/09/2019	20/09/2019
Date analysed	-			[NT]	22	20/09/2019	20/09/2019		20/09/2019	20/09/2019
Arsenic	mg/kg	4	Metals-020	[NT]	22	10	9	11	111	102
Cadmium	mg/kg	0.4	Metals-020	[NT]	22	<0.4	<0.4	0	107	95
Chromium	mg/kg	1	Metals-020	[NT]	22	15	15	0	116	103
Copper	mg/kg	1	Metals-020	[NT]	22	17	18	6	109	103
Lead	mg/kg	1	Metals-020	[NT]	22	19	20	5	108	93
Mercury	mg/kg	0.1	Metals-021	[NT]	22	<0.1	<0.1	0	95	94
Nickel	mg/kg	1	Metals-020	[NT]	22	10	10	0	108	105
Zinc	mg/kg	1	Metals-020	[NT]	22	45	49	9	111	104

Client Reference: 92364.02, Kemps Creek Contam. Assessment

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	26	20/09/2019	20/09/2019		[NT]	[NT]
Date analysed	-			[NT]	26	20/09/2019	20/09/2019		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	26	12	12	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	26	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	26	18	17	6	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	26	42	42	0	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	26	25	18	33	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	26	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	26	11	11	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	26	58	59	2	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	37	20/09/2019	20/09/2019		[NT]	[NT]
Date analysed	-			[NT]	37	20/09/2019	20/09/2019		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	37	<4	<4	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	37	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	37	13	12	8	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	37	60	71	17	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	37	17	17	0	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	37	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	37	14	11	24	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	37	32	37	14	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	47	20/09/2019	20/09/2019		[NT]	[NT]
Date analysed	-			[NT]	47	20/09/2019	20/09/2019		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	47	21	21	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	47	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	47	26	27	4	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	47	36	36	0	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	47	23	25	8	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	47	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	47	19	16	17	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	47	79	71	11	[NT]	[NT]

QUALITY CONTROL: Misc Soil - Inorg					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-15	[NT]
Date prepared	-			20/09/2019	[NT]	[NT]	[NT]	[NT]	20/09/2019	[NT]
Date analysed	-			20/09/2019	[NT]	[NT]	[NT]	[NT]	20/09/2019	[NT]
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	<5	[NT]	[NT]	[NT]	[NT]	105	[NT]

QUALITY CONTROL: Triazine Herbicides in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-15	226519-16
Date extracted	-			19/09/2019	15	19/09/2019	19/09/2019		19/09/2019	19/09/2019
Date analysed	-			20/09/2019	15	20/09/2019	20/09/2019		20/09/2019	20/09/2019
Simazine	mg/kg	0.5	Org-012	<0.5	15	<0.5	<0.5	0	[NT]	[NT]
Atrazine	mg/kg	0.5	Org-012	<0.5	15	<0.5	<0.5	0	116	102
Propazine	mg/kg	0.5	Org-012	<0.5	15	<0.5	<0.5	0	120	105
Terbuthylazine	mg/kg	0.5	Org-012	<0.5	15	<0.5	<0.5	0	[NT]	[NT]
Metribuzin	mg/kg	0.5	Org-012	<0.5	15	<0.5	<0.5	0	[NT]	[NT]
Ametryn	mg/kg	0.5	Org-012	<0.5	15	<0.5	<0.5	0	[NT]	[NT]
Prometryn	mg/kg	0.5	Org-012	<0.5	15	<0.5	<0.5	0	120	106
Terbutryn	mg/kg	0.5	Org-012	<0.5	15	<0.5	<0.5	0	[NT]	[NT]
Cyanazine	mg/kg	0.5	Org-012	<0.5	15	<0.5	<0.5	0	[NT]	[NT]
Irgarol	mg/kg	0.5	Org-012	<0.5	15	<0.5	<0.5	0	[NT]	[NT]
Hexazinone	mg/kg	0.5	Org-012	<0.5	15	<0.5	<0.5	0	[NT]	[NT]
Surrogate <i>p</i> -Terphenyl-d14	%		Org-012	87	15	84	81	4	79	82

QUALITY CONTROL: Phenoxy Acid Herbicides in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-15	226519-17
Date extracted	-			23/09/2019	15	23/09/2019	23/09/2019		23/09/2019	23/09/2019
Date analysed	-			23/09/2019	15	23/09/2019	23/09/2019		23/09/2019	23/09/2019
Clopyralid	mg/kg	0.5	Ext-054	<0.5	15	<0.5	<0.5	0	102	80
3,5-Dichlorobenzoic acid	mg/kg	0.5	Ext-054	<0.5	15	<0.5	<0.5	0	[NT]	[NT]
o-chlorophenoxy acetic acid	mg/kg	0.5	Ext-054	<0.5	15	<0.5	<0.5	0	[NT]	[NT]
4-CPA	mg/kg	0.5	Ext-054	<0.5	15	<0.5	<0.5	0	[NT]	[NT]
Dicamba	mg/kg	0.5	Ext-054	<0.5	15	<0.5	<0.5	0	[NT]	[NT]
MCPPP	mg/kg	0.5	Ext-054	<0.5	15	<0.5	<0.5	0	[NT]	[NT]
MCPA	mg/kg	0.5	Ext-054	<0.5	15	<0.5	<0.5	0	[NT]	[NT]
Dichlorprop	mg/kg	0.5	Ext-054	<0.5	15	<0.5	<0.5	0	[NT]	[NT]
2,4-D	mg/kg	0.5	Ext-054	<0.5	15	<0.5	<0.5	0	80	70
Bromoxynil	mg/kg	0.5	Ext-054	<0.5	15	<0.5	<0.5	0	[NT]	[NT]
Triclopyr	mg/kg	0.5	Ext-054	<0.5	15	<0.5	<0.5	0	[NT]	[NT]
2,4,5-TP	mg/kg	0.5	Ext-054	<0.5	15	<0.5	<0.5	0	[NT]	[NT]
2,4,5-T	mg/kg	0.5	Ext-054	<0.5	15	<0.5	<0.5	0	110	94
MCPB	mg/kg	0.5	Ext-054	<0.5	15	<0.5	<0.5	0	[NT]	[NT]
Dinoseb	mg/kg	1	Ext-054	<1	15	<1	<1	0	[NT]	[NT]
2,4-DB	mg/kg	0.5	Ext-054	<0.5	15	<0.5	<0.5	0	[NT]	[NT]
Ioxynil	mg/kg	1	Ext-054	<1	15	<1	<1	0	[NT]	[NT]
Picloram	mg/kg	0.5	Ext-054	<0.5	15	<0.5	<0.5	0	[NT]	[NT]
DCPA (Chlorthal) Diacid	mg/kg	0.5	Ext-054	<0.5	15	<0.5	<0.5	0	[NT]	[NT]
Acifluorfen	mg/kg	2	Ext-054	<2	15	<2	<2	0	[NT]	[NT]
2,4,6-T	mg/kg	0.5	Ext-054	<0.5	15	<0.5	<0.5	0	[NT]	[NT]
2,6-D	mg/kg	0.5	Ext-054	<0.5	15	<0.5	<0.5	0	[NT]	[NT]
Surrogate 2.4- DCPA	%		Ext-054	80	15	74	74	0	80	76

Result Definitions

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

Quality Control Definitions

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

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 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.

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

Report Comments

Asbestos-ID in soil: NEPM

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

Note: All samples analysed as received. However, sample 226519-41 is below the minimum 500mL sample volume as per National Environment Protection (Assessment of Site Contamination) Measure, Schedule B1, May 2013.

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 226519-37 to 39 were sub-sampled from jars provided by the client.

Acid herbicides analysed by ELS Melbourne. Report no. 18225

226519-A

CHAIN OF CUSTODY

Project Name: KEMPS CREEK, Contamination Assessment
Project No: 92364.02
Project Mgr: Bradley Harris
Email: Bradley.Harris@douglaspartners.com.au
Date Required: 24hr

To: EnviroLab Services
 12 Ashley Street, Chatswood NSW 2067
Attn: Tania Notaras
Phone: (02) 9910 6200
Fax: (02) 9910 6201
Email: tnotaras@envirolabservices.com.au

Sample ID	Lab ID	Date Sampled	Sample Type	Container Type	Analytes								Notes/preservation			
					Metals	PAH	TRH & BTEX	OCP	CPP & PCB	Asbestos (500ml)	Herbicides	Total Phenols		Hold		
192/0-0.1	39	19.09.19	S	G & P	x	x	x	x	x	x						
SS223	40	18.09.19		G											x	
SS189	41	19.09.19		G & P	x	x	x	x			x					
SS187	42	19.09.19		G & P	x	x	x	x			x					
SS188	43	19.09.19		G & P	x	x	x	x			x			x		
BD1/18919	44	19.09.19		G	x											
BD2/18919	45	19.09.19		G	x											
BD3/18919	46	19.09.19		G	x											
BD4/18919	47	19.09.19		G	x											
BD5/18919	48	19.09.19		G	x											
DS114	49	19.09.19		G												Bipyridilium
DS112	49	19.09.19		G												Bipyridilium
SS180	49	18.09.19		G												

Lab Report No:

Send Results to: Douglas Partners Pty Ltd
Relinquished by: Cindy Murphy

Address: 18 Water Crescent, Smeaton Grange 2567
Phone: (02) 4647 0075
Fax: (02) 4646 1886

Transported to laboratory by: EW K-Care

Received by: [Signature] 19/09/19

CERTIFICATE OF ANALYSIS 226519-A

Client Details

Client	Douglas Partners Pty Ltd Smeaton Grange
Attention	Cindy Murphy
Address	18 Waler Crescent, Smeaton Grange, NSW, 2567

Sample Details

Your Reference	<u>92364.02, Kemps Creek Contam. Assessment</u>
Number of Samples	49 Soil, 2 Water
Date samples received	19/09/2019
Date completed instructions received	19/09/2019

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	01/10/2019
Date of Issue	30/09/2019
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

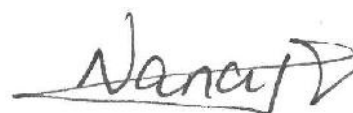
Asbestos Approved By

Analysed by Asbestos Approved Identifier: Panika Wongchanda
 Authorised by Asbestos Approved Signatory: Lucy Zhu

Results Approved By

Ken Nguyen, Reporting Supervisor

Authorised By



Nancy Zhang, Laboratory Manager

Small Community Pesticides			
Our Reference		226519-A-50	226519-A-51
Your Reference	UNITS	DS114	DS112
Depth		-	-
Date Sampled		19/09/2019	19/09/2019
Type of sample		Water	Water
Date prepared	-	26/09/2019	26/09/2019
Date analysed	-	26/09/2019	26/09/2019
Diquat	µg/L	<0.2	<0.2
Paraquat	µg/L	<0.2	<0.2

Method ID	Methodology Summary
AT-018	Diquat/Paraquat determined by pre-concentration followed by HPLC-DAD analysis.

Client Reference: 92364.02, Kemps Creek Contam. Assessment

QUALITY CONTROL: Small Community Pesticides						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			26/09/2019	[NT]	[NT]	[NT]	[NT]	26/09/2019	[NT]
Date analysed	-			26/09/2019	[NT]	[NT]	[NT]	[NT]	26/09/2019	[NT]
Diquat	µg/L	0.2	AT-018	<0.2	[NT]	[NT]	[NT]	[NT]	89	[NT]
Paraquat	µg/L	0.2	AT-018	<0.2	[NT]	[NT]	[NT]	[NT]	71	[NT]

Result Definitions

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

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 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.

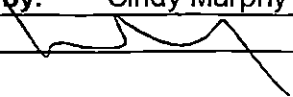
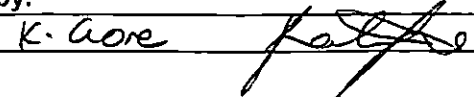
Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical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

Report Comments

Diquat and Paraquat analysed by MPL. Report no. 233326

Project Name: KEMPS CREEK, Contamination Assessment										To: Envirolab Services						
Project No: 92364.02					Sampler: Cindy Murphy					12 Ashley Street, Chatswood NSW 2067						
Project Mgr: Bradley Harris					Mob. Phone: 0412 754 162					Attn: Tania Notaras						
Email: Bradley.Harris@douglaspartners.com.au; Cindy.Murphy@douglaspartners.com										Phone: (02) 9910 6200					Fax: (02) 9910 6201	
Date Required: 24hr										Email: tnotaras@envirolabservices.com.au						

Sample ID	Lab ID	Date Sampled	Sample Type S - soil W - water	Container Type G - glass P - plastic	Analytes										Notes/preservation
					Metals	PAH	TRH & BTEX	OCP	OPP & PCB	Asbestos (500ml)	Herbicides	Total Phenols	Hold		
101/0-0.1	1	18.09.19	S	G	x	x	x								
102/0-0.1	2	18.09.19	S	G	x	x	x								
103/0-0.1	3	18.09.19	S	G	x	x	x								
104/0-0.1	4	18.09.19	S	G	x	x	x								
105/0-0.1	5	18.09.19	S	G	x	x	x								
106/0-0.1	6	18.09.19	S	G	x	x	x								
107/0-0.1	7	18.09.19	S	G	x	x	x								
108/0-0.1	8	18.09.19	S	G	x	x	x								
109/0-0.1	9	18.09.19	S	G	x	x	x								
110/0-0.1	10	18.09.19	S	G	x	x	x								
117/0-0.1	11	18.09.19	S	G	x				x						
DS118/0-0.1	12	19.09.19	S	G	x				x						

Lab Report No:											
Send Results to: Douglas Partners Pty Ltd		Address: 18 Waler Crescent, Smeaton Grange 2567					Phone: (02) 4647 0075			Fax: (02) 4646 1886	
Relinquished by: Cindy Murphy		Transported to laboratory by:									
Signed: 		Date & Time: 19.09.19		Received by: ELS 							

Project Name: KEMPS CREEK, Contamination Assessment						To: Envirolab Services					
Project No: 92364.02			Sampler: Cindy Murphy			12 Ashley Street, Chatswood NSW 2067					
Project Mgr: Bradley Harris			Mob. Phone: 0412 754 162			Attn: Tania Notaras					
Email: Bradley.Harris@douglaspartners.com.au; Cindy.Murphy@douglaspartners.com						Phone: (02) 9910 6200			Fax: (02) 9910 6201		
Date Required: 24hr						Email: tnotaras@envirolabservices.com.au					

Sample ID	Lab ID	Date Sampled	Sample Type	Container Type	Analytes										Notes/preservation
			S - soil W - water	G - glass P - plastic	Metals	PAH	TRH & BTEX	OCP	OPP & PCB	Asbestos (500ml)	Herbicides	Total Phenols	Hold		
122/0-0.1	13	18.09.19	S	G	x	x	x	x							
125/0-0.1	14	18.09.19	S	G	x	x	x	x							
126/0-0.1	15	18.09.19	S	G	x	x	x	x			x				
127/0-0.1	16	18.09.19	S	G	x		x	x			x				
128/0-0.1	17	18.09.19	S	G	x	x	x	x			x				
129/0-0.1	18	18.09.19	S	G	x	x	x	x							
133/0-0.1	19	19.09.19	S	G & P	x	x	x	x							
134/0-0.1	20	19.09.19	S	G & P	x	x	x	x							
135/0-0.1	21	18.09.19	S	G & P	x	x	x	x							
205/0-0.1	22	18.09.19	S	G & P	x			x							
206/0-0.1	23	18.09.19	S	G & P	x			x							
207/0-0.1	24	18.09.19	S	G & P	x			x							
208/0-0.1	25	18.09.19	S	G & P	x			x					x		

Lab Report No:					
Send Results to: Douglas Partners Pty Ltd		Address 18 Waler Crescent, Smeaton Grange 2567		Phone: (02) 4647 0075 Fax: (02) 4646 1886	
Relinquished by: Cindy Murphy		Transported to laboratory by: ELS K-Gore			

226519



19/9/19
1830

Project Name: KEMPS CREEK, Contamination Assessment				To: Envirolab Services			
Project No: 92364.02		Sampler: Cindy Murphy		12 Ashley Street, Chatswood NSW 2067			
Project Mgr: Bradley Harris		Mob. Phone: 0412 754 162		Attn: Tania Notaras			
Email: Bradley.Harris@douglaspartners.com.au; Cindy.Murphy@douglaspartners.com				Phone: (02) 9910 6200		Fax: (02) 9910 6201	
Date Required: 24hr				Email: tnotaras@envirolabservices.com.au			

Sample ID	Lab ID	Date Sampled	Sample Type	Container Type	Analytes									Notes/preservation
			S - soil W - water	G - glass P - plastic	Metals	PAH	TRH & BTEX	OCP	OPP & PCB	Asbestos (500ml)	Herbicides	Total Phenols	Hold	

Signed:			Date & Time:			Received by:								
209/0-0.1	26	18.09.19	S	G & P	X			X						
210/0-0.1	27	19.09.19	S	G & P	X			X						
212/0-0.1	28	19.09.19	S	G & P	X			X						
215/0-0.1	29	19.09.19	S	G & P	X			X						
216/0-0.1	30	19.09.19	S	G & P	X			X						
217/0-0.1	31	19.09.19	S	G & P	X			X						
218/0-0.1	32	18.09.19	S	G & P	X			X						
219/0-0.1	33	18.09.19	S	G & P	X			X						
220/0-0.1	34	18.09.19	S	G & P	X			X						
221/0-0.1	35	18.09.19	S	G & P	X			X						
222/0-0.1	36	18.09.19	S	G & P	X			X						
190/0-0.1	37	19.09.19	S	G & P	X	X	X	X	X	X		X		
191/0-0.1	38	19.09.19	S	G & P	X	X	X	X	X	X		X		

Lab Report No:		Send Results to: Douglas Partners Pty Ltd		Address: 18 Waler Crescent, Smeaton Grange 2567		Phone: (02) 4647 0075		Fax: (02) 4646 1886	
Relinquished by: Cindy Murphy				Transported to laboratory by:					
Signed:		Date & Time: 19.09.19		Received by: <i>EW</i> <i>IC-Gore</i> <i>[Signature]</i>					

226579

 19/9/19
 1830 Page 3 of 4

Project Name: KEMPS CREEK, Contamination Assessment		To: Envirolab Services	
Project No: 92364.02	Sampler: Cindy Murphy	12 Ashley Street, Chatswood NSW 2067	
Project Mgr: Bradley Harris	Mob. Phone: 0412 754 162	Attn: Tania Notaras	
Email: Bradley.Harris@douglaspartners.com.au; Cindy.Murphy@douglaspartners.com		Phone: (02) 9910 6200	Fax: (02) 9910 6201
Date Required: 24hr		Email: tnotaras@envirolabservices.com.au	

Sample ID	Lab ID	Date Sampled	Sample Type	Container Type	Analytes									Notes/preservation
			S - soil W - water	G - glass P - plastic	Metals	PAH	TRH & BTEX	OCP	OPP & PCB	Asbestos (500ml)	Herbicides	Total Phenols	Hold	
192/0-0.1	39	19.09.19	S	G & P	x	x	x	x	x	x		x		
SS223	40	18.09.19		G									x	
SS189	41	19.09.19		G & P	x	x	x	x		x				
SS187	42	19.09.19		G & P	x	x	x	x		x				
SS188	43	19.09.19		G & P	x	x	x	x		x		x		
BD1/18919	44	19.09.19		G	X									
BD2/18919	45	19.09.19		G	X									
BD3/18919	46	19.09.19		G	X									
BD4/18919	47	19.09.19		G	X									
BD5/18919	48	19.09.19		G	X									
DS114 50	49	19.09.19		G										Bipyridilium
DS112 51	50	19.09.19		G										Bipyridilium
SS180	49	18.09.19		G										

Lab Report No:		Send Results to: Douglas Partners Pty Ltd		Address: 18 Waler Crescent, Smeaton Grange 2567		Phone: (02) 4647 0075		Fax: (02) 4646 1886	
Relinquished by: Cindy Murphy				Transported to laboratory by:					
Signed:		Date & Time: 19.09.19		Received by: EWS K. Gore				19/9/19	

Appendix G

Quality Assurance and Quality Control

Appendix G

Data Quality Assurance and Quality Control Assessment

G1 Data Quality Indicators

Field and laboratory procedures were assessed against the following data quality indicators (DQIs):

Table G1: Data Quality Indicators

DQI	Performance Indicator	Acceptable Range
Precision		
Field considerations	SOPs appropriate and complied with	Field staff follow SOPs in the <i>DP Field Procedures Manual</i>
	field replicates	Precision average relative percent difference (RPD) result <5 times PQL, no limit; results >5 times PQL, 0% - 30%
Laboratory considerations	laboratory duplicates	Precision average RPD result <5 times PQL, no limit; results >5 times PQL, 0% - 50%
Accuracy (bias)		
Field considerations	SOPs appropriate and complied with	Field staff to follow SOPs in the <i>DP Field Procedures Manual</i>
Laboratory considerations	Analysis of:	
	method blanks (laboratory blanks)	Recovery of 60-140%
	matrix spikes	Recovery of 70-130% (inorganics); 60 - 140% (organics)
	matrix spike duplicates	Recovery of 70-130% (inorganics); 60 - 140% (organics); Recovery 70 "low" to 130% "high" indicates interference
	surrogate spikes	Recovery of 70 - 130% (inorganics); 60 - 140% (organics)
	laboratory control samples	Recovery of 70-130% (inorganics); 60 - 140% (organics)
Completeness		
Field considerations	All critical locations sampled	All critical locations sampled in accordance with the DQO's (Appendix C)
	SOPs appropriate and complied with	Field staff to follow SOPs in the <i>DP Field Procedures Manual</i>
	Experienced sampler	Experienced DP Environmental Engineer to conduct field work and sampling
	Documentation correct	Maintain COC documentation at all times
	Sample holding times complied with	Sample holding times complied with

DQI	Performance Indicator	Acceptable Range
Laboratory considerations	All critical samples analysed according to DQO's	All critical locations analysed in accordance with the DQO's
	Appropriate methods and PQLs	Appropriate methods and PQLs have been used by the contract laboratory
	Sample documentation complete	Maintain COC documentation at all times
Comparability		
Field considerations	Same SOPs used on each occasion	Field staff to follow SOPs in the DP <i>Field Procedures Manual</i>
	Experienced sampler	Experienced DP Environmental Scientist/Engineer to conduct field work and sampling
	Same types of samples collected	Same types of samples collected
Laboratory considerations	Sample analytical methods used (including clean-up)	Methods to be NATA accredited
	Sample PQLs (justify/quantify if different)	Consistent PQLs to be used
	Same laboratories (justify/quantify if different)	Same analytical laboratory for primary samples to be used
Representativeness		
Field considerations	Appropriate media sampled according to DQO's	Appropriate media sampled according to DQO's
	All media identified in DQO's sampled	All media identified in DQO's sampled
Laboratory considerations	All samples analysed according to DQO's	All samples analysed according to DQO's

Notes to Table 1: SOP – Standard Operating Procedure
 DQO – Data Quality Objectives (Appendix C)

G2 Field Quality Assurance and Quality Control

The field QC procedures for sampling as prescribed in the standard operating procedures (SOPs) in the Douglas Partners *Field Procedures Manual* were followed at all times during the assessment. All sample locations and media were in accordance with the DQO (i.e. as per scope of work in DP's proposal).

G2.1 Sampling Team

Sampling was undertaken by experienced DP Environmental Scientists.

G2.2 Sample Collection and Weather Conditions

Sample collection procedures and dispatch are reported in body of the report. Sampling was undertaken during sunny and mild conditions.

G2.3 Logs

Logs for each test pit soil sampling location were recorded in the field with surface samples recorded on field sheets. The individual samples were recorded on the field logs and field sheets along with the sample identity, location, depth, duplicate locations, duplicate type and site observations. Logs are presented in Appendix D.

G2.4 Chain-of-Custody

Chain-of-Custody information was recorded on the Chain-of-Custody (COC) sheets and accompanied samples to the analytical laboratory. Signed copies of COCs are presented in Appendix F, prior to the laboratory certificates.

G2.5 Sample Splitting Techniques

Duplicate samples were collected in the field as a measure of precision of the results. Field duplicate samples for soil were collected from the same location and an identical depth to the primary sample. Equal portions of the primary sample were placed into the sampling jars and sealed. The sample was not homogenised in a bowl to prevent the loss of volatiles from the soil. Duplicate samples were labelled with a DP identification number, recorded on DP logs, so as to conceal their relationship to their primary sample from the analysing laboratory.

G2.6 Duplicate Frequency

Field sampling comprised intra-laboratory duplicate sampling, at a rate of approximately one duplicate sample for every ten primary samples.

G2.7 Relative Percentage Difference

A measure of the consistency of results for field samples is derived by the calculation of relative percentage differences (RPDs) for duplicate samples. RPDs have only been considered where a concentration is greater than five times the practical quantitation limit (PQL).

G2.7.1 Intra-Laboratory Duplicate Analysis

Duplicates were tested to assess data 'precision' and the reproducibility within the primary laboratory (Envirolab Pty Ltd) as a measure of consistency of sampling techniques. Three replicate samples were analysed. The Relative Percent Difference (RPD) between replicate results is used as a measure of laboratory reproducibility and is given by the following:

$$RPD = \frac{(\text{Replicate result 1} - \text{Replicate result 2})}{(\text{Replicate result 1} + \text{Replicate result 2})/2} \times 100$$

The RPD can have a value between 0% and 200%. An RPD data quality objective of up to 30% for inorganics and 50% for organics is considered to be within the acceptable range.

The comparative results of analysis between primary and duplicate sample are summarised in the table below. Where one or both results were below the PQL, an RPD was not calculated.

Table G4: RPD Results

Sample	As	Cd	Cr	Cu	Pb	Hg	Ni	Zn
TP6	4	<0.4	15	31	15	0.1	16	40
BD4	5	<0.4	14	29	15	<0.1	14	35
Difference	1	0	1	2	0	0	2	5
RPD (%)	22.2	-	6.9	6.7	0	-	13.3	13.3
SS21	5	<0.4	11	23	15	<0.1	8	130
BD3	6	<0.4	11	24	14	<0.1	9	130
Difference	1	0	0	1	1	0	1	0
RPD (%)	18.2	-	0	4.3	6.9	-	11.8	0
SS103	150	<0.4	36	42	22	<0.1	9	56
BD1/18919	110	<0.4	31	27	20	<0.1	8	46
Difference	40	0	5	15	2	0	1	10
RPD (%)	30.8	-	14.9	43.5	9.5	-	11.8	19.6
SS135	<4	<0.4	20	28	5	<0.1	20	30
BD2/18919	<4	<0.4	75	35	4	<0.1	12	19
Difference	0	0	45	7	1	0	8	11
RPD (%)	-	-	115.8	22.2	22.2	-	50.0	44.9
SS124	5	<0.4	14	36	17	<0.1	19	170
BD3/18919	10	<0.4	15	47	18	<0.1	9	57
Difference	5	0	1	11	1	0	10	113
RPD (%)	66.7	-	6.9	26.5	5.7	-	71.4	99.6
SS104	22	<0.4	26	37	25	<0.1	17	76
BD4/18919	21	<0.4	26	36	23	<0.1	19	79
Difference	1	-	0	1	2	-	-2	3
RPD (%)	4.7	-	0.0	2.7	8.3	-	11.1	3.9
SS128	8	<0.4	17	47	26	0.2	14	140
BD5/18919	9	<0.4	19	51	30	0.2	14	150
Difference	1	-	2	4	4	0	0	-10
RPD (%)	11.8	-	11.1	8.2	14.3	0.0	0.0	-6.9

Majority of the RPD values were within the acceptable range of ± 30 for inorganic analytes ($\pm 50\%$ for organic). This is not considered to be a matter of concern given the low concentrations reported, and considering that the sample was collected in heterogeneous material (i.e. fill), therefore some variation is expected. In addition, replicates, rather than homogenised replicates were used to avoid volatile loss, hence greater variability can be expected.

Overall, the intra-laboratory comparisons indicate that the sampling technique was consistent and repeatable and therefore the results are useable and representative of the conditions encountered.

G3 Laboratory Quality Assurance and Quality Control

EnviroLab Services was used as the primary laboratory. Appropriate methods and PQLs were used by the laboratory. Sample methods were NATA accredited (noting the exception for fibrous asbestos (FA) and asbestos fines (AF) quantification to 0.001% w/w).

G3.1 Surrogate Spike

This sample is prepared by adding a known amount of surrogate, which behaves similarly to the analyte, prior to analysis to each sample. The recovery result indicates the proportion of the known concentration of the surrogate that is detected during analysis and is used to assess data 'accuracy'. Results were within acceptance limits and indicate that the extraction technique was effective.

G3.2 Reference and Daily Check Sample Results – Laboratory Control Sample (LCS)

This sample comprises spiking either a standard reference material or a control matrix (such as a blank of sand or water) with a known concentration of specific analytes. The LCS is then analysed and results compared against each other to determine how the laboratory has performed with regard to sample preparation and analytical procedure and is used to assess data 'accuracy'. LCSs are analysed at a frequency of one in 20, with a minimum of one analysed per batch.

G3.3 Laboratory Duplicate Results

These are additional portions of a sample which are analysed in exactly the same manner as all other samples and is used to assess data 'precision'. The laboratory acceptance criteria for duplicate samples is: in cases where the level is $< 5 \times \text{PQL}$ - any RPD is acceptable; and in cases where the level is $> 5 \times \text{PQL}$ - 0-50% RPD is acceptable.

G3.4 Laboratory Blank Results

The laboratory blank, sometimes referred to as the method blank or reagent blank is the sample prepared and analysed at the beginning of every analytical run, following calibration of the analytical apparatus and is used to assess data 'accuracy'. This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, it can be determined by processing solvents and reagents in exactly the same manner as for samples. Laboratory blanks are analysed at a frequency of 1 in 20, with a minimum of one per batch.

G3.5 Matrix Spike

This is a sample duplicate prepared by adding a known amount of analyte prior to analysis, and then treated exactly the same as all other samples. The recovery result indicates the proportion of the known concentration of the analyte that is detected during analysis and is used to assess data 'accuracy'. The laboratory acceptance criteria for matrix spike samples are generally 70 - 130% for inorganic/metals; and 60 - 140% for organics; and 10 - 140% for SVOC and speciated phenols.

G3.6 Results of Laboratory QC

The laboratory QC for surrogate spikes, LCS, laboratory duplicate results, laboratory blanks and matrix spikes results are reported in the laboratory certificate of analysis.

The laboratory quality control samples were within the laboratory acceptance criteria. Laboratory QAQC results reported at the conclusion of the laboratory certificate of analysis 217182 reported the following:

Percent recovery for the matrix spike for TRH Soil C10 was not possible to report as the high concentration of hydrocarbons in sample SS125 has caused interference.

The PQL was raised due to interferences from hydrocarbons in sample SS105.

The laboratory RPD acceptance criteria was exceeded for sample 222854-15 (SS15) for Cr and Zn. Therefore a triplicate result was been issued as laboratory sample number 222854-32. Results indicated that all results reported are below the SAC.

Percent recovery for TRH (C₁₀-C₄₀) for samples 222854-5, 8 and 20 (SS5, SS8 and SS20 respectively) was not possible to report as the high concentration of analytes caused interference.

Overall, it is considered that an acceptable level of laboratory precision and accuracy was achieved and that surrogate spikes, LCS, laboratory duplicate results, laboratory blanks and matrix spike results were of an overall acceptable level overall. On the basis of this assessment, the laboratory data set is considered to have complied with the DQIs.

G3.7 Overall Assessment of QA/QC

Specific limits associated with sample handling and laboratory QA/QC was assessed against the DQIs and a summary of compliance is presented in the following table.

Table G3: Data Quality Indicators

DQI	Performance Indicator	Acceptable Range	Compliance
Precision			
Field considerations	SOPs appropriate and complied with	Field staff follow SOPs in the <i>DP Field Procedures Manual</i>	C
	field replicates	Precision average relative percent difference (RPD) result <5 times PQL, no limit; results >5 times PQL, 0% - 30%	C
Laboratory considerations	laboratory duplicates	Precision average RPD result <5 times PQL, no limit; results >5 times PQL, 0 - 50%	C
Accuracy (bias)			
Field considerations	SOPs appropriate and complied with	Field staff to follow SOPs in the <i>DP Field Procedures Manual</i>	C
Laboratory considerations	Analysis of:		
	method blanks (laboratory blanks)	Recovery of 60 - 140%	C
	matrix spikes	Recovery of 70 - 130% (inorganics); 60 - 140% (organics)	C
	matrix spike duplicates	Recovery of 70 - 130% (inorganics); 60 - 140% (organics); Recovery 70 "low" to 130% "high" indicates interference	C
	surrogate spikes	Recovery of 70 - 30% (inorganics); 60 - 40% (organics)	PC
	laboratory control samples	Recovery of 70 - 130% (inorganics); 60 - 140% (organics)	C
Completeness			
Field considerations	All critical locations sampled	All critical locations sampled in accordance with the SAQP	C
	SOPs appropriate and complied with	Field staff to follow SOPs in the <i>DP Field Procedures Manual</i>	C
	Experienced sampler	Experienced DP Environmental Scientist/Engineer to conduct field work and sampling	C
	Documentation correct	Maintain COC documentation at all times	C
	Sample holding times complied with	Sample holding times complied with	C
Laboratory considerations	All critical samples analysed according to SAQP	All critical locations analysed in accordance with the SAQP	C
	Appropriate methods and PQLs	Appropriate methods and PQLs have been used by the contract laboratory	C
	Sample documentation complete	Maintain COC documentation at all times	C

DQI	Performance Indicator	Acceptable Range	Compliance
Comparability			
Field considerations	Same SOPs used on each occasion	Field staff to follow SOPs in the <i>DP Field Procedures Manual</i>	C
	Experienced sampler	Experienced DP Environmental Scientist/Engineer to conduct field work and sampling	C
Laboratory considerations	Sample analytical methods used (including clean-up)	Methods to be NATA accredited	C
	Sample PQLs (justify/quantify if different)	Consistent PQLs to be used	C
	Same laboratories (justify/quantify if different)	Same analytical laboratory for primary samples to be used	C
Representativeness			
Field considerations	Appropriate media sampled according to DQOs	Appropriate media sampled according to DQOs	C
	All media identified in DQOs sampled	All media identified in DQOs sampled	C
Laboratory considerations	All samples analysed according to DQOs	All samples analysed according to DQOs	C

Notes to Table G3:

- C – Compliance
- PC – Partial Compliance
- NC – Non-Compliance
- NA – Not Applicable
- SOP – Standard Operating Procedure
- DQO – Data Quality Objectives

A review of the adopted QA/QC procedures and results indicates that the DQIs have generally been met with compliance and a minor partial-compliance. On this basis, the sampling and laboratory methods used during the investigation were found to meet DQOs for this project.

Appendix H

Site Photographs



Photo 1 - AEC4A - Anthropogenic Impacted Fill



Photo 2 - AEC4B - Anthropogenic Impacted Stockpile



Photo 3 - AEC4C - Area of Fill



Photo 4 - AEC4C - Fill Beneath Greenhouse



Photo 5 - Suspected ACM Fragment within AEC4C



Photo 6 - AEC4C - Fill Beneath Greenhouse



Photo 7 - AEC4C - Anthropogenic Impacted Fill



Photo 8 - AEC4D - Topsoil Fill Stockpile



Photo 9 - AEC4I - Possible Area of Fill



Photo 10 - AEC4J - Area of Fill



Photo 11 - AEC4J - Area of Fill

Photo 12 -

Photo 13 -

Photo 14 -