Universal Property Group Pty Ltd









WASTEWATER



GEOTECHNICAL



CIVIL



PROJECT MANAGEMENT



P1504996JR01V01 October 2015

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Document and Distribution Status								
Author(s)			Reviewer(s)		Project Manager / Director		Sign	ature
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					Documer	nt Location		
Revision No.	Status	Release Date	File Copy	Universal Property Group Pty Ltd				
1	Final	27.10.2015	1E, 1P	1P				
Distribution Types: $F = Fax$ , $H = Hard copy$ , $P = PDE document$ , $F = Other electronic format. Dialts indicate number of document$								

Distribution Types: F = Fax, H = Hard copy, P = PDF document, E = Other electronic format. Digits indicate number of document copies.

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# 1 Introduction

## 1.1 Overview

This report prepared by Martens and Associates (MA), for Universal Property Group Pty Ltd documents a Detailed Site Investigation (DSI) completed for 16 Chapman Street, Werrington, NSW (the site).

A Preliminary Environmental Site Assessment (PESA) was previously completed by Douglas Partners (DP, 2014a) and should be read in conjunction with this report.

## 1.2 Objectives

The objective of this report is to assess the potential sources of site contamination identified in the PESA (DP, 2014) and determine site suitability for redevelopment which includes residential land use.

## 1.3 Scope of Works

The scope of works includes:

- Intrusive soil investigation and soil sampling for laboratory analysis of potential areas of environmental concern as identified by DP (2014a).
- Preparation of a report in general accordance with the relevant sections of ASC NEPM (1999, amended 2013), NSW OEH (2011) and DEC (2006).

#### 1.4 Reference Guidelines

This assessment is prepared in general accordance with the following guidelines:

- NSW OEH (2011) Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites.
- NSW DEC (2006) 2<sup>nd</sup> Ed. Contaminated Sites: Guidelines for the NSW Site Auditor Scheme.
- ASC NEPC (1999, amended 2013) National Environmental Protection Measure, (NEPM 1999, amended 2013).



## 1.5 Abbreviations

ASC NEPM – Assessment of site contamination (National Environmental Protection Measure)

- AEC Area of environmental concern
- ACM Asbestos containing material
- BTEX Benzene, toluene, ethyl benzene, xylene
- BGL Below ground level
- COPC Chemical of primary concern
- CMP Construction management plan
- CSM Conceptual site model
- DEC NSW Department of Environment and Conservation
- DP Deposited Plan / Douglas Partners
- EIL Ecological investigation level
- ESL Ecological screening level
- EPA NSW Environmental Protection Authority
- ESA Environmental site assessment
- HM Heavy metals
- LOR Limit of reporting
- LGA Local government area
- MA Martens and Associates Pty Ltd
- NATA National Association of Testing Authorities
- OCP Organochloride pesticides
- OEH NSW Office of Environment and Heritage
- OPP Organophosphate pesticides
- PAH Polycyclic aromatic hydrocarbons



- PCB Polychlorinated biphenyl
- RPD Relative percentage difference difference between two values divided by the average
- SAC Site acceptance criteria
- SOP Standard operating procedure
- TPH Total petroleum hydrocarbons
- UST Underground storage tank



# 2 Site Background Information

### 2.1 Location and Setting

Site information is summarised in Table 1.

 Table 1: Site background information.

Item	Description/Detail
Site address	16 Chapman Street, Werrington NSW.
Lot/DP	Lot 102 DP 114059.
Site area	Approximately 28 ha.
Existing site development	No major existing structures. A small corrugated iron shed is located towards the centre of the site which appears to have been used as an amenities building (with a composting toilet).
Aspect	Site generally slopes towards the south east with the eastern portion of the site sloes to the north / north east.
Typical slopes	Generally slopes between 0 – 15%.
Existing vegetation	Generally cleared with low lying grasses and mature bushes. Scattered mature trees located near the centre of the site.
Neighbouring environments	<ul> <li>The surrounding land use includes:</li> <li>North: Western railway line and low density residential land use.</li> <li>East: Low density residential development and vacant former commercial site.</li> <li>South: Cobham Junvenile Justice Centre.</li> <li>West: University of Western Sydney (Kingswood Campus).</li> </ul>
Local Government Area (LGA)	Penrith City Council.
Drainage	Site drainage The site generally drains via overland flow to the south east / east portions to a large concrete pipe / culvert which leaves the site under to the north under Landers Street and eventually discharges in to South Creek.



ltem	Description/Detail
Geology and soil landscapes	The Penrith 1:100,000 Geological Series Sheet 9030 (1991) indicates that the site is underlain by Wianamatta Group of Bringelly Shale consisting of carbonaceous claystone.
	The Reference to the Penrith 1:100,000 Soil Landscapes Sheet indicates that the northern part of the site is located within the erosional Luddenham soil landscape. This landscape is characterised by shallow (<100 cm) dark podzolic soils or massive earthy clays on crests; moderately deep (70-150 cm) red podzolic soils on upper slopes.
Environmental receptors	South Creek (350 m to the east).
Human receptors	Existing surrounding residential developments. Future residents and site workers/ builders.

## 2.2 Hydrogeology

Review of NSW Natural Resources Atlas indicated three groundwater bores (with available information) within approximately 1 km of the site. All three bores were recorded as monitoring bores and were all located up gradient of the site. Limited information regarding standing water level was available at the time of preparing this report. Further assessment would be required to characterise site hydrogeology.



# 3 Preliminary Conceptual Site Model

## 3.1 Overview

The preliminary conceptual site model (CSM) has been developed based on information documented in the PESA (DP, 2014a) and the Geotechnical Assessment (DP, 2014b) which included subsurface investigation.

## 3.2 Summary of Previous Investigations.

- Historic aerials indicate the site has remained generally undeveloped since 1943. There is some evidence of broad acre farming with evidence of ploughing and or crop lines evident along the eastern and western boundaries in the 1961 aerial. No evidence of large onsite development was found on any reviewed aerial.
- A search of the NSW EPA Record of Notices for Contaminated Land was conducted which found no notice for the site.
- A site walkover conducted on 17 December 2013 by Douglas Partners confirmed a generally vacant site with only a small corrugated iron shed located towards the centre of the site which appears to have been used as an amenities building (with a composting toilet).
- The geotechnical assessment (DP, 2014b) undertook subsurface site testing via 50 test pits excavated across the site. Fill material was identified in several testing locations, predominantly in the eastern portion of the site.

The PESA (DP, 2014a) identified two areas of environmental concern (AEC) and associated chemicals of primary concern (COPC) which are summarised in Table 2.



#### Table 2: AEC and COPC 16 Chapman Street, Werrington, NSW

AEC	Potential for Contamination	COPC	Contamination Likelihood
A - Areas of filling	Fill from unknown origins.	TPH / BTEX, PAH, HM, OCP/OPP, phenols and asbestos	Medium - high
B – Composting toilet	Unknown historical use. Unknown construction methodology of toilet.	Faecal coliforms, E.coli and salmonella	Low

#### 3.3 Sensitive Receptors and Exposure Pathways

Table 3 provides a summary of identified sensitive receptors and potential exposure pathways connecting receptors to identified AEC / COPC outlined in Table 2 as presented in the PESA (DP, 2014a).

	Table 3:	Summary	of recept	ors and	potential	pathways
--	----------	---------	-----------	---------	-----------	----------

Recepto	rc	Pathway	,
Human	Receptors:		
0	Future site occupants.	0	Dermal contact.
0	Site visitors.	0	Ingestion of potentially contaminated
0	Site workers during any future		soil.
	construction works.	0	Inhalation of airborne contaminants.
0	Surrounding offsite occupants.	0	Migration of pollutants via site surface
			and groundwater.
Environ	mental Receptors		
0	South Creek .	0	Migration of pollutants via site surface
0	Existing vegetated areas across the		and groundwater.
	site.	0	Direct contact with site flora.
0	Vegetated or landscaped areas of		
	any future site design plans.		

#### 3.4 PESA Recommendation

The PESA recommended a targeted intrusive soil investigation to quantify and characters potential contamination risk identified in the CSM.

Testing was recommended in areas of potential site filling and, following removal of the existing site shed, near the former composting toilet. It is noted that the current investigation was not able to target the compost



toilet area as the shed and toilet have not yet been removed. It is proposed that, following site clearing works and removal of waste from the pit, subsurface sampling be completed in this area and the results provided as an addendum to this report.

Additional testing was recommended outside of the AEC to confirm the low risk status of the site.



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# 4 Field and Laboratory Investigations

## 4.1 Field Programme overview

Referencing the preliminary CSM (Section 3), a soil investigation program was planned to investigate the areas of potential site filling. Information from previous subsurface investigation in the geotechnical assessment (DP, 2014b) was used to target site areas associated with filling. Based on test pit logs (DP 2014b), subsurface testing was primarily focused in the eastern portion of the site.

While not directly addressed as an AEC in the PESA, there was some evidence, based on the historic aerials, to suggest previous agricultural land use. To address this concern, shallow (0.1 mBGL) surface samples were collected from across the site in a grid pattern and assessed for heavy metal and pesticide contaminants.

#### 4.2 Investigation Constraints

As noted in Section 3.4, the existing site shed and composting toilet were intact during the investigation and testing could not be completed. To fully address data gaps in the CSM, further soil investigation is required following demolition of the shed.

#### 4.3 Intrusive Investigation Methodology

An overview of site investigation methodology is provided in Table 4.

Investigation dates	7 October 2015.
Number of sampling points	36 surface samples in grid pattern across the site. 12 test pits.
Investigation method	Testpits were excavated using a 5 tonne excavator. Surface samples collected using a small hand spade.

 Table 4: Investigation methodology.

#### 4.4 Sampling Methodology and Quality Assurance / Quality Control

Soil sampling methodology (Table 5) was completed to meet data quality objectives.



Activity	Detail / Comments
	Soil sampling was completed by an experienced MA environmental engineer.
Soil Sampling	Each sample was placed into a laboratory-supplied, acid-rinsed 250mL glass jar, labelled with a unique identification number and no headspace to limit volatile loss. A clean pair of disposable gloves was used when handling each sample.
Sample Compositing	Surface samples collected from across the site were combined to form 12 triple composite samples. Sample compositing was completed by Envirolab Pty Ltd a NATA accredited laboratory at the direction of MA.
QA / QC Sampling	Duplicate samples were collected at a rate of approximately 1 in 10 samples for intra-laboratory analysis.
Sample handling and transportation	Sample collection, storage and transport were conducted according to Martens and Associates SOP. Collected samples were placed into an ice chilled cooler-box. Samples were dispatched to NATA-accredited laboratory under chain of custody documentation within holding times.
Decontamination of sampling equipment	Surface sampling equipment (hand spade) was decontaminated between sampling locations by pressurised water spray with a solution of Decon-90 <sup>TM</sup> , a phosphate-free detergent, followed by rinsing with potable water. Test pit samples were collected directly from the centre of the excavator bucket and a clean pair of disposable gloves were used between each sample collected.

A review of QA/QC procedure has been completed and is presented in the data validation report (Attachment D). The report concludes that data is suitable for the purposes of the assessment.

## 4.5 Data Quality Objectives (DQO)

Data quality objectives (DQO) have been prepared as statements specifying qualitative and quantitative data required to support project decisions. Data quality indicators (DQI) are presented in the following sections, outlining procedures to achieve DQO for site works. DQO have been prepared in general accordance with NSW DEC (2006) and US EPA (1994) guidelines and are presented in Table 6.



Table 6: Data quality objectives for the assessment of soil investigations.

Step 1 Stating the Problem	The proposed site development will include residential land use. Therefore the site must be deemed suitable to accommodate residential use (residential with minimal soil access). This DSI is required to assess risk posed by potentially contaminated soil to onsite and offsite sensitive receptors.	
Step 2 Identifying the Decision(s)	<ul> <li>Previous suite investigation have identified AECs which may be the source of potential contamination. To assess the suitability of the site for future residential use, decisions are to be made based on the following questions: <ul> <li>Is site soil quality suitable for the intended residential land use?</li> <li>Do site soils require remediation or management to prior to onsite residential land use?</li> </ul> </li> </ul>	
Step 3 Identification of Inputs to the Decision	<ul> <li>The inputs to the assessment of site soil quality will include:</li> <li>Soil sampling at nominated locations (where access is available) across the site.</li> <li>Laboratory analytical results for relevant COPC.</li> <li>Assessment of the suitability of the data obtained from sampling an analyses as measured against DQIs.</li> <li>Assessment of analytical results against site suitable human health criteria.</li> </ul>	
Step 4 Study Boundary Definitions	<ul> <li>Study boundaries are as follows:</li> <li>Lateral – Lateral boundary of the assessment is defined by the site boundary as indicated in Figure 1 (Attachment A).</li> <li>Vertical – Vertical boundary will be governed by the maximum depth reached during subsurface investigations.</li> <li>It is noted that assessment of site groundwater and soil vapours is outside of the scope of this assessment.</li> </ul>	
Step 5 Development of Decision Rules	The decision rule for this for this investigation area as follows: If the concentration of contaminants in the soils exceeds the adopted assessment criteria; an assessment of the need to further investigate, remediate and or manage the onsite impacts in relation to the proposed development will be undertaken.	
Specification of Limits on Decision Errors	Guidance found in ASC NEPM (1999 amended 2013) Schedule B2 regarding 95% upper confidence limit (UCL) states that the 95% UCL of the arithmetic mean provides a 95% confidence level that the true population mean will be less than or equal to this value. Therefore a decision can be made based on a probability that 95% of the data collected will satisfy the site acceptance criteria. A limit on decision error will be 5% that a conclusive statement may be incorrect.	
Step 7 Optimisation of Sampling Design	Proposed sampling locations are based on completed Stage 1 investigations at the subject site to ensure that critical locations are assessed, sampled, and analysed for appropriate contaminants of concern. The above will be achieved by utilisation of MA SOP to achieve DQO.	

#### 4.6 Laboratory Analytical Suite

Laboratory analysis was carried out by Envirolab Pty Ltd a NATA accredited laboratory. Laboratory analytical documentation is presented in Attachment C.



#### Table 7: Summary of primary soil laboratory analyses.

сос	Number of Samples Analysed
BTEX	8
TRH	8
РАН	8
РСВ	8
Asbestos in soil	8
Heavy metals <sup>1</sup>	36 in 12 triple composites 8 discrete
OCP/OPP	36 in 12 triple composites 8 discrete

#### Notes:

<sup>1</sup> Heavy metals – arsenic, cadmium, chromium, copper, lead, mercury, nickel, zinc.



## 5 Assessment Criteria

#### 5.1 Overview

The site assessment criteria (SAC) adopted for this DSI has been derived from the following sources:

• ASC NEPM (1999, amended 2013) National Environmental Protection (Assessment of Site Contamination) Measure (NEPM).

Guideline values for individual contaminants are presented in laboratory tables in Attachment B.

Table 7 summarises the applicability of the SAC adopted for this investigation.

 Table 8: Summary of SAC.

SAC	Applicability
Health investigation levels (HIL)	Based on the proposed residential site use, HIL – A Residential with soil access (ASC NEPM 1999, amended 2013) have been adopted.
Health screening levels (HSL) for petroleum hydrocarbons	HSLs A – low density residential for clay (ASC NEPM 1999, amended 2013) have been adopted. Clay has been selected based on encountered lithology at the site.
	Soil HSL provide a preliminary assessment of human risk via inhalation of vapours from potential contamination. For this purpose HSL A criteria are considered appropriate.
TPH Management Limits	Residential land use TPH Management limits have been adopted from ASC NEPM (1999, amended 2013).



SAC	Applicability
Ecological assessment criteria (EAS)	A preliminary assessment of ecological risk has been undertaken with reference to ecological screening levels (ESL) and ecological investigation levels (ElLs).
	Ecological assessment criteria applies principally to the top 2m of soil.
	ESLs
	ESLs for fine grained soils in urban residential and open spaces (ASC NEPM 1999, amended 2013) have been adopted based on site lithology.
	<u>Ells</u>
	EILS have been calculated using methodology outlined in ASC NEPM (1999, amended 2013(.
	The most conservative added contaminant levels have been used to develop site EILs as no physiochemical properties of site soils have been measured. Ambient background concentrations (ABC) have been taken from Olszowy et al (1995) for aged contamination in low traffic areas in NSW.
Asbestos in soil / material	Based on the preliminary nature of this assessment the 'presence/absence' of asbestos in soil / material has been adopted as the SAC.



## 6 Results

## 6.1 Field Observations

6.1.1 Lithology

A summary of lithology observations compiled during intrusive investigation is presented in Table 9. Detailed test pit logs are presented in Attachment E.

 Table 9: Summary of site lithology.

Lithology 1	Depth Range (mBGL) <sup>2</sup>
FILL - Generally consisting of silty clays and clay. Anthropogenic inclusions observed included: pieces of tile, glass, concrete and plastics.	0.0 – 1.1 (variable)
SILTY CLAY / CLAY – Low to medium plasticity, light brown/ brown / grey.	0.0 – 1.4 (variable)
SHALE – Assumed low strength, grey / light brown.	>1.4 (variable)

#### Notes:

<sup>1</sup> See test pit logs for detailed material description.

<sup>2</sup> Indicative depth range. Material depth may vary across a site depending on site and local geological conditions, and degree of filling.

6.1.2 Visual and Olfactory Evidence of Contamination

Visual or olfactory evidence of gross contamination was not identified during intrusive investigations.



## 6.2 Laboratory Analytical Results

## 6.2.1 Test Pit Samples

Comparison of test pit sample results with the relevant SAC is available in the laboratory tables in Attachment B. A summary of results is presented in Table 9.

Analyte	Results Compared to SAC
Heavy Metals	HILs All results below SAC. EIL All results below SAC.
TPH/BTEX	HSL All results below SAC. ESL All results below SAC.
OCP/OPP	HILs All results below SAC.
РСВ	HILs All results below SAC.
РАН	HILS All results below SAC. ESL All results below SAC.
Asbestos in soil	All soil samples reported negative for asbestos in soil detection.

 Table 10: Summary of soil laboratory results.

6.2.2 Soil Analytical Results for Broad Site Grid Samples

All triple composite samples from broader site grid sampling, reported values below the adopted SAC for OC/OP pesticides and heavy metals.



# 7 Discussion, Recommendations and Conclusion

## 7.1 Site Contamination

A subsurface investigation has been completed by MA targeting areas of site filling identified in the PESA (DP, 2014a). Additional surface samples were collected from across the site to address potential historic agricultural land use. Results of soil sampling found no contaminant level above SAC.

## 7.2 Recommendation

Based on the large site area, there remains a risk that as yet uncovered fill material, which contains contaminant levels above the adopted SAC, shall be discovered during site works. It is therefore recommended that an unexpected finds protocol be developed for the site and implemented as part of a construction management plan (CMP). The unexpected finds protocol should outline all procedures associated with the discovery of any new potentially contaminated material.

As noted in Section 3.4, access beneath the existing site shed and composting toilet was not available during this investigation. It is recommended that following the removal of the shed and waste material within the pit, validation testing be conducted which shall include sampling for pathogens as per DP (2014a).

## 7.3 Conclusion

Based on site testing to date, site contamination which would impact the proposed development has not been identified. Therefore following the completion of the above recommendations the site shall be deemed fit for the proposed residential development.



## 8 Limitations

This Stage 2 contamination assessment was undertaken in accordance with current industry standards.

It is important to note that no land contamination study can be considered to be a complete and exhaustive characterisation of a site nor can it be guaranteed that any assessment shall identify and characterise all areas of potential contamination or all past potentially contaminating land-uses. This is particularly the case where site filling has been identified. Therefore, this report should not be read as a guarantee that no contamination shall be found on the site. Should material be exposed in future which appears to be contaminated, additional testing may be required to determine the implications for the site.

Martens & Associates Pty Ltd has undertaken this assessment for the purposes of assessing potential site contamination. No reliance on this report should be made for any other investigation or proposal. Martens & Associates accepts no responsibility, and provides no guarantee regarding the characteristics of areas of the site not specifically studied in this investigation.



## 9 References

- Chapman and Murphy (1983) Penrith 1:100 000 Soil Landscapes Sheet 9131.
- Department of Mineral Resources (1983) Penrith 1:100,000 Geological Sheet 9131.
- Douglas Partners (2014a) Preliminary Environmental Site Assessment : South Werrington Urban Village Precinct, Lot 102 DP1140594, 16 Chapman Street, Werrington, NSW, ref: 73741.02
- Douglas Partners (2014b) Geotechnical Assessment : South Werrington Urban Village Precinct, Lot 102 DP1140594 , 16 Chapman Street, Werrington, NSW, ref: 73741.01
- NEPC (1999, amended 2013) National Environmental Protection (Assessment of Site Contamination) Measure – Referred to as ASC NEPM (1999, amended 2013).
- NSW DEC (2006) 2<sup>nd</sup> Ed. Contaminated Sites: Guidelines for the NSW Site Auditor Scheme.
- NSW EPA (2005) Contaminated Sites: Guidelines for Assessing Former Orchards and Market Gardens
- NSW EPA (1995) Sampling Design Guidelines.
- NSW OEH (2011) Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites.

SEPP 55 Remediation of Land.



## 10 Attachment A – Site Plans



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## KEY



SURFACE SAMPLING LOCATION COMPOSITE SAMPLE IDENTIFER

APPROXIMATE SITE BOUNDARY

	Martens & Associates Pt	y Ltd ABN 85 070 240 890	Environment   Water   Wastewater   Geotechnical   (	Civil   Management
	Drawn:	ВМ	Composite Testing Locations	Drawing No./ID:
	Approved:	JF	South Werrington Urban Village	Figure 1
	Date:	27.10.2015		
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KEY

TP201 APPROXIMATE TESTPIT LOCATION

APPROXIMATE SITE BOUNDARY

	Martens & Associates Pt	ty Ltd ABN 85 070 240 890	Environment   Water   Wastewater   Geotechnical   C	Civil   Management
	Drawn:	ВМ	Testpit Locations	Drawing No./ID:
	Approved:	JF	South Werrington Urban Village 16 Chapman Street, Werrington, NSW	Figure 2
	Date:	27.10.2015		
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ummant Sat ID: 7000047				

# 11 Attachment B – Laboratory Summary Tables



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Lead

Metals

	Lead	Arsenic	Cadmium	Chromium (III+VI)	Copper	Mercury	Nickel	Zinc
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	1	4	0.4	1	1	0.1	1	1
NEPM 2013 Table 1A(1) HILs Res A Soil	300	100	20	-	6000	40	400	7400
NEPM 2013 Table 1A(1) HILs Res A Soil (Composite Values)	100	33	6	-	2000	13	133	2467
NEPM 2013 EIL	1100	100	-	-	100	-	60	210
NEPM 2013 EIL (Composite Values)	366	33	-	-	33	-	20	70

#### Field\_ID LocCode Sample\_Depth\_Range Sampled\_Date-Time Matrix\_Description

4996/TP201	4996/TP201	0.5	7/10/2015	10	4	< 0.4	20	12	< 0.1	5	10
4996/TP202	4996/TP202	0.15	7/10/2015	29	6	<0.4	20	11	< 0.1	5	53
4996/TP203	4996/TP203	0.15	7/10/2015	31	7	<0.4	20	14	< 0.1	7	43
4996/TP204	4996/TP204	0.15	7/10/2015	28	11	<0.4	24	25	< 0.1	6	34
4996/TP207	4996/TP207	0.15	7/10/2015	29	7	<0.4	20	14	< 0.1	7	32
4996/TP208	4996/TP208	0.15	7/10/2015	15	5	< 0.4	18	10	< 0.1	7	15
4996/TP210	4996/TP210	0.15	7/10/2015	24	7	<0.4	23	8	< 0.1	5	22
4996/TP212	4996/TP212	0.15	7/10/2015	25	10	<0.4	35	13	< 0.1	8	19
C1	C1	0.1	7/10/2015	33	6	<0.4	19	11	< 0.1	5	44
C10	C10	0.1	7/10/2015	21	7	<0.4	15	26	< 0.1	12	49
C11	C11	0.1	7/10/2015	22	8	<0.4	16	24	< 0.1	16	45
C12	C12	0.1	7/10/2015	24	8	<0.4	19	14	< 0.1	10	27
C2	C2	0.1	7/10/2015	24	8	<0.4	32	9	< 0.1	6	30
C3	C3	0.1	7/10/2015	22	9	<0.4	18	22	< 0.1	12	54
C4	C4	0.1	7/10/2015	18	<4	<0.4	16	8	< 0.1	5	19
C5	C5	0.1	7/10/2015	19	5	<0.4	16	14	< 0.1	7	33
C6	C6	0.1	7/10/2015	29	9	<0.4	36	10	< 0.1	7	25
C7	C7	0.1	7/10/2015	25	8	<0.4	23	14	<0.1	8	28
C8	C8	0.1	7/10/2015	33	16	<0.4	21	32	<0.1	8	43
C9	C9	0.1	7/10/2015	24	8	<0.4	19	20	<0.1	11	38

#### Statistical Summary

Number of Results	20	20	20	20	20	20	20	20
Number of Detects	20	19	0	20	20	0	20	20
Minimum Concentration	10	<4	<0.4	15	8	<0.1	5	10
Minimum Detect	10	4	ND	15	8	ND	5	10
Maximum Concentration	33	16	<0.4	36	32	<0.1	16	54
Maximum Detect	33	16	ND	36	32	ND	16	54
Average Concentration	24	7.6	0.2	22	16	0.05	7.9	33
Median Concentration	24	7.5	0.2	20	14	0.05	7	32.5
Standard Deviation	5.9	2.9	0	6.1	6.9	0	3	13
Number of Guideline Exceedances	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0

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#### Detailed Site Investigation



Inditens			BT	ΈX										PA	H/Phenc	ols									P	lychlori	nated B	siphenyl	s						ТРН		
consulting engineers	Benzene	Ethylbenzene	Toluene	Xylene (m & p)	Xylene (o)	C6-C10 less BTEX (F1)	Acenaphthene	Acenaphthylene	Anthracene	Benz(a) anthracene	Renzofa) nurana	Benzo(a) pyrene Benzo(b+k)fluoranthene	Benzo(g,h,i)perylene		Curysene Dihoo-(o hlom+horococo	Dibenz(a,n)antnracene	Carcinogenic PAHs (as B(a)P TPE)	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	C10-C16	C16-C34	C34-C40	F2-NAPHTHALENE	ce - c9	C10 - C14	C15 - C28
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	g mg/k	g mg/kg	g mg/	/kg mg/k	g mg/l	kg mg	/kg mg/	/kg m	ıg/kg  ı	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	ng/kg r	ng/kg n	ig/kg m	g/kg
EQL	0.2	1	0.5	2	1	25	0.1	0.1	0.1	0.1	0.0	0.2	0.1	0.:	1 0.1	1 (	).5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	50	100	100	50	25	50 10	.00
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Clay																																					
0-1m	0.7	NL	480			50															5													280			
1-2m	1	NL	NL			90															NL													NL			
2-4m	2	NL	NL			150															NL													NL			
>4m	3	NL	NL			290															NL													NL			
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil	65		105			180																										1300	5600	120			
0-2m		125									0.7	7																									
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil																															1000	5000	10000				

#### Field\_ID LocCode Sample\_Depth\_Range Sampled\_Date-Time Matrix\_Description

4996/TP201	4996/TP201	0.5	7/10/2015	<0.2	<1	<0.5	<2	<1	<25	< 0.1	< 0.1	< 0.1	<0.1	< 0.05	<0.2	<0.1	<0.1	< 0.1	<0.5	<0.1	< 0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<50	<100	<100	<50	<25	<50 <	<100
4996/TP202	4996/TP202	0.15	7/10/2015	<0.2	<1	<0.5	<2	<1	<25	< 0.1	< 0.1	< 0.1	<0.1	< 0.05	<0.2	<0.1	<0.1	< 0.1	<0.5	<0.1	< 0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<50	<100	<100	<50	<25	<50 <	<100
4996/TP203	4996/TP203	0.15	7/10/2015	<0.2	<1	<0.5	<2	<1	<25	<0.1	<0.1	< 0.1	< 0.1	< 0.05	<0.2	<0.1	<0.1	< 0.1	<0.5	<0.1	< 0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<50	<100	<100	<50	<25	<50 <	<100
4996/TP204	4996/TP204	0.15	7/10/2015	<0.2	<1	<0.5	<2	<1	<25	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	<0.2	<0.1	<0.1	< 0.1	< 0.5	<0.1	< 0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<50	<100	<100	<50	<25	<50 <	<100
4996/TP207	4996/TP207	0.15	7/10/2015	<0.2	<1	<0.5	<2	<1	<25	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	<0.2	<0.1	<0.1	< 0.1	< 0.5	<0.1	< 0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<50	<100	<100	<50	<25	<50 <	<100
4996/TP208	4996/TP208	0.15	7/10/2015	<0.2	<1	<0.5	<2	<1	<25	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	<0.2	<0.1	<0.1	< 0.1	< 0.5	<0.1	< 0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<50	<100	<100	<50	<25	<50 <	<100
4996/TP210	4996/TP210	0.15	7/10/2015	<0.2	<1	<0.5	<2	<1	<25	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	<0.2	<0.1	<0.1	< 0.1	< 0.5	<0.1	< 0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<50	<100	<100	<50	<25	<50 <	<100
4996/TP212	4996/TP212	0.15	7/10/2015	<0.2	<1	<0.5	<2	<1	<25	<0.1	<0.1	< 0.1	<0.1	< 0.05	<0.2	<0.1	< 0.1	< 0.1	< 0.5	< 0.1	< 0.1	<0.1	< 0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	< 0.1	< 0.1	<50	<100	<100	<50	<25	<50 <	<100

Statistical Summary																																				
Number of Results	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.2	<1	<0.5	<2	<1	<25	<0.1	<0.1	<0.1	<0.1	<0.0	5 <0.2	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<50	<100	<100	<50	<25	<50	<100
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.2	<1	<0.5	<2	<1	<25	<0.1	<0.1	<0.1	<0.1	<0.0	5 <0.2	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<50	<100	<100	<50	<25	<50	<100
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration	0.1	0.5	0.25	1	0.5	13	0.05	0.05	0.05	6 0.05	0.02	5 0.1	0.05	0.05	0.05	0.25	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	25	50	50	25	13	25	50
Median Concentration	0.1	0.5	0.25	1	0.5	12.5	0.05	0.05	0.05	6 0.05	0.02	5 0.1	0.05	0.05	0.05	0.25	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	25	50	50	25	12.5	25	50
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#### Detailed Site Investigation



																										_
3									c	Organoc	hlorine F	Pesticide	s												Orga	an
ngineers	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Chlorpyrifos	Chlorpyrifos-methyl	
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	m
	0.1	0.1	0.1		0.1	0.1	0.1	0.1	0.1	0.1		0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0
				6							240					10			6		300			160		
alues)				2							80					3			2		100			53		Г

	<b>H</b> a	rten	5						Organochlorine Pesticides Organonhosphorous Pesticides																											
	CO	onsulting end	aineers				1										.5		te					e					5.5		phorous					T
					4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan ll	Endosulfan sulphat	Endrin	Endrin aldehyde	g-BHC (Lindane)	Heptachlor	Heptachlor epoxid	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Chlorpyrifos	Chlorpyrifos-methy	Diazinon	Dichlorvos	Dimethoate	Ethion	Fenitrothion	Malathion	Ronnel
-					mg/kg	mg/kg	g mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL					0.1	0.1	0.1		0.1	0.1	0.1	0.1	0.1	0.1		0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
NEPM 2013	able 1A(1) HILs	Res A Soil						6							240					10			6		300			160							4	4
NEPM 2013	Table 1A(1) HILs	Res A Soil (Composite Valu	ies)					2							80					3			2		100			53								
	LasCada	Comula Douth Dougo	Compled Data Time	Matrix Description																																
	LOCCODE	Sample_Deptn_Range	Sampled_Date-Time	Iviatrix_Description	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
4996/TP201	4996/TP201 4996/TP202	0.5	7/10/2015		<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
4996/TP203	4996/TP203	0.15	7/10/2015		<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
4996/TP204	4996/TP204	0.15	7/10/2015		< 0.1	< 0.1	< 0.1	<0.2	< 0.1	<0.1	<0.1	< 0.1	< 0.1	< 0.1	<0.2	<0.1	< 0.1	< 0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	<0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	<0.1	<0.1	<0.1	<0.1
4996/TP207	4996/TP207	0.15	7/10/2015		< 0.1	< 0.1	< 0.1	< 0.2	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	<0.2	< 0.1	<0.1	<0.1	< 0.1	< 0.1	<0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	< 0.1
4996/TP208	4996/TP208	0.15	7/10/2015		< 0.1	< 0.1	< 0.1	<0.2	<0.1	< 0.1	<0.1	< 0.1	< 0.1	<0.1	<0.2	<0.1	<0.1	<0.1	< 0.1	< 0.1	<0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	<0.1
4996/TP210	4996/TP210	0.15	7/10/2015		< 0.1	< 0.1	< 0.1	<0.2	<0.1	< 0.1	<0.1	<0.1	< 0.1	<0.1	<0.2	<0.1	<0.1	<0.1	< 0.1	< 0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	< 0.1
4996/TP212	4996/TP212	0.15	7/10/2015		< 0.1	< 0.1	< 0.1	< 0.2	<0.1	< 0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	<0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	< 0.1
C1	C1	0.1	7/10/2015		< 0.1	< 0.1	< 0.1	<0.2	<0.1	< 0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	<0.1
C10	C10	0.1	7/10/2015		<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
C11	C11	0.1	7/10/2015		< 0.1	< 0.1	< 0.1	<0.2	<0.1	< 0.1	<0.1	<0.1	< 0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	<0.1
C12	C12	0.1	7/10/2015		< 0.1	< 0.1	< 0.1	<0.2	<0.1	< 0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
C2	C2	0.1	7/10/2015		< 0.1	< 0.1	< 0.1	< 0.2	<0.1	< 0.1	<0.1	<0.1	< 0.1	< 0.1	< 0.2	< 0.1	<0.1	<0.1	< 0.1	<0.1	<0.1	< 0.1	<0.1	<0.1	<0.1	< 0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	< 0.1	< 0.1	<0.1	<0.1	<0.1
C3	C3	0.1	7/10/2015		<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
C4		0.1	7/10/2015		<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
C5	C5	0.1	7/10/2015		<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
C7	C7	0.1	7/10/2015		<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
C8	C8	0.1	7/10/2015		<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
C9	C9	0.1	7/10/2015		<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
100	100	]•	1.7 7	1																																
Statistical Su	mmary																																			
Number of F	esults				20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Number of D	etects				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Co	ncentration				<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Minimum De	tect				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Co	ncentration				<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Maximum D	etect				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Con	centration				0.05	0.05	0.05	0.1	0.05	0.05	0.05	0.05	0.05	0.05	0.1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Median Con	entration				0.05	0.05	0.05	0.1	0.05	0.05	0.05	0.05	0.05	0.05	0.1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Standard De	/iation	lan aga			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Number of C	uideline Exceed	lances				0	0		0	0	0	0	0				0	0	0					0	0	0	0	0	0	0	0	0	0		+0	
inumber of G	ulueline Exceed	iances(Detects Uniy)			U	0	0	0	0	0	0	0	0	U	U	0	U	U	0	0	0	0	1 0	1 0	U	U	0	0	U	U	U	U	U			

#### Universal Property Group Pty Ltd

# 12 Attachment C – Laboratory Analytical Certificates and Chain of Custody Documentation



Preliminary Stage 2 Environmental Site Assessment: 121 Boundary Road, Schofields, NSW. P1504996JR01V01 - December 2014 Page 37



email: sydney@envirolab.com.au envirolab.com.au

Envirolab Services Pty Ltd - Sydney | ABN 37 112 535 645

#### **CERTIFICATE OF ANALYSIS** 135605 **Client:** Martens & Associates Pty Ltd Suite 201, 20 George St Hornsby NSW 2077 Attention: Ben McGiffin Sample log in details: Your Reference: P1504996COC01V01, South Werrington No. of samples: 82 Soils Date samples received / completed instructions received 08/10/2015 1 08/10/2015 Analysis Details: Please refer to the following pages for results, methodology summary and quality control data. Samples were analysed as received from the client. Results relate specifically to the samples as received. Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

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

#### **Report Details:**

 Date results requested by: / Issue Date:
 15/10/15
 / 13/10/15

 Date of Preliminary Report:
 Not Issued

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 Accredited for compliance with ISO/IEC 17025.

Tests not covered by NATA are denoted with \*.

#### **Results Approved By:**

Jacinta/Hurst

Jacinta/Hurst Laboratory Manager

135605 R 00



Our Reference:	UNITS	135605-52	135605-56	135605-59	135605-61	135605-63
Your Reference		4996/TP201	4996/TP202	4996/TP203	4996/TP204	4996/TP207
Depth		0.5	0.15	0.15	0.15	0.15
Composite Reference		-	-	-	-	-
Date Sampled		7/10/2015	7/10/2015	7/10/2015	7/10/2015	7/10/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	09/10/2015	09/10/2015	09/10/2015	09/10/2015	09/10/2015
Date analysed	-	10/10/2015	10/10/2015	10/10/2015	10/10/2015	10/10/2015
TRHC6 - C9	mg/kg	<25	<25	<25	<25	<25
TRHC6 - C10	mg/kg	<25	<25	<25	<25	<25
vTPHC6 - C 10 less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	96	99	94	98	100
[			I			
vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	135605-65	135605-69	135605-74	135605-77	135605-78
Your Reference		4996/TP208	4996/TP210	4996/TP212	TS	TS
		o 1 =	o 1 =	0 I =		
Depth		0.15	0.15	0.15	-	-
Depth Composite Reference		0.15 - 7/10/2015	0.15 - 7/10/2015	0.15 - 7/10/2015	- - 7/10/2015	- - 7/10/2015
Depth Composite Reference Date Sampled Type of sample		0.15 - 7/10/2015 Soil	0.15 - 7/10/2015 Soil	0.15 - 7/10/2015 Soil	- - 7/10/2015 Soil	- - 7/10/2015 Soil
Depth Composite Reference Date Sampled Type of sample		0.15 - 7/10/2015 Soil	0.15 - 7/10/2015 Soil	0.15 - 7/10/2015 Soil	- 7/10/2015 Soil	- 7/10/2015 Soil
Depth Composite Reference Date Sampled Type of sample Date extracted	 	0.15 - 7/10/2015 Soil 09/10/2015	0.15 - 7/10/2015 Soil 09/10/2015	0.15 - 7/10/2015 Soil 09/10/2015	7/10/2015 Soil	- 7/10/2015 Soil 09/10/2015
Depth Composite Reference Date Sampled Type of sample Date extracted Date analysed	 - -	0.15 - 7/10/2015 Soil 09/10/2015 10/10/2015	0.15 - 7/10/2015 Soil 09/10/2015 10/10/2015	0.15 - 7/10/2015 Soil 09/10/2015 10/10/2015	- 7/10/2015 Soil 09/10/2015 10/10/2015	- 7/10/2015 Soil 09/10/2015 10/10/2015
Depth Composite Reference Date Sampled Type of sample Date extracted Date analysed TRHC6 - C9	 - mg/kg	0.15 - 7/10/2015 Soil 09/10/2015 10/10/2015 <25	0.15 - 7/10/2015 Soil 09/10/2015 10/10/2015 <25	0.15 - 7/10/2015 Soil 09/10/2015 10/10/2015 <25	- 7/10/2015 Soil 09/10/2015 10/10/2015 [NA]	- 7/10/2015 Soil 09/10/2015 10/10/2015 [NA]
Depth Composite Reference Date Sampled Type of sample Date extracted Date analysed TRHC6 - C9 TRHC6 - C10	 - mg/kg mg/kg	0.15 - 7/10/2015 Soil 09/10/2015 10/10/2015 <25 <25	0.15 - 7/10/2015 Soil 09/10/2015 10/10/2015 <25 <25	0.15 - 7/10/2015 Soil 09/10/2015 10/10/2015 <25 <25	- 7/10/2015 Soil 09/10/2015 10/10/2015 [NA] [NA]	- 7/10/2015 Soil 09/10/2015 10/10/2015 [NA] [NA]
Depth Composite Reference Date Sampled Type of sample Date extracted Date analysed TRHC6 - C9 TRHC6 - C10 vTPHC6 - C10 less BTEX (F1)	 - mg/kg mg/kg mg/kg	0.15 - 7/10/2015 Soil 09/10/2015 10/10/2015 <25 <25 <25 <25	0.15 - 7/10/2015 Soil 09/10/2015 10/10/2015 <25 <25 <25 <25	0.15 - 7/10/2015 Soil 09/10/2015 10/10/2015 <25 <25 <25	7/10/2015 Soil 09/10/2015 10/10/2015 [NA] [NA] [NA]	- 7/10/2015 Soil 09/10/2015 10/10/2015 [NA] [NA] [NA]
Depth Composite Reference Date Sampled Type of sample Date extracted Date analysed TRHC6 - C9 TRHC6 - C10 vTPHC6 - C10 less BTEX (F1) Benzene	 - mg/kg mg/kg mg/kg mg/kg	0.15 - 7/10/2015 Soil 09/10/2015 10/10/2015 <25 <25 <25 <25 <0.2	0.15 - 7/10/2015 Soil 09/10/2015 10/10/2015 <25 <25 <25 <25 <0.2	0.15 - 7/10/2015 Soil 09/10/2015 10/10/2015 <25 <25 <25 <25 <0.2	- 7/10/2015 Soil 09/10/2015 10/10/2015 [NA] [NA] [NA] 99%	- 7/10/2015 Soil 09/10/2015 10/10/2015 [NA] [NA] [NA] 97%
Depth Composite Reference Date Sampled Type of sample Date extracted Date analysed TRHC6 - C9 TRHC6 - C10 vTPHC6 - C10 less BTEX (F1) Benzene Toluene	 - mg/kg mg/kg mg/kg mg/kg mg/kg	0.15 - 7/10/2015 Soil 09/10/2015 10/10/2015 <25 <25 <25 <25 <0.2 <0.2 <0.5	0.15 - 7/10/2015 Soil 09/10/2015 10/10/2015 <25 <25 <25 <25 <0.2 <0.2 <0.5	0.15 - 7/10/2015 Soil 09/10/2015 10/10/2015 <25 <25 <25 <25 <0.2 <0.2 <0.5	- 7/10/2015 Soil 09/10/2015 10/10/2015 [NA] [NA] [NA] 99% 98%	- 7/10/2015 Soil 09/10/2015 10/10/2015 [NA] [NA] [NA] 97% 97%
Depth Composite Reference Date Sampled Type of sample Date extracted Date analysed TRHC6 - C9 TRHC6 - C10 vTPHC6 - C10 less BTEX (F1) Benzene Toluene Ethylbenzene	 mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	0.15 - 7/10/2015 Soil 09/10/2015 10/10/2015 <25 <25 <25 <25 <0.2 <0.2 <0.5 <1	0.15 - 7/10/2015 Soil 09/10/2015 10/10/2015 <25 <25 <25 <25 <0.2 <0.2 <0.5 <1	0.15 - 7/10/2015 Soil 09/10/2015 10/10/2015 <25 <25 <25 <25 <0.2 <0.2 <0.5 <1	- 7/10/2015 Soil 09/10/2015 10/10/2015 [NA] [NA] 99% 98% 97%	- 7/10/2015 Soil 09/10/2015 10/10/2015 [NA] [NA] [NA] 97% 97% 97%
Depth Composite Reference Date Sampled Type of sample Date extracted Date analysed TRHC6 - C9 TRHC6 - C10 vTPHC6 - C10 less BTEX (F1) Benzene Toluene Ethylbenzene m+p-xylene	 mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	0.15 - 7/10/2015 Soil 09/10/2015 10/10/2015 <25 <25 <25 <25 <0.2 <0.2 <0.5 <1 <2	0.15 - 7/10/2015 Soil 09/10/2015 10/10/2015 <25 <25 <25 <25 <0.2 <0.2 <0.5 <1 <2	0.15 - 7/10/2015 Soil 09/10/2015 10/10/2015 <25 <25 <25 <25 <0.2 <0.5 <1 <2	- 7/10/2015 Soil 09/10/2015 10/10/2015 [NA] [NA] [NA] 99% 98% 97% 99%	- 7/10/2015 Soil 09/10/2015 [NA] [NA] [NA] 97% 97% 97% 96%
Depth Composite Reference Date Sampled Type of sample Date extracted Date analysed TRHC6 - C9 TRHC6 - C10 vTPHC6 - C10 less BTEX (F1) Benzene Toluene Ethylbenzene m+p-xylene o-Xylene	 mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	0.15 - 7/10/2015 Soil 09/10/2015 10/10/2015 <25 <25 <25 <25 <0.2 <0.2 <0.5 <1 <2 <1	0.15 - 7/10/2015 Soil 09/10/2015 10/10/2015 <25 <25 <25 <25 <0.2 <0.2 <0.5 <1 <2 <1 <2	0.15 - 7/10/2015 Soil 09/10/2015 10/10/2015 <25 <25 <25 <25 <0.2 <0.2 <0.5 <1 <2 <1	- 7/10/2015 Soil 09/10/2015 10/10/2015 [NA] [NA] [NA] 99% 98% 97% 98%	- 7/10/2015 Soil 09/10/2015 10/10/2015 [NA] [NA] [NA] 97% 97% 97% 96% 98%
Depth Composite Reference Date Sampled Type of sample Date extracted Date analysed TRHC6 - C9 TRHC6 - C10 vTPHC6 - C10 less BTEX (F1) Benzene Toluene Ethylbenzene m+p-xylene o-Xylene naphthalene	- mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	0.15 - 7/10/2015 Soil 09/10/2015 10/10/2015 <25 <25 <25 <25 <0.2 <0.2 <0.5 <1 <2 <1 <2 <1 <1	0.15 - 7/10/2015 Soil 09/10/2015 10/10/2015 <25 <25 <25 <25 <0.2 <0.2 <0.5 <1 <2 <1 <1 <1	0.15 - 7/10/2015 Soil 09/10/2015 10/10/2015 <25 <25 <25 <0.2 <0.2 <0.5 <1 <2 <1 <2 <1 <1	- 7/10/2015 Soil 09/10/2015 10/10/2015 [NA] [NA] 99% 98% 97% 99% 98% [NA]	- 7/10/2015 Soil 09/10/2015 10/10/2015 [NA] [NA] 97% 97% 97% 97% 96% 98% [NA]

## Client Reference: P1504996COC01V01, South Werrington

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	135605-52	135605-56	135605-59	135605-61	135605-63
Your Reference		4996/TP201	4996/TP202	4996/TP203	4996/TP204	4996/TP207
Depth		0.5	0.15	0.15	0.15	0.15
Composite Reference		-	-	-	-	-
Date Sampled		7/10/2015	7/10/2015	7/10/2015	7/10/2015	7/10/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	09/10/2015	09/10/2015	09/10/2015	09/10/2015	09/10/2015
Date analysed	-	09/10/2015	09/10/2015	09/10/2015	09/10/2015	09/10/2015
TRHC 10 - C14	mg/kg	<50	<50	<50	<50	<50
TRHC 15 - C28	mg/kg	<100	<100	<100	<100	<100
TRHC29 - C36	mg/kg	<100	<100	<100	<100	<100
TRH>C10-C16	mg/kg	<50	<50	<50	<50	<50
TRH>C10 - C16 less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C16-C34	mg/kg	<100	<100	<100	<100	<100
TRH>C34-C40	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	90	91	91	91	92

svTRH (C10-C40) in Soil				
Our Reference:	UNITS	135605-65	135605-69	135605-74
Your Reference		4996/TP208	4996/TP210	4996/TP212
Depth		0.15	0.15	0.15
Composite Reference		-	-	-
Date Sampled		7/10/2015	7/10/2015	7/10/2015
Type of sample		Soil	Soil	Soil
Date extracted	-	09/10/2015	09/10/2015	09/10/2015
Date analysed	-	09/10/2015	09/10/2015	10/10/2015
TRHC 10 - C14	mg/kg	<50	<50	<50
TRHC 15 - C28	mg/kg	<100	<100	<100
TRHC29 - C36	mg/kg	<100	<100	<100
TRH>C10-C16	mg/kg	<50	<50	<50
TRH>C10 - C16 less Naphthalene (F2)	mg/kg	<50	<50	<50
TRH>C16-C34	mg/kg	<100	<100	<100
TRH>C34-C40	mg/kg	<100	<100	<100
Surrogate o-Terphenyl	%	95	92	93

#### P1504996COC01V01, South Werrington Client Reference:

PAHs in Soil						
Our Reference:	UNITS	135605-52	135605-56	135605-59	135605-61	135605-63
Your Reference		4996/TP201	4996/TP202	4996/TP203	4996/TP204	4996/TP207
Depth		0.5	0.15	0.15	0.15	0.15
Composite Reference		-	-	-	-	-
Date Sampled		7/10/2015	7/10/2015	7/10/2015	7/10/2015	7/10/2015
l ype of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	09/10/2015	09/10/2015	09/10/2015	09/10/2015	09/10/2015
Date analysed	-	09/10/2015	09/10/2015	09/10/2015	09/10/2015	09/10/2015
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total Positive PAHs	mg/kg	NIL(+)VE	NIL(+)VE	NIL(+)VE	NIL(+)VE	NIL(+)VE
Surrogate p-Terphenyl-d14	%	93	95	95	99	99
PAHs in Soil						
--------------------------------	-------	-------------------	-------------------	-------------------		
Our Reference:	UNITS	135605-65	135605-69	135605-74		
Your Reference		4996/TP208	4996/TP210	4996/TP212		
Depth		0.15	0.15	0.15		
Composite Reference		-	-	-		
Date Sampled		7/10/2015 Soil	7/10/2015 Soil	7/10/2015 Soil		
Date extracted	-	09/10/2015	09/10/2015	09/10/2015		
Date analysed	-	09/10/2015	09/10/2015	09/10/2015		
Naphthalene	mg/kg	<0.1	<0.1	<0.1		
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1		
Acenaphthene	mg/kg	<0.1	<0.1	<0.1		
Fluorene	mg/kg	<0.1	<0.1	<0.1		
Phenanthrene	mg/kg	<0.1	<0.1	<0.1		
Anthracene	mg/kg	<0.1	<0.1	<0.1		
Fluoranthene	mg/kg	<0.1	<0.1	<0.1		
Pyrene	mg/kg	<0.1	<0.1	<0.1		
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1		
Chrysene	mg/kg	<0.1	<0.1	<0.1		
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2		
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05		
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1		
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1		
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1		
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5		
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5		
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5		
Total Positive PAHs	mg/kg	NIL(+)VE	NIL(+)VE	NIL(+)VE		
Surrogate p-Terphenyl-d14	%	94	96	86		

Client Reference:	P1504996COC01V01, South Werrington
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Organochlorine Pesticides in soil						
Our Reference:	UNITS	135605-37	135605-38	135605-39	135605-40	135605-41
Your Reference		C1	C2	СЗ	C4	C5
Depth		0.1	0.1	0.1	0.1	0.1
Composite Reference		1+2+3	4+5+6	7+8+9	10+11+12	13+14+15
Date Sampled		7/10/2015 Soil	7/10/2015 Soil	7/10/2015 Soil	7/10/2015 Soil	7/10/2015 Soil
		301	301	301	301	301
Date extracted	-	09/10/2015	09/10/2015	09/10/2015	09/10/2015	09/10/2015
Date analysed	-	10/10/2015	10/10/2015	10/10/2015	10/10/2015	10/10/2015
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	93	92	94	97	98

Organochlorine Pesticides in soil						
Our Reference:	UNITS	135605-42	135605-43	135605-44	135605-45	135605-46
Your Reference		C6	C7	C8	C9	C10
Depth		0.1	0.1	0.1	0.1	0.1
Composite Reference		16+17+18	19+20+21	22+23+24	25+26+27	28+29+30
Date Sampled		7/10/2015 Soil	7/10/2015 Soil	7/10/2015 Soil	7/10/2015 Soil	7/10/2015 Soil
		301	301	301	301	301
Date extracted	-	09/10/2015	09/10/2015	09/10/2015	09/10/2015	09/10/2015
Date analysed	-	10/10/2015	10/10/2015	10/10/2015	10/10/2015	10/10/2015
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	93	97	94	96	93

Organochlorine Pesticides in soil						
Our Reference:	UNITS	135605-47	135605-48	135605-52	135605-56	135605-59
Your Reference		C11	C12	4996/TP201	4996/TP202	4996/TP203
Depth		0.1	0.1	0.5	0.15	0.15
Composite Reference		31+32+33	34+35+36	-	-	-
DateSampled		7/10/2015	7/10/2015	7/10/2015	7/10/2015	7/10/2015
I ype of sample		Soll	Soll	Soil	Soll	Soil
Date extracted	-	09/10/2015	09/10/2015	09/10/2015	09/10/2015	09/10/2015
Date analysed	-	10/10/2015	10/10/2015	10/10/2015	10/10/2015	10/10/2015
НСВ	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	93	95	95	95	94

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Organochlorine Pesticides in soil						
Our Reference:	UNITS	135605-61	135605-63	135605-65	135605-69	135605-74
Your Reference		4996/TP204	4996/TP207	4996/TP208	4996/TP210	4996/TP212
Depth		0.15	0.15	0.15	0.15	0.15
Composite Reference		-	-	-	-	-
Date Sampled		7/10/2015	7/10/2015	7/10/2015	7/10/2015	7/10/2015
		301	301	301	301	301
Date extracted	-	09/10/2015	09/10/2015	09/10/2015	09/10/2015	09/10/2015
Date analysed	-	10/10/2015	10/10/2015	10/10/2015	10/10/2015	10/10/2015
НСВ	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	94	94	96	94	96

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Organophosphorus Pesticides						
Our Reference:	UNITS	135605-37	135605-38	135605-39	135605-40	135605-41
Your Reference		C1	C2	C3	C4	C5
Depth Composite Reference		0.1	0.1	0.1	0.1	0.1
Date Sampled		7/10/2015	7/10/2015	7/10/2015	7/10/2015	7/10/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	09/10/2015	09/10/2015	09/10/2015	09/10/2015	09/10/2015
Date analysed	-	10/10/2015	10/10/2015	10/10/2015	10/10/2015	10/10/2015
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	ma/ka	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	ma/ka	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	ma/ka	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	93	92	94	97	98
Organophosphorus Pesticides						
Our Reference:	UNITS	135605-42	135605-43	135605-44	135605-45	135605-46
Your Reference		C6	C7	C8	C9	C10
Depth		0.1	0.1	0.1	0.1	0.1
Composite Reference Date Sampled		16+17+18 7/10/2015	19+20+21 7/10/2015	22+23+24	25+26+27	28+29+30
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	09/10/2015	09/10/2015	09/10/2015	09/10/2015	09/10/2015
Date analysed	-	10/10/2015	10/10/2015	10/10/2015	10/10/2015	10/10/2015
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	ma/ka	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	ma/ka	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	ma/ka	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	ma/ka	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	ma/ka	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	ma/ka	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	93	97	94	96	93
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Organophosphorus Pesticides						
Our Reference:	UNITS	135605-47	135605-48	135605-52	135605-56	135605-59
Your Reference		C11	C12	4996/TP201	4996/TP202	4996/TP203
Depth		0.1	0.1	0.5	0.15	0.15
Composite Reference		31+32+33	34+35+36	-	- 7/10/2015	-
Type of sample		Soil	Soil	Soil	Soil	Soil
Data avtracted		00/10/2015	00/10/2015	00/10/2015	00/10/2015	00/10/2015
Date excluded	-	09/10/2015	09/10/2015	09/10/2015	09/10/2015	09/10/2015
Date analysed	-	10/10/2015	10/10/2015	10/10/2015	10/10/2015	10/10/2015
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	93	95	95	95	94
	1					
Organophosphorus Pesticides						
Our Reference:	UNITS	135605-61	135605-63	135605-65	135605-69	135605-74
Your Reference		4996/TP204 0.15	4996/TP207 0.15	4996/TP208 0.15	4996/TP210 0.15	4996/TP212 0.15
Composite Reference		-	-	-	-	-
DateSampled		7/10/2015	7/10/2015	7/10/2015	7/10/2015	7/10/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	09/10/2015	09/10/2015	09/10/2015	09/10/2015	09/10/2015
Date analysed	-	10/10/2015	10/10/2015	10/10/2015	10/10/2015	10/10/2015
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	ma/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	ma/ka	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	ma/ka	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	ma/ka	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	ma/ka	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	ma/ka	<0.1	<0.1	<0.1	<0.1	~0.1
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Surrogate ICMX	70	94	94	90	94	90

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PCBs in Soil						
Our Reference:	UNITS	135605-52	135605-56	135605-59	135605-61	135605-63
Your Reference		4996/TP201	4996/TP202	4996/TP203	4996/TP204	4996/TP207
Depth		0.5	0.15	0.15	0.15	0.15
Composite Reference		-	-	-	-	-
Date Sampled		7/10/2015	7/10/2015	7/10/2015	7/10/2015	7/10/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	09/10/2015	09/10/2015	09/10/2015	09/10/2015	09/10/2015
Date analysed	-	10/10/2015	10/10/2015	10/10/2015	10/10/2015	10/10/2015
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	95	95	94	94	94

PCBs in Soil				
Our Reference:	UNITS	135605-65	135605-69	135605-74
Your Reference		4996/TP208	4996/TP210	4996/TP212
Depth		0.15	0.15	0.15
Composite Reference		-	-	-
Date Sampled		7/10/2015	7/10/2015	7/10/2015
Type of sample		Soil	Soil	Soil
Date extracted	-	09/10/2015	09/10/2015	09/10/2015
Date analysed	-	10/10/2015	10/10/2015	10/10/2015
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
Surrogate TCLMX	%	96	94	96
	PCBs in Soil Our Reference: Your Reference Depth Composite Reference Date Sampled Type of sample Date extracted Date analysed Aroclor 1016 Aroclor 1221 Aroclor 1222 Aroclor 1242 Aroclor 1242 Aroclor 1248 Aroclor 1254 Aroclor 1260 Surrogate TCLMX	PCBs in SoilUNITSOur Reference:UNITSYour ReferenceDepthComposite ReferenceDate SampledType of sample-Date extracted-Date analysed-Aroclor 1016mg/kgAroclor 1221mg/kgAroclor 1232mg/kgAroclor 1242mg/kgAroclor 1244mg/kgAroclor 1254mg/kgAroclor 1260mg/kgSurrogate TCLMX%	PCBs in Soil         UNITS         135605-65           Our Reference:         UNITS         135605-65           Your Reference          4996/TP208           Depth          0.15           Composite Reference         -         -           Date Sampled         7/10/2015         Soil           Type of sample         -         09/10/2015           Date extracted         -         09/10/2015           Date analysed         -         10/10/2015           Aroclor 1016         mg/kg         <0.1           Aroclor 1221         mg/kg         <0.1           Aroclor 1232         mg/kg         <0.1           Aroclor 1242         mg/kg         <0.1           Aroclor 1244         mg/kg         <0.1           Aroclor 1254         mg/kg         <0.1           Aroclor 1260         mg/kg         <0.1           Surrogate TCLMX         %         96	PCBs in Soil         UNITS         135605-65         135605-69           Your Reference          4996/TP208         4996/TP210           Depth          0.15         0.15           Composite Reference         -         -         -           Date Sampled         7/10/2015         7/10/2015         Soil         Soil           Date Sampled         -         09/10/2015         09/10/2015         Soil           Date extracted         -         09/10/2015         10/10/2015         10/10/2015           Date extracted         -         09/10/2015         10/10/2015         10/10/2015           Aroclor 1016         mg/kg         <0.1         <0.1            Aroclor 1221         mg/kg         <0.1         <0.1            Aroclor 1232         mg/kg         <0.1         <0.1            Aroclor 1248         mg/kg         <0.1         <0.1            Aroclor 1254         mg/kg         <0.1         <0.1         <0.1           Aroclor 1260         mg/kg         <0.1         <0.1         <0.1           Aroclor 1260         mg/kg         <0.1         <0.1         <0.1

Acid Extractable metals in soil						
Our Reference:	UNITS	135605-37	135605-38	135605-39	135605-40	135605-41
Your Reference		C1	C2	СЗ	C4	C5
Depth		0.1	0.1	0.1	0.1	0.1
Composite Reference		1+2+3	4+5+6	7+8+9	10+11+12	13+14+15
Date Sampled		7/10/2015	7/10/2015	7/10/2015	7/10/2015	7/10/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	09/10/2015	09/10/2015	09/10/2015	09/10/2015	09/10/2015
Date analysed	-	09/10/2015	09/10/2015	09/10/2015	09/10/2015	09/10/2015
Arsenic	mg/kg	6	8	9	<4	5
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	19	32	18	16	16
Copper	mg/kg	11	9	22	8	14
Lead	mg/kg	33	24	22	18	19
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	5	6	12	5	7
Zinc	mg/kg	44	30	54	19	33

Acid Extractable metals in soil						
Our Reference:	UNITS	135605-42	135605-43	135605-44	135605-45	135605-46
Your Reference		C6	C7	C8	C9	C10
Depth		0.1	0.1	0.1	0.1	0.1
Composite Reference		16+17+18	19+20+21	22+23+24	25+26+27	28+29+30
Date Sampled		7/10/2015	7/10/2015	7/10/2015	7/10/2015	7/10/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	09/10/2015	09/10/2015	09/10/2015	09/10/2015	09/10/2015
Date analysed	-	09/10/2015	09/10/2015	09/10/2015	09/10/2015	09/10/2015
Arsenic	mg/kg	9	8	16	8	7
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	36	23	21	19	15
Copper	mg/kg	10	14	32	20	26
Lead	mg/kg	29	25	33	24	21
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	7	8	8	11	12
Zinc	mg/kg	25	28	43	38	49

Å	Acid Extractable metals in soil						
	Our Reference:	UNITS	135605-47	135605-48	135605-52	135605-56	135605-59
	Your Reference		C11	C12	4996/TP201	4996/TP202	4996/TP203
	Depth		0.1	0.1	0.5	0.15	0.15
	Composite Reference		31+32+33	34+35+36	-	-	-
	Date Sampled		7/10/2015	7/10/2015	7/10/2015	7/10/2015	7/10/2015
	Type of sample		Soil	Soil	Soil	Soil	Soil
	Date prepared	-	09/10/2015	09/10/2015	09/10/2015	09/10/2015	09/10/2015
	Date analysed	-	09/10/2015	09/10/2015	09/10/2015	09/10/2015	09/10/2015
	Arsenic	mg/kg	8	8	4	6	7
	Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
	Chromium	mg/kg	16	19	20	20	20
	Copper	mg/kg	24	14	12	11	14
	Lead	mg/kg	22	24	10	29	31
	Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
	Nickel	mg/kg	16	10	5	5	7
	Zinc	mg/kg	45	27	10	53	43
		1	1	1	1		
ŀ	Acid Extractable metals in soil						
	Our Reference:	UNITS	135605-61	135605-63	135605-65	135605-69	135605-74
	Your Reference		4996/TP204	4996/TP207	4996/TP208	4996/TP210	4996/TP212
	Depth		0.15	0.15	0.15	0.15	0.15
	Composite Reference		-	-	-	-	-
1	Date Sampled		7/10/2015	7/10/2015	7/10/2015	7/10/2015	7/10/2015

Soil

09/10/2015

09/10/2015

11

<0.4

24

25

28

<0.1

6

34

-

-

mg/kg

mg/kg

mg/kg

mg/kg

mg/kg

mg/kg

mg/kg

mg/kg

Soil

09/10/2015

09/10/2015

7

<0.4

20

14

29

<0.1

7

32

Soil

09/10/2015

09/10/2015

5

<0.4

18

10

15

<0.1

7

15

Soil

09/10/2015

09/10/2015

7

<0.4

23

8

24

<0.1

5

22

Soil

09/10/2015

09/10/2015

10

<0.4

35

13

25

<0.1

8

19

Type of sample

Date prepared

Date analysed

Arsenic

Cadmium

Chromium

Copper

Lead

Mercury

Nickel

Zinc

Acid Extractable metals in soil			
Our Reference:	UNITS	135605-79	135605-82
Your Reference		4996/DUP101	4996/DUP104
Depth		-	-
Composite Reference		-	-
Date Sampled		7/10/2015	7/10/2015
Type of sample		Soil	Soil
Date prepared	-	09/10/2015	09/10/2015
Date analysed	-	09/10/2015	09/10/2015
Arsenic	mg/kg	5	6
Cadmium	mg/kg	<0.4	<0.4
Chromium	mg/kg	19	22
Copper	mg/kg	11	14
Lead	mg/kg	19	16
Mercury	mg/kg	<0.1	<0.1
Nickel	mg/kg	6	7
Zinc	mg/kg	26	20

	1					
Moisture						
Our Reference:	UNITS	135605-37	135605-38	135605-39	135605-40	135605-41
Your Reference		C1	C2	C3	C4	C5
Depth		0.1	0.1	0.1	0.1	0.1
Composite Reference		1+2+3	4+5+6	7+8+9	10+11+12	13+14+15
Date Sampled		7/10/2015	7/10/2015	7/10/2015	7/10/2015	7/10/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	9/10/2015	9/10/2015	9/10/2015	9/10/2015	9/10/2015
Date analysed	-	12/10/2015	12/10/2015	12/10/2015	12/10/2015	12/10/2015
Moisture	%	13	14	17	19	26
Majatura	1					
Moisture Our Deference:		405005 40	105005 40	105005 11	105005 45	105005 40
Our Reference:	UNITS	135605-42	135605-43	135605-44	135605-45	135605-46
Your Reference		06	07	60	C9	C10
Depth		0.1	0.1	0.1	0.1	0.1
Composite Reference		16+17+18	19+20+21	22+23+24	25+26+27	28+29+30
Date Sampled		7/10/2015 Soil	7/10/2015 Soil	7/10/2015 Soil	7/10/2015 Soil	7/10/2015 Soil
Type of sample			501	501	501	501
Date prepared	-	9/10/2015	9/10/2015	9/10/2015	9/10/2015	9/10/2015
Date analysed	-	12/10/2015	12/10/2015	12/10/2015	12/10/2015	12/10/2015
Moisture	%	13	12	10	9.8	21
Meieture						
Our Reference:	LINITS	125605 47	125605 49	125605 52	125605 56	125605 50
Vour Reference.	UNITS	133003-47	133003-46	1006/TD201	133003-30 4006/TD202	1006/TD202
Posth		0.1	0.1	4990/1F201	4990/TF202	4990/1F203
Depin		0.1	0.1	0.5	0.15	0.15
Composite Defenses		24.22.22	24.25.20			
Composite Reference		31+32+33	34+35+36 7/10/2015	- 7/10/2015	-	- 7/10/2015
Composite Reference Date Sampled Type of sample		31+32+33 7/10/2015 Soil	34+35+36 7/10/2015 Soil	- 7/10/2015 Soil	- 7/10/2015 Soil	- 7/10/2015 Soil
Composite Reference Date Sampled Type of sample		31+32+33 7/10/2015 Soil	34+35+36 7/10/2015 Soil	- 7/10/2015 Soil	- 7/10/2015 Soil	- 7/10/2015 Soil
Composite Reference Date Sampled Type of sample Date prepared	-	31+32+33 7/10/2015 Soil 9/10/2015	34+35+36 7/10/2015 Soil 9/10/2015	7/10/2015 Soil 9/10/2015	7/10/2015 Soil 9/10/2015	7/10/2015 Soil 9/10/2015
Composite Reference Date Sampled Type of sample Date prepared Date analysed	-	31+32+33 7/10/2015 Soil 9/10/2015 12/10/2015	34+35+36 7/10/2015 Soil 9/10/2015 12/10/2015	7/10/2015 Soil 9/10/2015 12/10/2015	7/10/2015 Soil 9/10/2015 12/10/2015	7/10/2015 Soil 9/10/2015 12/10/2015
Composite Reference Date Sampled Type of sample Date prepared Date analysed Moisture	- - %	31+32+33 7/10/2015 Soil 9/10/2015 12/10/2015 18	34+35+36 7/10/2015 Soil 9/10/2015 12/10/2015 24	7/10/2015 Soil 9/10/2015 12/10/2015 19	7/10/2015 Soil 9/10/2015 12/10/2015 12	7/10/2015 Soil 9/10/2015 12/10/2015 16
Composite Reference Date Sampled Type of sample Date prepared Date analysed Moisture	- - %	31+32+33 7/10/2015 Soil 9/10/2015 12/10/2015 18	34+35+36 7/10/2015 Soil 9/10/2015 12/10/2015 24	7/10/2015 Soil 9/10/2015 12/10/2015 19	7/10/2015 Soil 9/10/2015 12/10/2015 12	7/10/2015 Soil 9/10/2015 12/10/2015 16
Composite Reference Date Sampled Type of sample Date prepared Date analysed Moisture Our Reference:	- - %	31+32+33 7/10/2015 Soil 9/10/2015 12/10/2015 18 135605-61	34+35+36 7/10/2015 Soil 9/10/2015 12/10/2015 24	7/10/2015 Soil 9/10/2015 12/10/2015 19	7/10/2015 Soil 9/10/2015 12/10/2015 12	7/10/2015 Soil 9/10/2015 12/10/2015 16 135605-74
Composite Reference Date Sampled Type of sample Date prepared Date analysed Moisture Moisture Our Reference: Your Reference	- - % UNITS	31+32+33 7/10/2015 Soil 9/10/2015 12/10/2015 18 135605-61 4996/TP204	34+35+36 7/10/2015 Soil 9/10/2015 12/10/2015 24 135605-63 4996/TP207	7/10/2015 Soil 9/10/2015 12/10/2015 19 135605-65 4996/TP208	7/10/2015 Soil 9/10/2015 12/10/2015 12 135605-69 4996/TP210	- 7/10/2015 Soil 9/10/2015 12/10/2015 16 135605-74 4996/TP212
Composite Reference Date Sampled Type of sample Date prepared Date analysed Moisture Our Reference: Your Reference	- - % UNITS	31+32+33 7/10/2015 Soil 9/10/2015 12/10/2015 18 135605-61 4996/TP204 0.15	34+35+36 7/10/2015 Soil 9/10/2015 12/10/2015 24 135605-63 4996/TP207 0.15	7/10/2015 Soil 9/10/2015 12/10/2015 19 135605-65 4996/TP208 0.15	7/10/2015 Soil 9/10/2015 12/10/2015 12 135605-69 4996/TP210 0.15	- 7/10/2015 Soil 9/10/2015 12/10/2015 16 135605-74 4996/TP212 0.15
Composite Reference Date Sampled Type of sample Date prepared Date analysed Moisture Our Reference: Your Reference Depth	- - % UNITS 	31+32+33 7/10/2015 Soil 9/10/2015 12/10/2015 18 135605-61 4996/TP204 0.15	34+35+36 7/10/2015 Soil 9/10/2015 12/10/2015 24 135605-63 4996/TP207 0.15	7/10/2015 Soil 9/10/2015 12/10/2015 19 135605-65 4996/TP208 0.15	7/10/2015 Soil 9/10/2015 12/10/2015 12 135605-69 4996/TP210 0.15	7/10/2015 Soil 9/10/2015 12/10/2015 16 135605-74 4996/TP212 0.15
Composite Reference Date Sampled Type of sample Date prepared Date analysed Moisture Our Reference: Your Reference Depth Composite Reference	- - % UNITS 	31+32+33 7/10/2015 Soil 9/10/2015 12/10/2015 18 135605-61 4996/TP204 0.15 - 7/10/2015	34+35+36 7/10/2015 Soil 9/10/2015 12/10/2015 24 135605-63 4996/TP207 0.15 - 7/10/2015	7/10/2015 Soil 9/10/2015 12/10/2015 19 135605-65 4996/TP208 0.15	7/10/2015 Soil 9/10/2015 12/10/2015 12 135605-69 4996/TP210 0.15 - 7/10/2015	7/10/2015 Soil 9/10/2015 12/10/2015 16 135605-74 4996/TP212 0.15 - 7/10/2015
Composite Reference Date Sampled Type of sample Date prepared Date analysed Moisture Our Reference: Your Reference Depth Composite Reference Date Sampled Type of sample	- - % UNITS 	31+32+33 7/10/2015 Soil 9/10/2015 12/10/2015 18 135605-61 4996/TP204 0.15 - 7/10/2015 Soil	34+35+36 7/10/2015 Soil 9/10/2015 12/10/2015 24 135605-63 4996/TP207 0.15 - 7/10/2015 Soil	7/10/2015 Soil 9/10/2015 12/10/2015 19 135605-65 4996/TP208 0.15 - 7/10/2015 Soil	7/10/2015 Soil 9/10/2015 12/10/2015 12 135605-69 4996/TP210 0.15 - 7/10/2015 Soil	- 7/10/2015 Soil 9/10/2015 12/10/2015 16 135605-74 4996/TP212 0.15 - 7/10/2015 Soil
Composite Reference Date Sampled Type of sample Date prepared Date analysed Moisture Our Reference: Your Reference Depth Composite Reference Date Sampled Type of sample	- - % UNITS 	31+32+33 7/10/2015 Soil 9/10/2015 12/10/2015 18 135605-61 4996/TP204 0.15 - 7/10/2015 Soil	34+35+36 7/10/2015 Soil 9/10/2015 12/10/2015 24 135605-63 4996/TP207 0.15 - 7/10/2015 Soil	7/10/2015 Soil 9/10/2015 12/10/2015 19 135605-65 4996/TP208 0.15 - 7/10/2015 Soil	7/10/2015 Soil 9/10/2015 12/10/2015 12 135605-69 4996/TP210 0.15 - 7/10/2015 Soil	7/10/2015 Soil 9/10/2015 12/10/2015 16 135605-74 4996/TP212 0.15 - 7/10/2015 Soil
Composite Reference Date Sampled Type of sample Date prepared Date analysed Moisture Our Reference: Your Reference Depth Composite Reference Date Sampled Type of sample	- - % UNITS 	31+32+33 7/10/2015 Soil 9/10/2015 12/10/2015 18 135605-61 4996/TP204 0.15 - 7/10/2015 Soil 9/10/2015	34+35+36 7/10/2015 Soil 9/10/2015 12/10/2015 24 135605-63 4996/TP207 0.15 - 7/10/2015 Soil 9/10/2015	7/10/2015 Soil 9/10/2015 12/10/2015 19 135605-65 4996/TP208 0.15 - 7/10/2015 Soil 9/10/2015	7/10/2015 Soil 9/10/2015 12/10/2015 12 135605-69 4996/TP210 0.15 - 7/10/2015 Soil 9/10/2015	7/10/2015 Soil 9/10/2015 12/10/2015 16 135605-74 4996/TP212 0.15 - 7/10/2015 Soil 9/10/2015
Composite Reference Date Sampled Type of sample Date prepared Date analysed Moisture Our Reference: Your Reference Depth Composite Reference Date Sampled Type of sample Date prepared Date analysed	- - % UNITS 	31+32+33 7/10/2015 Soil 9/10/2015 12/10/2015 18 135605-61 4996/TP204 0.15 - 7/10/2015 Soil 9/10/2015 12/10/2015	34+35+36 7/10/2015 Soil 9/10/2015 12/10/2015 24 135605-63 4996/TP207 0.15 - 7/10/2015 Soil 9/10/2015 12/10/2015	7/10/2015 Soil 9/10/2015 12/10/2015 19 135605-65 4996/TP208 0.15 - 7/10/2015 Soil 9/10/2015 12/10/2015	7/10/2015 Soil 9/10/2015 12/10/2015 12 135605-69 4996/TP210 0.15 - 7/10/2015 Soil 9/10/2015 12/10/2015	7/10/2015 Soil 9/10/2015 12/10/2015 16 135605-74 4996/TP212 0.15 - 7/10/2015 Soil 9/10/2015 12/10/2015

Moisture			
Our Reference:	UNITS	135605-79	135605-82
Your Reference		4996/DUP101	4996/DUP104
Depth		-	-
Composite Reference		-	-
Date Sampled		7/10/2015	7/10/2015
Type of sample		Soil	Soil
Date prepared	-	9/10/2015	9/10/2015
Date analysed	-	12/10/2015	12/10/2015
Moisture	%	11	21

Asbestos ID - soils						
Our Reference:	UNITS	135605-52	135605-56	135605-59	135605-61	135605-63
Your Reference		4996/TP201	4996/TP202	4996/TP203	4996/TP204	4996/TP207
Depth		0.5	0.15	0.15	0.15	0.15
Composite Reference		-	-	-	-	-
Date Sampled		7/10/2015	7/10/2015	7/10/2015	7/10/2015	7/10/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	13/10/2015	13/10/2015	13/10/2015	13/10/2015	13/10/2015
Sample mass tested	g	Approx. 35g	Approx. 35g	Approx. 35g	Approx. 45g	Approx. 35g
Sample Description	-	Brown coarse grain soil & rocks				
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected				
Trace Analysis	-	No asbestos detected				
[	1	l	l	l	ı	
Asbestos ID - soils						

Asbestos ID - soils				
Our Reference:	UNITS	135605-65	135605-69	135605-74
Your Reference		4996/TP208	4996/TP210	4996/TP212
Depth		0.15	0.15	0.15
Composite Reference		-	-	-
Date Sampled		7/10/2015	7/10/2015	7/10/2015
Type of sample		Soil	Soil	Soil
Date analysed	-	13/10/2015	13/10/2015	13/10/2015
Sample mass tested	g	Approx. 35g	Approx. 35g	Approx. 35g
Sample Description	-	Brown	Brown	Brown
		coarse grain	coarse grain	coarse grain
		soil & rocks	soil & rocks	soil & rocks
Asbestos ID in soil	-	No asbestos	No asbestos	No asbestos
		detected at	detected at	detected at
		reportinglimit	reportinglimit	reportinglimit
		of 0.1g/kg	of 0.1g/kg	of 0.1g/kg
		Organic	Organic	Organic
		fibres	fibres	fibres
		detected	detected	detected
Trace Analysis	-	No asbestos	No asbestos	No asbestos
		detected	detected	detected

#### P1504996COC01V01, South Werrington Client Reference:

MethodID	Methodology Summary
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.
	F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-012 subset	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.
	1. 'TEQ PQL' values are assuming all contributing PAHs reported as <pql actually="" and="" approach="" are="" at="" be="" calculation="" can="" conservative="" contribute="" false="" give="" given="" is="" may="" most="" not="" pahs="" positive="" pql.="" present.<="" td="" teq="" teqs="" that="" the="" this="" to=""></pql>
	2. 'TEQ zero' values are assuming all contributing PAHs reported as <pql and="" approach="" are="" below="" but="" calculation="" conservative="" contribute="" false="" is="" least="" more="" negative="" pahs="" pql.<="" present="" susceptible="" td="" teq="" teqs="" that="" the="" this="" to="" when="" zero.=""></pql>
	3. 'TEQ half PQL' values are assuming all contributing PAHs reported as <pql are="" half="" pql.<br="" stipulated="" the="">Hence a mid-point between the most and least conservative approaches above.</pql>
	Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Metals-020 ICP- AES	Determination of various metals by ICP-AES.
Metals-021 CV- AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 12 hours.
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.

R 00

**Client Reference:** P1504996COC01V01, South Werrington QUALITYCONTROL UNITS PQL METHOD Blank Duplicate Duplicate results Spike Sm# Spike % Sm# Recovery vTRH(C6-C10)/BTEXNin Base II Duplicate II % RPD Soil 09/10/2 135605-52 09/10/2015 || 09/10/2015 LCS-1 09/10/2015 Date extracted 015 10/10/2 135605-52 10/10/2015||10/10/2015 LCS-1 10/10/2015 Date analysed 015 TRHC6-C9 25 Org-016 <25 135605-52 <25 || <25 LCS-1 103% mg/kg 25 Org-016 <25 135605-52 <25||<25 LCS-1 103% TRHC6 - C10 mg/kg 97% Benzene 0.2 Org-016 <0.2 135605-52 <0.2 || <0.2 LCS-1 mg/kg Toluene 0.5 Org-016 <0.5 135605-52 <0.5 || <0.5 LCS-1 104% mg/kg Ethylbenzene 1 Org-016 <1 135605-52 <1||<1 LCS-1 103% mg/kg 2 Org-016 <2 135605-52 <2||<2 LCS-1 106% m+p-xylene mg/kg o-Xylene 1 Org-016 <1 135605-52 <1||<1 LCS-1 106% mg/kg naphthalene 1 Org-014 135605-52 [NR] [NR] mg/kg <1 <1||<1 % Org-016 91 135605-52 96 || 97 || RPD: 1 LCS-1 105% Surrogate aaa-Trifluorotoluene QUALITYCONTROL UNITS PQL METHOD Blank Duplicate Duplicate results Spike Sm# Spike % Sm# Recovery svTRH (C10-C40) in Soil Base II Duplicate II % RPD 09/10/2 135605-52 LCS-1 Date extracted 09/10/2015 || 09/10/2015 09/10/2015 015 09/10/2 135605-52 09/10/2015||09/10/2015 LCS-1 09/10/2015 Date analysed . 015 TRHC 10 - C14 mg/kg 50 Org-003 <50 135605-52 <50 || <50 LCS-1 130% TRHC 15 - C28 mg/kg 100 Org-003 <100 135605-52 <100||<100 LCS-1 114% TRHC29 - C36 mg/kg 100 Org-003 <100 135605-52 <100||<100 LCS-1 116% TRH>C10-C16 mg/kg 50 Org-003 <50 135605-52 <50 || <50 LCS-1 130% TRH>C16-C34 mg/kg 100 Org-003 <100 135605-52 <100||<100 LCS-1 114% LCS-1 TRH>C34-C40 mg/kg 100 Org-003 <100 135605-52 <100||<100 116% Surrogate o-Terphenyl % Org-003 100 135605-52 90 || 90 || RPD: 0 LCS-1 115% UNITS PQL **QUALITY CONTROL** METHOD Blank Duplicate Duplicate results Spike Sm# Spike % Sm# Recovery PAHs in Soil Base II Duplicate II % RPD Date extracted 09/10/2 135605-52 09/10/2015||09/10/2015 LCS-1 09/10/2015 015 09/10/2 Date analysed 135605-52 09/10/2015 || 09/10/2015 LCS-1 09/10/2015 015 Org-012 Naphthalene 0.1 <0.1 135605-52 <0.1 || <0.1 LCS-1 102% mg/kg subset Org-012 Acenaphthylene 135605-52 <0.1 || <0.1 [NR] [NR] mg/kg 0.1 <0.1 subset Acenaphthene Org-012 <0.1 135605-52 <0.1 || <0.1 [NR] [NR] mg/kg 0.1 subset Fluorene mg/kg 0.1 Org-012 <0.1 135605-52 <0.1 || <0.1 LCS-1 108% subset LCS-1 Phenanthrene Org-012 <0.1 135605-52 105% mg/kg 0.1 <0.1 || < 0.1 subset Anthracene Org-012 <0.1 135605-52 [NR] [NR] mg/kg 0.1 <0.1 || < 0.1 subset mg/kg Org-012 <0.1 135605-52 LCS-1 92% Fluoranthene 0.1 <0.1 || <0.1 subset

Envirolab Reference: 135605 Revision No: R 00

Client Reference: P1504996COC01V01, South Werrington								
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II % RPD		-
Pyrene	mg/kg	0.1	Org-012 subset	<0.1	135605-52	<0.1  <0.1	LCS-1	94%
Benzo(a)anthracene	mg/kg	0.1	Org-012 subset	<0.1	135605-52	<0.1  <0.1	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012 subset	<0.1	135605-52	<0.1  <0.1	LCS-1	92%
Benzo(b,j+k) fluoranthene	mg/kg	0.2	Org-012 subset	<0.2	135605-52	<0.2  <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	Org-012 subset	<0.05	135605-52	<0.05  <0.05	LCS-1	116%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012 subset	<0.1	135605-52	<0.1  <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012 subset	<0.1	135605-52	<0.1  <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012 subset	<0.1	135605-52	<0.1  <0.1	[NR]	[NR]
<i>Surrogate p-</i> Terphenyl- d14	%		Org-012 subset	94	135605-52	93  100  RPD:7	LCS-1	110%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate	Duplicate results	Spike Sm#	Spike %
Organochlorine Pesticides in soil					Sm#	Base II Duplicate II % RPD		Recovery
Date extracted	-			09/10/2 015	135605-52	09/10/2015  09/10/2015	LCS-1	09/10/2015
Date analysed	-			10/10/2 015	135605-52	10/10/2015  10/10/2015	LCS-1	10/10/2015
HCB	mg/kg	0.1	Org-005	<0.1	135605-52	<0.1  <0.1	[NR]	[NR]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	135605-52	<0.1  <0.1	LCS-1	101%
gamma-BHC	mg/kg	0.1	Org-005	<0.1	135605-52	<0.1  <0.1	[NR]	[NR]
beta-BHC	mg/kg	0.1	Org-005	<0.1	135605-52	<0.1  <0.1	LCS-1	88%
Heptachlor	mg/kg	0.1	Org-005	<0.1	135605-52	<0.1  <0.1	LCS-1	90%
delta-BHC	mg/kg	0.1	Org-005	<0.1	135605-52	<0.1  <0.1	[NR]	[NR]
Aldrin	mg/kg	0.1	Org-005	<0.1	135605-52	<0.1  <0.1	LCS-1	92%
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	135605-52	<0.1  <0.1	LCS-1	90%
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	135605-52	<0.1  <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	135605-52	<0.1  <0.1	[NR]	[NR]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	135605-52	<0.1  <0.1	[NR]	[NR]
pp-DDE	mg/kg	0.1	Org-005	<0.1	135605-52	<0.1  <0.1	LCS-1	87%
Dieldrin	mg/kg	0.1	Org-005	<0.1	135605-52	<0.1  <0.1	LCS-1	119%
Endrin	mg/kg	0.1	Org-005	<0.1	135605-52	<0.1    <0.1	LCS-1	105%
pp-DDD	mg/kg	0.1	Org-005	<0.1	135605-52	<0.1    <0.1	LCS-1	97%
Endosulfan II	mg/kg	0.1	Org-005	<0.1	135605-52	<0.1    <0.1	[NR]	[NR]
pp-DDT	mg/kg	0.1	Org-005	<0.1	135605-52	<0.1  <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	135605-52	<0.1    <0.1	[NR]	[NR]
- Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	135605-52	<0.1    <0.1	LCS-1	102%
Methoxychlor	mg/kg	0.1	Org-005	<0.1	135605-52	<0.1    <0.1	[NR]	[NR]
Surrogate TCMX	%		Org-005	99	135605-52	95  95  RPD:0	LCS-1	118%

Client Reference: P1504996COC01V01, South Werrington										
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#			
Organophosphorus Pesticides						Base II Duplicate II % RPD				
Date extracted	-			09/10/2 015	135605-52	09/10/2015  09/10/2015	LCS-1			
Date analysed	-			10/10/2 015	135605-52	10/10/2015  10/10/2015	LCS-1			
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	<0.1	135605-52	<0.1  <0.1	LCS-1			
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	135605-52	<0.1  <0.1	[NR]			
Chlorpyriphos	mg/kg	0.1	Org-008	<0.1	135605-52	<0.1  <0.1	LCS-1			
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	<0.1	135605-52	<0.1  <0.1	[NR]			
Diazinon	mg/kg	0.1	Org-008	<0.1	135605-52	<0.1  <0.1	[NR]			
Dichlorvos	mg/kg	0.1	Org-008	<0.1	135605-52	<0.1  <0.1	LCS-1			
Dimethoate	mg/kg	0.1	Org-008	<0.1	135605-52	<0.1  <0.1	[NR]			
Ethion	mg/kg	0.1	Org-008	<0.1	135605-52	<0.1  <0.1	LCS-1			
Fenitrothion	mg/kg	0.1	Org-008	<0.1	135605-52	<0.1  <0.1	LCS-1			
Malathion	mg/kg	0.1	Org-008	<0.1	135605-52	<0.1  <0.1	LCS-1			
Parathion	mg/kg	0.1	Org-008	<0.1	135605-52	<0.1  <0.1	LCS-1			
Ronnel	mg/kg	0.1	Org-008	<0.1	135605-52	<0.1  <0.1	[NR]			
Surrogate TCMX	%		Org-008	99	135605-52	95  95  RPD:0	LCS-1			
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#			
PCBs in Soil						Base II Duplicate II %RPD				
Date extracted	-			09/10/2 015	135605-52	09/10/2015  09/10/2015	LCS-1			
Date analysed	-			10/10/2	135605-52	10/10/2015  10/10/2015	LCS-1			

015

<0.1

<0.1

<0.1

<0.1

<0.1

<0.1

<0.1

99

135605-52

135605-52

135605-52

135605-52

135605-52

135605-52

135605-52

135605-52

<0.1||<0.1

<0.1||<0.1

<0.1||<0.1

<0.1||<0.1

<0.1||<0.1

<0.1||<0.1

<0.1||<0.1

95||95||RPD:0

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

%

Org-006

Org-006

Org-006

Org-006

Org-006

Org-006

Org-006

Org-006

Spike % Recovery

09/10/2015

10/10/2015

96%

[NR] 98%

[NR] [NR] 107% [NR] 101% 120% 129% 72% [NR] 118%

Spike % Recovery

09/10/2015

10/10/2015

[NR]

[NR]

[NR]

[NR]

[NR]

108%

[NR]

118%

[NR]

[NR]

[NR]

[NR]

[NR]

LCS-1

[NR]

LCS-1

Aroclor 1016

Aroclor 1221

Aroclor 1232

Aroclor 1242

Aroclor 1248

Aroclor 1254

Aroclor 1260

Surrogate TCLMX

		Clie	ent Reference	e: P	1504996COC	01V01, South Werring	jton	
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
in soil						Base II Duplicate II %RPD		
Date prepared	-			09/10/2 015	135605-52	09/10/2015  09/10/2015	LCS-4	09/10/2015
Date analysed	-			09/10/2 015	135605-52	09/10/2015  09/10/2015	LCS-4	09/10/2015
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	135605-52	4  5  RPD:22	LCS-4	105%
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	135605-52	<0.4  <0.4	LCS-4	98%
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	135605-52	20  22  RPD:10	LCS-4	102%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	135605-52	12  12  RPD:0	LCS-4	106%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	135605-52	10  11  RPD:10	LCS-4	103%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	135605-52	<0.1  <0.1	LCS-4	91%
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	135605-52	5  6  RPD:18	LCS-4	99%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	135605-52	10  10  RPD:0	LCS-4	100%
QUALITY CONTROL	UNITS	6	Dup. Sm#		Duplicate			
vTRH(C6-C10)/BTEXNin Soil				Base+I	Duplicate+%RF	2D		
Date extracted	-	1	35605-74	09/10/2	2015  09/10/201	5		
Date analysed	-	1	35605-74	10/10/2	2015  10/10/201	5		
TRHC6 - C9	mg/kg	g 1	35605-74		<25  <25			
TRHC6 - C10	mg/kg	g 1	35605-74		<25  <25			
Benzene	mg/kg	g 1	35605-74		<0.2  <0.2			
Toluene	mg/kg	g   1	35605-74		<0.5  <0.5			
Ethylbenzene	mg/kg	g 1	35605-74		<1  <1			
m+p-xylene	mg/kg	g 1	35605-74		<2  <2			
o-Xylene	mg/kg	g 1	35605-74		<1  <1			
naphthalene	mg/kg	g 1	35605-74		<1  <1			
<i>Surrogate</i> aaa- Trifluorotoluene	%	1	35605-74	99	95  RPD:4			

<b>•••</b>	
Client	Reference:

P1504996COC01V01, South Werrington

QUALITY CONTROL	UNITS	Dup.Sm#	Duplicate
svTRH (C10-C40) in Soil			Base + Duplicate + % RPD
Date extracted	-	135605-74	09/10/2015  09/10/2015
Date analysed	-	135605-74	10/10/2015  10/10/2015
TRHC 10 - C14	mg/kg	135605-74	<50  <50
TRHC 15 - C28	mg/kg	135605-74	<100  <100
TRHC29 - C36	mg/kg	135605-74	<100  <100
TRH>C10-C16	mg/kg	135605-74	<50  <50
TRH>C16-C34	mg/kg	135605-74	<100  <100
TRH>C34-C40	mg/kg	135605-74	<100  <100
Surrogate o-Terphenyl	%	135605-74	93  94  RPD:1
QUALITYCONTROL	UNITS	Dup.Sm#	Duplicate
PAHs in Soil			Base + Duplicate + % RPD
Date extracted	-	135605-74	09/10/2015  09/10/2015
Date analysed	-	135605-74	09/10/2015  09/10/2015
Naphthalene	mg/kg	135605-74	<0.1  <0.1
Acenaphthylene	mg/kg	135605-74	<0.1  <0.1
Acenaphthene	mg/kg	135605-74	<0.1  <0.1
Fluorene	mg/kg	135605-74	<0.1  <0.1
Phenanthrene	mg/kg	135605-74	<0.1  <0.1
Anthracene	mg/kg	135605-74	<0.1  <0.1
Fluoranthene	mg/kg	135605-74	<0.1  <0.1
Pyrene	mg/kg	135605-74	<0.1  <0.1
Benzo(a)anthracene	mg/kg	135605-74	<0.1  <0.1
Chrysene	mg/kg	135605-74	<0.1  <0.1
Benzo(b,j+k)fluoranthene	mg/kg	135605-74	<0.2  <0.2
Benzo(a)pyrene	mg/kg	135605-74	<0.05  <0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	135605-74	<0.1  <0.1
Dibenzo(a,h)anthracene	mg/kg	135605-74	<0.1  <0.1
Benzo(g,h,i)perylene	mg/kg	135605-74	<0.1  <0.1
Surrogate p-Terphenyl-d14	%	135605-74	86  84  RPD:2

135605 R 00

Client	Reference:
Olicili	Reference.

QUALITYCONTROL	UNITS	Dup.Sm#	Duplicate
Organochlorine Pesticides in soil			Base + Duplicate + %RPD
Date extracted	-	135605-74	09/10/2015  09/10/2015
Date analysed	-	135605-74	10/10/2015  10/10/2015
HCB	mg/kg	135605-74	<0.1  <0.1
alpha-BHC	mg/kg	135605-74	<0.1  <0.1
gamma-BHC	mg/kg	135605-74	<0.1  <0.1
beta-BHC	mg/kg	135605-74	<0.1  <0.1
Heptachlor	mg/kg	135605-74	<0.1  <0.1
delta-BHC	mg/kg	135605-74	<0.1  <0.1
Aldrin	mg/kg	135605-74	<0.1  <0.1
Heptachlor Epoxide	mg/kg	135605-74	<0.1  <0.1
gamma-Chlordane	mg/kg	135605-74	<0.1  <0.1
alpha-chlordane	mg/kg	135605-74	<0.1  <0.1
Endosulfan I	mg/kg	135605-74	<0.1  <0.1
pp-DDE	mg/kg	135605-74	<0.1  <0.1
Dieldrin	mg/kg	135605-74	<0.1  <0.1
Endrin	mg/kg	135605-74	<0.1  <0.1
pp-DDD	mg/kg	135605-74	<0.1  <0.1
Endosulfan II	mg/kg	135605-74	<0.1  <0.1
pp-DDT	mg/kg	135605-74	<0.1  <0.1
Endrin Aldehyde	mg/kg	135605-74	<0.1  <0.1
Endosulfan Sulphate	mg/kg	135605-74	<0.1  <0.1
Methoxychlor	mg/kg	135605-74	<0.1  <0.1
Surrogate TCMX	%	135605-74	96  96  RPD:0

		Client Reference	e: P1504996COC01V	01, South Werrin	gton
QUALITY CONTROL Organophosphorus Pesticides	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD		
Date extracted	-	135605-74	09/10/2015  09/10/2015		
Date analysed	-	135605-74	10/10/2015  10/10/2015		
Azinphos-methyl (Guthion)	mg/kg	135605-74	<0.1  <0.1		
Bromophos-ethyl	mg/kg	135605-74	<0.1  <0.1		
Chlorpyriphos	mg/kg	135605-74	<0.1  <0.1		
Chlorpyriphos-methyl	mg/kg	135605-74	<0.1  <0.1		
Diazinon	mg/kg	135605-74	<0.1  <0.1		
Dichlorvos	mg/kg	135605-74	<0.1  <0.1		
Dimethoate	mg/kg	135605-74	<0.1  <0.1		
Ethion	mg/kg	135605-74	<0.1  <0.1		
Fenitrothion	mg/kg	135605-74	<0.1  <0.1		
Malathion	mg/kg	135605-74	<0.1  <0.1		
Parathion	mg/kg	135605-74	<0.1  <0.1		
Ronnel	mg/kg	135605-74	<0.1  <0.1		
Surrogate TCMX	%	135605-74	96  96  RPD:0		
QUALITYCONTROL	UNITS	Dup.Sm#	Duplicate		
PCBs in Soil			Base + Duplicate + % RPD		
Date extracted	-	135605-74	09/10/2015  09/10/2015	-	
Date analysed	-	135605-74	10/10/2015  10/10/2015		
Aroclor 1016	mg/kg	135605-74	<0.1  <0.1		
Aroclor 1221	mg/kg	135605-74	<0.1  <0.1		
Aroclor 1232	mg/kg	135605-74	<0.1  <0.1		
Aroclor 1242	mg/kg	135605-74	<0.1  <0.1		
Aroclor 1248	mg/kg	135605-74	<0.1  <0.1		
Aroclor 1254	mg/kg	135605-74	<0.1  <0.1		
Aroclor 1260	mg/kg	135605-74	<0.1  <0.1		
Surrogate TCLMX	%	135605-74	96  96  RPD:0		
QUALITYCONTROL	UNITS	Dup.Sm#	Duplicate	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil			Base + Duplicate + %RPD		
Date prepared	-	135605-74	09/10/2015  09/10/2015	LCS-5	09/10/2015
Date analysed	-	135605-74	09/10/2015  09/10/2015	LCS-5	09/10/2015
Arsenic	mg/kg	135605-74	10  11  RPD:10	LCS-5	106%
Cadmium	mg/kg	135605-74	<0.4  <0.4	LCS-5	100%
Chromium	mg/kg	135605-74	35  45  RPD:25	LCS-5	102%
Copper	mg/kg	135605-74	13  13  RPD:0	LCS-5	106%
Lead	mg/kg	135605-74	25  27  RPD:8	LCS-5	100%
Mercury	mg/kg	135605-74	<0.1  <0.1	LCS-5	89%
Nickel	mg/kg	135605-74	8  9  RPD:12	LCS-5	98%
Zinc	mg/kg	135605-74	19  20  RPD:5	LCS-5	99%

135605 R 00

		Client Referenc	e: P1504996COC01V	01, South Werrin	gton
QUALITYCONTROL	UNITS	Dup. Sm#	Duplicate	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil			Base + Duplicate + %RPD		
Date prepared	-	[NT]	[NT]	LCS-6	09/10/2015
Date analysed	-	[NT]	[NT]	LCS-6	09/10/2015
Arsenic	mg/kg	[NT]	[NT]	LCS-6	104%
Cadmium	mg/kg	[NT]	[NT]	LCS-6	98%
Chromium	mg/kg	[NT]	[NT]	LCS-6	100%
Copper	mg/kg	[NT]	[NT]	LCS-6	105%
Lead	mg/kg	[NT]	[NT]	LCS-6	99%
Mercury	mg/kg	[NT]	[NT]	LCS-6	94%
Nickel	mg/kg	[NT]	[NT]	LCS-6	98%
Zinc	mg/kg	[NT]	[NT]	LCS-6	100%
QUALITYCONTROL	UNITS	Dup.Sm#	Duplicate	Spike Sm#	Spike % Recovery
Organochlorine Pesticides			Base + Duplicate + %RPD		
in soli					
Date extracted	-	[NT]	[NT]	135605-56	09/10/2015
Date analysed	-	[NT]	[NT]	135605-56	10/10/2015
HCB	mg/kg	[NT]	[NT]	[NR]	[NR]
alpha-BHC	mg/kg	[NT]	[NT]	135605-56	98%
gamma-BHC	mg/kg	[NT]	[NT]	[NR]	[NR]
beta-BHC	mg/kg	[NT]	[NT]	135605-56	84%
Heptachlor	mg/kg	[NT]	[NT]	135605-56	84%
delta-BHC	mg/kg	[NT]	[NT]	[NR]	[NR]
Aldrin	mg/kg	[NT]	[NT]	135605-56	89%
Heptachlor Epoxide	mg/kg	[NT]	[NT]	135605-56	86%
gamma-Chlordane	mg/kg	[NT]	[NT]	[NR]	[NR]
alpha-chlordane	mg/kg	[NT]	[NT]	[NR]	[NR]
Endosulfan I	mg/kg	[NT]	[NT]	[NR]	[NR]
pp-DDE	mg/kg	[NT]	[NT]	135605-56	85%
Dieldrin	mg/kg	[NT]	[NT]	135605-56	116%
Endrin	mg/kg	[NT]	[NT]	135605-56	100%
pp-DDD	mg/kg	[NT]	[NT]	135605-56	94%
Endosulfan II	mg/kg	[NT]	[NT]	[NR]	[NR]
pp-DDT	mg/kg	[NT]	[NT]	[NR]	[NR]
Endrin Aldehyde	mg/kg	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulphate	mg/kg	[NT]	[NT]	135605-56	87%
Methoxychlor	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate TCMX	%	[NT]	[NT]	135605-56	94%

		Client Reference	e: P1504996COC01V	01, South Werrin	gton
QUALITYCONTROL	UNITS	Dup. Sm#	Duplicate	Spike Sm#	Spike % Recovery
Organophosphorus Pesticides			Base + Duplicate + % RPD		
		D. 177		405005 50	00/40/0045
Date extracted	-	[N]	[N1]	135605-56	09/10/2015
Date analysed	-	[N1]	[N1]	135605-56	10/10/2015
Azinphos-methyl (Guthion)	mg/kg	[NT]	[NT]	135605-56	70%
Bromophos-ethyl	mg/kg	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos	mg/kg	[NT]	[NT]	135605-56	91%
Chlorpyriphos-methyl	mg/kg	[NT]	[NT]	[NR]	[NR]
Diazinon	mg/kg	[NT]	[NT]	[NR]	[NR]
Dichlorvos	mg/kg	[NT]	[NT]	135605-56	96%
Dimethoate	mg/kg	[NT]	[NT]	[NR]	[NR]
Ethion	mg/kg	[NT]	[NT]	135605-56	91%
Fenitrothion	mg/kg	[NT]	[NT]	135605-56	105%
Malathion	mg/kg	[NT]	[NT]	135605-56	80%
Parathion	mg/kg	[NT]	[NT]	135605-56	69%
Ronnel	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate TCMX	%	[NT]	[NT]	135605-56	94%
QUALITYCONTROL	UNITS	Dup.Sm#	Duplicate	Spike Sm#	Spike % Recovery
PCBs in Soil			Base + Duplicate + %RPD		
Date extracted	-	[NT]	[NT]	135605-56	09/10/2015
Date analysed	-	[NT]	[NT]	135605-56	10/10/2015
Aroclor 1016	mg/kg	[NT]	[NT]	[NR]	[NR]
Aroclor 1221	mg/kg	[NT]	[NT]	[NR]	[NR]
Aroclor 1232	mg/kg	[NT]	[NT]	[NR]	[NR]
Aroclor 1242	mg/kg	[NT]	[NT]	[NR]	[NR]
Aroclor 1248	mg/kg	[NT]	[NT]	[NR]	[NR]
Aroclor 1254	mg/kg	[NT]	[NT]	135605-56	101%
Aroclor 1260	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%	[NT]	[NT]	135605-56	94%
QUALITYCONTROL	UNITS	Dup.Sm#	Duplicate	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil			Base + Duplicate + %RPD		
Date prepared	-	[NT]	[NT]	135605-56	09/10/2015
Date analysed	-	[NT]	[NT]	135605-56	09/10/2015
Arsenic	mg/kg	[NT]	[NT]	135605-56	92%
Cadmium	mg/kg	[NT]	[NT]	135605-56	87%
Chromium	mg/kg	[NT]	[NT]	135605-56	95%
Copper	mg/kg	[NT]	[NT]	135605-56	109%
Lead	mg/kg	[NT]	[NT]	135605-56	##
Mercury	mg/kg	[NT]	[NT]	135605-56	92%
Nickel	mg/kg	[NT]	[NT]	135605-56	86%
Zinc	mg/kg	[NT]	[NT]	135605-56	109%
L					l

Envirolab Reference: 135605 Revision No:

R 00

### **Report Comments:**

METALS\_S: ## Percent recovery is not possible to report due to the inhomogeneous nature of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

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 135605-52, 56, 59, 61, 63, 65, 69, 74 were sub-sampled from jars provided by the client.

Asbestos ID was analysed by Approved Identifier:Paul ChingAsbestos ID was authorised by Approved Signatory:Paul Ching

INS: Insufficient sample for this test NA: Test not required <: Less than PQL: Practical Quantitation Limit RPD: Relative Percent Difference >: Greater than NT: Not tested NA: Test not required LCS: Laboratory Control Sample

Envirolab Reference: Revision No:

135605

R 00

Document Set ID: 7892247 Version: 1, Version Date: 24/10/2017

### **Quality Control Definitions**

**Blank**: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples. **Duplicate**: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

**Matrix Spike** : A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample) : This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

**Surrogate Spike:** Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

#### Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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SOIL ANALYSIS CHAIN OF CUSTODY FORM

				Additional	I Testing					
Name	P1504996	5 – Detailed Site As	sessment – South	Werrington	Urban Villag	Φ				
Martens Contact Officer	Ben McG	Siffin			ပိ	ntact Email	bmcgiffin@mai	tens.com.au		
	Sample [	<b>7</b> .10	0.2015	Dispatch	Date 8.1	0.2015	Turnaround Tim	Ð	standard	
Sampling and Shipping	Our Refe	rence P15	04996COC01V01		Shi (X)	pping Method	Нало	Post	Courier	×
	On Ice ()	0	No Ice (X)	×	Other (X)			a static		
				Labora	ıtory					
Name	EnviroLo	þ								
Sample Delivery Address	12 Ashle	y Street, Chatsw	boo							
Delivery Contact	Name	Aileen	Phone	9910 6200	) <b>F</b>	X	Email	ahie@envirolak	services.com.a	D
Please Send Report By (X)	Post	Fax	Email	×	Reporting Emo	ail Address bm	icgiffin@martens.c	<u>com.au jfulton@n</u>	<u>nartens.com.au</u>	

L	Sample ID	Composite		Sample ID	Composite
L					
_	4996/SS01/0.1	CI	5	4996/SS19/0.1	C7
2	4996/SS02/0.1		20	4996/SS20/0.1	
~	4996/SS03/0.1		12	4996/SS21/0.1	
17	4996/SS04/0.1	C2	22	4996/SS22/0.1	C8
5	4996/SS05/0.1		23	4996/SS23/0.1	
	4996/SS06/0.1	,	24	4996/SS24/0.1	
rt	4996/SS07/0.1	S	25	4996/SS25/0.1	C9
ilo	4996/SS08/0.1		26	4996/SS26/0.1	
6	4996/SS09/0.1		t2	4996/SS27/0.1	
0	4996/SS10/0.1	C4	82	4996/SS28/0.1	C10
_	4996/SS11/0.1		62	4996/SS29/0.1	
2	4996/SS12/0.1		30	4996/SS30/0.1	
2	4996/SS13/0.1	C5	31	4996/SS31/0.1	CII
5	4996/SS14/0.1		32	4996/SS32/0.1	
v	4996/SS15/0.1		23	4996/SS33/0.1	
10	4996/SS16/0.1	C6	34	4996/SS34/0.1	C12
rt	4996/SS17/0.1		35	4996/SS35/0.1	
0	4996/SS18/0.1		98	4996/SS36/0.1	

Enviralat Service ah: (02) 9910 620 Chatswood NSW 09 Security. Intact/Broken/None 12 Ash Received by: D Temp: CoolAmbient Cooling: Collogadk S Time Received: Date Received: Job No:

Suite 201, 20 George St Hornsby NSW 2077, Australia Ph 02 9476 9999 Fax 02 9476 8767 Head Office

> www.martens.com.au MARTENS & ASSOCIATES P/L ABN 85 070 240 890 ACN 070 240 890 > mail@martens.com.au

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L	Sample ID	Depth	OCP/OPP	8 HM	Combo 6A	Hold	
tz	CI	0.1	×	×			
3°	C2	0.1	×	×			
30	C3	0.1	×	×			
- 3	C4	0.1	×	×			
5	C5	0.1	×	×			
5	C6	0.1	×	×			
53	C7	0.1	×	×			
15	C8	0.1	×	×			
	C9	0.1	×	X			
46	C10	0.1	×	×			
Ţ	CII	0.1	×	×			
4 C	C12	0.1	×	×			
,							
5	4996/SS37/0.1	0.1				×	
2	4996/SS38/0.1	0.1				×	
IS	4996/TP201/0.15	0.15					
2	4996/TP201/0.5	0.5	-		×		
53	4996/TP201/1.0	1.0		*			
5	4996/TP201/1.5	1.5					
5	4996/TP201/2.0	2.0					
22	4996/TP 202/0.15	0.15			×		
5	4996/TP202/0.5	0.5					
f-L	4996/TP202/1.0	1.0					
53	4996/TP 203/0.15	0.15			×		
20	4996/TP203/0.5	0.5					
ē	4996/TP 204/0.15	0.15			×		
62	4996/TP204/0.5	0.5					
203	4996/TP 207/0.15	0.15			×		
64	4996/TP 207/0.75	0.75					
19	4996/TP 208/0.15	0.15			×		
20	4996/TP 208/0.65	0.65					
67	4996/TP 209/0.15	0.15					
Se	4996/TP209/0.5	0.5					
5	4996/TP210/0.15	0,15			×		
2	4996/TP210/0.65	0				100	
5	4996/TP210/1.5 (ic	on wh 1.5					
れ	4996/TP211/0.2	0.2					
K	4996/TP211/1.0	1.0					
12	4996/TP212/0.15	0.15			×		
3	4996/TP212/0.65	0.65					
2	4996/TP212/1.0	1.0					
e	0.F						
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SOIL ANALYSIS CHAIN OF CUSTODY

		×	×	
	×			×
	4996/DUP101	4996/DUP102	4996/DUP103	4996/DUP104
5	5	2	5	23

NOTE : SOME SAMPLES JARS HAVE BEEN LABELED AS 4946/## PLEASE REPORT ALL AS 4996

## 13 Attachment D – Data Validation Report



Preliminary Stage 2 Environmental Site Assessment: 121 Boundary Road, Schofields, NSW. P1504996JR01V01 - December 2014 Page 134



### 1. Sample Handling

		Yes	No
			(Comments below)
a.	Were sample holding times met?	✓	
b.	Were samples in proper custody between the field and reaching the laboratory?	~	
c.	Were the samples properly and adequately preserved?	~	
d.	Were the samples received by the laboratory in good condition?	✓	

### COMMENTS

Sample handling is:

- ✓ Satisfactory
  - Partially Satisfactory Unsatisfactory



Page 1 Our Ref: P1404996JC01V01 Prepared: October 2015



### 2. Precision / Accuracy Statement

- a. Was a NATA registered laboratory used?
- b. Did the laboratory perform the requested tests?
- c. Were laboratory methods adopted NATA endorsed?
- d. Were appropriate test procedures followed?
- e. Were reporting limits satisfactory?
- f. Was the NATA Seal on the reports?
- g. Were reports signed by an authorised person?

### COMMENTS



Precision / Accuracy of the Laboratory Report:

Satisfactory

 $\checkmark$ 

Partially Satisfactory

Unsatisfactory





### 3. Field Quality Assurance / Quality Control (QA/QC)

- a. Number of Primary Samples analysed (does not include duplicates)
- b. Number of days of sampling
- c. Number and Type of QA/QC Samples analysed

Intra-Laboratory Field Duplicates

Inter-Laboratory Field triplicates

Trip Blanks

Wash Blanks

Other (Field Blanks, Spikes, Trip Blanks, etc.)

### **Field Duplicates**

Adequate Numbers of intra-laboratory field duplicates analysed?

Adequate Numbers of inter-laboratory field duplicates analysed?

Were RPDs within Control Limits?

- i. Organics (+ 30%)
- ii. Metals / Inorganics (+ 30%)
- iii. Nutrients (+ 50%)

### COMMENTS

RPD for metals is above ASC NEPM criteria for the following samples:

4996/TP208 and DUP101 - Zinc 53%

4996/TP204 and DUP104 - Lead 55 %

4996/TP204 and DUP 104 – Arsenic 59%



Soil:		20
Water:		-
Material		-
	1	
Soil		Water
2		
1		
1		
_		
		No

Media

Number





4996/TP204 and DUP 104 Copper 54%

4996/TP204 and DUP 101 Zinc 52%

These results are all below the adopted SAC and considered 'natural'variations in the fill material. These results do not impact the usability of the data set.

### Summary of Quality Assurance / Quality Control (QA/QC)

QA/QC Type	Satisfactory	Partially Satisfactory	Unsatisfactory
Sample handling	$\checkmark$		
Precision / Accuracy of the Laboratory Report	~		
Field QA / QC	$\checkmark$		
Laboratory Internal QA / QC	~		

### Data Usability

- 1. Data directly usable
- 2. Data usable with the following corrections/modifications (see comment below)
- 3. Data not usable.

### COMMENTS



~





Document Set ID: 7892247 Version: 1, Version Date: 24/10/2017

## 14 Attachment E – Test Pit Logs



Preliminary Stage 2 Environmental Site Assessment: 121 Boundary Road, Schofields, NSW. P1504996JR01V01 - December 2014 Page 135
CLIENT	Т	Univ	ersal P	roper	ty Grou	p Pt	y Ltd	COMMENCED	7.10.15	COMPLE	TED 7.1	0.15		REF TP201
PROJE	СТ	Deta	iled Slt	e Inve	estigatio	n		LOGGED	BM	CHECKE	D JF	-		Sheet 1 of 1
SITE		Sout	h Werr	ingto	n Urban	Vill	age	GEOLOGY	Bringelly Shale	VEGETA	GI	rass		PROJECT NO. P1504996
EQUIPMEN	NT		5	Tonne ex	cavator			EASTING	-	RL SURF.	ACE -			
				Jomm X 2	2.3m depth		МАТ		- `A	ASPECT	E	ast	64	
METHOD SUPPORT	WATER	MOISTURE	DEPTH (M)	BRILLING	GRAPHIC LOG	CLASSIFICATION	MATERIA SOIL NAME, plastic colour, secondar moisture condition, ROCK NAME, grai streng	L DESCRIPTIC bity or particle char y and minor comp consistency/relation in size, texture/fab th, weathering.	N racteristics, onents, /e density, ric, colour,	CONSISTENCY	DENSITY INDEX	ТҮРЕ	DEPTH (M)	RESULTS AND ADDITIONAL OBSERVATIONS
E Nil	z	M				xx	Fill: Silty CLAY - L grey/ orange and and gravels (	ow to mediur brown, fine g 5 - 10 mm, 10	n plasticity, rained sand J-20%).			E	0.15	<ul> <li>4996/TP201 /0.15 - Fill</li> <li>- brick and tile inclusions from 0.2 m.</li> <li>4996/TP201 /0.5</li> <li>4996/TP201 /1.0</li> </ul>
E Nil	N	D = 2.0				CL	CLAY - low to medi trace f	um plasticity, îne gravels.	grey / white,	S-F		E	1.5	- Residual 4996/TP201/1.5
		- - - 3.0					Testpit term clay / low	inated at 2.3 strength sha	m on le.					3
		- - - - 4.0												
EQUIPM N Na X Ex HA Ha S Spi C C Cor V V-B T C Tum	MENT atural e xisting and aug bade increte Bit ngsten	/ METHC xposure excavatic jer Corer Carbide E	DD SUPP SH S n SC S RB I Nil I	PORT Shoring Shotcrete Rock Boll No suppo	WATER N Non ts 型 Wat off → Wat	e obse measu ter leve ter out	MOISTURE PENETR erved D Dry L Low ured M Moist M Mod el W Wet H High Wp Plastic limit R Refus flow WI Liquid limit pw	ATION CONSIS VS Ve erate S So F Fil sal St Sti VSt Ve H He F Fri	STENCY DENSITY ry Soft VL Very I oft L Loose m MD Mediu D Dense ry Stiff VD Very D rd able	SAP oose A m Dense U ense M Ux E I	IPLING & Auger sam Bulk sampl Undisturbe Disturbed s Moisture cu Tube samp Environmer	TESTINC ple e d sample sample content ble (x mm) ntal sample	PF S V: D P	p Pocket penetrometer S Standard penetration test VS Vane shear DCP Dynamic cone penetrometer D Field density WS Water sample
E EAG		ar		E DS Dociates Pty	EXCAVATI	ON L	OG TO BE READ IN CONJUN Ph mail@ma	CTION WITH A MARTENS & A Suite 201 Hornsby, t one: (02) 9476 artens.com.au V	CCOMPANYING R ASSOCIATES PTY L , 20 George Street VSW 2077 Australia 9999 Fax: (02) 9477 VEB: http://www.ma	EPORT NOT TD 88767 rtens.com.au	ES AND	ABBRE	ng	gineering Log - Excavation

CLIENT	Unive	rsal Proper	ty Grou	p Pty I	Ltd	COMMENCED	7.10.15	COMPL	ETED	7.10.15			REF	TP202
PROJECT	Detail	ed Site Inve	estigatio	n		LOGGED	BM	СНЕСК	ED	JF			Sheet 1 o	 of 1
SITE	South	Werringto	n Urban	Villag	e	GEOLOGY	Bringelly Shale	VEGET	ATION	Grass			PROJECT NO	P1504996
	DIMENSION	5 Tonne ex	cavator				-	RL SUF	FACE	- East			SLOPE	<5%
EXCA	VATION	DATA			MAT	ERIAL DAT	A	/10/20			SA		G & TEST	ING
METHOD SUPPORT WATER	MOISTURE	DEPTH (M)	GRAPHIC LOG	CLASSIFICATION	MATERIA SOIL NAME, plastic colour, secondar moisture condition, ROCK NAME, grai streng	L DESCRIPTIC ity or particle char y and minor comp consistency/relation n size, texture/fab th, weathering.	n acteristics, onents, ve density, ric, colour,	CONSISTENCY			DEPTH (M)	A	RESUL DDITIONAL (	TS AND DBSERVATIONS
E Nii N	M			xx	Fill: Silty CLAY - L dark brown/browr and gravels (	ow to mediur n, with fine gra 5-10 mm, 10	n plasticity, ained sand -20%).			E	0.15	4996/TP	202/0.15 - Brick and tile	- Fill inclusions.
E Nil N	D - 1.0			CL	CLAY - low to media trace f	um plasticity, ine gravels.	grey / white,	S-F		E	1.0	4996/TF 4996/TF	202/0.5	- Residual
	- - - 2.0 - - - - - - - - - - - - - - - - - - -				Testpit term clay/low	inated at 1.4 strength shal	m on e.							2_ 3_
EQUIPMEN N Natural X Existin HA Hand au S Spade CC Concret V V-Bit TC Tungster	4.0 - - 4.0 - - - - - - - - - - - - - - - - - - -	) SUPPORT SH Shoring SC Shotorete RB Rock Bol Nii No suppo	WATER None × Not ts Wai Wai Wai	e observe measured ter level ter outflow	MOISTURE PENETR d D Dry L Low M Moist M Mode W Wet H High Wp Plastic limit R Refus W Liquid limit	ATION CONSIS VS VS vrate S St vrates Sti VSt Ve H Ha F Frit	STENCY DENSIT ry Soft VL Ve oft L Lo m MD Me ff D De ry Stiff VD Ve rd able	Y S ry Loose A se B dium Dense U nse U y Dense M U U E E	AMPLIN Auger Bulks: Disturt Moistu CTube Environ	G & TEST sample urbed samp eed sampie sample (x n mental sau	NG p S Die V m) F	p Pocket p Standard S Vane sh VCP Dynam penetro D Field der S Water sa	enetrometer penetration test aar is cone meter sity mple	4 CLASSIFICATION SYMBOLS AND SOIL DESCRIPTION Y USCS N Agricultural
E Excavato	r backhoe bu	ucket	,										•	
tersion: 1 Ve		ECONS	EXCAVATI	ON LOG	S TO BE READ IN CONJUN Ph mail@ma	CTION WITH A MARTENS & A Suite 201 Hornsby, N one: (02) 9476 artens.com.au V	CCOMPANYING ASSOCIATES PT , 20 George Stre VSW 2077 Austra 9999 Fax: (02) 9 VEB: http://www.	REPORT NC Y LTD et llia 476 8767 martens.com.a	TES A	ND ABBF	EVIATI	ons gine Exc	ering avati	Log - on

CLIENT		Univers	sal Prope	rty Grou	ıp Pt	y Ltd	COMMENCED	7.10.15	CON	PLETED	7.10.1	5			REF	<b>TP20</b>	3
PROJECT	т	Detaile	d Site Inv	estigatio	on		LOGGED	BM	СНЕ	CKED	JF				Sheet 1 o	f 1	-
SITE		South \	Verringte	on Urbar	n Vill	age	GEOLOGY	Bringelly Shale	VEG	ETATION	Grass				PROJECT NO.	P1504996	
EQUIPMENT			5 Tonne	excavator			EASTING	-	RLS	SURFACE	-				01.005	.50/	
FXCA				. 1.0 m deptn		МАТ	FRIAI DAT	Δ	ASP	ECI	East		SA	MPI IN		 NG	
METHOD SUPPORT WATER		MOISTURE DEPTH (M)		GRAPHIC LOG	CLASSIFICATION	MATERIA SOIL NAME, plastic colour, secondar moisture condition, ROCK NAME, grai streng	L DESCRIPTIO city or particle chars y and minor compr consistency/relativ in size, texture/fabr yth, weathering.	N acteristics, onents, e density, ic, colour,	CONSIGNER	CONSISTENCE	DENSITY INDEX	түре	DEPTH (M)	A	RESUL DDITIONAL C	TS AND DBSERVATION	NS
E Nil N	1	м _				Fill: Silty CLAY - L dark brown/browr and gravels (	ow to mediun n, with fine gra (5-10 mm, 10-	n plasticity, ained sand 20%).				E	0.15	4996/TF	203 /0.15 - Brick and tile	- Fill	-
E Nil N	1	0.3				CLAY - low to medi trace f	um plasticity, îne gravels.	grey / white,	s	-F		E	0.5	4996/TP	203/0.5	- Residual	
EQUIPMEN		- - - - - - - - - - - - - - - - - - -	SUPPORT	WATEI	R	MOISTURE PENETR	ATION CONSIS	TENCY DENSI	ΓΥ erv Loose	SAMPLII	NG & TES	STING		Pocket pp	netrometer	CLASSIFICA SYMBOLS AI	
HA Hand a S Spade CC Concre V V-Bit TC Tungste E Excavato	auge ete C en Ca tor ba	r orer arbide Bit ackhoe buck	RB Rock B Nil No sup	onts ⊻ Wa oort ∢ Wa → Wa	ater leve ater out ater infle	er W Wet H High Wp Plastic limit R Refus flow WI Liquid limit ow	sal F Fin Sal St Stif VSt Ve H Ha F Fria	m MD M f D De ry Stiff VD Ve rd Ible	edium Dense ense ery Dense	D Undis D Distu M Mois Ux Tube E Enviro	surbed sam rbed sam ture conte sample (; onmental s	ample iple int x mm) sample	VS DC FE W	<ul> <li>Vane she</li> <li>Dynam</li> <li>penetro</li> <li>Field den</li> <li>S Water sa</li> </ul>	ar ic cone meter sity mple	Y USCS N Agricult	ural
	_			EXCAVAT	ION L	OG TO BE READ IN CONJUN	CTION WITH A	CCOMPANYING	G REPORT	NOTES A	ND AB	BREV	/IATIC	ONS			
ersion: 1 V				ty. Ltd . 2014		Ph mail@ma	MARTENS & A Suite 201, Hornsby, N one: (02) 9476 9 artens.com.au V	SSOCIATES PT 20 George Stre ISW 2077 Austra 9999 Fax: (02) S VEB: http://www	TY LTD et alia 9476 8767 .martens.co	m.au		E	ng	jine Exc	ering avati	Log - on	•

CLI	IEN	Т	Un	iversa	l Prop	oert	y Grou	p Pty	/ Ltd			СОММЕ	NCED	7.10.15	;		COMPLET	ED 7	.10.15			REF		TP20	94
PR	OJE	СТ	De	tailed	Site li	nve	stigatio	n				LOGGE	D	BM			CHECKED		JF			Sheet 1	of	1	
SIT	Έ		So	uth We	erring	gton	l Urban	Villa	nge			GEOLO	GY	Bringel	ly Shale		VEGETAT	ION	Grass			PROJECT	NO.	P1504996	
EQU					5 Tonr	ne exc	avator					EASTIN		-			RL SURFA	CE	- Eact				-5	0/	
	EX						. i ili deptii				MA	TERIAL		A.			ASPECT			SA	MPLIN	G & TES	STIN	» G	
МЕТНОD	SUPPORT	WATER	MOISTURE	DEPTH (M)			<b>GRAPHIC LOG</b>	CLASSIFICATION		SOIL N colo moistu ROCK	MATERIA IAME, plast our, seconda re condition NAME, gra stren	AL DESC ticity or par ary and mir n, consister ain size, tex ngth, weathe	RIPTIO ticle char tor comp toy/relativ ture/fabr ering.	PN racteristic onents, ve density ric, colour	s, ,		CONSISTENCY	DENSITY INDEX	ТҮРЕ	DEPTH (M)	A	RES		AND SERVATIO	NS
E	Nil	N	м	- - 0.3				xx	F	Fill: Silty dark bro and	CLAY - wn/brow gravels	Low to n /n, with f (5-10 m	nediun îne gra ım, 10-	n plasti ained s -20%).	city, and				E	0.15	4996/TF	204 /0.15 - Brick and	tile incl	- Fill usions. - Residual	1
E	Nil	N	D -	- - - - 1 <u>.0</u>				- CL	С	LAY - Iov	w to med trace	lium pla: fine gra	sticity, vels.	grey /	white,		S-F		E	0.5	4996/TF	204/0.5			1 <u>.</u>
EE	QUIPI	MENT	/ METI > 2 -	1.1 	UPPOR H Shor C Shot	Tingcrete	WATER N Non X Not	e obse measu	rved D red M.	Te STURE Dry Moist	PENETI L LOW M Mor	RATION v	CONSIGNATION OF A CONSIGNATIA CONSIGNATI A CONSIGNATI A CONSIGNATI	TTENCY stry Soft	DENS VL L	ΠΥ Very Loos	SAM se A / B E	PLING Auger sa Bulk sam	& TESTING mple		Pocket pr     Standard	enetrometer	test	CLASSIFICA SYMBOLS A SOLL DESC	2_ 3_ 4_ 100 RIPTION
S CO V TO E	C Co V-E C Tur Exca	ncrete Bit ngsten avator	Corer Carbid backho	N e Bit be bucket	" IND S	appor	`⊣ Wat ⊳ Wat	ter outfiter inflo	w WI	Liquid limit		usal	VSt Ve H Ha F Fria	ery Stiff Ird able	VD V	ery Dense	e M M Ux 1 E E	Aoisture Tube sar	content nple (x mm ental samp	) FI le W	penetro D Field der S Water sa	isty imple		N Agricu	itural
OCCURATING A	nent	n Sili			ns Associate	E es Pty.	XCAVATI	ON LO	DG TO BE	READ IN	CONJUN P mail@m	MARTE Su Hon hone: (02 hartens.co	WITH A INS & A ite 201 Insby, N 9476 Dm.au V	ASSOCI , 20 Geo ASW 20 9999 Fa VEB: htt	PANYIN ATES P orge Str 77 Aust ax: (02) p://www	G REPO PTY LTD eet ralia 9476 87 v.marter	ORT NOTE 767 hs.com.au		) ABBRE		ons gine Exc	erin ava	g l tio	Log n	-

CL PR	ien <sup>.</sup> Oje	т ЕСТ	Uni Det	versal ailed S	Proper lite Inve	ty Grou estigatio	p Pty n	Ltd		7.10.15 BM	СОМ	MPLETED ECKED	7.10.1 JF	15		REF Sheet 1 of	<b>TP205</b>
SIT	E	NT	So	uth We	rringto	n Urban	Villag	je	GEOLOGY	Bringelly Shale	VEG		Gras	s		PROJECT NO.	P1504996
EXC	AVAT		IMENS	IONS	600mm X	1.1 m depth			NORTHING	-	ASP	PECT	East			SLOPE	<5%
	EX	CAV	ΆΤΙΟ	ON DA	ГА			MAT	ERIAL DAT	A					SAMPLIN	IG & TESTI	NG
METHOD	SUPPORT	WATER	MOISTURE	DEPTH (M)	M DRILLING R RESISTANCE	GRAPHIC LOG	CLASSIFICATION	MATERIA SOIL NAME, plastic colour, secondar moisture condition, ROCK NAME, grai streng	L DESCRIPTIC tity or particle char y and minor comp consistency/relation n size, texture/fab th, weathering.	N racteristics, ionents, ve density, ric, colour,		CONSISTENCY	DENSITY INDEX	ТҮРЕ	DEPTH (M)	RESUL DDITIONAL O	TS AND BSERVATIONS
E	Nil	N	м -	.2			OL	Silty SAND - Fine g	rained, light l	orown/brown.							- Topsoil
E	Nil	N	м -	.4			CL	Silty CLAY - Low to m	edium plastic	tity, light brow	n. <sup>s</sup>	i-F					- Residual
E	Nil	N	D 1				CL	CLAY - Low to med trace f	lium plasticity ine gravels.	v, grey/white,	s	÷F					- Residual - - - - - - - - - - - -
				.1				Testpit term	ninated at 1.1 clay.	m on							2.
				<u>.</u>													<u>3.</u>
			4														4
E N X H S C V T E	L QUIPI A Ha Sp C Co V-E C Tur Exca	MENT atural e xisting and au oade ncrete Bit ngsten avator	/ METI exposur excava ger Corer Carbido backho	.ə HOD SU e SH tion SC RE Nil e Bit e bucket	IPPORT Shoring Shotcrete Rock Bol No suppo	WATER N Non e X Not ts 型 Wat → Wat	e observ measure ter level ter outflow	MOISTURE PENETR ed D Dry L Low d M Moist M Mode W Wet H High Wp Plastic limit R Refus w WI Liquid limit	ATION CONSIS VS Ve erate S So F Fi Sal St Sti VSt Ve H Ha F Fri	STENCY DENSI sry Soft VL V oft L L rm MD M ff D D rff VD V rrd able	ITY Very Loose oose ledium Dense bense ery Dense	SAMPLIN A Auge B Bulks U Undis D Distu M Moist Ux Tube E Enviro	NG & TE r sample sample sturbed sar ure cont sample onmental	STING ample nple ent (x mm) sample	pp Pocket p S Standarc VS Vane sh DCP Dynam penetrr FD Field der WS Water sa	enetrometer I penetration test ear nic cone ometer nsity ample	4. CLASSIFICATION SYMBOLS AND SOIL DESCRIPTION Y USCS N Agricultural
Annality Sheet No. 4	n: 1	n Sef		Tte	ns sociates Pty 24/10/20	EXCAVATI	ON LOO	G TO BE READ IN CONJUN Ph mail@ma	CTION WITH A MARTENS & A Suite 201 Hornsby, N one: (02) 9476 artens.com.au V	ACCOMPANYIN ASSOCIATES P , 20 George Stro NSW 2077 Austr 9999 Fax: (02) WEB: http://www	G REPORT TY LTD eet ralia 9476 8767 v.martens.co	NOTES A	ND AE	E	ngine Exc	ering cavati	Log - on

CL	IEN	т	Uni	versal	Prope	rty Gro	oup	Pty Lt	td			СОММЕ	NCED	7.10.15		COMPLE	TED	7.10.15				RFF		TP2	)6
PR	OJE	ЕСТ	Det	ailed S	lte Inv	estigat	ion					LOGGE	D	ВМ		CHECK	D	JF				Sheet '	1 of	1	
SIT	Е		So	uth We	rringt	on Urba	an V	/illage				GEOLO	GY	Bringelly	Shale	VEGETA	TION	Grass				PROJECT	NO.	P1504996	
EQL	IIPME	NT			5 Tonne	excavator						EASTIN	IG	-		RL SUR	ACE	-							
EXC			IMENS		600mm >	1.0 m dep	th					NORTH		-		ASPECT		East				SLOPE	<	5%	
	EX			JN DA	IA	_		~			MA	ERIAL		A				_		SAM	PLIN	G&IE	STIN	G	
METHOD	SUPPORT	WATER	MOISTURE	DEPTH (M)		GRAPHIC LOG		CLASSIFICATION		SOIL NA colour moisture ROCK N	MATERIA ME, plasti r, seconda condition NAME, gra stren	AL DESC icity or part iry and min , consisten ain size, tex gth, weathe	RIPTION ticle chara tor compo toy/relative cture/fabric ering.	N acteristics, onents, e density, c, colour,		CONSISTENCY			түре	DEPTH (M)	AI	RE DDITION	SULTS AL OB	S AND SERVATIO	DNS
E	Nil	N	M	).2			× × ( × × (	OL	Silty	SAND	- Fine (	grained,	light b	rown/br	own.									- Topsoil	-
E	Nil	N	M	).4 ).5				CL	Silty CL	LAY - L	ow to n	nedium	plastici	ty, light	brown.	S-F								- Residua	al al
E	Nil	N	D -				_  	CL	CLA	Y - Lov	v to me trace	dium pla fine gra	asticity, vels.	grey/wł	nite,	S-F									- - -
							_			Tes	tpit tern	ninated	at 1.0 r	n on											-
												clay.													-
																									-
			2	2.0																					2.0
			-																						-
			-																						-
			3	3.0																					- - 3 <u>.0</u>
																									-
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			4																						- 4.0
																									-
E N X H S C V T E	QUIPI Na E A Ha Sp C Co V-E C Tur Exc	MENT atural e xisting and aug pade oncrete Bit ngsten avator	/ METI exposur excava ger Corer Carbide backho	:.5 HOD SU e SH tion SC RE Nil e Bit e bucket	IPPORT Shoring Shotcre Rock B No sup	WAT N N te X N botts <u>V</u> Soort <u>V</u>	ER Jone ( Jot mi Vater Vater Vater	observed easured · level · outflow · inflow	MOISTU D Dry M Mo W We Wp Plas WI Liqu	JRE / bist et stic limit uid limit	PENETF L Low M Moo H High R Refu	RATION lerate isal	CONSIS VS Ver S Sof F Firm St Stiff VSt Ver H Han F Frial	TENCY y Soft ft n f y Stiff d ble	DENSITY VL Very Lo L Loose MD Medium D Dense VD Very De	SA pose A Dense U Dnse M Ux E	MPLINC Auger s Bulk sa Undistu Disturb Moistur Tube s Environ	a & TES ample mple rbed samp e conter ample (x mental s	TING mple ble nt mm) ample	pp Po S S VS V DCP FD F WS V	ocket pe tandard /ane she Dynami penetro ield den Vater sa	netrometer penetration ar c cone meter sity mple	test	CLASSIFIC SYMBOLS SOIL DESC Y USC N Agric	4.5 ATION AND RIPTION S ultural
ilty Sheet No. 4		m	) a i	rte	ns	EXCAVA		N LOG T	TO BE RE	EAD IN (		MARTE Su Hor none: (02	WITH A0 NS & A lite 201, nsby, N ) 9476 9	CCOMPA SSOCIAT 20 Georg SW 2077 9999 Fax	NYING RE ES PTY LT Je Street Australia (02) 9476	PORT NO D 8767	TES AN	D ABE	E	ngi F	s ine Exc	erir ava	ng I	Log	-
oeun ersio	n: 1	, Ve	nyr <sup>ight</sup> rsion	202224 Date: 2	ssociates F 24/10/2	14. Ltd . 2014	ļ				mail@m	artens.co	om.au W	EB: http:/	//www.mart	tens.com.a	u								

CL	IEN	Т	Un	iversal	Prope	erty Gr	oup	Pty L	td		COMMENCED	7.10.15		COMPLET	ED 7.1	0.15			REF	<b>TP207</b>	
PR	OJE	СТ	De	tailed S	Site Inv	vestiga	tio	า		]	LOGGED	BM		СНЕСКЕ	) JF				Sheet 1	of <b>1</b>	
SIT	Е		So	uth We	erringt	on Urb	an '	Village	)		GEOLOGY	Bringelly	Shale	VEGETAT	ION Gr	ass			PROJECT N	<b>D.</b> P1504996	
EQU					5 Tonne	excavator	nth					-		RL SURFA	CE -	st			SLOPE	<5%	
F	EX	CA1				in de	μιι			MAT		TA		ASPECT			SA		G & TEST	ING	
METHOD	SUPPORT	WATER	MOISTURE	DEPTH (M)				CLASSIFICATION	SOIL NA color moisture ROCK	MATERIAL AME, plastici Ir, secondary e condition, o NAME, grain strengt	DESCRIPTI ity or particle ch / and minor com consistency/rela h size, texture/fa h, weathering.	ON aracteristics, nponents, tive density, ibric, colour,		CONSISTENCY	DENSITY INDEX	ТҮРЕ	DEPTH (M)	A	RESU	LTS AND OBSERVATIONS	
E	Nil	N	M	- - - 0.5				xx	Fill: Silty ( dark brov and	CLAY - Lo vn/brown gravels (ś	ow to mediu , with fine g 5-10 mm, 1	ım plastic rained sa 0-20%).	ity, nd			E	0.15	4996/T	P207 /0.15 - Brick and til	- Fill e inclusions.	-
E	Nil	N	D	- - - - 1.0 -				CL	CLAY - Iow	to mediu trace fi	um plasticity ne gravels.	γ, grey / w	/hite,	S-F		E	0.75	4996/T	P207/0.75	- Residual	- - 1.0
				 - - -			_		Te	stpit term	inated at 1. clay.	2m on									
				- - 2.0																	2.0
				-																	-
				- -																	-
				-																	
				<u>3.0</u> - -																	3.0
				-																	-
				-																	-
				- 4.0 -																	4.0
			/ М	- - <u>1.5</u>			TEP		MOISTUPE	PENETDA				SAM	PLING &	FESTING	3				- 4.5
E N X H S C V T E	A Ha Sp C Co V-E C Tur Exca	atural e xisting and au pade ncrete Bit ngsten avator	/ IVIE T exposu excav ger Corer Carbio backho	re SI ation SC RI Ni e Bit be bucket	SCHORI Shoring Shotcre Rock B No sup	via N N N N N N N N N N N N N	None Not n Wate Wate	observed neasured er level er outflow er inflow	M Moist D Dry M Moist W Wet Wp Plastic limit WI Liquid limit	ENETRA L Low M Mode H High R Refusi	ariticini CONS VS V Fate S 1 al St S VSt V H F F F	Very Soft Soft Firm Stiff Very Stiff Iard Triable	VE Very Loc L Loose MD Medium D Dense VD Very Den	bse A A B B Dense U Se M B Ux E E	Auger sample Bulk sample Jndisturber Disturbed s Aoisture co Tube samp nvironmen	d sample ample ontent le (x mm tal samp	) FI le W	p Pocket pe Standard S Vane she CP Dynam penetro D Field der /S Water sa	enetrometer penetration tes ear ic cone meter isity imple	t SOIL DESCRIPTI	ON
y Sheet No. 4		m	à	rte	ns	EXCAV	ATIC	N LOG	TO BE READ IN	CONJUNC	CTION WITH MARTENS & Suite 20 Hornsby,	ACCOMP ASSOCIA 1, 20 Geor NSW 207	ANYING REF TES PTY LTI ge Street 7 Australia c (02) 0476 0	PORT NOTE	ES AND /	ABBRE		ons gine	ering	y Log -	
ersio	n: 1	, Ve	nyrigh noisior		24/10/2	<sup>2</sup> ty. Ltd . 20 <sup>-</sup>	4			mail@ma	rtens.com.au	WEB: http	://www.marte	ens.com.au				EXC	avat	ΙΟΠ	

CL	IEN	т	Un	iversa	l Prope	erty G	Group	p Pt	y Ltd	COMMENCED	7.10.15	COMPI	ETED	7.10.1	5			REF	<b>TP208</b>	
PR	OJE	ст	De	tailed \$	Site Inv	/estiç	gatio	n		LOGGED	BM	CHECH	ED	JF				Sheet 1	<u>-</u>	
SIT	Е		So	uth We	erringt	on Ur	rban	Villa	age	GEOLOGY	Bringelly Shale	VEGET	ATION	Grass	3			PROJECT NO	P1504996	
EQU	IPME	NT			5 Tonne	excavat	tor			EASTING	-	RL SU	RFACE	-					1	_
EXC					600mm 3	K 1.7 m	depth				-	ASPEC	т	East				SLOPE	<5%	
-	EX			ON DA		-		z	MAI	ERIAL DAT	A			_		SA	MPLIN	G&IESI	ING	_
METHOD	SUPPORT	WATER	MOISTURE	DEPTH (M)		×	GRAPHIC LOG	CLASSIFICATION	MATERIA SOIL NAME, plastic colour, secondar moisture condition, ROCK NAME, grai streng	L DESCRIPTIO city or particle chara y and minor compor consistency/relativ n size, texture/fabri th, weathering.	N acteristics, ponents, e density, ic, colour,	CONSISTENCY		DENSITY INDEX	ТҮРЕ	DEPTH (M)	A	RESUI DDITIONAL (	TS AND DBSERVATIONS	
E	Nil	N	м	-				xx	Fill: Silty CLAY - L dark brown/brown	ow to medium	n plasticity, ained sand				E	0.15	4996/TP	208/0.15 - Brick and tile	- Fill inclusions.	-
				- 0.5 -		× :: × :: × ::	^ × ^ × × × × — —	< <	and gravers (	5-10 mm, 10-	20%).				E	0.65	4996/TP	208/0.65	- Residual	-
Е	Nil	N	D	- - <u>1.0</u>				CL	CLAY - low to medi trace f	um plasticity, ine gravels.	grey / white,	S-F								- - 1 <u>.0</u>
				- <u>1.2</u> -															- Residual	
E	Nil	N	D	-				-	SHALE - very low st	trength, light b	orown/ grey.									-
$\vdash$		-		1.7					Testoit term	ninated at 1.7r	n on			$\rightarrow$						
				-					very low	strength shale	9.									-
				2.0															2.0	
				_																_
				-																-
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				- <u>3.0</u> -																3.0
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				-																-
				-																-
				<u>4.0</u> -																4.0
				- - 4 5																- - -
E N X H S C V T E	QUIPI Na E A Ha Sp C Co V-I C Tur Exca	MENT atural e xisting and au bade ncrete Bit ngsten avator	/ MET xposu excav ger Corer Carbio backh	HOD Si re Si ation Si R N Me Bit De bucket	UPPORT H Shoring C Shotcre B Rock B il No sup	w ete X port ₹	VATER N None VATER Notr Wate Wate	e obse measu er leve er out	MOISTURE PENETR erved D Dry L Low red M Moist M Mode J W Wet H High Wp Plastic limit R Refue flow WI Liquid limit	ATION CONSIS VS Ver erate S So F Fin Sal St Stiff VSt Ver H Han F Fria	TENCY DENSIT y Soft VL Ve ft L Low m MD Me f D De y Stiff VD Ver rd ble	Y S ry Loose A bse E dium Dense L nse E y Dense M E	AMPLIN Auger Bulk s Undis Distur 1 Moist X Tube Enviro	IG & TES sample ample turbed sa bed sam ure conte sample ( nmental	STING ample aple ent x mm) sample	pp S VS DC FE W	Pocket pe Standard S Vane she CP Dynami penetro D Field den S Water sa	netrometer penetration test ar c cone meter sity mple	CLASSIFICATION SYMBOLS AND SOIL DESCRIPTION Y USCS N Agricultural	N
4						EXCA	AVATIO	ON L	OG TO BE READ IN CONJUN	CTION WITH A	CCOMPANYING	REPORT NO	DTES A	ND AB	BRE\	/IATIC	ONS			
ality Sheet No. 4		m	) a	rte	ns	_	-		Ph	MARTENS & A Suite 201, Hornsby, N one: (02) 9476 S	SSOCIATES PT 20 George Stree SW 2077 Austra 9999 Fax: (02) 9 //FB: http://www.	Y LTD et lia 476 8767 martens com	au		E	ng	gine Exc	ering avati	Log - ion	
dḗun ersio	n: 1	, Ve	<u>ຳມັງ</u> sior	789222 Date:	24/10/2	2017	2014		manueme											

CLI	EN	T	Un	iversal	Pro	per	ty Grou	p Pt	ty Ltd	COMMENCED	7.10.15		COMPLETE	<b>D</b> 7.10	.15			REF	<b>TP209</b>
PRC	JJE	СТ	Det	ailed S	Site	Inve	stigatio	n		LOGGED	BM		CHECKED	JF				Sheet 1	of 1
SITI	E		So	uth We	errin	gtoı	n Urban	Vill	age	GEOLOGY	Bringelly Shale		VEGETATI	ON Gra	SS			PROJECT N	<b>IO.</b> P1504996
EQUI			IMENIS		5 Tor	nne ex	cavator				-		RL SURFA	E -	+				< 5%
	EX	CAV		ON DA	TA				МАТ	ERIAL DAT	A.		201 201			SA	MPLIN	G & TES	TING
METHOD	SUPPORT	WATER	MOISTURE	DEPTH (M)			GRAPHIC LOG	CLASSIFICATION	MATERIA SOIL NAME, plasti colour, seconda moisture condition, ROCK NAME, gra streng	L DESCRIPTIO city or particle char ry and minor comp consistency/relati in size, texture/fab th, weathering.	N acteristics, onents, ve density, ric, colour,		CONSISTENCY	DENSITY INDEX	TYPE	DEPTH (M)	A	RES	ULTS AND DBSERVATIONS
E	Nil	N	м	0.2				OL	Silty SAND - Fine g	grained, light t	orown/brown				E	0.15	4996/T	P209/0.15	- Topsoil
E	Nil	N	D (	- - - 0.5 -				CL	Silty CLAY - Low to m	edium plastic	ity, light bro	wn.	S-F		E	0.5	4996/TI	P209/0.5	- Residual
E	Nil	N	D	- - 1 <u>.0</u> 1.1				CL	CLAY - Low to med trace f	ium plasticity, fine gravels.	, grey / white	¦,	S-F						- Residual
				- - - -					Testpit tern	ninated at 1.1 clay.	m on								
				- - - - -															2
				- - -															
				- 3.0 - -															3
				- - -															
				- - - -															4
EQ N HA S CC V TC E	QUIPI Na Ei Sp Col V-E Tur Exca	MENT atural e xisting and aug bade ncrete Bit ngsten avator	/ METI exposur excava ger Corer Carbid backho	4.5 HOD SU e SH ation SC RE Nil e Bit re bucket	JPPOF H Sha C Sha 3 Roa I No	RT oring otcrete :k Bolt suppo	WATER N Non X Not Is 型 Wat rt ◀ Wat	e obs meas ter lev ter out	MOISTURE PENETR erved D Dry L Low ured M Moist M Mod el W Wet H High Wp Plastic limit R Refu fflow WI Liquid limit	ATION CONSIS VS Ve erate S Sc F Fir sal St Sti VSt Ve H Ha F Frid	STENCY DEN my Soft VL m MD ff D my Stiff VD rd able	SITY Very Loos Loose Medium D Dense Very Dens	SAMF se A A B B ense U U D D e M M Ux T E Er	PLING & T uger sample ndisturbed sturbed sa bisture cor ube sample vironmenta	ESTING le sample ample attent e (x mm) al sampl	S S VS DO FE e W	<ul> <li>Pocket pe Standard</li> <li>Vane she</li> <li>CP Dynam penetro</li> <li>Field den</li> <li>S Water sa</li> </ul>	enetrometer penetration te ar ic cone meter sity mple	CLASSIFICATION SYMBOLS AND SOIL DESCRIPTION Y USCS N Agricultural
Domino 4	<b>I</b> ent	n sef			n:	E S tes Pty	.Ltd . 2014	ON L	OG TO BE READ IN CONJUN Ph mail@mail	CTION WITH A MARTENS & A Suite 201 Hornsby, N oone: (02) 9476 artens.com.au V	CCOMPANYI ASSOCIATES , 20 George S NSW 2077 Au 9999 Fax: (02 VEB: http://wv	NG REPO PTY LTD treet stralia ) 9476 87 w.marter	ORT NOTE 767 ns.com.au	S AND A	BBRE	ng	ns gine Exc	erin avat	g Log - tion

CL	IEN	Т	Ur	niversal	Proper	ty Grou	p Pt	y Ltd	COMMENCED	7.10.15	С	OMPLETE	<b>7.10</b>	.15			REF	TP21	0
PR	OJE	ЕСТ	De	tailed S	Site Inve	estigatio	n		LOGGED	BM	c	HECKED	JF				Sheet 1 c	of 1	
SIT	Е		Sc	outh We	erringto	n Urban	Villa	age	GEOLOGY	Bringelly Shale	V	EGETATIC	N Gra	SS			PROJECT NO	P1504996	
EQU		NT		010110	5 Tonne ex	cavator			EASTING	-	R	L SURFAC	E -					-50	
EXC	FY					2.3 m deptn		ΜΔΤ		Δ	A	SPECT	Eas	ι 	SA		SLOPE	<5%	
METHOD	SUPPORT	WATER	MOISTURE	DEPTH (M)		GRAPHIC LOG	CLASSIFICATION	MATERIA SOIL NAME, plastic colour, secondar moisture condition, ROCK NAME, grai streng	L DESCRIPTIO city or particle chara- ry and minor compr consistency/relativ in size, texture/fabr th, weathering.	N acteristics, onents, re density, ic, colour,		CONSISTENCY	DENSITY INDEX	түре	DEPTH (M)	A	RESUL	TS AND DBSERVATIO	NS
E	Nil	N	М	- - 0.5			« « xx	Fill: Silty CLAY - L dark brown/brown and gravels (	ow to mediun n, with fine gra 5-10 mm, 10-	n plasticity, ained sand 20%).				E	0.15	4996/TF	210 /0.15 - Brick and tile	- Fill inclusions.	- - -
E	Nil	N	D	- - 1.0			- CL	CLAY - low to medi	um plasticity,	grey /brown.		S-F		E	0.65	4996/TP:	210/ <b>/0.65</b>	- Residual	- - - 1 <u>.0</u>
E	Nil	N	D	- - - - 2.0 - 2.3				SHALE - very low st	trength, light b	prown/ grey.				E	1.5	4996/TP	210/1.5	- Weather	ed rock
				- - - - - - - - - - - - - - - - - - -				Testpit term very low	ninated at 2.3 strength shale	m on e.									- - - - - - - - - - - - - - - - - - -
E N H S C V T E	QUIPI Na A Ha Sp C Co V-E C Tur Exc	MENT atural e xisting and aug pade oncrete Bit ngsten avator	/ ME exposit excav ger Corei Carbi backh	4.5 THOD St ure St vation St Rt Ni n de Bit toe bucket	JPPORT H Shoring C Shotcrete B Rock Bo I No suppo	WATER N Non e X Not ts 및 Wat → Wat	e obse measu ter leve ter out	MOISTURE PENETR rved D Dry L Low red M Moist M Mode el W Wet H High Wp Plastic limit R Refus Tow WI Liquid limit	ATION CONSIS VS Ve erate S So sal F Fin St St St VSt Ve H Ha F Fria	TENCY DENS ry Soft VL ft L 1 m MD 1 ff D 1 ry Stiff VD V rd able	SITY Very Loose Loose Medium Dens Dense Very Dense	SAMP A Au B Bu Ise U Ur D Dia M Mo Ux Tu E Em	LING & TI ger sample k sample disturbed sturbed sa isture con be sample ironmenta	ESTING e mple ttent t (x mm) al sampl	pp S VS DC e FE	Pocket pe Standard Vane she CP Dynami penetro Field den S Water sa	netrometer penetration test ar c cone meter sity mple	CLASSIFICA SYMBOLS A SOIL DESCI Y USCS N Agricu	4. <u>5</u> ATION AND RIPTION ; iltural
fty Sheet No. 4		m	) a	rte	ns	EXCAVATI	ON L	OG TO BE READ IN CONJUN	CTION WITH A MARTENS & A Suite 201, Hornsby, N one: (02) 9476 9	CCOMPANYIN SSOCIATES F 20 George Str ISW 2077 Aus 9999 Fax: (02)	NG REPOR PTY LTD reet tralia ) 9476 8767	RT NOTES	AND A	BBRE	/IATIC	ONS			
oeun ersio	n: 1	, Ve	nyrigi 110	789222 1 Date:	Associates Pty 24/10/2	017		mail@ma	artens.com.au V	VEB: http://ww	w.martens.	.com.au							

CL	IEN	т	Un	iversal	Prope	rty Grou	p Pt	y Ltd	COMMENCED	7.10.15	CON	MPLETED	7.10.	15			REF	TP211
PR	OJE	ЕСТ	De	tailed S	Site Inv	estigatio	n		LOGGED	ВМ	CHE	ECKED	JF				Sheet 1 o	f 1
SI	Е		So	uth We	erringto	on Urban	Vill	age	GEOLOGY	Bringelly Shale	VEG	GETATION	Gras	ss			PROJECT NO.	P1504996
EQU	IPME	NT			5 Tonne e	excavator			EASTING	-	RLS	SURFACE	-					
EXC	AVAT				_600mm X T <b>∆</b>	1.1 m depth		МАТ		- A	ASP	ECT	Last		SA		SLUPE	<5% NG
					<u>н</u>	U	N	MATERIA		<u> </u>	,	<b>-</b>	X				Gailon	
МЕТНОD	SUPPORT	WATER	MOISTURE	DEPTH (M)		GRAPHIC LO	CLASSIFICATI	SOIL NAME, plastic colour, secondar moisture condition, ROCK NAME, grai streng	th, weathering.	acteristics, onents, e density, ic, colour,		CONSISTENC	DENSITY INDE	түре	DEPTH (M)	A	RESUL DDITIONAL C	TS AND DBSERVATIONS
				-			× ×							E	0.15	4996/TI	211 /0.15	- Fill
E	Nil	N	м	-			× × XX ×	Fill: Silty CLAY - L dark brown/browr and gravels (	ow to medium n, with fine gra 5-10 mm, 10-	n plasticity, ained sand 20%).							- Brick and tile	inclusions.
			-	-														- Residual
E	Nil	N	D =	- - - 1.0			CL	CLAY - low to medi	um plasticity,	grey /brown.	s	i-F		Е	1.0	4996/TP2	11/1.0	<u>1.</u>
				<u>1.1</u> - -				Testpit term	ninated at 1.1r Clay.	n on								
				-														
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				- 2.0 -														2.
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				- - 4.0														4 <u>.</u>
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E N H S C V T E	QUIPI Na A Ha Sp C Co V-I C Tur Exc	MENT atural e xisting and au pade oncrete Bit ngsten avator	/ MET exposu excava ger Corer Carbid backho	HOD SU re SH ation SC RE Ni e Bit ne bucket	JPPORT H Shoring C Shotcret B Rock Bo I No supp	WATER N Nor bits ⊻ Wa ort ♥ Wa ♥ Wa	ne obse measu ter leve ter out ter infle	MOISTURE PENETR erved D Dry L Low ured M Moist M Mode el W Wet H High Wp Plastic limit R Refus flow WI Liquid limit	ATION CONSIS VS Ver erate S So F Fin sal St Stif VSt Ver H Han F Fria	TENCY DENSI ry Soft VL V ft L Lo m MD M f D De f VD Ve rd ble	TY ery Loose oose edium Dense ense ery Dense	SAMPL A Aug B Bulk U Und D Dist M Mois Ux Tube E Envir	NG & TE er sample sample isturbed sa sture con e sample ronmenta	STING sample mple tent (x mm) I sample	PF S V D F E W	<ul> <li>Pocket per Standard</li> <li>Vane she</li> <li>CP Dynam</li> <li>penetro</li> <li>Field den</li> <li>/S Water sa</li> </ul>	enetrometer penetration test ar ic cone meter sity mple	CLASSIFICATION SYMBOLS AND SOIL DESCRIPTION Y USCS N Agricultural
						EXCAVATI	ON L	OG TO BE READ IN CONJUN	CTION WITH A	CCOMPANYING	G REPORT	NOTES	AND A	3BRE\	/IATI0	ONS		
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de ersio	n: 1	, Ve	rsion	789224 Date:	24/10/2	19. Ltd . 2014		man@ma	antonio.com.au V	, בש. הניף.//www	.manens.co	au	1					

CL	IEN <sup>.</sup>	т	Un	iversa	l Pr	oper	rty (	Grou	ip P	ty Lt	d				со	MMENC	ED 7	7.10.15			COMPLET	ED	7.10.15				RE	F	TP2	212	
PR	OJE	СТ	De	tailed	Slte	Inv	esti	gatio	on						LOC	GGED	E	BM			CHECKED	>	JF				Sheet	- 1 of	1	- —	
SIT	Έ		So	uth W	erri	ngto	n U	rban	Vil	lage					GEO	OLOGY	E	Bringelly	Shale		VEGETAT	ION	Grass				PROJE	CT NO.	P1504996	3	
EQU	IPME	NT			5 T	onne e	xcava	itor							EAS	STING	-	-			RL SURFA	ACE	-								_
EXC					600	mm X	1.5 m	depth									; . 	-			ASPECT		East				SLOPE	FOTU	<5%		_
⊢	EX	CAV		ON DA					z					MA	IER										SA	MPLIN	G&I	ESTI	NG		_
METHOD	SUPPORT	WATER	MOISTURE	DEPTH (M)				<b>GRAPHIC LOG</b>	CLASSIFICATIO			SOII c moi: RO	M/ L NAM olour, s sture c CK NA	ATERI E, plas second ondition ME, gr strer	AL DE ticity or ary and n, consi rain size ngth, we	SCRIF particle minor o stency/r e, texture eathering	charact compone elative o e/fabric, g.	teristics, ents, density, colour,			CONSISTENCY	DENSITY INDEX		ТҮРЕ	DEPTH (M)	А	i Dditic	RESULT INAL O	S AND BSERVAT	TIONS	
E	Nil	N	м	_			× × × × × × ×	× × × × × × × ×	× × × × ×	(	F	ill: Sil dark b	ty CL	_AY -	Low t	to med	lium p grair	plastic red sa	ity, nd					E	0.15	4996/TP2	12 /0.15 - Brick	and tile in	- Fill		-
				- 0.5 -			× × × ×	× × × × × × —	× × -			a			. (5-10	, , , , , , , , , , , , , , , , , , , ,	10-20	U <sup>7</sup> 0).						E	0.65	4996/TP2	12/0.65		- Resid	dual	-
E	Nil	N	D	- - 1.0				 	- - - - - - -		CL	.AY - I	ow to	o mec	lium p	plastic	ity, gr	rey /br	own.		S-F			E	1.0	4996/TP	212/1.0			1	-
				-					- - - -									-													-
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				<u>2.0</u>																										2	.0
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E N H S C V T E	QUIPI Na E A Ha Sp C Co V-E C Tur Exca	MENT atural e xisting and aug bade increte Bit ngsten avator	/ MET exposu excav ger Corer Carbio backh	THOD S re S ation S R N de Bit oe bucket	UPPO H SI C SI B Ro il No	DRT noring notcrete ock Bo o supp	e 2 Its V ort	WATEF N Nor K Not Z Wa Ø Wa → Wa	R ne ob: ter le iter le iter ou	served sured vel utflow flow	MOIS D M W Wp WI	TURE Dry Moist Wet Plastic li Liquid lir	F L M F imit F nit	PENET Lov M Mo H Hig R Ref	RATIO v derate h usal	N CO VS F St VS H F	NSISTE Very Soft Firm Stiff Very Hard Friable	ENCY Soft Stiff e	DENS VL V MD M D D VD V	ITY Joose Aedium D Dense Yery Dens	SAM se A / Dense U D se M I Ux E E	IPLING Auger s Bulk sar Undistu Disturbe Moisture Tube sa	& TEST ample bed sample d sample content mple (x mental sa	nple le t mm) ample	pp S VS DC FE W	<ul> <li>Pocket pr Standard</li> <li>Vane shi</li> <li>Vane shi</li> <li>CP Dynam</li> <li>penetro</li> <li>Field der</li> <li>S Water sa</li> </ul>	enetrome penetrat ear ic cone meter asity ample	ter ion test	CLASSIF SYMBOL SOIL DE Y US N Ag	ICATION S AND SCRIPTION SCS ricultural	-
		_					EXC	AVAT	ION	LOG T	O BE	READ	IN CO	DNJU	NCTIC		H AC	COMPA		G REP		ES AN	D ABB	REV		ONS					_
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dêun ersio	n: 1	Set . Ve	<u>זוט</u> יי sior	789222 Date:	<u>17°°</u> 24∕	10/2	,. Liū. 017	2014										up													-