

Report on Salinity Investigation and Management Plan

Proposed Macarthur Memorial Park 167 - 177 St Andrews Road, Varroville, NSW

> Prepared for Catholic Metropolitan Cemeteries Trust

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Table of Contents

Page

1.	Introduction1									
2.	Scope of Works1									
3.	Site Description2									
4.	Regional Geology, Soil Landscapes and Hydrogeology									
	4.1	Geolog	ıy	3						
	4.2	Soil La	ndscapes	3						
	4.3	Hydrog	jeology	4						
	4.4	Salinity	Potential	4						
5.	Metho	ods		5						
	5.1	1 Fieldwork Method								
	5.2	Analytic	cal Method	5						
6.	Resul	ts		6						
	6.1	Fieldwo	ork Results	6						
	6.2	Labora	tory Results	6						
		6.2.1	Aggressivity	10						
		6.2.2	Salinity	14						
		6.2.3	Sodicity and Dispersibility	18						
7.	Impac	cts of the	e Proposed Development	19						
8.	Salini	ty Mana	gement Plan	19						
	8.1 Bulk Earthworks1									
	8.2	Civil Co	onstruction and Service Installation	21						
9.	Concl	usions		21						
10.	Limitations									

Appendix A:	About This Report
	Drawings 1 and 2
Appendix B:	Table B1 – Summary of Laboratory Results
Appendix C:	Test Pit Logs
Appendix D:	Laboratory Certificates of Analysis
Appendix E:	Proposed Development Masterplan 20170605



Report on Salinity Investigation and Management Plan Proposed Macarthur Memorial Park 167 - 177 St Andrews Road, Varroville, NSW

1. Introduction

Douglas Partners Pty Ltd (DP) was commissioned by Catholic Metropolitan Cemeteries Trust (CMCT) to undertake a salinity investigation and management plan (SMP) for the proposed Macarthur Memorial Park development at 167 to 177 St Andrews Road, Varroville, NSW (the site, as shown on Drawing 1). The work was carried out in accordance with DP's proposal MAC170219 Rev1 dated 5 July 2017. DP understands that the proposed development will retain the current profile of the site, i.e. minimal cut/fill is required. The proposed development plan (Masterplan 20170605) is provided in Appendix E.

Saline soils affect much of the Western Sydney Region. Buildings and infrastructure located on shales of the Wianamatta Group are particularly at risk. Salinity can affect urban structures in a number of ways, including corrosion of concrete, break-down of bricks and mortar, corrosion of steel (including reinforcement), break-up of roads, attack on buried infrastructure, reduced ability to grow vegetation and increased erosion potential.

It is understood that the proposed memorial park will include the development of burial grounds, picnic and playground areas, sculptures, shelters, a vineyard, and various watercourses and ecological features. This SMP is required for submission to Campbelltown City Council ('Council') to support the development application and to assist in conceptual planning of the development.

The investigation comprised excavation of test pits, targeting proposed structures and the general site area, followed by laboratory testing of selected samples, engineering analysis and reporting. Details of the work undertaken and the results obtained are given within this report, together with comments relating to design and construction practice.

The fieldwork for the salinity investigation was undertaken concurrently with a contamination investigation, reported separately under DP Project 92237.00 (DP, 2017).

2. Scope of Works

The scope of works for the current investigation comprised the following:

- Salinity assessment of the site:
 - o Inspection of the site for signs of salinity;
 - o Excavation of 13 test pits within the site targeting proposed structures and the general site area to a maximum depth of 3 m below ground level (bgl) or prior refusal¹;

¹ A further 28 test pits were completed as part of the contamination assessment (TP14 – TP41; DP, 2017), however no salinity specific tests were conducted, therefore TP14 – TP41 are not included in the scope of this report.



- Collection of soil samples from test pits at regular 0.5 m depth intervals;
- Laboratory analysis of all soil samples (66 samples) for electrical conductivity (EC1:5), pH and texture by a NATA accredited laboratory for classification of salinity and aggressivity;
- Laboratory analysis of selected soil samples for chloride and sulphate concentrations (20 samples) for further assessment of aggressivity; and analysis for sodicity (8 samples) and dispersibility (4 samples) as indicators of erodibility;
- Assessment of the results with respect to potential for salinity impacts on the development.
- Review of the following documents detailing Council requirements:
 - o 'Map of Salinity Potential in Western Sydney', DNR (2002);
 - o 'Guidelines to Accompany Map of Salinity Potential in Western Sydney', DNR (2002);
 - o 'Western Sydney Salinity Code of Practice' (amended January 2004), Rebecca Nicholson for WSROC, DNR and Natural Heritage Trust;
 - o 'Guide to Residential Slabs and Footings in a Saline Environment', Cement, Concrete and Aggregates, Australia (2005);
 - o 'Introduction to Urban Salinity', DNR (2003);
 - o 'Building in a Saline Environment' DNR (2003);
 - o 'Roads and Salinity', DNR (2003);
 - o 'Indicators of Urban Salinity', DNR (2002);
 - o 'Site Investigations for Urban Salinity', DNR (2002);
 - o 'Urban Salinity Processes', DNR (2004);
 - o 'Waterwise Parks and Gardens', DNR (2004); and
 - o 'Broad Scale Resources for Urban Salinity Assessment' DNR (2002).
- Preparation of a Salinity Management Plan (SMP) providing management strategies to reduce the impact of saline material on the proposed development.

3. Site Description

The site, which includes three lots (Lot B on DP 370979, Lot 22 on DP 564065 & Lot 1 on DP 218016) is an irregular area of approximately 113 ha located 10 km north of Campbelltown. Maximum north-south and east-west dimensions are approximately 2100 m and 800 m respectively.

The site is bounded by St Andrews Road to the west and rural land to the north, east and south directions. The majority of the site was vacant at the time of field work, with only one existing structure noted within the central portion. This building is understood to be a heritage listed property and will be kept as a part of the proposed development. A historic vineyard is located in the eastern central portion of the site which was constructed and operated in the early 19th Century²; DP understands the vineyard will be retained as part of the proposed development.

² <u>http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=5045252</u>. Last accessed 29 August 2017



The site is currently used for the purpose of cattle grazing and onsite vegetation was noted as sparse-grass and scattered trees, with communities of medium-sized trees (<10 m) noted across flat areas of the site. The south-facing slope of Bunbury Curran Hill (in the north of the site) is covered by dense medium-sized and large trees.

The site encompasses ridgelines and areas of undulating terrains. The ridgelines border the northern and north-eastern ends of the site and slope steeply (15% - 30%) toward south and east. The ground slopes then decreases in grade becoming undulating terrains sloping gently (less than 10%) and relatively level to the central and southern portions of the site. The area of moderate to steep land with slopes greater than 10%, occupies approximately 25 - 30% of the site.

The site has an overall relief of approximately 85 m from the highest point, knowns as Bunbury Curran Hill (approximately RL 150 relative to Australian Height Datum - AHD) to the lowest part within the manmade ponds close to the western boundary of the site (approximately RL 65).

Mount Carmel Retreat Centre and Mount Carmel High School are located west and south-west of the site respectively.

4. Regional Geology, Soil Landscapes and Hydrogeology

4.1 Geology

Reference to the *Geological Survey of New South Wales (1985), Wollongong-Port Hacking 1: 100 000 Geological Sheet 9029-9129* indicates that the site is underlain predominately by Bringelly Shale (mapping unit Rwb) of the Triassic age. This formation typically comprises shale, carbonaceous claystone, laminite, and some minor bands of coals.

A very minor region within the southern portion of the site is underlain by Ashfield Shale (mapping unit Rwa) of the Wianamatta Group of the Triassic age. This formation typically comprises laminite and dark grey siltstone.

4.2 Soil Landscapes

Reference to the *Soil Conservation Service of NSW (1990) Soil Landscapes of the Wollongong-Port Hacking 1:100,000 Sheet* indicates that the site is underlain by the following:

The eastern portion of the site is underlain by the Luddenham soil landscape (mapping unit lu) characterised by undulating to rolling low hills on Wianamatta Group shales, often associated with Minchinbury Sandstone. The landscape is typically represented by narrow ridges, hillcrests and valleys. Soils typically range from shallow (<100 cm) dark podzolic soils or massive earthy clays on crests and moderately deep red podzolic soils on uppers slopes. These soils are typically moderately reactive, with a high soil erosion hazard and a localised impermeable highly plastic subsoil;



- The western portion of the site is underlain by the Blacktown soil landscape (mapping unit bt) characterised by gently undulating rises on Wianamatta Group shales and Hawkesbury shale, with local relief to 30 m and slopes usually less than 5%. The landscape is typically represented by broad rounded crests and ridges with gently inclined slopes. Soils range from shallow (<1 m) red-brown podzolic soils comprising mostly clayey soils on crests and upper slopes to deep (1.5 m 3 m) yellow-brown clay soils on lower slopes and areas of poor drainage. These soils are typically moderately reactive with low fertility, poor soil drainage and highly plastic subsoil;
- The northern portion of the site is underlain by the Picton soil landscape (mapping unit Pn) characterised by steep sideslopes on Wianamatta Group shale and shale colluvial materials, usually with a southerly aspect. Soils typically range from yellow podzolic soils on lower slopes and in drainage lines, and shallow to deep red and brown podzolic soils on upper slopes. These soils typically have high erosion and mass movement hazard, and some impermeable and highly plastic subsoils; and
- A minor region within the southern portion of the site is underlain by the South Creek soil landscape (mapping unit sc) characterised by floodplains, valley flats and drainage depressions of the channels on the Cumberland Plain. Soils range from red and yellow podzolic soils on terraces with small areas of structured grey clays, leached clay and yellow solodic soils. These soils are typically prone to erosion hazard and frequent flooding.

4.3 Hydrogeology

McNally (2005) describes some general features of the hydrogeology of Western Sydney which are relevant to this site. The shale terrain of much of Western Sydney is known for saline groundwater, resulting either from the release of connate salt in shales of marine origin or from the accumulation of windblown sea salt. Seasonal groundwater level changes of 1 m - 2 m can occur in a shallow regolith aquifer or a deeper shale aquifer due to natural influences.

Groundwater investigations undertaken by DP in the Camden and Campbelltown area and previous studies of areas underlain by the Wianamatta Group indicate that:

- The shales have a very low intrinsic permeability, hence groundwater flow is likely to be dominated by fracture flow with resultant low yields (typically <1 L/s) in bores; and
- The groundwater in the Wianamatta Group is typically brackish to saline with total dissolved solids (TDS) in the range 4000 5000 mg/L (but with cases of TDS up to 31750 mg/L being reported). The dominant ions are typically sodium and chloride and the water being generally unsuitable for livestock or irrigation.

4.4 Salinity Potential

Reference to the Map of Salinity Potential in Western Sydney, indicates the following:

• The majority of the site is located within an area of "moderate salinity potential", where "saline areas may occur, which have not yet been identified or may occur if risk factors change adversely."



- Parts of the western and southern portions of the site are located within an area of "high salinity potential", where "soil, geology, topography and groundwater conditions predispose a site to salinity. These conditions are similar to areas of known salinity. These areas are most common in lower slopes and drainage systems where water accumulation is high..."
- A very minor region within the south western portion of the site is within an area of "known salinity", where "there is known occurrence of saline soil, or where air photo interpretation and field observations have confirmed more than one of the following: scalding, salt efflorescence, vegetation dieback, salt tolerant species, and waterlogging".

5. Methods

5.1 Fieldwork Method

Field investigations were undertaken on 7 to 8 August 2017 by a DP environmental scientist. The fieldwork comprised excavation of 13 test pits (TP1 to TP13) using a Takeuchi TB125 5 tonne excavator fitted with a 300 mm bucket. Test pits were excavated to depths of 3 m bgl or prior refusal. An additional 28 test pits were excavated as part of the contamination investigation (DP, 2017).

Test pit locations were nominated by DP and were co-ordinated in the field using a handheld Garmin GPS. TP1 to TP5, TP7 and TP11 targeted proposed structures. TP6, TP8 to TP10, TP12 and TP13 targeted proposed access routes, as well as providing general site coverage. Test pit locations are shown on Drawing 1, Appendix A.

The geological profile of the test pits was logged on site by a DP environmental scientist (refer to Test Pit Logs in Appendix C). Representative samples were collected at 0.5 m depth intervals for laboratory testing and to assist in strata identification.

All field measurements and mapping for this project have been carried out using the Geodetic Datum of Australia 1994 (GDA94) and the Map Grid of Australia 1994 (MGA94), Zone 56. All reduced levels are given in relation to the Australian Height Datum (AHD).

5.2 Analytical Method

Due to the proposed non-intensive development of the site, a relatively low test pit density was employed, targeting proposed structures and existing landforms. The site was divided into four landform zones (crests, upper slopes, lower slopes and channels) as shown on Drawing 2. A "worst case" scenario (at each test pit location) was used to classify the extent of aggressivity and salinity within each zone. This was achieved by utilising a maxima/minima analysis within the full investigated depth of 0 m - 3.0 m, within each zone. The general strata of each landform zone is summarised in Section 6.1 below.



6. Results

6.1 Fieldwork Results

The test pit logs are included in Appendix C and should be read in conjunction with the accompanying standard notes defining classification methods and descriptive terms.

The succession of strata within each of the four topographical zones is broadly summarised as follows:

CRESTS: brown mottled grey silty clay/silt top soil to depths of up to 0.2 m underlain by stiff silty clay to depths of 1.0 m, in turn underlain by low strength, highly weathered brown and grey shale/siltstone. Refusal on medium strength shale/siltstone.

UPPER SLOPES: Silty clay top soil to depths of up to 0.3 m underlain by stiff silty clay/clay to depths of 0.4 m to 1.5 m in TP31, TP32, TP33 and TP37. In TP11, silty clay was underlain by low strength, moderately weathered siltstone to depths of 2.5 m, in turn underlain by very low strength shale. Asbestos-containing material was encountered on the surface, in the vicinity of TP39.

LOWER SLOPES: Silty clay/silt top soil to depths of up to 0.4 m underlain by stiff to very stiff silty clay / gravelly silty clay / clay to depths in the range of 0.4 m to 3 m in TP1, TP4, TP22 to TP24, TP 26 to TP28, TP30, TP34, and 38. Some sand was encountered in TP1 and TP4. Extremely low strength to low strength shale/siltstone was encountered in TP3, TP6, TP9, TP10 and TP25 at depths in the range of 1.5 m to 3 m, with refusal on medium strength shale/siltstone. Very low strength, highly weathered sandstone was encountered in TP2 to depths of 2.5 m, with refusal on medium strength sandstone.

CHANNELS: Silty clay/silt top soil to depths of 0.3 m underlain by stiff silty clay/clay to depths in the range of 0.6 m to 3 m in TP5, TP7, TP15 and TP36. In TP5, some sand was encountered at depths below 2 m. Bands of extremely low strength, extremely weathered shale were encountered in TP12 and TP13 at depths below 2 m, with refusal on medium strength shale. Filling, comprised of porcelain tile and porcelain fragments was encountered in TP40 to depths of 0.3 m. Silty clay filling was also encountered in TP20 to depths of 0.4 m.

No signs of efflorescence were noted during the inspection.

6.2 Laboratory Results

The laboratory test results and assessments of aggressivity, salinity, sodicity and dispersibility are summarised in Table B1 of Appendix B. Aggressivity to concrete was determined using pH values and sulphate concentrations and aggressivity to steel was determined using pH values, chloride concentrations and resistivities. The salinity class was inferred from ECe values using the method of Richards (1954) and sodicity was determined using cation-exchange-capacity (CEC) and exchangeable sodium concentration. Dispersion potentials were derived from Emerson Crumb Test. The detailed laboratory test reports and chain of custody documents are provided in Appendix D.



The following Tables 1 to 4 summarise the total test sample numbers and the range of test results obtained for each of the four landform zones.

Pa	rameter	Units	Samples	Minimum	Maximum	
	рН	pH units	5.9	9.5		
С	hlorides	(mg/kg)	(mg/kg) 2 31			
S	ulphates	(mg/kg)	2	10	47	
Aggressivity	to Concrete	[AS2159]	[AS2159] 3		Non- Aggressive	
	to Steel	[AS2159]	3	Non-Aggressive	Mild	
Exchangea	able Sodium (Na)	(meq/100g)	2	1.2	2.2	
CEC (cation	exchange capacity)	(meq/100g)	2	16	29	
Sodic	ty [Na/CEC]	(ESP%)	(ESP%) 2			
Sod	icity Class	[after DLWC]	2	Sodic	Sodic	
EC	1:5 [Lab.]	(mS/cm)	3	62	510	
R	esistivity	Ω.cm	3	1961	16129	
ECe [M x EC1:5] v	vhere M is textural factor	(dS/m)	3	0.5	3.6	
Sali	nity Class	[after Richards 1954]	3	Non-saline	Slightly Saline	
Dis	persibility	[from Emerson Crumb Test]	1	Class 2	Class 2	

Table 1: Summary of Parameters Tested within Crest Zones



Pa	arameter	Units	Samples	Minimum	Maximum	
	рН	pH units	5	5.1	5.5	
с	hlorides	(mg/kg)	1	190	190	
S	ulphates	(mg/kg)	1	69	69	
	to Concrete	[AS2159]	5	Mild	Mild	
Aggressivity	to Steel	[AS2159]	[AS2159] 5		Non- Aggressive	
Exchangea	able Sodium (Na)	(meq/100g)	1.4	1.4		
CEC (cation	exchange capacity)	(meq/100g)	(meq/100g) 1 6.6			
Sodic	ity [Na/CEC]	(ESP%)	21	21		
Sod	licity Class	[after DLWC]	1	Highly sodic	Highly sodic	
EC	1:5 [Lab.]	(mS/cm)	5	32	220	
R	esistivity	Ω.cm	5	4545	31250	
ECe [M x EC1:5] v	where M is textural factor	(dS/m)	5	0.2	1.5	
Sali	inity Class	[after Richards 1954]	5	Non-saline	Non-saline	
Dis	persibility	[from Emerson Crumb Test]	1	Class 4	Class 4	

Table 2: Summary of Parameters Tested within Upper Slopes



Table 3: Summary of Parameters Tested within Lower Slopes

Pa	rameter	Units	Samples	Minimum	Maximum	
	рН	pH units	35	4.6	7.8	
С	hlorides	(mg/kg)	11	<10	960	
S	ulphates	(mg/kg)	11	<10	360	
A	to Concrete	[AS2159]	35	Non-aggressive	Mild	
Aggressivity	to Steel	[AS2159]	35	Non-aggressive	Mild	
Exchangea	able Sodium (Na)	(meq/100g)	3	1	3	
CEC (cation	exchange capacity)	(meq/100g)	3	11	11	
Sodic	ty [Na/CEC]	(ESP%)	(ESP%) 3 9			
Sod	icity Class	[after DLWC]	3	sodic	Highly sodic	
EC	1:5 [Lab.]	(mS/cm)	35	22	880	
R	esistivity	Ω.cm	35	1136	45455	
ECe [M x EC1:5] v	where M is textural factor	(dS/m)	35	0.2	6.9	
Sali	nity Class	[after Richards 1954]	35	Non-saline	Moderately Saline	
Dis	persibility	[from Emerson Crumb Test]	1	Class 4	Class 4	



Ра	rameter	Units	Samples	Minimum	Maximum
	рН	pH units	23	5.1	8.4
C	hlorides	(mg/kg)	6	10	370
Su	ulphates	(mg/kg)	6	10	90
	to Concrete	[AS2159]	23	Non-aggressive	Mild
Aggressivity	to Steel	[AS2159]	23	Non-aggressive	Mild
Exchangea	able Sodium (Na)	(meq/100g)	2	2.6	3.2
CEC (cation e	exchange capacity)	(meq/100g)	2	8.5	11
Sodici	ty [Na/CEC]	(ESP%)	2	24	38
Sod	icity Class	[after DLWC]	2	Highly Sodic	Highly Sodic
EC	1:5 [Lab.]	(mS/cm)	23	23	660
Re	esistivity	Ω.cm	23	1515	43478
ECe [M x EC1:5] v	where M is textural factor	(dS/m)	23	0.2	4
Sali	nity Class	[after Richards 1954]	23	Non-saline	Slightly Saline
Dis	persibility	[from Emerson Crumb Test]	1	Class 1	Class 1

Table 4 – Summary of Parameters Tested within Channels

6.2.1 Aggressivity

The following Figures 1 to 4 presents variations of aggressivity with depth at each test pit location for each landform zone, based on pH profiles, and the corresponding aggressivity class ranges as per the Australian Standard AS 2159 (2009). Due to the absence of free groundwater in all test pits, all soil samples were classed as Condition B as defined by AS-2159. It should be noted that when carrying out a worst case analysis, pH is the main indicator for aggressivity to concrete, and resistivity is the main indicator for aggressivity to steel.



6.2.1.1 Crests



Figure 1: Vertical Soil pH Profiles and Aggressivity Classes within Crest Zones

One test pit (TP 8) was located within the crest zone. Table B1 indicates (with limited data) that soils within crest zones are likely to be non-aggressive to concrete (pH >5.5), based on pH profiles, as shown on Figure 1.

The pH profile of Figure 1 also indicates that soils, at all investigated depths within crest zones, are likely to be non-aggressive to steel (pH > 4). This finding is consistent with aggressivity results derived using chloride concentration values (Table B1, Appendix B). However, based on resistivity criteria, 33% of samples are classified as mildly aggressive to steel. Using the worst case scenario, materials within crest zones are therefore classified as mildly aggressive to steel.



6.2.1.2 Upper Slopes



Figure 2: Vertical Soil pH Profiles and Aggressivity Classes within Upper Slope Zones

One test pit (TP11) was located within the upper slope zone. Table B1 indicates (with limited data) that soils within upper slopes are likely to be mildly aggressive to concrete (pH 4.5 to 5.5) and non-aggressive to steel (pH > 4), based on pH profiles, as shown on Figure 2. The latter finding is consistent with aggressivity results derived using chloride concentration values, and resistivity criteria.



6.2.1.3 Lower Slopes



Figure 3: Vertical Soil pH Profiles and Aggressivity Classes within Lower Slope Zones

The majority of test pits completed as part of this investigation (TP1, TP2, TP3, TP4, TP6, TP9 and TP10) are located within lower slopes. Table B1 indicates that 37% of samples within lower slopes are classified as non-aggressive to concrete (pH > 5.5) and 63% of samples are classified as mildly aggressive (pH 4.5 to 5.5), based on pH profiles.

The pH profile for lower slopes as shown in Figure 3 also indicates that materials, at all investigated depths within lower slopes are non-aggressive to steel. This finding is consistent with aggressivity results derived using chloride concentration values (Table B1, Appendix B). However, based on resistivity criteria, 34% of samples are classified as mildly aggressive to steel.

Using the worst case scenario, materials within lower slope zones are therefore classified as mildly aggressive to concrete and steel.



6.2.1.4 Channels



Figure 4: Vertical Soil pH Profiles and Aggressivity Classes within Channel Zones

Test pits TP5, TP7, TP12 and TP13 are located within channel zones. Table B1 indicates that 96% of samples within channels are classified as non-aggressive to concrete (pH >5.5) and 4% of samples are classified as mildly aggressive (pH 4.5 to 5.5), based on pH profiles.

The pH profile for channels as shown in Figure 4 indicates that materials, at all investigated depths within channels are non-aggressive to steel, based on pH profiles. This finding is consistent with aggressivity results derived using chloride concentration values (Table B1, Appendix B). However, based on resistivity criteria, 17% of samples are classified as mildly aggressive to steel.

Using the worst case scenario, materials within lower zones are therefore classified as mildly aggressive to concrete and steel.

6.2.2 Salinity

The following Figures 5 to 8 present the variations of salinity with depth at each test pit location, for each of the four landform zones, based on ECe profiles, and the corresponding salinity classifications of Richards (1954).



6.2.2.1 Crests



Figure 5: Vertical Soil Salinity Profiles and Salinity Classes within Crest Zones

Table B1 (Appendix B) indicates that within crest zones, 67% of samples are non-saline and 33% of samples are slightly saline, as shown on Figure 5. Using the worst case scenario, materials within crests are therefore classified as slightly saline.



Page 16 of 30

6.2.2.2 Upper Slopes



Figure 6: Vertical Soil Salinity Profiles and Salinity Classes within Upper Slope Zones

Table B1 (Appendix B) indicates that within upper slope zones, all samples are classified as non-saline, as shown on Figure 6.



Page 17 of 30

6.2.2.3 Lower Slopes



Figure 7: Vertical Soil Salinity Profiles and Salinity Classes within Lower Slope Zones

Table B1 (Appendix B) indicates that within lower slope zones, 49% of samples are non-saline, 20% of samples are slightly saline and 31% of samples are moderately saline, as shown on Figure 7. Using the worst case scenario, materials within lower slopes are therefore classified as moderately saline



6.2.2.4 Channels



Figure 8: Vertical Soil Salinity Profiles and Salinity Classes within Channel Zones

Table B1 (Appendix B) indicates that within channel zones, 78% of samples are non-saline and 22% of samples are slightly saline, as shown on Figure 8. Using the worst case scenario, materials within channels are therefore classified as slightly saline.

6.2.3 Sodicity and Dispersibility

The sodicity results presented in Table B1 (Appendix B) shows that over the locations tested, soils varied from sodic to highly sodic, indicating some potential for erodibility of soils left exposed.

The dispersion potential of the soils, tested at depths of 0.5 to 1.0 m bgl by the Emerson Crumb Test ranged from no dispersion (Class 4) to complete dispersion (Class 1). Therefore soils at the site have the potential to exhibit poor drainage and there is a tendency for water logging to occur.



7. Impacts of the Proposed Development

Mild aggressivity to concrete and steel, the presence of slightly saline to moderately saline material and sodic to highly sodic soils are naturally occurring features of the local landscape and are not considered to be significant impediments to the proposed development, provided that appropriate remediation or management techniques are employed, where required.

Salinity and aggressivity affects the durability of concrete and steel by causing premature breakdown of concrete and corrosion of steel. This has impacts on the longevity of structures in contact with these materials. As a result, management strategies need to be implemented to mitigate potential risks by taking into account the observed conditions at the site (refer to Section 8).

Sodic soils have low permeability due to infilling of interstices with fine clay particles during the weathering process, restricting infiltration of surface water and potentially creating perched water tables, seepage in cut faces or ponding of water in flat open area. In addition, sodic soils tend to erode when exposed. Management of sodic soils is therefore required to prevent these potentially adverse effects.

8. Salinity Management Plan

The current salinity investigation indicates that materials within the site are non-saline to moderately saline. Testing of other parameters associated with salinity indicates that the materials are non-aggressive to mildly aggressive to concrete and steel within the site (in accordance with AS 2159). In addition, the majority of soils were highly sodic.

The following management strategies are confined to the management of those factors with a potential to impact on the proposed minimal bulk earthworks and non-intensive construction aspects of the development.

8.1 Bulk Earthworks

- A. If required, material excavated from crest zones (classified as slightly saline) can be placed as filling directly within all landform zones, provided appropriate construction strategies (Section 8.2 below) are applied where steelwork is to be in proximity to mildly-aggressive (to steel) filling from the crest zones.
- B. If required, material excavated from upper slope zones (classified as non-saline) can be placed as filling directly within all landform zones, provided appropriate construction strategies (Section 8.2 below) are applied where concrete is to be placed in the mildly-aggressive (to concrete) filling from the upper slope zones.
- C. Material excavated from the lower slope zones (classified as moderately saline and mildly aggressive) should not be placed as filling in other landform zones.



- D. If required, material excavated from channel zones (classified as slightly saline) can be placed as filling directly within all landform zones, provided appropriate construction strategies (Section 8.2 below) are applied where concrete or steel is to be placed in the mildly aggressive filling from the channel zones.
- E. With respect to imported fill material (if required), testing should be undertaken prior to importation, to determine the salinity characteristics of the material. Where possible, the material should be non-aggressive and non-saline, but should not be more aggressive or more saline than the material on which it is to be placed. This approach can be amended if the final salinity management plan is amended to accommodate any increases in salinity or aggressivity.
- F. Management should focus on capping of the upper surface of the sodic soils (i.e. soils exposed by excavation and soils placed as filling) near structures with a more permeable material to prevent ponding, reduce capillary rise, to act as a drainage layer and to reduce the potential for erosion.
- G. Sodic soils can also be managed by maintaining vegetation where possible and planting new salt tolerant species. The addition of organic matter, gypsum and lime can also be considered where appropriate. After gypsum addition, reduction of sodicity levels may require some time for sufficient infiltration and leaching of sodium into the subsoils, however capping of exposed sodic material should remain the primary management method. The addition of topsoil at the completion of bulk earthworks is, in effect, also adding organic matter which may help infiltration and leaching of sodium.
- H. Avoid water collecting in low lying areas, in depressions, or behind fill. This can lead to water logging of the soils, evaporative concentration of salts, and eventual breakdown in soil structure resulting in accelerated erosion.
- I. Any pavements should be designed to be well drained of surface water. There should not be excessive concentrations of runoff or ponding which would lead to waterlogging of the pavement or additional recharge to the groundwater through any more permeable zones in the underlying filling material.
- J. Surface drains should generally be provided along the top of batter slopes to reduce the potential for concentrated flows of water down slopes, possibly causing scour.
- K. Salt tolerant grasses and trees should be considered for landscaping, to reduce soil erosion, and to maintain the existing evapo-transpiration and groundwater levels. Reference should be made to an experienced landscape planner or agronomist.



8.2 Civil Construction and Service Installation

The following additional strategies are recommended for completion of service installation including but not limited to; roads, drainage and services. These strategies should be complementary to standard good building practices, including cover to reinforcement within concrete.

- L. Where soils are classified as mildly aggressive to concrete (Upper Slopes, Lower Slopes, Channels and any areas using fill from these zones), piles should have a minimum strength of 32 MPa and a minimum cover to reinforcement of 60 mm (as per AS2159) to limit the corrosive effects of the surrounding soils (in accordance with AS2159).
- M. With regards to concrete structures, for non-saline soils that are mildly aggressive to concrete (e.g. Upper Slopes), slabs and foundations should have a minimum strength of 25 MPa, and should be allowed to cure for a minimum of three days (as per AS3600) to limit the corrosive effects of the surrounding soils; and
- N. With regard to concrete structures, for moderately saline soils that are mildly aggressive to concrete (Lower Slopes), slabs and foundations should have a minimum strength of 25 MPa, a minimum cover to reinforcement of 45 mm from unprotected ground and should be allowed to cure for a minimum of three days (as per AS3600) to limit the corrosive effects of the surrounding soils;
- О. Wet cast concrete pipes and currently manufactured spun concrete pipes are understood to have estimated compressive strengths of 50 MPa and 60 - 70 MPa, respectively, in excess of the requirements for mass concrete in L and M above. Reference to the maximum and minimum test results of Table 1 (Section 7 of this report) and to Tables E1 and 3.1 of AS 4058 - 2007 "Precast concrete pipes" indicates that the site falls marginally outside the AS 4058 Clay/Stagnant (low sulphate) soil type (chlorides <=20,000 ppm and sulphates <=1,000 ppm) and (in the absence of tidal water flow) falls within the AS 4058 "Other" durability environment. The minimum site pH of 4.2 indicates a slightly more acidic environment than that within the Clay/Stagnant soil type definition (minimum pH 4.5) and reference to the Concrete Pipe Association of Australasia Engineering Guideline ("Designing Durable Concrete Pipelines") indicates an increase of cover to reinforcement (to 20 mm) or a protective (e.g. epoxy) coating or sleeve, or blended concrete, should be employed to maintain a design life in excess of 100 years. It is recommended that any concrete pipes installed within the site should employ AS 4058 - compliant steel reinforced pipes of general purpose Portland cement, with minimum cover to reinforcement of 20 mm, or with an alternative durability provision as indicated above, or should be fibre reinforced.

9. Conclusions

It is considered that the management strategies described in this report, when applied to the proposed minimal bulk earthworks and non-intensive construction, are appropriate to mitigate the levels of salinity, aggressivity and sodicity identified at the site with respect to the proposed development.



10. Limitations

Douglas Partners Pty Ltd (DP) has prepared this report for this project at 167 - 177 St Andrews Road, Varroville, NSW in accordance with DP's proposal MAC170219 Rev1 dated 5 July 2017 and acceptance received from John Richardson dated 3 August 2017. The work was carried out under DP's Conditions of Engagement. This report is provided for the exclusive use of Catholic Metropolitan Cemeteries Trust for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of DP, does so entirely at its own risk and without recourse to DP for any loss or damage. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

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

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

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

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

Douglas Partners Pty Ltd

Appendix A

About This Report Drawings 1 and 2



Introduction

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

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

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

Borehole and Test Pit Logs

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

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

Groundwater

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

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

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

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

Reports

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

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

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

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

About this Report

Site Anomalies

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

Information for Contractual Purposes

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

Site Inspection

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





Appendix B

Table B1 – Summary of Laboratory Results

Douglas Partners Geotechnics | Environment | Groundwater

	Test Lo	ocation	Sample Depth	рН	Chloride	Sulphate F	Resistivity	Soil Condition	Ager to Conoroto	Aggr. to Congrete	Sample Aggressivity Class		Aggr. to Stool from	Exchangeable Sodium (Na)	Cation Sodicity	Sodicity Class	Emerson Dispersion? So	ioil Texture Group	extural Factor (M)	EC _{1:5}	EC _e	Sample Salinity Class
Test Bore or					Concentration	Byin	EC1:5		from sample pH	from Sulphate conc.	from sample pH	from Chloride conc.	sample Resistivity	Concentration			Class Class)	Report Appendix)		[Lab.]	[IVI X EC _{1:5}]	(Based on sample ECe)
Pπ	East	North																				
	(m MGA56)	(m MGA56)	(m bgl)	(pH units)	(mg/kg)	(mg/kg)	Ω.cm	[AS2159-2009]			[AS2159-2009]			(meq/100g)	(meq/100g) (%)	[after DLWC]	[AS1289.3.8.1]	[after DLWC]	[after DLWC]	(microS/cm)	(deciS/m)	[Richards 1954]
1	298482.9859	6235871.098	0.5	5.6	30	81	9091	В	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive					_ight medium clay	8.0	110.0	0.9	Non-Saline
			1.0	5.8			1724	В	Non-Aggressive		Non-Aggressive		Mild					Light clay	8.5	580.0	4.9	Moderately Saline
			1.5	6.6	960	360	1235	В	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Mild					Light clay	8.5	810.0	6.9	Moderately Saline
			2.0	6.7			1333	В	Non-Aggressive		Non-Aggressive		Mild				L	Light medium clay	8.0	750.0	6.0	Moderately Saline
			2.5	7 4			1538	в	Non-Aggressive		Non-Aggressive		Mild					Light clay	8.5	650.0	5.5	Moderately Saline
			2.0	7.0			1000												0.5	040.0	5.0	
•			3.0	7.8	720	230	1639	В	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Milid						8.5	610.0	5.2	Moderately Saline
2	298624.5176	6235931.215	0.5	5.2			13514	В	Mild		Non-Aggressive		Non-Aggressive				L	_ight medium clay	8.0	74.0	0.6	Non-Saline
			1.0	4.8	510	160	2439	В	Mild	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	2.5	11.0 23	Highly Sodic		Medium clay	7.0	410.0	2.9	Slightly Saline
			1.5	5.0			1136	В	Mild		Non-Aggressive		Mild					Medium clay	7.0	880.0	6.2	Moderately Saline
			2.0	5.5			1961	В	Mild		Non-Aggressive		Mild					Medium clay	7.0	510.0	3.6	Slightly Saline
			2.5	C F			2044	P										Madium alay	7.0	240.0	2.4	Clicktly Coline
			2.5	6.0			2941	В	Non-Aggressive		Non-Aggressive		Non-Aggressive						7.0	340.0	2.4	Siightiy Saine
			3.0	6.7			2941	В	Non-Aggressive		Non-Aggressive		Non-Aggressive					Medium clay	7.0	340.0	2.4	Slightly Saline
3	298729.7263	6235990.083	0.5	6.3			20833	В	Non-Aggressive		Non-Aggressive		Non-Aggressive				L	_ight medium clay	8.0	48.0	0.4	Non-Saline
			1.0	5.5			12658	В	Mild		Non-Aggressive		Non-Aggressive				4 No	Light clay	8.5	79.0	0.7	Non-Saline
			1.5	4.6	530	280	2041	В	Mild	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive				L	Light medium clay	8.0	490.0	3.9	Slightly Saline
			2.0	4.7			1515	В	Mild		Non-Aggressive		Mild					Light medium clay	8.0	660.0	5.3	Moderately Saline
			2.5	4.6			1222	Р	Mild				Mild						0 E	750.0	6.4	Moderately Solino
			2.5	4.0			1333	В	Mild		Non-Aggressive		Wild						0.0	750.0	0.4	
			3.0	4.7			1563	В	Mild		Non-Aggressive		Mild					Medium clay	7.0	640.0	4.5	Moderately Saline
4	298610.7388	6235805.971	0.5	5.6			17241	В	Non-Aggressive		Non-Aggressive		Non-Aggressive					Light clay	8.5	58.0	0.5	Non-Saline
			1.0	5.2			7143	В	Mild		Non-Aggressive		Non-Aggressive				L	∟ight medium clay	8.0	140.0	1.1	Non-Saline
			1.5	5.1			3846	В	Mild		Non-Aggressive		Non-Aggressive					Light medium clay	8.0	260.0	2.1	Slightly Saline
			2.0	5.0	460	180	2564	В	Mild	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive					Light clay	8.5	390.0	3.3	Slightly Saline
				10			1538		Mild	00			Mild		+				QE	650.0	5.5	Moderately Soline
			2.0	4.9			1556		Wind .				Mild						0.5	030.0	5.5	
			3.0	5.0			1613	В	Mild		Non-Aggressive		Mild					Light clay	8.5	620.0	5.3	Moderately Saline
5	298644.555	6235704.521	0.5	7.0			8333	В	Non-Aggressive		Non-Aggressive		Non-Aggressive					Heavy clay	6.0	120.0	0.7	Non-Saline
			1.0	6.1			1515	В	Non-Aggressive		Non-Aggressive		Mild					Heavy clay	6.0	660.0	4.0	Slightly Saline
			1.5	7.0			1667	В	Non-Aggressive		Non-Aggressive		Mild	2.6	11.0 24	Highly Sodic		Heavy clay	6.0	600.0	3.6	Slightly Saline
			2.0	8.1			3125	В	Non-Aggressive		Non-Aggressive		Non-Aggressive					Heavy clay	6.0	320.0	1.9	Non-Saline
			2.5	8 1	250	90	3571	в	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive					Heavy clay	6.0	280.0	17	Non-Saline
			2.0	0.1	200		0574			i ten / iggreeerve									0.0	200.0		Nex Oaline
	•		3.0	8.4			3571	В	Non-Aggressive		Non-Aggressive		Non-Aggressive					Heavy clay	6.0	280.0	1.7	Non-Saline
6	299027.8218	6235732.076	0.5	5.2			27778	В	Mild		Non-Aggressive		Non-Aggressive					Light clay	8.5	36.0	0.3	Non-Saline
			1.0	5.1	28	73	10417	В	Mild	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive					Medium clay	7.0	96.0	0.7	Non-Saline
			1.5	5.2	78	54	10000	В	Mild	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive					Medium clay	7.0	100.0	0.7	Non-Saline
7	298814.8976	6235537.935	0.5	5.7			23810	В	Non-Aggressive		Non-Aggressive		Non-Aggressive					Heavy clay	6.0	42.0	0.3	Non-Saline
			1.0	5.9			2500	В	Non-Agaressive		Non-Agaressive		Non-Aggressive	3.2	8.5 38	Highly Sodic	1 Complete	Heavy clay	6.0	400.0	2.4	Slightly Saline
			1.5	7.0			4754												0.0	570.0	2.1	
			1.5	7.0			1754	В	Non-Aggressive		Non-Aggressive		Mild					Heavy clay	6.0	570.0	3.4	Slightly Saline
			2.0	8.1			3030	В	Non-Aggressive		Non-Aggressive		Non-Aggressive					Heavy clay	6.0	330.0	2.0	Non-Saline
			2.5	8.3			1852	В	Non-Aggressive		Non-Aggressive		Mild					Medium clay	7.0	540.0	3.8	Slightly Saline
			3.0	8.4	370	63	3030	В	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive					Heavy clay	6.0	330.0	2.0	Non-Saline
8	299357.2268	6235747.103	0.5	5.9	31	10	16129	В	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	1.2	16.0 8	Sodic	2 Some	Light clay	8.5	62.0	0.5	Non-Saline
			1.0	9.5			1961	В	Non-Aggressive		Non-Aggressive		Mild	2.2	29.0 8	Sodic		Medium clay	7.0	510.0	3.6	Slightly Saline
			1.5	7.9	270	47	4000	В	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive					Medium clav	7.0	250.0	1.8	Non-Saline
0	202102.454	0005475-000	0.5				00040												0.0	40.0	0.0	Neg Celine
9	299193.151	6235475.308	0.5	5.7			23810	В	Non-Aggressive		Non-Aggressive		Non-Aggressive						8.0	42.0	0.3	Non-Saine
			1.0	5.2	40	39	14286	В	Mild	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive					Light clay	8.5	70.0	0.6	Non-Saline
			1.5	5.0			5556	В	Mild		Non-Aggressive		Non-Aggressive		ļ			Medium clay	7.0	180.0	1.3	Non-Saline
			2.0	5.0	230	84	4167	В	Mild	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	3.0	11.0 27	Highly Sodic		Medium clay	7.0	240.0	1.7	Non-Saline
10	299289.8912	6234893.507	0.5	5.7			16949	В	Non-Aggressive		Non-Aggressive		Non-Aggressive					_ight medium clay	8.0	59.0	0.5	Non-Saline
			1.0	5.5			15152	В	Mild		Non-Aggressive		Non-Aggressive	1.0	11.0 9	Sodic		Light clay	8.5	66.0	0.6	Non-Saline
			1.5	5.3	<10	<10	45455	В	Mild	Non-Agaressive	Non-Agaressive	Non-Aaaressive	Non-Agaressive					Medium clav	7.0	22.0	0.2	Non-Saline
			2.0	60			18510		Non-Aggregative		Non-Aggregative		Non-Aggregative		+			Medium clay	7 0	54.0	0.4	Non-Salina
			2.0	0.3					THE AUGUSTICE						<u> </u>				r.u	J 1 .U	0.4	
11	299323.7569	6235210.872	0.5	5.3			30303	В	Mild		Non-Aggressive		Non-Aggressive		<u> </u>		4 No	∟ight clay	8.5	33.0	0.3	Non-Saline
			1.0	5.5			31250	В	Mild		Non-Aggressive		Non-Aggressive	1.4	6.6 21	Highly Sodic		Medium clay	7.0	32.0	0.2	Non-Saline
			1.5	5.1			5882	В	Mild		Non-Aggressive		Non-Aggressive					Medium clay	7.0	170.0	1.2	Non-Saline
			2.0	5.1	190	69	5263	В	Mild	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive					Medium clay	7.0	190.0	1.3	Non-Saline
			2.5	5.1			4545	В	Mild		Non-Aggressive		Non-Aggressive					Medium clay	7.0	220.0	1.5	Non-Saline
12	299631.5413	6235009 493	0.5	6.6			43478	В	Non-Aaaressive		Non-Aggressive		Non-Addressive		† †			Light medium clav	8.0	23.0	0.2	Non-Saline
			10	6.0			12170		Non A garage		Non A garage		Non Aggregation		+				0 5	22.0	0.2	Non Soling
			1.0	0.9		<u> </u>							NOT-Aggressive		<u> </u>				6.0	23.0	0.2	INUT-Salifie
			1.5	7.0			38462	В	Non-Aggressive		Non-Aggressive		Non-Aggressive					_ight medium clay	8.0	26.0	0.2	Non-Saline
			2.0	7.2			20833	В	Non-Aggressive		Non-Aggressive		Non-Aggressive					Medium clay	7.0	48.0	0.3	Non-Saline
			2.5	7.4	31	21	12658	В	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive					Medium clay	7.0	79.0	0.6	Non-Saline
13	299225.7221	6234837.798	0.5	5.8			10638	В	Non-Aggressive		Non-Aggressive		Non-Aggressive					Light clay	8.5	94.0	0.8	Non-Saline
			1.0	5.1			9091	В	Mild		Non-Aggressive		Non-Aggressive					Light medium clav	8.0	110.0	0.9	Non-Saline
			1 5	56	10	71	16667		Non-Aggregative	Non-Aggressive	Non-A garooping	Non-Agaroosive	Non-Aggregative		+				Q 5	60.0	0.5	Non-Salina
			6.1	5.0			00125	_				- Aggressive	NOI-Ayyressive		<u> </u>				0.0		0.0	
			2.0	5.9			20408	В	Non-Aggressive		Non-Aggressive		Non-Aggressive		<u> </u>			.ignt medium clay	8.0	49.0	0.4	Non-Saline
			2.5	6.9	20	10	17857	В	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive					_ight medium clay	8.0	56.0	0.4	Non-Saline
			3.0	8.0	52	20	7692	В	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive	Non-Aggressive					Light clay	8.5	130.0	1.1	Non-Saline

Appendix C

Test Pit Logs

TEST PIT LOG

CLIENT:	Catholic Metropolitan Cemeteries Trust
PROJECT:	Proposed Memorial Park
LOCATION:	167 - 177 St Andrews Road, Varroville, NSW

 SURFACE LEVEL:
 -

 EASTING:
 298483

 NORTHING:
 6235871

PIT No: 1 PROJECT No: 92237.00 DATE: 7/8/2017 SHEET 1 OF 1

			Description		Samplin			ing & In Situ Testing		Dynamic Penetrometer Test			
R	R	Depth (m)	of Strata	Graph Log	Type	Depth	ample	Results & Comments	Wate	Dyr	blow	s per mm)
ł			TOPSOIL - loose, dark brown mottled grey silty clay with	M		-0.0	S						:
		0.2	rootlets, MC <pl< td=""><td>BX5</td><td>D</td><td>02</td><td></td><td></td><td></td><td></td><td></td><td>:</td><td></td></pl<>	BX5	D	02						:	
	_	0.2	SILTY CLAY - brown mottled grey and orange silty clay, MC <pl< td=""><td>1/1</td><td></td><td>0.2</td><td></td><td></td><td></td><td>-</td><td></td><td>:</td><td></td></pl<>	1/1		0.2				-		:	
	-				D					-			
	-				D	0.5							
						0.6						:	
												:	
												:	
	-	- 1		1/1	D	1.0				-1		:	
	-									-		:	
												:	
				1/1						-			
					D	15							
										-			
	-			1/1						-		:	
	-											:	:
	-											:	
		-2	- becoming stiff, with some sand below 2.0m	1/1	D	2.0				-2		:	
										-		:	
	-									-		:	
				1/1								:	
			- becoming very stiff, dark brown, red and grey mottling		D	2.5							
			with some ironstone tragments below 2.5m										
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		-3 3.0	Pit discontinued at 3.0m		D	-3.0-				-3			
			- limit of investigation							-			
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RIG: Takeuchi TB145 5 tonne excavator - 300mm bucket

LOGGED: HG

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: No odours, no staining noted

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

□ Sand Penetrometer AS1289.6.3.3 □ Cone Penetrometer AS1289.6.3.2



TEST PIT LOG

CLIENT:Catholic Metropolitan Cemeteries TrustPROJECT:Proposed Memorial ParkLOCATION:167 - 177 St Andrews Road, Varroville, NSW

SURFACE LEVEL: --EASTING: 298625 NORTHING: 6235931 PIT No: 2 PROJECT No: 92237.00 DATE: 7/8/2017 SHEET 1 OF 1

			Description			Sam	Sampling & In Situ Testing			Dentis Dentis and			
ā	red D (epth m)	of Strata	Graph Log	Type	Depth	sample	Results & Comments	Wate	Dyr 5	namic Per (blows	netrometer s per mm) 15	Test
	-		TOPSOIL - loose, dark brown mottled grey silty clay with rootlets, MC <pl< td=""><td></td><td>D</td><td>0.0</td><td>0)</td><td></td><td></td><td>-</td><td></td><td></td><td></td></pl<>		D	0.0	0)			-			
	-	0.2	SILTY CLAY - stiff. red mottled brown silty clay, MC <pl< td=""><td></td><td>D</td><td>0.2</td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td></pl<>		D	0.2				-			
	-		- becoming light grey below 0.5m		D	0.4 0.5				-			
	- - 1 -	1.0	SHALE/SANDSTONE - very low strength, highly weathered, grey mottled orange shale/sandstone with a trace of ironstone fragments		D	1.0				- - -1 -			
	-				D	1.5				-			
	-2		- with extremely low strength, extremely weathered bands		D	2.0				-2			
		25	- becoming medium strength shale below 2.4m		—D—	-25-							
	-3	2.5	Pit discontinued at 2.5m - refusal on medium strength shale		D	3.0				- 3 3 			
	-												

RIG: Takeuchi TB145 5 tonne excavator - 300mm bucket

LOGGED: HG

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: No odours, no staining noted

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



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TEST PIT LOG

CLIENT:	Catholic Metropolitan Cemeteries Trust
PROJECT:	Proposed Memorial Park
LOCATION:	167 - 177 St Andrews Road, Varroville, NSW

SURFACE LEVEL: --EASTING: 298730 NORTHING: 6235990 PIT No: 3 PROJECT No: 92237.00 DATE: 7/8/2017 SHEET 1 OF 1

		Description	ici		Sampling & In Situ Testing					namic Denetrometer Test			
R	Depth (m)	of Strata	Graph Log	Type	Jepth	ample	Results & Comments	Wate	Dyna	(blows p	stromete per mm))	
	_				0.0	<i>ö</i>			5	10	15	20	
	-	MC <pl< td=""><td></td><td>1_</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></pl<>		1_									
			Ŵ						-				
	- 0.3		XX		0.3				-				
		SILTY CLAY - brown and red mottled grey silty clay, MC <pi< td=""><td>1/1/</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></pi<>	1/1/										
	_		1		0.5								
			1/1/	D	0.5				[:	:		
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	- 1		Υ/	D	1.0				-1		:		
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				D	1.5				- :		:		
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			1/										
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	-2	- becoming red mottled grey below 2.0m	1/1		2.0								
	-		1/1/	1									
	-		1/1	1									
	-		1]									
	-		1	ļ									
	-	- becoming grey mottled orange and red below 2.5m	KI/	D	2.5								
	-		Y1										
	-		Υ/						+ :				
				}					+ :		:		
	- 2.9	SHALE extremely low strength extremely weathered	<u> </u>	1					-				
	-3 3.0	grey-orange shale with some low strength bands		-D-	-3.0-				-3				
	-	Pit discontinued at 3.0m							-				
		- relusar on medium strength shale											
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RIG: Takeuchi TB145 5 tonne excavator - 300mm bucket

LOGGED: HG

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: No odours, no staining noted

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

□ Sand Penetrometer AS1289.6.3.3□ Cone Penetrometer AS1289.6.3.2


CLIENT:	Catholic Metropolitan Cemeteries Trust
PROJECT:	Proposed Memorial Park
LOCATION:	167 - 177 St Andrews Road, Varroville, NSW

SURFACE LEVEL: --**EASTING:** 298611 NORTHING: 6235806 PIT No: 4 PROJECT No: 92237.00 DATE: 7/8/2017 SHEET 1 OF 1

			Description		Sampling & In Situ Testing							notor Tost		
l	뫼	Depth (m)	of	Graph Log	Type	Jepth	ample	Results & Comments	Wate	Dyi	namic Pe (blows	netromete s per mm)	er Test)	
$\left \right $					-	-0.0-	S					:		
	-	0.1	clay, MC <pl< td=""><td><u> </u></td><td>D</td><td></td><td></td><td></td><td></td><td>-</td><td>: :</td><td>:</td><td>:</td></pl<>	<u> </u>	D					-	: :	:	:	
	-		SILTY CLAY - stiff, red brown silty clay with some rootlets and a trace of shale gravel MC <pi< td=""><td></td><td></td><td>0.2</td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td></pi<>			0.2				-				
	+									-				
	-				D					-				
	-					0.5				-				
	-				D					-				
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	ſ									-				
	F	- 1	- becoming orange brown with some sand below 1.0m	1/1	D	1.0				-1				
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	+			1/1						-				
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		0 0/		1/1/1						_				
	Ī	-2 2.0	GRAVELLY SILTY CLAY - red brown mottled grey	K	D	2.0				-2				
	Ī		gravelly silty clay	BAK						-				
	ŀ			P/2						-				
	ł									-				
	ŀ			6VZ						-				
	ŀ			KX	D	2.5				-				
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RIG: Takeuchi TB145 5 tonne excavator - 300mm bucket

LOGGED: HG

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: No odours, no staining noted





CLIENT:	Catholic Metropolitan Cemeteries Trust
PROJECT:	Proposed Memorial Park
LOCATION:	167 - 177 St Andrews Road, Varroville, NSW

SURFACE LEVEL: --EASTING: 298645 NORTHING: 6235705 PIT No: 5 PROJECT No: 92237.00 DATE: 7/8/2017 SHEET 1 OF 1

		– "	Description			Sam	npling &	& In Situ Testing	5	Dum	omio Do	notron	otor Toot
ā	씸	Depth (m)	of Strata	Graph Log	Type	Depth	ample	Results & Comments	Wate	Dyn	blow:	s per m	inter Test
ł			TOPSOIL - loose, dark brown mottled red brown silty clay	λ		0.0	S S						:
	ŀ		with rootlets, MC <pl< td=""><td></td><td>1</td><td></td><td></td><td></td><td></td><td></td><td></td><td>:</td><td></td></pl<>		1							:	
	ŀ			RU	D					-			
	ł	0.3		<u>kx</u>	}					-			
	ł		MC <pl< td=""><td>Y1/</td><td><u> </u></td><td>0.4</td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td></pl<>	Y1/	<u> </u>	0.4				-			
	ļ			Υ ¹	D	0.5						÷	
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		-	- with some sand, MC <pl 2.0m<="" below="" td=""><td>1</td><td></td><td>2.0</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></pl>	1		2.0							
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	ľ		- becoming brown mottled grey below 2.5m	\boldsymbol{Y}	D	2.5						÷	
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	F	-3 3.0	Pit discontinued at 3 0m		<u>⊢</u>	-3.0-				3			
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RIG: Takeuchi TB145 5 tonne excavator - 300mm bucket

LOGGED: HG

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: No odours, no staining noted

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



CLIENT:Catholic Metropolitan Cemeteries TrustPROJECT:Proposed Memorial ParkLOCATION:167 - 177 St Andrews Road, Varroville, NSW

SURFACE LEVEL: --EASTING: 299028 NORTHING: 6235732 PIT No: 6 PROJECT No: 92237.00 DATE: 8/8/2017 SHEET 1 OF 1

	Denth	Description	ic		Sam	Sampling & In Situ Testing		L_	a Duramia Papatramatar Taat			
ā	Uepti (m)	n of Strata	Graph Log	Type	Jepth	ample	Results & Comments	Wate	Dyi	namic Pene (blows	etrometer I per mm)	est
$\left \right $		TOPSOIL - loose, dark brown mottled grey silty clay with	XX		-0.0	S						:
	-	rootlets, MC <pl< td=""><td>88</td><td>D</td><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td></pl<>	88	D					-			
	- 0	.2 SILTY CLAY - stiff, red silty clay with light grey brown mottling, MC <pl< td=""><td>1/1</td><td>D</td><td>0.2</td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td></pl<>	1/1	D	0.2				-			
	-	- becoming very stiff, grey mottled brown below 0.4m			0.4				-			:
			1	D	0.5				-			:
	-		1						-			:
	- 0	.8 SHALE - low strength, moderately weathered, grey shale							-			-
		- becoming medium strength, grey below 0.9m		П	10				-			
				D	1.0				-			
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	t ,				45				-			
		-> Pit discontinued at 1.5m		—U—	-1.5-				-			÷
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RIG: Takeuchi TB145 5 tonne excavator - 300mm bucket

WATER OBSERVATIONS: No free groundwater observed

LOGGED: HG

SURVEY DATUM: MGA94 Zone 56

REMARKS: No odours, no staining noted

	SAMF	LING	& IN SITU TESTING	LEGE	ND
А	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
В	Bulk sample	Р	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U,	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
С	Core drilling	Ŵ	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	⊳	Water seep	S	Standard penetration test
E	Environmental sample	Ŧ	Water level	V	Shear vane (kPa)



CLIENT:Catholic Metropolitan Cemeteries TrustPROJECT:Proposed Memorial ParkLOCATION:167 - 177 St Andrews Road, Varroville, NSW

SURFACE LEVEL: --EASTING: 298815 NORTHING: 6235538 PIT No: 7 PROJECT No: 92237.00 DATE: 7/8/2017 SHEET 1 OF 1

		Description	. <u>0</u>		Sam	pling a	& In Situ Testing					
ā	Depth (m)	of	Graph Log	Lype	Jepth	ample	Results & Comments	Wate	Dy	namic Pe (blows	netrometer s per mm)	lest
┝					-0.0	ů				5 10	15	20
	-	rootlets, MC <pl< td=""><td>KK</td><td></td><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td></pl<>	KK						-			
	-		Ŵ	D					-			
	- 0.3		XX		0.3				-			
		SILTY CLAY - orange brown mottled brown silty clay	1/1	D					-	: :		
			1/1		0.5				-	: :		
				D	0.0							
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					15						:	
	[- becoming stiff, brown mottled orange, MC <pl below<="" td=""><td></td><td></td><td>1.5</td><td></td><td></td><td></td><td>[</td><td></td><td>:</td><td>-</td></pl>			1.5				[:	-
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	-2	- becoming grey mottled brown below 2.0m	1/1	D	2.0				-2			
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	-3 3.0	Pit discontinued at 3.0m		<u> </u>	-3.0-				-3			
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RIG: Takeuchi TB145 5 tonne excavator - 300mm bucket

LOGGED: HG

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: No odours, no staining noted

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



CLIENT:Catholic Metropolitan Cemeteries TrustPROJECT:Proposed Memorial ParkLOCATION:167 - 177 St Andrews Road, Varroville, NSW

SURFACE LEVEL: --EASTING: 299357 NORTHING: 6235747 PIT No: 8 PROJECT No: 92237.00 DATE: 7/8/2017 SHEET 1 OF 1

			Description	<u>.</u>		Sam	npling &	& In Situ Testing		_			
ā		epth m)	of Strata	Graph Log	Type	Depth	ample	Results & Comments	Wate	Dyi	namic Pe (blow	enetrome s per mr	eter Test n)
┢			TOPSOIL - loose, light brown mottled grey silty clay with	XX		-0.0	S						:
	-		some cobbles, MC <pl< td=""><td>885</td><td></td><td></td><td></td><td></td><td></td><td>-</td><td></td><td>:</td><td></td></pl<>	885						-		:	
	Ī	0.2	SILTY CLAY - stiff, brown mottled grey silty clay, MC <pl< td=""><td></td><td>D</td><td></td><td></td><td></td><td></td><td>ŀ</td><td></td><td></td><td></td></pl<>		D					ŀ			
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					D B	0.0				-			
	-					0.7				-			:
	-			1/1						-			
	-			1						-			
	- 1	1.0	SHALE/SILTSTONE - low strength, highly weathered		D	1.0				- 1			:
	+		brown and grey shale/siltstone with silt and some gravel							-	:	:	:
	-									-			
	-		- becoming medium strength below 1.3m	Ξ.						-	: :	÷	÷
	Ī	1.4	Pit discontinued at 1.4m		Ĺ	1 5							:
			- refusal on medium strength shale/slitstone		U	1.5				[:	:	÷
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RIG: Takeuchi TB145 5 tonne excavator - 300mm bucket

WATER OBSERVATIONS: No free groundwater observed

LOGGED: HG

SURVEY DATUM: MGA94 Zone 56

REMARKS: No odours, no staining noted

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



CLIENT:Catholic Metropolitan Cemeteries TrustPROJECT:Proposed Memorial ParkLOCATION:167 - 177 St Andrews Road, Varroville, NSW

 SURFACE LEVEL: -

 EASTING:
 299193

 NORTHING:
 6235475

PIT No: 9 PROJECT No: 92237.00 DATE: 7/8/2017 SHEET 1 OF 1

			Description	.cj		Sam	npling	& In Situ Testing	<u> </u>		Dumamia Banatromatar Taat			
į	ᆋ	Depth (m)	of	Log	e	oth	ple	Results &	Vate	Uy	namic F blov(venetroi ws per i	meter i mm)	est
		()	Strata	ō	Ę	Det	Sam	Comments	>		5 1	0 1	5 2	:0
ſ			TOPSOIL - loose, dark brown mottled grey silty clay with	XX		0.0								
	f		gravel, MC <pl< td=""><td>KX</td><td>D</td><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td><td></td></pl<>	KX	D					-				
	F			KK		0.2				-	•			
	F	0.3	SII TY CLAY - red brown silty clay	<u>ky</u>						-	:			:
	+			$\left \right\rangle$	D					-				
	+				D	0.5				-				
				$\left \right\rangle$		0.6				-				
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	F	1	- becoming grey mottled red below 1.0m		D	1.0				-1				:
	F									-	:			:
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	ł									F				:
	-				D	1.5				-				:
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		17		ľ/										:
			SHALE - very low strength, highly weathered, brown and	<u> </u>										
				E===										:
	Ī		- becoming low strength with very low strength bands											:
	Ē	2 2.0	Pit discontinued at 2.0m		<u>—</u> 0—	-2.0-				-2				
	Ī		- refusal on medium strength shale							1				
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RIG: Takeuchi TB145 5 tonne excavator - 300mm bucket **WATER OBSERVATIONS:** No free groundwater observed LOGGED: HG

SURVEY DATUM: MGA94 Zone 56

REMARKS: No odours, no staining noted

	SAM	PLING	& IN SITU TESTING	LEGE	ND
A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
В	Bulk sample	Р	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	Ux	Tube sample (x mm dia.)	PL(D) Point load diametral test Is(50) (MPa)
C	Core drilling	Ŵ	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	⊳	Water seep	S	Standard penetration test
E	Environmental sample	¥	Water level	V	Shear vane (kPa)



CLIENT:	Catholic Metropolitan Cemeteries Trust
PROJECT:	Proposed Memorial Park
LOCATION:	167 - 177 St Andrews Road, Varroville, NSW

SURFACE LEVEL: --EASTING: 299290 NORTHING: 6234894 PIT No: 10 PROJECT No: 92237.00 DATE: 7/8/2017 SHEET 1 OF 1

			Description	<u>.</u>		Sam	npling a	& In Situ Testing		Dunamic Penetrometer Test			
ā	¥	Depth (m)	of	Graph Log	Type	Depth	ample	Results & Comments	Wate	Dyr	namic Pe (blow	enetrome s per mi	eter Test m)
┟			TOPSOIL - loose, dark brown mottled grey silty clay with	XX		0.0	0				:	:	:
	F		some rootlets, MC <pl< td=""><td>KK</td><td></td><td></td><td></td><td></td><td></td><td>-</td><td>÷</td><td></td><td></td></pl<>	KK						-	÷		
	-			KK							÷	-	
	F	0.	3 SILTY CLAY - stiff. red mottled brown silty clay	<u>kn</u>		0.3				-			
	F				D					-			:
	F		- becoming brown and grev at 0.5m			0.5				-	i		:
	-			1/						-	÷	:	
	-			1/1						-			
	-	0.	B SHALE AND SILTSTONE - very low strength, highly							-	÷	:	:
	F		weathered shale and siltstone	E-						-	į		
	+	1		E-	D	1.0				-1			
	-			E-						-			
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	Ī			<u>E</u> .	D	1.5					:	÷	
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		-	 becoming low strength with very low and medium strength bands 	Ē.		2.0						:	
	-	2.	2	<u> </u>									
	-		Pit discontinued at 2.2m - refusal on medium strength shale/siltstone							-			
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RIG: Takeuchi TB145 5 tonne excavator - 300mm bucket

LOGGED: HG

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: No odours, no staining noted

SAMP	LINC	3 & IN SITU TESTING	LEGE	IND
A Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B Bulk sample	Р	Piston sample	PL(A)) Point load axial test Is(50) (MPa)
BLK Block sample	U,	Tube sample (x mm dia.)	PL(D) Point load diametral test Is(50) (MPa)
C Core drilling	W	Water sample	рр	Pocket penetrometer (kPa)
D Disturbed sample	⊳	Water seep	S	Standard penetration test
E Environmental sample	Ŧ	Water level	V	Shear vane (kPa)



CLIENT:	Catholic Metropolitan Cemeteries Trust
PROJECT:	Proposed Memorial Park
LOCATION:	167 - 177 St Andrews Road, Varroville, NSW

SURFACE LEVEL: --**EASTING:** 299324 NORTHING: 6235211 **PIT No:** 11 PROJECT No: 92237.00 DATE: 7/8/2017 SHEET 1 OF 1

	_		Description	. <u>ല</u>		San	npling a	& In Situ Testing	<u> </u>	D			. .	
R	De (r	epth n)	of Strata	Graph Log	Type	Depth	ample	Results & Comments	Wate	Dyr	blow	enetron /s per n	neter i nm)	est
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			rootlets. MC <pl< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>. :</td><td>-</td><td>:</td><td></td><td>:</td></pl<>							. :	-	:		:
				(X)										
				KXX	D									
		0.3	SILTY CLAY - stiff red mottled brown silty clay	$\frac{P}{2}$										
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				YV/	L	0.5				_				
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	1		SILTSTONE - low strength, moderately weathered, grey			10				1	÷	÷		
	- 1		Sitstone			1.0				[' :	i	÷		
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			becoming yory low strength, highly weathered with	· · ·	Ì					- :	÷	:		
			extremely low strength, highly weathered shale bands	· _ · ·							÷	÷		÷
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		2.5	SHALE - very low strength highly weathered grey shale		D	2.5				-	÷	÷		
			with extremely low strength, highly weathered bands and		ł					- :	÷	:		
			ironstone bands											
			- becoming very low strength with medium strength, grey											
			Shale bands		1									
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╽┝	- 3	3.0	Pit discontinued at 3 0m							-3				
			- limit of investigation							- :	-	:		
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RIG: Takeuchi TB145 5 tonne excavator - 300mm bucket

LOGGED: HG

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: No odours, no staining noted





CLIENT:Catholic Metropolitan Cemeteries TrustPROJECT:Proposed Memorial ParkLOCATION:167 - 177 St Andrews Road, Varroville, NSW

SURFACE LEVEL: --EASTING: 299632 NORTHING: 6235009 PIT No: 12 PROJECT No: 92237.00 DATE: 7/8/2017 SHEET 1 OF 1

			Description	. <u>e</u>		Sampling & In Situ Testing			L_	Dunamia Danataanataa			
ā	고 Dep (m)	th)	of Strata	Graph Log	Type	Depth	ample	Results & Comments	Wate	Dyr	namic Pene (blows	etrometer per mm)	7est
	-		TOPSOIL - loose, dark brown mottled red brown silty clay with some rootlets, MC <pl< td=""><td></td><td>D</td><td>0.0</td><td>0)</td><td></td><td></td><td>-</td><td></td><td>· · · · · · · · · · · · · · · · · · ·</td><td></td></pl<>		D	0.0	0)			-		· · · · · · · · · · · · · · · · · · ·	
	-	0.3	SILTY CLAY - stiff, brown mottled red silty clay, MC <pl< td=""><td></td><td>D</td><td>0.2</td><td></td><td></td><td></td><td>-</td><td></td><td>• • • • •</td><td>•</td></pl<>		D	0.2				-		• • • • •	•
	-					0.5				-		•	
	-									-		- - - - - - -	
	-		- becoming brown mottled grey and orange below 0.8m							-		•	
	- 1				D	1.0				-1			
	-									-			
	-		- becoming very stiff, orange mottled grey and red below		D	1.5				-		- - - - - -	
	-		1.5m							-		- - - - - -	
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	-2		 with extremely low strength, extremely weathered, orange and grey shale bands below 2.0m 		D	2.0				-2		• • • • •	
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		2.0	Pit discontinued at 2.5m - refusal on medium strength shale			_2.5_				-		•	•
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RIG: Takeuchi TB145 5 tonne excavator - 300mm bucket

LOGGED: HG

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: No odours, no staining noted

SAM	PLINC	3 & IN SITU TESTING	LEGE	IND
A Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B Bulk sample	Р	Piston sample	PL(A) Point load axial test Is(50) (MPa)
BLK Block sample	U,	Tube sample (x mm dia.)	PL(D) Point load diametral test Is(50) (MPa)
C Core drilling	Ŵ	Water sample	pp	Pocket penetrometer (kPa)
D Disturbed sample	⊳	Water seep	S	Standard penetration test
E Environmental sample	Ŧ	Water level	V	Shear vane (kPa)



Catholic Metropolitan Cemeteries Trust CLIENT: PROJECT: Proposed Memorial Park 167 - 177 St Andrews Road, Varroville, NSW LOCATION:

SURFACE LEVEL: --**EASTING:** 299226 NORTHING: 6234838 **PIT No:** 13 PROJECT No: 92237.00 DATE: 7/8/2017 SHEET 1 OF 1

			Description	.cj		Sam	npling	& In Situ Testing	L	Dunamic Penetrometer Test			- .	
i	ᆋ	Depth (m)	of Strata	Graph Log	Type	Depth	ample	Results & Comments	Wate	_ Dyr	(blows per mm)			
ł			TOPSOIL - loose, light brown mottled grey silty clay with	XX		0.0	0							
	ŀ		some rootlets, MC <pl< td=""><td>KX</td><td>D</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></pl<>	KX	D									
	ŀ			KK										
	ŀ	0.3	SILTY CLAY - stiff, brown mottled red and grey silty clay,			0.3								
	ŀ		MC <pl< td=""><td></td><td>D</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>÷</td></pl<>		D								÷	
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		2	- with extremely low strength, extremely weathered, grey		D	2.0				-2				
	Ī		share bands below 2.0m	1/1						[÷	
	-	2.5			D	-2.5-								
	-		- refusal on medium strength shale							-				
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RIG: Takeuchi TB145 5 tonne excavator - 300mm bucket

LOGGED: HG

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: No odours, no staining noted





CLIENT:	Catholic Metropolitan Cemeteries Trust
PROJECT:	Proposed Memorial Park
LOCATION:	167 - 177 St Andrews Road, Varroville, NSW

SURFACE LEVEL: --EASTING: 298777 NORTHING: 6235739 PIT No: 14 PROJECT No: 92237.00 DATE: 7/8/2017 SHEET 1 OF 1

			Description			Sampling & In Situ Testing					Dunamia Papatromator Taat				
ā	ש De ר (n	pth n)	of	Graph Log	[ype	Jepth	ample	Results & Comments	Wate	Dynami (t	lows per n	neter Lest nm)			
┝	_					-0.0-	ŝ			5		<u>; 20</u>			
	-	0.1	rootlets, MC <pl< td=""><td><u> </u></td><td></td><td>-0.05</td><td></td><td></td><td></td><td>-</td><td></td><td></td></pl<>	<u> </u>		-0.05				-					
	-		SILTY CLAY - stiff, red mottled grey silty clay, MC <pl< td=""><td><u> </u> </td><td>D*</td><td>0.2</td><td></td><td></td><td></td><td>-</td><td></td><td></td></pl<>	<u> </u>	D*	0.2				-					
	_			<u> </u>	D	0.3									
		04		<u> </u>											
		0.4	Pit discontinued at 0.4m												
	Ī		- limit of investigation							[
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RIG: Takeuchi TB145 5 tonne excavator - 300mm bucket

LOGGED: HG

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: * Replicate sample BD1/080817 collected; Staining and odour noted

 SAMPLING & IN SITU TESTING LEGEND

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

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

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

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

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



CLIENT:	Catholic Metropolitan Cemeteries Trust
PROJECT:	Proposed Memorial Park
LOCATION:	167 - 177 St Andrews Road, Varroville, NSW

 SURFACE LEVEL: -

 EASTING:
 298903

 NORTHING:
 6235666

PIT No: 15 PROJECT No: 92237.00 DATE: 4/8/2017 SHEET 1 OF 1

		Description	. <u>ಲ</u>		Sam	pling a	& In Situ Testing				
R	Uepth (m)	of Strata		Type	Jepth	ample	Results & Comments	Wate	Dynamic (b	lows per mn	eter Lest n)
\vdash		TOPSOIL light brown mottled grey clayey silt with a trace			-0.0	Ś			5	10 15	:
	- 0.1	of rootlets, MC <pl< td=""><td><u> </u></td><td></td><td>0.1</td><td></td><td></td><td></td><td></td><td>: :</td><td>:</td></pl<>	<u> </u>		0.1					: :	:
		SILTY CLAY - red mottled grey silty clay, friable, MC <pl< td=""><td>/1/1</td><td></td><td></td><td></td><td></td><td></td><td></td><td>: :</td><td>:</td></pl<>	/1/1							: :	:
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	- 0.6				-0.6-						
		Pit discontinued at 0.6m									
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RIG: Takeuchi TB145 5 tonne excavator - 300mm bucket

LOGGED: HG

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: No odours, no staining noted

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



CLIENT:	Catholic Metropolitan Cemeteries Trust
PROJECT:	Proposed Memorial Park
LOCATION:	167 - 177 St Andrews Road, Varroville, NSW

 SURFACE LEVEL: -

 EASTING:
 299345

 NORTHING:
 6235559

PIT No: 16 PROJECT No: 92237.00 DATE: 4/8/2017 SHEET 1 OF 1

		Description			Sam	pling a	& In Situ Testing		Dimensia Denotrometer Test			
RL	Depth (m)	Of Strata	Graph Log	Type	Jepth	ample	Results & Comments	Water	Dyna	mic Penetror (blows per r	neter Test nm)	
\vdash		Stidia	\sim	' 	-0.0	ů			5	10 1	5 20	
	0.08		KXX		0.08				. :			
	0.15	Pit discontinued at 0.15m		0	-0.15-							
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RIG: Hand auger

LOGGED: HG

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: No odours, no staining noted

SAMPLING & IN SITU TESTING LEGEND										
G	Gas sample	PID	Photo ionisation detector (ppm)							
Р	Piston sample	PL(A) Point load axial test Is(50) (MPa)							
U,	Tube sample (x mm dia.)	PL(D) Point load diametral test ls(50) (MPa)							
Ŵ	Water sample	pp	Pocket penetrometer (kPa)							
⊳	Water seep	S	Standard penetration test							
Ŧ	Water level	V	Shear vane (kPa)							
	PLING GPU×W D¥W	PLING & IN SITU TESTING G Gas sample P Piston sample U _x Tube sample (x mm dia.) W Water sample Water seep Water level	PLING & IN SITU TESTING LEGE G Gas sample PID P Piston sample PL(A U _x Tube sample (x mm dia.) W Water sample pp Water seep S Water level V	PLING & IN SITU TESTING LEGEND G Gas sample PID Photo ionisation detector (ppm) P Piston sample PL(A) Point load axial test Is(50) (MPa) Ux Tube sample (x mm dia.) PL(D) Point load diametral test Is(50) (MPa) W Water sample pp Pocket penetrometer (kPa) V Water level V Shaar vane (kPa)	PLING & IN SITU TESTING LEGEND G Gas sample PID Photo ionisation detector (ppm) P Piston sample PL(A) Point load axial test Is(50) (MPa) Ux Tube sample (x mm dia.) PL(D) Point load diametral test Is(50) (MPa) W Water sample pp Pocket penetrometer (kPa) P Water seep S Standard penetration test Image: Transmission of the second standard standar					



CLIENT:Catholic Metropolitan Cemeteries TrustPROJECT:Proposed Memorial ParkLOCATION:167 - 177 St Andrews Road, Varroville, NSW

SURFACE LEVEL: --EASTING: 299301 NORTHING: 6235079 PIT No: 17 PROJECT No: 92237.00 DATE: 4/8/2017 SHEET 1 OF 1

Γ			Description of Strata			Sampling & In Situ Testing						Departmenter Test		
ā		epth (m)			/pe	epth	nple	Results &	Wate	Dyi	namic F (blov	enetror vs per r	neter I nm)	est
L			Strata		ŕ		Sar	Comments			5 1	0 1	5 2	0
			TOPSOIL - loose, dark brown mottled grey silt, MC <pl< td=""><td>Ŵ</td><td>D</td><td>0.0</td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td><td></td></pl<>	Ŵ	D	0.0				-				
	Ļ	0.15	Pit discontinued at 0.15m			-0.15-				-				
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RIG: Hand auger

LOGGED: HG

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Paint chips in soil

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



CLIENT:	Catholic Metropolitan Cemeteries Trust
PROJECT:	Proposed Memorial Park
LOCATION:	167 - 177 St Andrews Road, Varroville, NSW

 SURFACE LEVEL: -

 EASTING:
 299313

 NORTHING:
 6235052

PIT No: 18 PROJECT No: 92237.00 DATE: 8/8/2017 SHEET 1 OF 1

		Depth		<u>.</u>		Sam	pling a	& In Situ Testing		Dumomia Danatromator Toot					
ā	ř	Depth (m)	of Strata		Type	Depth	ample	Results & Comments	Wate	Dynamic (blc	Penetrometer Test ows per mm)				
┢			TOPSOIL - loose dark brown mottled arey silty clay	$ \gamma x $		-0.0	0)								
	-		MC <pl< td=""><td>KKK</td><td>D</td><td></td><td></td><td></td><td></td><td>-</td><td></td></pl<>	KKK	D					-					
		0.2		DXX		0.2									
		0.2	SILTY CLAY - stiff, brown mottled red silty clay	$\overline{\Lambda}$		0.2									
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	ł	0.4		<u> </u>		-0.4-									
			Pit discontinued at 0.4m												
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RIG: Hand auger

LOGGED: HG

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: No odours, no staining noted

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



CLIENT:	Catholic Metropolitan Cemeteries Trust
PROJECT:	Proposed Memorial Park
LOCATION:	167 - 177 St Andrews Road, Varroville, NSW

 SURFACE LEVEL: -

 EASTING:
 299357

 NORTHING:
 6235110

PIT No: 19 PROJECT No: 92237.00 DATE: 8/8/2017 SHEET 1 OF 1

		Description		<u>.</u>		Sampling		& In Situ Testing	L_	Dumamia Danatramatar Taat				
ā	z [Depth (m)	of Strata	Graph Log	Type	Depth	ample	Results & Comments	Wate	Dyna 5	(blows per	meter Te: mm)	est	
┢			TOPSOIL - loose light brown mottled grev silty clay	$\gamma \chi$		-0.0	S					20		
	-	0.1	MC <pl< td=""><td>////</td><td>_D_</td><td></td><td></td><td></td><td></td><td></td><td></td><td><u> </u></td><td></td></pl<>	////	_D_							<u> </u>		
			Pit discontinued at 0.1m			0.15					÷	÷ ÷		
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RIG: Hand auger

LOGGED: HG

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: No odours, no staining noted

SAMPLING & IN SITU TESTING LEGEND								
A Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)				
B Bulk sample	Р	Piston sample	PL(A)	Point load axial test Is(50) (MPa)				
BLK Block sample	U,	Tube sample (x mm dia.)	PL(D	Point load diametral test ls(50) (MPa)				
C Core drilling	Ŵ	Water sample	pp	Pocket penetrometer (kPa)				
D Disturbed sample	⊳	Water seep	S	Standard penetration test				
E Environmental sample	¥	Water level	V	Shear vane (kPa)				
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CLIENT:	Catholic Metropolitan Cemeteries Trust
PROJECT:	Proposed Memorial Park
LOCATION:	167 - 177 St Andrews Road, Varroville, NSW

SURFACE LEVEL: --EASTING: 299112 NORTHING: 6234832 PIT No: 20 PROJECT No: 92237.00 DATE: 8/8/2017 SHEET 1 OF 1

Γ		Description			Sam	ipling 8	& In Situ Testing	2			
뉟	Depth (m)	of	raph Log	e	р	ple	Results &	Vate	Dyr	namic Penet (blows pe	rometer Test er mm)
	()	Strata	Ū	٦ ۲	Dep	Sam	Comments	>	5	5 10	15 20
		FILLING - loose, light brown mottled grey silty clay,	\bigotimes	D	0.0						
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	-		\mathbb{K}	D	0.3				-		
	- 0.4	Pit discontinued at 0.4m	<u> K X X</u>	_	-0.4-						
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RIG: Hand auger

LOGGED: HG

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: No odours, no staining noted

SAMPLING & IN SITU TESTING LEGEND								
A Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)				
B Bulk sample	Р	Piston sample	PL(A)) Point load axial test Is(50) (MPa)				
BLK Block sample	U,	Tube sample (x mm dia.)	PL(D) Point load diametral test ls(50) (MPa)				
C Core drilling	Ŵ	Water sample	pp	Pocket penetrometer (kPa)				
D Disturbed sample	⊳	Water seep	S	Standard penetration test				
E Environmental sample	Ŧ	Water level	V	Shear vane (kPa)				
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CLIENT:	Catholic Metropolitan Cemeteries Trust
PROJECT:	Proposed Memorial Park
LOCATION:	167 - 177 St Andrews Road, Varroville, NSW

 SURFACE LEVEL:
 -

 EASTING:
 298586

 NORTHING:
 6235681

PIT No: 21 PROJECT No: 92237.00 DATE: 4/8/2017 SHEET 1 OF 1

			Description			Sam	pling a	& In Situ Testing					
ā		epth n)	of Strata	Graph Log	Type	Depth	ample	Results & Comments	Water	Dyna	amic Penetro (blows per	meter Test mm)	
┢					-	-0.0-	S			5	:	: :	
	-		rootlets, MC <pl< td=""><td></td><td>D</td><td>0.1</td><td></td><td></td><td></td><td>- :</td><td>÷</td><td></td></pl<>		D	0.1				- :	÷		
		0.2		$\left(X \right)$	D	_02_							
		0.2	Pit discontinued at 0.2m			0.2					÷		
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RIG: Hand auger

LOGGED: HG

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: No odours, no staining noted

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



CLIENT:	Catholic Metropolitan Cemeteries Trust
PROJECT:	Proposed Memorial Park
LOCATION:	167 - 177 St Andrews Road, Varroville, NSW

SURFACE LEVEL: --EASTING: 299101 NORTHING: 6234894 PIT No: 22 PROJECT No: 92237.00 DATE: 8/8/2017 SHEET 1 OF 1

			Description			Sam	pling 8	& In Situ Testing	L_				
ā	z I	Depth (m)	of Strata	Graph Log	Type	Depth	Sample	Results & Comments	Wate	Dynamic l (blc	Penetrometer Test ws per mm) 10 15 20		
F			TOPSOIL - loose, dark brown mottled brown orange silty	XX		0.0					· · ·		
	ł		clay with some roots, MC <pl< td=""><td>KX</td><td>D</td><td></td><td></td><td></td><td></td><td></td><td></td></pl<>	KX	D								
	ł	0.2	SILTY CLAY - stiff, red brown silty clay, MC <pl< td=""><td></td><td></td><td>0.2</td><td></td><td></td><td></td><td></td><td></td></pl<>			0.2							
	ł				D								
	ł					0.4							
	ł	0.5	Pit discontinued at 0.5m	ΓZ									
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RIG: Takeuchi TB145 5 tonne excavator - 300mm bucket

LOGGED: HG

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: No odours, no staining noted

	SAMPLING & IN SITU TESTING LEGEND										
A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)						
B	Bulk sample	Р	Piston sample	PL(A) Point load axial test Is(50) (MPa)						
BLK	Block sample	U,	Tube sample (x mm dia.)	PL(D) Point load diametral test Is(50) (MPa)						
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)						
D	Disturbed sample	⊳	Water seep	S	Standard penetration test						
E	Environmental sample	Ŧ	Water level	V	Shear vane (kPa)						
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CLIENT:	Catholic Metropolitan Cemeteries Trust
PROJECT:	Proposed Memorial Park
LOCATION:	167 - 177 St Andrews Road, Varroville, NSW

SURFACE LEVEL: --**EASTING:** 299476 **NORTHING:** 6235002 PIT No: 23 PROJECT No: 92237.00 DATE: 8/8/2017 SHEET 1 OF 1

			Description			Sam	pling a	& In Situ Testing		Durania Darata materi Tart			
i	뉟	Depth (m)	of Strata	Graph Log	Type	Depth	Sample	Results & Comments	Water	Dynamic I (blc	Penetrometer Test ows per mm) 10 15 20		
	-		TOPSOIL - loose, dark brown mottled grey silty clay, MC <pl< td=""><td></td><td>D</td><td>-0.0</td><td></td><td></td><td></td><td>-</td><td></td></pl<>		D	-0.0				-			
		0.4	SILTY CLAY - stiff, brown mottled red and grey silty clay, MC <pl< td=""><td></td><td>D</td><td>0.4</td><td></td><td></td><td></td><td>-</td><td></td></pl<>		D	0.4				-			
		0.6	Pit discontinued at 0.6m - limit of investigation			_0.6				- - - - - - -			
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RIG: Takeuchi TB145 5 tonne excavator - 300mm bucket

LOGGED: HG

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: No odours, no staining noted

	SAMPLING & IN SITU TESTING LEGEND											
A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)							
B	Bulk sample	Р	Piston sample	PL(A)) Point load axial test Is(50) (MPa)							
BLK	Block sample	Ux	Tube sample (x mm dia.)	PL(D) Point load diametral test Is(50) (MPa)							
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)							
D	Disturbed sample	⊳	Water seep	S	Standard penetration test							
E	Environmental sample	Ŧ	Water level	V	Shear vane (kPa)							
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CLIENT:	Catholic Metropolitan Cemeteries Trust
PROJECT:	Proposed Memorial Park
LOCATION:	167 - 177 St Andrews Road, Varroville, NSW

SURFACE LEVEL: --**EASTING:** 299408 **NORTHING:** 6235202 PIT No: 24 PROJECT No: 92237.00 DATE: 4/8/2017 SHEET 1 OF 1

			Description			Sampling & In Situ Testing				Dimensia Denotromotor Toot		
ā	R	Deptl (m)	of	Graph Log	Type	Jepth	ample	Results & Comments	Wate	Dynamic Penetrometer Test (blows per mm)		
	-	0	TOPSOIL - dark brown mottled grey silty clay with rootlets, moist CLAY - red mottled brown clay, MC <pl< td=""><td></td><td>D</td><td>0.4</td><td>S</td><td></td><td></td><td></td></pl<>		D	0.4	S					
	-		_		D							
		2	7 Pit discontinued at 0.7m - limit of investigation	<u>× / /</u>		-0.7						
	-											

RIG: Takeuchi TB145 5 tonne excavator - 300mm bucket

LOGGED: HG

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: No odours, no staining noted

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



CLIENT:Catholic Metropolitan Cemeteries TrustPROJECT:Proposed Memorial ParkLOCATION:167 - 177 St Andrews Road, Varroville, NSW

 SURFACE LEVEL: -

 EASTING:
 299414

 NORTHING:
 6235391

PIT No: 25 PROJECT No: 92237.00 DATE: 4/8/2017 SHEET 1 OF 1

			Description			Sampling & In Situ Testing				Dumamia Dapatramatar Taat				
ā	Dept (m)	h	of Strata	Graph Log	Type	Depth	ample	Results & Comments	Wate	Dy	namic P (blov	enetrom vs per m	neter Test nm)	
┝						-0.0-	ő		-		5 10	15	20	
			MC <pl< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>Ļ</td><td>:</td><td></td><td>:</td><td></td></pl<>							Ļ	:		:	
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	- 0).3-	CLAY - dark brown mottled grey clay	∇	D					t	:	÷	÷	
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			- becoming grey mottled red and brown with some	$\langle / /$						L				
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			SHALE - low strength, highly weathered, grey shale with	E									:	
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RIG: Takeuchi TB145 5 tonne excavator - 300mm bucket

LOGGED: HG

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: No odours, no staining noted

	SAMPLING & IN SITU TESTING LEGEND											
Α	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)							
В	Bulk sample	Р	Piston sample	PL(A) Point load axial test Is(50) (MPa)							
BLK	Block sample	U,	Tube sample (x mm dia.)	PL(C) Point load diametral test Is(50) (MPa)							
С	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)							
D	Disturbed sample	⊳	Water seep	S	Standard penetration test							
E	Environmental sample	Ŧ	Water level	V	Shear vane (kPa)							
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CLIENT:	Catholic Metropolitan Cemeteries Trust
PROJECT:	Proposed Memorial Park
LOCATION:	167 - 177 St Andrews Road, Varroville, NSW

SURFACE LEVEL: --**EASTING:** 299072 **NORTHING:** 6235376 PIT No: 26 PROJECT No: 92237.00 DATE: 4/8/2017 SHEET 1 OF 1

			Description			Sampling & In Situ Testing							
ā	보	Depth (m)	of Strata	Graph Log	Type	Depth	ample	Results & Comments	Wate	Dynamic (b	i Penetroi lows per i	meter Te mm)	est
ł			TOPSOIL - light brown mottled grey silty clay, MC <pl< td=""><td>NX</td><td></td><td>-0.0</td><td>S</td><td></td><td></td><td></td><td></td><td></td><td>,</td></pl<>	NX		-0.0	S						,
	F			KK						-			
	F			KK	D								
	F			Ŵ									
	Ī	0.4	CLAY - red mottled brown clay, MC>PL	\bigvee		0.4					-	: :	
	Ī				D								
	Ī	0.7		$\langle / /$		07						: :	
		0.7	Pit discontinued at 0.7m			-0.7-							
	[- limit of investigation							[
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RIG: Takeuchi TB145 5 tonne excavator - 300mm bucket

LOGGED: HG

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: No odours, no staining noted

		SAMPLING & IN SITU TESTING LEGEND											
	A Auger sa	mple	G	Gas sample	PID	Photo ionisation detector (ppm)							
	B Bulk sam	ble	Р	Piston sample	PL(A)) Point load axial test Is(50) (MPa)							
	BLK Block sar	nple	U,	Tube sample (x mm dia.)	PL(D) Point load diametral test Is(50) (MPa)							
	C Core drilli	ng	Ŵ	Water sample	pp	Pocket penetrometer (kPa)							
	D Disturbed	sample	⊳	Water seep	S	Standard penetration test							
	E Environm	ental sample	Ŧ	Water level	V	Shear vane (kPa)							
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CLIENT:	Catholic Metropolitan Cemeteries Trust
PROJECT:	Proposed Memorial Park
LOCATION:	167 - 177 St Andrews Road, Varroville, NSW

SURFACE LEVEL: --EASTING: 299066 NORTHING: 6235525 PIT No: 27 PROJECT No: 92237.00 DATE: 4/8/2017 SHEET 1 OF 1

		Description			Sam	pling a	& In Situ Testing		Dynamic Penetrometer Test			
R	Depth (m)	of Strata	Graph Log	Type	Depth	Sample	Results & Comments	Wate	Dynamic (bl	Penetrome ows per mm	ter l est 1) 20	
		TOPSOIL - light brown mottled grey silty clay with some rootlets, slightly moist		D	-0.0				-			
	- 0.3	CLAY - red mottled brown clay with rootlets, MC <pl< td=""><td></td><td>D</td><td>0.3</td><td></td><td></td><td></td><td>-</td><td></td><td></td></pl<>		D	0.3				-			
	- 0.6	Pit discontinued at 0.6m - limit of investigation			-0.6-				-1 -1			
	- 3								-3			
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RIG: Takeuchi TB145 5 tonne excavator - 300mm bucket

LOGGED: HG

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: No odours, no staining noted

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



CLIENT:	Catholic Metropolitan Cemeteries Trust
PROJECT:	Proposed Memorial Park
LOCATION:	167 - 177 St Andrews Road, Varroville, NSW

SURFACE LEVEL: --EASTING: 299213 NORTHING: 6235652 PIT No: 28 PROJECT No: 92237.00 DATE: 4/8/2017 SHEET 1 OF 1

		Description .9		Sampling & In Situ Testing					Durania Durahamatan Tart		
Ч	Depth (m)	of	raph Log	be	pth	nple	Results &	Nate	blows per mm)		
		Strata	0	ŕ	_ å	San	Comments	_	5 10	15 20	
-		TOPSOIL - light brown mottled grey clayey silt, MC <pl< td=""><td>\mathcal{N}</td><td></td><td>0.0</td><td></td><td></td><td></td><td></td><td></td></pl<>	\mathcal{N}		0.0						
-			XX	D							
-			XX								
-	0.4	4 SILTY CLAY, red motified area and erange silty elay with	KX		0.4						
-		some rootlets									
-				U							
-	0.	Pit discontinued at 0.7m	r Z		-0.7-						
ŀ		- limit of investigation									
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RIG: Takeuchi TB145 5 tonne excavator - 300mm bucket

LOGGED: HG

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: No odours, no staining noted

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



CLIENT:	Catholic Metropolitan Cemeteries Trust
PROJECT:	Proposed Memorial Park
LOCATION:	167 - 177 St Andrews Road, Varroville, NSW

 SURFACE LEVEL: -

 EASTING:
 299159

 NORTHING:
 6235897

PIT No: 29 PROJECT No: 92237.00 DATE: 4/8/2017 SHEET 1 OF 1

			Description	<u>.</u>		Sam	pling a	& In Situ Testing	L	Dunamia Danataa mataa Taat			
R	De (r	epth n)	of Strata	Graph Log	Type	Depth	sample	Results & Comments	Water	Dyi	namic Per (blows	per mm)	Test
			TOPSOIL - light brown mottled grey silty clay with rootlets.	$\lambda \chi$		-0.0	0)						:
	ŀ		slightly moist	K	D					-			
	ł	0.2	CLAV propage mottled brown alow	P / I		0.2				-			
	-		CLAY - orange mouled brown clay	$\langle / /$	1					-			
				V/	D							:	:
		0.5		\mathbb{Z}		0.5							
	[0.5	Pit discontinued at 0.5m			-0.5-							:
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RIG: Takeuchi TB145 5 tonne excavator - 300mm bucket

WATER OBSERVATIONS: No free groundwater observed

LOGGED: HG

SURVEY DATUM: MGA94 Zone 56

REMARKS: No odours, no staining noted

	SAMPLING & IN SITU TESTING LEGEND										
A	 Auger sample 	G	Gas sample	PID	Photo ionisation detector (ppm)						
E	Bulk sample	Р	Piston sample	PL(A) Point load axial test Is(50) (MPa)						
E	ILK Block sample	U,	Tube sample (x mm dia.)	PL(C) Point load diametral test ls(50) (MPa)						
0	Core drilling	Ŵ	Water sample	pp	Pocket penetrometer (kPa)						
	Disturbed sample	⊳	Water seep	S	Standard penetration test						
E	Environmental sample	Ŧ	Water level	V	Shear vane (kPa)						
-											



CLIENT:	Catholic Metropolitan Cemeteries Trust
PROJECT:	Proposed Memorial Park
LOCATION:	167 - 177 St Andrews Road, Varroville, NSW

 SURFACE LEVEL: -

 EASTING:
 298977

 NORTHING:
 6235877

PIT No: 30 PROJECT No: 92237.00 DATE: 4/8/2017 SHEET 1 OF 1

		Description	. <u>0</u>	Sampling & In Situ Testing								
R	UDepth (m)	of Strata	Graph Log	Type	Depth	ample	Results & Comments	Water	Dynamic (bl	Penetrometer Test ows per mm)		
		TOPSOIL - light brown mottled grey silty clay with rootlets,	XX		-0.0	S						
	-	slightly moist										
	-		KU						- :			
	- 0.3		КŊ		0.3							
	-	CLAT - Ted mollied brown clay, MC <pl< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>- :</td><td></td></pl<>							- :			
	-			D					-			
	- 0.6		\mathbb{Z}		-0.6-							
		Pit discontinued at 0.6m										
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RIG: Takeuchi TB145 5 tonne excavator - 300mm bucket

WATER OBSERVATIONS: No free groundwater observed

LOGGED: HG

SURVEY DATUM: MGA94 Zone 56

REMARKS: No odours, no staining noted

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



CLIENT:	Catholic Metropolitan Cemeteries Trust
PROJECT:	Proposed Memorial Park
LOCATION:	167 - 177 St Andrews Road, Varroville, NSW

SURFACE LEVEL: --EASTING: 299144 NORTHING: 6236083 PIT No: 31 PROJECT No: 92237.00 DATE: 4/8/2017 SHEET 1 OF 1

			Description			Sam	pling a	& In Situ Testing		Durannia Darastromatan Taat		
ā	z [Depth (m)	of Strata	Graph Log	Type	Jepth	ample	Results & Comments	Wate	Dynamic (blo	Penetrometer ows per mm)	Test
┢			TOPSOIL - dark brown mottled red brown silty clay with	XX		-0.0	S					:
	-		rootlets, moist	KK	D							:
	-	0.2	CLAY - light brown clay, dry			0.2						
	-			\mathbb{V}/\mathbb{I}								
	-			\mathbb{V}/\mathbb{V}	D							
	-			\mathbb{V}/\mathbb{I}]							:
	-	0.6	Pit discontinued at 0.6m			-0.6-						:
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RIG: Takeuchi TB145 5 tonne excavator - 300mm bucket

LOGGED: HG

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: No odours, no staining noted

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



CLIENT:	Catholic Metropolitan Cemeteries Trust
PROJECT:	Proposed Memorial Park
LOCATION:	167 - 177 St Andrews Road, Varroville, NSW

 SURFACE LEVEL: -

 EASTING:
 298694

 NORTHING:
 6236151

PIT No: 32 PROJECT No: 92237.00 DATE: 4/8/2017 SHEET 1 OF 1

		Description			Sam	pling 8	& In Situ Testing		Dumomia Depatromator Toot		
뭑	Depth (m)	of Strata	Graph Log	Type	Jepth	ample	Results & Comments	Wate	Dynamic (bl	Penetrometer T ows per mm)	est
\vdash		TOPSOIL - dark brown mottled arey silty clay with rootlets			-0.0-	S				10 15 2	:
	-			D							
	0.15	CLAY - brown and grey clay with sandstone cobbles	\overline{V}		0.2				-		
	-		$\langle / /$						-		
	-			D							
	_		V/		0.5						:
	0.6		\mathbb{Z}		0.0						
	0.0	Pit discontinued at 0.6m							:		:
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RIG: Takeuchi TB145 5 tonne excavator - 300mm bucket

LOGGED: HG

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: No odours, no staining noted

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



CLIENT:	Catholic Metropolitan Cemeteries Trust
PROJECT:	Proposed Memorial Park
LOCATION:	167 - 177 St Andrews Road, Varroville, NSW

SURFACE LEVEL: --EASTING: 298377 NORTHING: 6236132 PIT No: 33 PROJECT No: 92237.00 DATE: 8/8/2017 SHEET 1 OF 1

P Open of Strata	Γ			th of		Sampling & In Situ Testing					Dimensia Departmenter Teat			
Normalized gray silly day with rotaties Image: Commenties Image:	뉟	De (r	epth m)			e	oth	ple	e Results &		(blows per mm)			
10PSOL: - dark brown mottled grey silty day, with rootlets 0.0 SILTY CLAY: - silt, orange brown mottled grey silty day,			,	Strata	Q_	Тур	Dep	Sam	Comments	>	5 10 15 20			
0.1 SILTYCLAY - stift, orange brown mottled grey silty day. 0.1 0.2 0.4 Pt discontinued at 0.4m - - Init of investgation - -1 - -2 - -3 - -3 -				TOPSOIL - dark brown mottled grey silty clay with rootlets	XX	D	0.0							
MC-PL 0.2 0.4 PH discontinued at 0.4m - limit of Investigation 1 1 - </td <td></td> <td>ŀ</td> <td>0.1</td> <td>SILTY CLAY - stiff, orange brown mottled grey silty clay,</td> <td></td> <td>П</td> <td>0.1</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>		ŀ	0.1	SILTY CLAY - stiff, orange brown mottled grey silty clay,		П	0.1							
0.4 Prediscontinued at 0.4m - - Imit of investigation - -1 - -2 - -3 - -4 - -5 - -6 - -7 - -7 - -7 - -7 - -7 - -7 - -7 - -		ł		MC <pl< td=""><td></td><td>-</td><td>0.2</td><td></td><td></td><td></td><td>-</td><td>: : :</td><td></td></pl<>		-	0.2				-	: : :		
04 Ptdiscontinued at 0.4m - limit of investigation -1 -2 -2 -3 -3 -4 -5 -6 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7		-									-			
- Imit of investigation -		-	0.4		ΥV									
				Pit discontinued at 0.4m							-			
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RIG: Takeuchi TB145 5 tonne excavator - 300mm bucket

LOGGED: HG

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: No odours, no staining noted

	SAI	MPLING	& IN SITU TESTIN	NG LEGE	IND
A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
В	Bulk sample	Р	Piston sample	PL(A) Point load axial test Is(50) (MPa)
BLK	Block sample	U,	Tube sample (x mm dia	.) PL(D) Point load diametral test Is(50) (MPa)
C	Core drilling	Ŵ	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	⊳	Water seep	S	Standard penetration test
E	Environmental sample	¥	Water level	V	Shear vane (kPa)



CLIENT:	Catholic Metropolitan Cemeteries Trust
PROJECT:	Proposed Memorial Park
LOCATION:	167 - 177 St Andrews Road, Varroville, NSW

SURFACE LEVEL: --EASTING: 298588 NORTHING: 6236030 PIT No: 34 PROJECT No: 92237.00 DATE: 4/8/2017 SHEET 1 OF 1

		Description		<u>.</u>		Sampling & In Situ Testing						
ē		epth (m)	of Strata	Graph Log	Type	Depth	ample	Results & Comments	Wate	Dynamic (blc	Penetrometer T ws per mm)	Test
┢			TOPSOIL - loose, dark brown mottled grev silty clay with	77			S					:
	-		rootlets and a trace of gravel, moist			0.1				-		
	-			RX	D					-		
	-	0.3		КŊ		0.3				-		
	-		CLAY - grey brown mottled light orange clay, slightly moist		D							
		0.5				-0.5-					<u> </u>	
			Pit discontinued at 0.5m									
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RIG: Takeuchi TB145 5 tonne excavator - 300mm bucket

LOGGED: HG

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: No odours, no staining noted

	SAM	PLING	& IN SITU TESTING	ELEGE	END
A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	Р	Piston sample	PL(A) Point load axial test Is(50) (MPa)
BL	K Block sample	U,	Tube sample (x mm dia.)	PL(D) Point load diametral test Is(50) (MPa)
C	Core drilling	Ŵ	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	⊳	Water seep	S	Standard penetration test
E	Environmental sample	Ŧ	Water level	V	Shear vane (kPa)



CLIENT:	Catholic Metropolitan Cemeteries Trust
PROJECT:	Proposed Memorial Park
LOCATION:	167 - 177 St Andrews Road, Varroville, NSW

 SURFACE LEVEL: -

 EASTING:
 299595

 NORTHING:
 6235297

PIT No: 35 PROJECT No: 92237.00 DATE: 4/8/2017 SHEET 1 OF 1

		Description	. <u>e</u>		Sam	pling a	& In Situ Testing	L	Dunamia Banatramatar Taat		
R	Depth (m)	of Strata	Graph Log	Type	Depth	ample	Results & Comments	Wate	Dynam	(blows per	meter Lest mm)
\vdash		TOPSOIL - dark brown mottled grey silty clay with some	XX		-0.0	0					
	-	rootlets, MC>PL	KK]							
	-		KK	D					-	:	
	- 0.3	SILTY CLAY - dark brown mottled grey silty clay							-	:	
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	-		///		0.5				-	÷	
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	-1 1.0	Pit discontinued at 1.0m			-1.0-				-1		
		- limit of investigation									
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RIG: Takeuchi TB145 5 tonne excavator - 300mm bucket

WATER OBSERVATIONS: No free groundwater observed

LOGGED: HG

SURVEY DATUM: MGA94 Zone 56

REMARKS: No odours, no staining noted





CLIENT:	Catholic Metropolitan Cemeteries Trust
PROJECT:	Proposed Memorial Park
LOCATION:	167 - 177 St Andrews Road, Varroville, NSW

SURFACE LEVEL: --EASTING: 298845 NORTHING: 6235391 PIT No: 36 PROJECT No: 92237.00 DATE: 7/8/2017 SHEET 1 OF 1

			Description			Sam	Sampling & In Situ Testing			Duran's Durate state Tast			
ā		epth n)	of Strata	Graph Log	Type	Jepth	ample	Results & Comments	Water	Dynamic (blo	Penetrometer T ws per mm)	Test	
$\left \right $	+		TOPSOIL - dark brown mottled grev clav with some silt.			-0.0	S		+			:	
	ł		MC <pl< td=""><td></td><td>1</td><td></td><td></td><td></td><td></td><td>-</td><td>: :</td><td>:</td></pl<>		1					-	: :	:	
	ł			RU	D								
	ł			XX								-	
	-	0.4		KXY		0.4				-			
			CLAY - brown mottled red clay, MC <pl< td=""><td>\mathbb{Z}</td><td>D</td><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td></pl<>	\mathbb{Z}	D					-			
		0.6				-0.6-							
		0.0	Pit discontinued at 0.6m			0.0							
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RIG: Takeuchi TB145 5 tonne excavator - 300mm bucket

LOGGED: HG

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: No odours, no staining noted

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



CLIENT:	Catholic Metropolitan Cemeteries Trust
PROJECT:	Proposed Memorial Park
LOCATION:	167 - 177 St Andrews Road, Varroville, NSW

SURFACE LEVEL: --EASTING: 299457 NORTHING: 6235565 PIT No: 37 PROJECT No: 92237.00 DATE: 4/8/2017 SHEET 1 OF 1

			Description			San	pling a	ling & In Situ Testing		Dimensia Denotromator Test			
ā		Depth (m)	of Strata	Graph Log	Type	Depth	sample	Results & Comments	Wate	Dyi	namic P (blow	enetromel vs per mm	ter Test 1) 20
ł	+		TOPSOIL - loose, dark brown mottled grey silty clay with	YN.		0.0	0)					:	
	-		some rootlets, MC>PL		D					-			
	ſ	0.3	CLAY - dark brown mottled grey clay	\overline{V}	ĺ					-		÷	:
	ſ					0.5				-			
	[0.5							
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	-1		becoming arow mettled red and brown MC>PL below		<u> </u>	1.0				-1	: :	÷	
	+		1.0m							-			
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	ł									-			
	ſ					4.5				-		:	
		1.5	Pit discontinued at 1.5m			-1.5-				_		:	
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RIG: Takeuchi TB145 5 tonne excavator - 300mm bucket

LOGGED: HG

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: No odours, no staining noted

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



CLIENT:	Catholic Metropolitan Cemeteries Trust
PROJECT:	Proposed Memorial Park
LOCATION:	167 - 177 St Andrews Road, Varroville, NSW

 SURFACE LEVEL: -

 EASTING:
 298883

 NORTHING:
 6236003

PIT No: 38 PROJECT No: 92237.00 DATE: 4/8/2017 SHEET 1 OF 1

		Description		Sampling & In Situ Testing					Duran's Duration to Tast			
ᆋ	Depth (m)	of Strata	Graph Log	Type	Jepth	ample	Results & Comments	Water	Dynamic I (blo	Penetrometer Test ws per mm)		
\vdash		TOPSOIL - dark brown mottled brown orange silty clay			-0.0	Ś			5		_	
	-	with rootlets, slightly moist		D					- :		ſ	
	0.15	CLAY - red mottled grey clay, slightly moist	\overrightarrow{V}		0.15				-		ſ	
	_		V/									
			Y//	D								
	-		$\langle / /$								ſ	
	- 0.5	Pit discontinued at 0.5m	<u> </u>		-0.5-				:	: : :		
	-	- limit of investigation							-			
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RIG: Takeuchi TB145 5 tonne excavator - 300mm bucket

LOGGED: HG

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: No odours, no staining noted

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



CLIENT:	Catholic Metropolitan Cemeteries Trust
PROJECT:	Proposed Memorial Park
LOCATION:	167 - 177 St Andrews Road, Varroville, NSW

SURFACE LEVEL: --EASTING: 299271 NORTHING: 6235115 PIT No: 39 PROJECT No: 92237.00 DATE: 8/8/2017 SHEET 1 OF 1

			Description		Sampling & In Situ Testing					Duran's Durate state Tast			
ā	로 D	epth m)	of	raph Log	be	pth	nple	Results &	Nate	(blows per mm)			
			Strata	G	Ту	De	San	Comments	-	5	10 1	5 20	
ſ	-		FILLING - loose, light brown and grey silt with broken shards of ACM	\bigotimes	D	0.0				-			
	-	0.15	Pit discontinued at 0.15m	K./\./\		-0.15-				-			
	-		- limit of investigation							-			
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RIG: Takeuchi TB145 5 tonne excavator - 300mm bucket

LOGGED: HG

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Large quantities of suspected ACM next to Test Pit 39

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


TEST PIT LOG

CLIENT:	Catholic Metropolitan Cemeteries Trust
PROJECT:	Proposed Memorial Park
LOCATION:	167 - 177 St Andrews Road, Varroville, NSW

SURFACE LEVEL: --EASTING: 299101 NORTHING: 6234838 **PIT No:** 40 PROJECT No: 92237.00 DATE: 8/8/2017 SHEET 1 OF 1

			Description	<u>.</u>		Sam	pling a	& In Situ Testing		_			
ā	De (r	pth n)	of Strata	Graph Log	Type	Depth	Sample	Results & Comments	Wate	Dyi	namic Pe (blow:	s per mm)	20
			FILLING - loose, dark brown and orange silty clay with	\boxtimes		0.0							:
	Ī		gravel, tiles and porcelain	\bigotimes	D*					-			:
	Ī			\bigotimes		0.2				Ī		•	:
	Ī	0.3	Pit discontinued at 0.3m									•	:
	Ī		- limit of investigation							Ī			:
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RIG: Takeuchi TB145 5 tonne excavator - 300mm bucket

LOGGED: HG

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: * Replicate sample BD2/080817 collected; No odours, no staining noted

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

□ Sand Penetrometer AS1289.6.3.3 □ Cone Penetrometer AS1289.6.3.2



TEST PIT LOG

CLIENT:	Catholic Metropolitan Cemeteries Trust
PROJECT:	Proposed Memorial Park
LOCATION:	167 - 177 St Andrews Road, Varroville, NSW

SURFACE LEVEL: --EASTING: 299290 NORTHING: 6235149 PIT No: 41 PROJECT No: 92237.00 DATE: 8/8/2017 SHEET 1 OF 1

		Description	. <u>0</u>		Sam	pling a	& In Situ Testing	L	_		
ā	Depth (m)	of	Graph Log	Type	Jepth	ample	Results & Comments	Wate	Dynai	mic Penetro (blows per	meter Test mm)
┝		TOPSOIL loose light brown mottled grow silty elay with	NX		0.0	ů			5	10 1	5 20
	-	rootlets, Mc <pl< td=""><td></td><td>D</td><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td></pl<>		D					-		
	0.1	Pit discontinued at 0.15m			-0.15-				- :		
		- limit of investigation							-		
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RIG: Takeuchi TB145 5 tonne excavator - 300mm bucket

LOGGED: HG

SURVEY DATUM: MGA94 Zone 56

WATER OBSERVATIONS: No free groundwater observed

REMARKS: No odours, no staining noted

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

□ Sand Penetrometer AS1289.6.3.3□ Cone Penetrometer AS1289.6.3.2



Appendix D

Laboratory Certificates of Analysis

Drojoot N

Project Name:	167-1	70 St Andr	ews, Varrov	ville, NSW			0			Tei	E			
Project No:	9223	7.00		A 40	Sampl	er:	Hugh	Govmour		10:	Env	/irolab Se	rvices	
Project Mgr:	Emily	McGinty		_	Mob. F	Phone:	0447 0	76 999		A 44	12.	Ashley St	reet, Chat	swood NSW 2067
Email:	hugh	.goymour(@douglasp	partners.cor	n.au		01110	10 333		Attn:	lar	na Notara	IS	
Date Required:	Stand	lard time					1			Phone	: (02) 9910 62	00	Fax: (02) 9910 6201
		T	Comple							Email:	tnot	taras@er	virolabser	vices.com.au
		eq	Туре	Container Type					Analytes	-				
Sample ID	Lab ID	Date Sampl	S - soil W - water m - material	G - glass P - plastic	Combo 3	Combo 3a	Combo 8a	Combo 4	9 metals (As, Cd, total Cr, hex Cr, Pb, Hg, Ni, Zn, Mn, Cu), OCP& OPP				НОГД	Notes/preservation
1/0-0.2		7.8.17	S	G&P					X					
2/0-0.2	2	7.8.17	S	G&P		X								
3/0-0.3	3	7.8.17	S	G&P			X				0			
4/0-0.2	4	7.8.17	S	G&P					X		ENVINCEPE	Envirol	ab Services Ashley St	
5/0-0.4	5	7.8.17	S	G&P			1	1	x		tob No.	Ph: (02	NSW 2067 9910 6200	
6/0-0.2	6	8.8.17	S	G&P			1		x		10 140.	(7325	2	
7/0-0.3	7	7.8.17	S	G&P					X		He Receiv	ed: 11/8	17	All other samples
8/0-0.5	8	7.8.17	S	G&P					X		Cy	UT 13-5	~	put on HOLD
9/0-0.2	9	7.8.17	S	G&P		1			X		41: 10e/	Ambient		
10/0-0.3	10	7.8.17	S	G&P					x		ilv: file	ct/Broken/N	enc	
11/0-0.5	11	7.8.17	S	G&P					x					
12/0-0.2	12	7.8.17	S	G&P			-		x					
13/0-0.3	13	7.8.17	S	G&P			1		x					
Lab Report No:								4						
Send Results to:	D	ouglas Part	ners Pty Lto	Addre	ss 18 W	aler Cres	cent Sm	eaton G	2567		Dhamas (00) 4647	0075	
Relinquished by:	, H	ugh Goym	iour					Transpo	ange 2007	aton hu	Prione: (02) 4647	0075	Fax: (02) 4646 1886
Signed:	4>			Date & Time	10.9	17 11	0817	Possive	d bu	atory by	•			
1	-				10:0,	1/ 11	0.0.17	Receive	u by:					

Project Name:	167-1	170 St Andr	ews. Varrou	ville NSW					1.1.1.1		1.1			01 0001001			
Project No:	9223	7.00		110, 11011	Sampl	or:	Llugh (To:	Env	irolab Se	rvices				
Project Mgr:	Emily	/ McGinty			Mob F	Phone:	Hugh C	Soymou	r		12 A	shley Sti	reet, Cha	tswood NSW 2067			
Email:	hugh	.goymour	@douglass	partners con	n au	none.	0447 9	010 999		Attn:	Tani	a Notara	S				
Date Required:	Stand	dard time			11.00					Phone:	(02)	9910 62	00	Fax: (02) 9910 6201			
		1	Samplo	Container			11 11			Email:	tnota	aras@en	virolabse	rvices.com.au			
		eq	Туре	Туре		_			Analytes								
Sample ID	Lab ID	Date Samp 1.8.8	S - soil W - water m - material	G - glass P - plastic	Combo 3	Combo 3a	Combo 8a	Combo 4	9 metals (As, Cd, total Cr, hex Cr, Pb, Hg, Ni, Zn, Mn, Cu), OCP& OPP				НОГД	- Notes/preservation			
14/0-0.05	14	8.8.17	S	G&P			X	1									
15/0-0.1	J G&P X IS 4.8.17 S G&P X																
16/0-0.08	6	4.8.17	S	G&P	1	-3 - 13	X							-			
17/0-0.15	17	8.8.17	S	G&P			X							-			
18/0-0.2	18	8.8.17	S	G&P			X	1000					10	-			
19/0-0.15	19	8.8.17	S	G&P			X			0				All other samples			
20/0-0.1	20	8.8.17	S	G&P				x						collected at depth to be			
21/0-0.1	21	4.8.17	S	G&P				X						put on HOLD			
22/0-0.2	22	8.8.17	S	G&P					X								
23/0-0.4	23	8.8.17	S	G&P			and the second s	-	X								
24/0-0.4	24	4.8.17	S	G&P					X								
25/0-0.6	25	4.8.17	S	G&P			1		X								
Lab Report No:							-										
Send Results to:	D	ouglas Part	tners Pty Lto	Addre	ss 18 W	aler Cres	cent. Sm	eaton G	range 2567	Dh	ne: (0	2) 1617	0075	Eave (00) 4040 4000			
Relinquished by;	H	ugh Goym	nour			1		Transpo	orted to labor	atory by:	one. (0	2) 4047	0075	rax: (02) 4646 1886			
Signed:	A		[Date & Time	: 10.8	171	0.8.17	Receive	d by:								

Project No: 00007.00

Project Mgr:	Emily	ily McGinty Mob. Phone:					Hugh	Goymour		12 Ashley Street, Chatswood NSW 2067				
Email:	hugh	.govmour	Ødouglas	artners cor		hone:	0447	976 999		Attn:	Tan	ia Notara	as	2007
Date Required:	Stand	lard time	addugius		<u></u>					Phone:	(02)	9910 62	00	Fax: (02) 9910 6201
		1	Sampla	Container		-	-		1	Email:	tnot	aras@er	virolabse	rvices.com.au
		eq	Туре	Type					Analytes					
Sample ID	Lab ID	Date Sampl	S - soil W - water m - material	G - glass P - plastic	Combo 3	Combo 3a	Combo 8a	Combo 4	³ metals (As, Cd, total Cr, hex Cr, Pb, Hg, Ni, Zn, Mn, Cu), OCP& OPP				НОГД	Notes/preservation
26/0-0.4	26	4.8.17	S	G&P					X					
27/0-0.3	27	4.8.17	S	G&P		X		1						
28/0-0.4	28	4.8.17	S	G&P				1	X					-
29/0-0.2	29	4.8.17	S	G&P				+	X					-
30/0-0.3	30	4.8.17	S	G&P					X					-
31/0-0.2	31	4.8.17	S	G&P					X					-
32/0-0.2	32	4.8.17	S	G&P					X					
33/0-0.1	33	4.8.17	S	G&P			-		X					collected at depth to be
			S	G&P			1							put on HOLD
34/0.1-0.3	34	4.8.17	S	G&P	-		-	1	X					
35/0-0.5	35	4.8.17	S	G&P			1		X					
36/0-0.4	36	7.8.17	S	G&P		X								
37/0-0.5	37	4.8.17	S	G&P					x					
38/0-0.15	38.	4.8.17	S	G&P			-		X					
Lab Report No:							+							
Send Results to:	D	ouglas Part	ners Pty Lto	Addre	ss 18 W	aler Cres	cent. Sn	neaton Gr	ange 2567	Dh	0001 (0	2) 4647	0075	F (00) 4040 4000
Relinquished by;	H	ugh Goym	our					Transpo	rted to labor	atory by:	one: (0	2) 4047	0075	rax: (02) 4646 1886
Signed: Http:	/		0	ate & Time:	10.8	2171	0.8.17	Receive	d by:	itery wy.				

Droiget N

Project Mar:	9223 Emily	1.00			Sampl	er:	Hugh	Goymou	r	12 Ashley Street, Chatswood NSW 2067					
Email:	hugh	aovmour	Odouglas		Mob. F	Phone:	0447 9	976 999		Attn:	Та	nia Notara	as	2007	
Date Required	: Stand	ard time	wuuugiasp	barthers.co	m.au			4		Phone	e: (02	2) 9910 62	200	Fax: (02) 9910 62	
										Email	tno:	taras@er	virolabse	ervices.com.au	
		eq	Sample Type	Container Type					Analytes						
Sample ID	Lab ID	Date Sampl	S - soil W - water m - material	G - glass P - plastic	Combo 3	Combo 3a	Combo 8a	Combo 4	9 metals (As, Cd, total Cr, hex Cr, Pb, Hg, Ni, Zn, Mn, Cu), OCP& OPP	Asbestos ID			ОТОН	Notes/preservatior	
39/0-0.15	39	8.8.17	S	G&P		X	-	1				-			
40/0-0.2	40	8.8.17	S	G&P			Ŭ.		X	15	1			-	
41/0-0.15	41	8.8.17	S	G&P		X			~		*			_	
41/0-0.15	NIR	8.8.17	М	P						-X				-	
) 39/0.15 ACM	42		М	Р						X	orth. as	pr		All other samples	
											ena	L.		put on HOLD	
										C					
										5	-			1	
					-									1	
								1						-	
Lab Report No:							-	4	11						
Send Results to	o: D	ouglas Par	tners Pty Lt	d Addr	ess 18 W	Valer Cres	scent. Sn	neaton G	range 2567	1	Phone: ((02) 464	7 0075	Eav: (02) 4646 400	
Relinquished b	у: H	lugh Goyn	nour					Transpo	orted to labor	atory by	v.	02) 4041	0075	Fax: (U2) 4040 180	
Signed: H	A			Date & Time	: 1Q.	8.171	0817	Receive	ad by:	atory b	.				

Project Name:	167-1	70 St Andr	ews. Varroy	ville NSW	1000		1			-					
Project No:	92237	7.00			Sampl	or:	Luch (To:	Env	irolab Servic	ces		State Street
Project Mgr:	Emily	McGinty			Mah F	er.	Hugh	oymour			12/	Ashley Stree	t, Chatswo	od NS	V 2067
Email:	hugh	dovmour(adoualas	arthors and		none:	04479	/6 999		Attn:	Tan	ia Notaras			
Date Required:	Stand	ard time	guougias	Janthers.co	n.au					Phone:	(02)	9910 6200	Fa	ax: (C	2) 9910 6201
	otaria		Sampla	Container		2. A	4	No.		Email:	tnot	aras@enviro	blabservice	s.com.a	au
Somala	1	nplec	Туре	Type			Mer		Analytes		1.10				
ID	ID	Date San	S - soil W - water	G - glass P - plastic	Hd	EC	Chloride	Sulphate	Sodicity	Hold				Notes/p	preservation
1/0.5	43	7.8.17	S	Р	Х	X	X	X							
1/1	44	7.8.17	S	Р	Х	X									
1/1.5	45	7.8.17	S	P	X	X	x	X							
1/2	46	7.8.17	S	P	X	X		~			5. A. A.				
1/2.5	4F	7.8.17	S	P	X	X	1	1					-		
1/3	48	7.8.17	S	P	X	X	x	X		-	-				
2/0.5	49	7.8.17	S	P	X	X		Λ							
2/1	50	7.8.17	S	P	X	X	X	X	X						
2/1.5	5)	7.8.17	S	P	Х	X	~	~	~						
2/2	52	7.8.17	S	P	X	X									
2/2.5	57	7.8.17	S	P	Х	X									
Lab Report No:			. 30												
Send Results to:	D	ouglas Par	tners Ptv Lt	d Addr	ess 18 V	aler Cre	scent Sm	eaton Gr	2567			00) 4047 00	075 -		
Relinquished by:	:, Н	lugh Goym	nour					Transno	rted to labor	Pi	ione: (JZ) 4647 00	075 F	ax : (02	2) 4646 1886
Signed: Mu	A			Date & Time	: 10 \$	717	0 8 17	Receiver	hv.	atory by:					
	/				10,0			Neceivel	i by.						

Project No

Project Name:	167-1	70 St Andr	ews, Varroy	ville NSW	1000		1						
Project No:	9223	7.00			Sampl	0.81	11			To:	Envirolab Ser	rvices	
Project Mgr:	Emily	McGinty			Mah r	er:	Hugh	Goymour			12 Ashley Str	eet, Chatswood NS	SW 2067
Email:	hugh	.govmour(Odouglas	partners con		none:	0447 9	976 999		Attn:	Tania Notara	S	
Date Required:	Stand	lard time	guougiuo	Jan mers.com	II.au		1			Phone:	(02) 9910 620	00 Fax:	(02) 9910 6201
			Sample	Container						Email:	tnotaras@env	virolabservices.com	au
		led	Туре	Type					Analytes				
Sample	Lab	dm		.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,								1	
ID	ID	Date Sa	S - soil W - wate	G - glass P - plasti	Hd	EC	Chloride	Sulphate	Sodicity	Hold		Notes	/preservation
2/3	54	7.8.17	S	Р	Х	X							
3/0.5	55	7.8.17	S	P	X	X			1				
3/1	56	7.8.17	S	P	X	X				-			
3/1.5	57	7.8.17	S	P	X	X	X	V					
3/2	58	7.8.17	S	P	X	X			122.5				
3/2.5	69	7.8.17	S	P	X	X							
3/3	60	7.8.17	S	P	X	X			-				
4/0.5	61	7.8.17	S	P	X	X							
4/1	62	7.8.17	S	P	X	X							
4/1.5	63	7.8.17	S	P	X	X							
4/2	64	7.8.17	S	P	X	X	X	x					
Lab Report No:					5								
Send Results to:	D	ouglas Par	tners Pty Lt	d Addre	ess 18 W	aler Cres	scent Sm	eaton Gra	ange 2567	Di	(02) 40 47	0075 -	
Relinquished by;	Н	ugh Goym	nour					Transpor	ted to Jahou	Pn rotony huy	one: (02) 4647	0075 Fax: (02) 4646 1886
Signed:	>			Date & Time	: 10.2	17 1	0.8.17	Received	hv.	atory by:		4	
- 0					-11/0	<u>, , , , , , , , , , , , , , , , , , , </u>			NJ.	1-			

CHAIN OF CUSTODY

Project Name:	167-1	170 St Andro	ews, Varroy	/ille. NSW						-	-				
Project No:	9223	7.00			Sampl	or.	Hugh	201/00 01/0		10:	Env	irolab Se	ervices		
Project Mgr:	Emily	/ McGinty			Moh E	bono:	nugh (Soymour			12 /	Ashley S	treet, Cha	tswood I	NSW 2067
Email:	hugh	n.govmour(@douglas	partners cor	1100. F	none.	0447 8	76 999		Attn:	Tan	ia Notara	as		
Date Required:	Stand	dard time	guougiuo		<u>11.au</u>		-			Phone:	(02)	9910 62	200	Fax:	(02) 9910 6201
			Sample	Container						Email:	tnot	aras@er	nvirolabse	rvices.co	m.au
		pled	Туре	Туре				100	Analytes						
Sample ID	G - glass P - plastic	Hď	EC	Chloride	Sulphate		Pold				Note	es/preservation			
4/2.5	65	7.8.17	S	Р	Х	X									
4/3	66	7.8.17	S	Р	Х	X	-								
5/0.5	67	7.8.17	S	Р	Х	Х									
5/1	68	7.8.17	S	Р	Х	х	1							<u> </u>	
5/1.5	69	7.8.17	S	Р	Х	Х			х				-		
5/2	70	7.8.17	S	Р	Х	Х									
5/2.5	71	7.8.17	S	Р	Х	Х	X	X							
5/3	72	7.8.17	S	Р	Х	Х	- <u>-</u>								
6/0.5	73	08/08/17	S	Р	Х	Х									
6/1	24	08/08/17	S	Р	Х	Х	X	X							
6/1.5	75	08/08/17	S	Р	Х	Х	X	X					-		
Lab Report No:													1		
Send Results to:	E	Douglas Part	tners Pty Lt	d Addre	ess 18 W	aler Cres	scent, Sm	eaton Gra	ange 2567	P	none: (()2) 464	7 0075	Fax:	(02) 4646 1886
Relinquished by:	1 H	lugh Goym	nour			1.1.1		Transpor	ted to labor	ratory by:	(T UA.	(02) 4040 1000
Signed:	t	-		Date & Time	: 10.8	3.171	10.8.17	Received	by:	in the second se					
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Project Namo: 167 170 01 4

· · · · · · · · · · · · · · · · · · ·	107-	10 St Andr	ews, Varrow	ville. NSW						1			and the second			
Project No:	9223	7.00	1000		Sampl	or:	Linet			To: Envirolab Services						
Project Mgr:	Emily	McGinty	108.41		Moh E	er.	Hugh	Goymour			12 Ashley Street, Chatswood NSW 2067					
Email:	hugh	.goymour(@douglas	partners cor	n au	none:	0447	976 999		Attn: Tania Notaras						
Date Required:	Stand	lard time	gaogiaop	Surfices.con	<u>au</u>		-			Phone:	one: (02) 9910 6200				(02) 9910 6201	
		Q	Sample	Container			-		1	Email:	tne	otaras@e	nvirolabse	ervices.co	om.au	
Sample	Lah	mple	Туре	Туре		1		1	Analytes				1922			
ID	ID	Date Sa	S - soil W - water	G - glass P - plasti	Hď	EC	Chloride	Sulphate	Sodicity	Hold				Not	es/preservation	
7/0.5	76	7.8.17	S	Р	Х	X							1			
7/1	77	7.8.17	S	Р	Х	X			×			-		-		
7/1.5	78	7.8.17	S	Р	Х	X			~			1		Turner 1	- the loss of the	
7/2	79	7.8.17	S	P	Х	x	A CONTRACTOR OF CONTRACTOR OFO					-				
7/2.5	80	7.8.17	S	P	Х	X	1		-					-		
7/3	8)	7.8.17	S	P	Х	X	X	X					-	-		
8/0.5	82	7.8.17	S	P	х	X	X	X	×							
8/1	83	7.8.17	S	P	X	X			×							
8/1.5	84	7.8.17	S	P	X	X	x	X					-			
9/0.5	85	7.8.17	S	P	X	x										
9/1	86	7.8.17	S	P	X	x	X	x								
Lab Report No:	1			<u> </u>												
Send Results to:	D	ouglas Part	ners Ptv I to	d Addre	se 18 M	Jalor Cros	ant Cm	anten O	0.505				F	3		
Relinquished by:	H	ugh Govm	our		33 10 10	aler cres	scent, Sn	Teaton Gra	ange 2567	P	hone:	(02) 464	7 0075	Fax:	(02) 4646 1886	
Signed:	h		1	Date & Time	In C	7 1-7 1	0 9 17	Transpor	ted to labor	atory by:				1		
				sate a riffe	10.8	. / /	0.0.17	Received	by:	5 . K.	1.1.1	3				

D

Project Name:	167-1	70 St Andr	ews, Varrov	ville, NSW			1			Te							
Project No:	9223	7.00			Sampl	er:	Hugh (Soumour		Envirolab Services							
Project Mgr:	Emily	McGinty			Mob. F	Phone:	0447 0	76 999		A 44	12 Ashley Street, Chatswood NSW 2067						
Email:	hugh	.goymour(@douglas	partners.co	m.au			10 333		Attn:	I ania No						
Date Required:	Stand	lard time					1			Phone:	(02) 991	0 6200	Fax: (02) 9910 6201				
		pled	Sample Type	Container Type			•		Analytes		tnotaras	@envirolabs	services.com.au				
ID	Lab ID	Date Sam	S - soil W - water	G - glass P - plastic	Hd	EC	Chloride	Sulphate	Sodicity	Hold			Notes/preservation				
9/1.5	87	7.8.17	S	Р	Х	X			1								
9/2	88	7.8.17	S	Р	Х	X	X	X	Х								
10/0.5	89.	7.8.17	S	Р	Х	X	1		12	1							
10/1	90	7.8.17	S	Р	Х	X	1		Х								
10/1.5	91	7.8.17	S	Р	Х	X	X	X		0.49							
10/2	92	7.8.17	S	Р	Х	X			1 1 1								
11/0.5	93	7.8.17	S	Р	Х	X				~	12						
11/1	94	7.8.17	S	Р	Х	Х			X								
11/1.5	95	7.8.17	S	Р	Х	Х											
11/2	96	7.8.17	S	Р	Х	Х	X	Х			13						
11/2.5	97	7.8.17	S	Р	Х	Х			-								
Lab Report No:																	
Send Results to:	D	ouglas Par	tners Pty Lt	d Addr	ess 18 W	Valer Cres	scent. Sm	eaton Gra	nge 2567	Dh	one: (02) /	647 0075	East (00) 4040 4000				
Relinquished by:	H	lugh Goyn	nour		1	1. N. 1	Transported to laboratory but										
Signed: Hugh	0		1	Date & Time	: 10,5	7.171	0.8.17	Received	by:	atory by.							
1				23		ll	1		5 K				3				

Dutit

Project Name:	167-1	70 St Andr	ews, Varroy	ville, NSW										and the second second		
Project No:	9223	7.00			Sampl	or:	Hugh	201100		IO: Envirolab Services						
Project Mgr:	Emily	McGinty			Mob F	Chana:	nugh u	12 Ashley Street, Chatswood NSV						d NSW 2067		
Email:	hugh	.govmour(@douglas	partners cor	n au	none.	0447 9	Attn: Tania Notaras								
Date Required:	Stand	ard time	guougiuo	54111013.001	n.au					Phone:	(02)	9910 6200	Fax	k: (02) 9910 6201		
			Sample	Container						Email:	tnota	aras@envirol	abservices	.com.au		
C		plec	Туре	Туре					Analytes							
ID	Lab ID	Date Sam	S - soil W - water	G - glass P - plastic	Hd	EC	Chloride	Sulphate	Sodicity	Hold				lotes/preservation		
12/0.5	93	7.8.17	S	Р	Х	X										
12/1	99	7.8.17	S	Р	Х	X										
12/1.5	100	7.8.17	S	Р	Х	X	A.							7		
12/2	(0)	7.8.17	S	Р	Х	X		0		-						
12/2.5	IOR	7.8.17	S	Р	Х	X	X	X								
13/0.5	03	7.8.17	S	Р	Х	X										
13/1	104	7.8.17	S	Р	Х	X	-									
13/1.5	105	7.8.17	S	Р	Х	Х	X	X			-					
13/2	106	7.8.17	S	Р	Х	Х										
13/2.5	107	7.8.17	S	Р	Х	Х	X	X			- /					
13/3	108	7.8.17	S	Р	Х	Х	X	Х								
Lab Report No:											tri.					
Send Results to:	D	ouglas Par	tners Pty Lt	d Addre	ess 18 V	Valer Cres	scent, Sm	eaton Gra	ange 2567	Ph	one: (()2) 4647 00	75 Fa	x : (02) 4646 1886		
Signadu Marine		ugh Goyn	nour		1			Transported to laboratory by:								
Signed:	f			Date & Time	: 10.8	3,171	0.8.17	Received	d by:							
- ()																

Jessica Hie

From: Sent: To: Subject: Hugh Goymour <hugh.goymour@douglaspartners.com.au> Monday, 14 August 2017 9:06 AM Jessica Hie RE: excel copy of COC

FINANCIAL REVIEW

CLIENT CHO

WINNER

Hi Jessica

Yes - Please test 39 in the meantime and I will work out the issue is with 41 on my end.

Cheers

Hugh Goymour | Environmental Scientist Douglas Partners Pty Ltd | ABN 75 053 980 117 | www.douglaspartners.com.au 18 Waler Crescent Smeaton Grange NSW 2567 P: 02 4647 0075 | F: 02 4646 1886 | E: hugh.goymour@douglaspartners.com.au



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From: Jessica Hie [mailto:JHie@envirolab.com.au] Sent: Friday, 11 August 2017 6:55 PM To: Hugh Goymour Cc: Emily McGinty Subject: RE: excel copy of COC

Hi Hugh,

Actually, no need for the electronic copy now.

Another issue however: there was no 41/0-0.15 material received Instead, there was a 39/0.15 material received – should we analyse this?

Regards,

Jessica Hie | Customer Service/Asbestos Analyst | Envirolab Services Pty Ltd

Great Science, Great Service.

12 Ashley Street Chatswood NSW 2067 T 612 9910 6200 F 612 9910 6201 E jhie@envirolab.com.au | W www.envirolab.com.au <u>Please note that all samples submitted to the Envirolab Group laboratories will be analysed under the</u> <u>Envirolab Group Terms and Conditions. The Terms and Conditions are accessible by clicking this link</u>

From: Jessica Hie Sent: Friday, 11 August 2017 5:10 PM To: 'hugh.goymour@douglaspartners.com.au' <<u>hugh.goymour@douglaspartners.com.au</u>> Cc: Emily McGinty <<u>Emily.McGinty@douglaspartners.com.au</u>> Subject: excel copy of COC

Hi Hugh,

Would you happen to have the excel copy of the Varroville job (108 samples) you could email through? thanks

Disclaimer

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

SAMPLE RECEIPT ADVICE

Client Details	
Client	Douglas Partners Pty Ltd Smeaton Grange
Attention	Hugh Goymour, Emily McGinty

Sample Login Details	
Your reference	92237.00, 167-170 St Andrews, Varroville
Envirolab Reference	173257
Date Sample Received	11/08/2017
Date Instructions Received	11/08/2017
Date Results Expected to be Reported	18/08/2017

Sample Condition	
Samples received in appropriate condition for analysis	YES
No. of Samples Provided	107 Soils, 1 Material
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	18.1
Cooling Method	Ice Pack
Sampling Date Provided	Not Provided on the COC

Comments	
Nil	

Please direct any queries to:

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

Analysis Underway, details on the following page:



Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticidesin soil	Organophosphorus Pesticides	PCBsin Soil	Acid Extractable metalsin soil	Misc Soil - Inorg	Misc Soil - Inorg	Asbestos ID - soils	Asbestos ID - materials	Misc Inorg - Soil	ESP/CEC	
1-0.0-0.2				\checkmark	\checkmark		\checkmark	\checkmark						
2-0.0-0.2	✓	✓	✓				✓			✓				
3-0.0-0.3	✓	\checkmark	✓	✓	✓	✓	\checkmark		\checkmark	\checkmark				
4-0.0-0.2				✓	\checkmark		✓	✓						
5-0.0-0.4				✓	✓		✓	✓						
6-0.0-0.2				\checkmark	\checkmark		\checkmark	\checkmark						
7-0.0-0.3				\checkmark	\checkmark		✓	✓						
8-0.0-0.5				✓	✓		✓	✓						
9-0.0-0.2				✓	✓		✓	\checkmark						
10-0.0-0.3				\checkmark	\checkmark		✓	✓						
11-0.0-0.5				\checkmark	\checkmark		✓	\checkmark						
12-0.0-0.2				\checkmark	\checkmark		\checkmark	\checkmark						
13-0.0-0.3				\checkmark	\checkmark		\checkmark	\checkmark						
14-0.0-0.05	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark		\checkmark	\checkmark				
15-0.0-0.1	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark		\checkmark	\checkmark				
16-0.0-0.08	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark		\checkmark	\checkmark				
17-0.0-0.15	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark		\checkmark	\checkmark				
18-0.0-0.2	\checkmark	\checkmark	✓	\checkmark	\checkmark	✓	\checkmark		\checkmark	\checkmark				
19-0.0-0.15	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark		\checkmark	\checkmark				
20-0.0-0.1	\checkmark	\checkmark	\checkmark				\checkmark		\checkmark					
21-0.0-0.1	\checkmark	\checkmark	✓				\checkmark		\checkmark					
22-0.0-0.2				\checkmark	\checkmark		\checkmark	✓						
23-0.0-0.4				\checkmark	\checkmark		\checkmark	✓						
24-0.0-0.4				\checkmark	\checkmark		\checkmark	\checkmark						
25-0.0-0.6				\checkmark	\checkmark		\checkmark	\checkmark						
26-0.0-0.4				\checkmark	\checkmark		✓	✓						
27-0.0-0.3	\checkmark	\checkmark	\checkmark				\checkmark			\checkmark				
28-0.0-0.4				\checkmark	\checkmark		\checkmark	\checkmark						
29-0.0-0.2				\checkmark	\checkmark		\checkmark	✓						
30-0.0-0.3				\checkmark	\checkmark		\checkmark	\checkmark						

✓

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 \checkmark

31-0.0-0.2

32-0.0-0.2

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✓

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Envirolab Services Pty Ltd

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



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Sample ID	VTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticidesin soi	Organophosphorus Pesticides	PCBsin Soil	Acid Extractable metalsin soil	Misc Soil - Inorg	Misc Soil - Inorg	Asbestos ID - soils	Asbestos ID - materials	Misc Inorg - Soil	ESP/CEC
33-0.0-0.1				\checkmark	\checkmark		✓	\checkmark					
34-0.1-0.3				\checkmark	✓		\checkmark	\checkmark					
35-0.0-0.5				\checkmark	\checkmark		\checkmark	\checkmark					
36-0.0-0.4	\checkmark	\checkmark	\checkmark				\checkmark			\checkmark			
37-0.0-0.5				\checkmark	✓		\checkmark	\checkmark					
38-0.0-0.15				\checkmark	\checkmark		\checkmark	\checkmark					
39-0.0-0.15	✓	✓	✓				\checkmark			✓			
40-0.0-0.2				\checkmark	\checkmark		\checkmark	\checkmark					
41-0.0-0.15	✓	✓	✓				✓			✓			
39-0.15											✓		
1-0.5												✓	
1-1.0												✓	
1-1.5												✓	
1-2.0												✓	
1-2.5												✓	
1-3.0												✓	
2-0.5												✓	
2-1.0												✓	✓
2-1.5												✓	
2-2.0												✓	
2-2.5												✓	
2-3.0												✓	
3-0.5												✓	
3-1.0												✓	
3-1.5												✓	
3-2.0												✓	
3-2.5												✓	
3-3.0												✓	
4-0.5												✓	
4-1.0												✓	
4-1.5												✓	
4-2.0												\checkmark	



Envirolab	Services	Pty Ltd
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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticidesin soi	Organophosphorus Pesticides	PCBsin Soil	Acid Extractable metalsin soil	Misc Soil - Inorg	Misc Soil - Inorg	Asbestos ID - soils	Asbestos ID - materials	Misc Inorg - Soil	ESP/CEC
4-2.5												\checkmark	
4-3.0												\checkmark	
5-0.5												✓	
5-1.0												\checkmark	
5-1.5												✓	✓
5-2.0												✓	
5-2.5												✓	
5-3.0												✓	
6-0.5												✓	
6-1.0												✓	
6-1.5												✓	
7-0.5												✓	
7-1.0												✓	✓
7-1.5												✓	
7-2.0												✓	
7-2.5												✓	
7-3.0												\checkmark	
8-0.5												✓	✓
8-1.0												✓	✓
8-1.5												✓	
9-0.5												✓	
9-1.0												✓	
9-1.5												\checkmark	
9-2.0												✓	✓
10-0.5												✓	
10-1.0												✓	✓
10-1.5												✓	
10-2.0												✓	
11-0.5												✓	
11-1.0												✓	✓
11-1.5												✓	
11-2.0												\checkmark	



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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticidesin soil	Organophosphorus Pesticides	PCBsin Soil	Acid Extractable metalsin soil	Misc Soil - Inorg	Misc Soil - Inorg	Asbestos ID - soils	Asbestos ID - materials	Misc Inorg - Soil	ESP/CEC
11-2.5												\checkmark	
12-0.5												✓	
12-1.0												✓	
12-1.5												\checkmark	
12-2.0												\checkmark	
12-2.5												\checkmark	
13-0.5												\checkmark	
13-1.0												\checkmark	
13-1.5												\checkmark	
13-2.0												\checkmark	
13-2.5												\checkmark	
13-3.0												✓	

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

Additional Info

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

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



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CERTIFICATE OF ANALYSIS 173257

Client Details	
Client	Douglas Partners Pty Ltd Smeaton Grange
Attention	Hugh Goymour, Emily McGinty
Address	18 Waler Crescent, Smeaton Grange, NSW, 2567

Sample Details	
Your Reference	92237.00, 167-170 St Andrews, Varroville
Number of Samples	107 Soils, 1 Material
Date samples received	11/08/2017
Date completed instructions received	11/08/2017

Analysis Details

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

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

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

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

Report Details

 Date results requested by
 18/08/2017

 Date of Issue
 18/08/2017

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 Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *

Asbestos Approved By

Analysed by Asbestos Approved Identifier: Jessica Hie, Paul Ching Authorised by Asbestos Approved Signatory: Lulu Scott

Results Approved By

Jeremy Faircloth, Organics Supervisor Long Pham, Team Leader, Metals Lulu Scott, Asbestos Supervisor Nick Sarlamis, Inorganics Supervisor Paul Ching, Senior Analyst Priya Samarawickrama, Senior Chemist Steven Luong, Chemist

Authorised By

David Springer, General Manager



vTRH(C6-C10)/BTEXN in Soil									
Our Reference		173257-2	173257-3	173257-14	173257-15	173257-16			
Your Reference	UNITS	2	3	14	15	16			
Depth		0.0-0.2	0.0-0.3	0.0-0.05	0.0-0.1	0.0-0.08			
Date Sampled		07/08/2017	07/08/2017	07/08/2017	04/08/2017	04/08/2017			
Type of sample		Soil	Soil	Soil	Soil	Soil			
Date extracted	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017			
Date analysed	-	16/08/2017	16/08/2017	16/08/2017	16/08/2017	16/08/2017			
TRH C6 - C9	mg/kg	<25	<25	68	<25	<25			
TRH C6 - C10	mg/kg	<25	<25	260	<25	<25			
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	250	<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	5	<2	<2			
o-Xylene	mg/kg	<1	<1	3	<1	<1			
Total +ve Xylenes	mg/kg	<1	<1	9	<1	<1			
naphthalene	mg/kg	<1	<1	<10	<1	<1			
Surrogate aaa-Trifluorotoluene	%	99	102	91	101	101			
vTRH/C6-C10)/BTEXN in Soil									
vTRH(C6-C10)/BTEXN in Soil									
vTRH(C6-C10)/BTEXN in Soil Our Reference		173257-17	173257-18	173257-19	173257-20	173257-21			
vTRH(C6-C10)/BTEXN in Soil Our Reference Your Reference	UNITS	173257-17 17	173257-18 18	173257-19 19	173257-20 20	173257-21 21			
vTRH(C6-C10)/BTEXN in Soil Our Reference Your Reference Depth	UNITS	173257-17 17 0.0-0.15	173257-18 18 0.0-0.2	173257-19 19 0.0-0.15	173257-20 20 0.0-0.1	173257-21 21 0.0-0.1			
vTRH(C6-C10)/BTEXN in Soil Our Reference Your Reference Depth Date Sampled	UNITS	173257-17 17 0.0-0.15 07/08/2017	173257-18 18 0.0-0.2 07/08/2017	173257-19 19 0.0-0.15 07/08/2017	173257-20 20 0.0-0.1 07/08/2017	173257-21 21 0.0-0.1 04/08/2017			
vTRH(C6-C10)/BTEXN in Soil Our Reference Your Reference Depth Date Sampled Type of sample	UNITS	173257-17 17 0.0-0.15 07/08/2017 Soil	173257-18 18 0.0-0.2 07/08/2017 Soil	173257-19 19 0.0-0.15 07/08/2017 Soil	173257-20 20 0.0-0.1 07/08/2017 Soil	173257-21 21 0.0-0.1 04/08/2017 Soil			
VTRH(C6-C10)/BTEXN in Soil Our Reference Your Reference Depth Date Sampled Type of sample Date extracted	UNITS -	173257-17 17 0.0-0.15 07/08/2017 Soil 15/08/2017	173257-18 18 0.0-0.2 07/08/2017 Soil 15/08/2017	173257-19 19 0.0-0.15 07/08/2017 Soil 15/08/2017	173257-20 20 0.0-0.1 07/08/2017 Soil 15/08/2017	173257-21 21 0.0-0.1 04/08/2017 Soil 15/08/2017			
VTRH(C6-C10)/BTEXN in Soil Our Reference Your Reference Depth Date Sampled Type of sample Date extracted Date analysed	UNITS - -	173257-17 17 0.0-0.15 07/08/2017 Soil 15/08/2017 16/08/2017	173257-18 18 0.0-0.2 07/08/2017 Soil 15/08/2017 16/08/2017	173257-19 19 0.0-0.15 07/08/2017 Soil 15/08/2017 16/08/2017	173257-20 20 0.0-0.1 07/08/2017 Soil 15/08/2017 16/08/2017	173257-21 21 0.0-0.1 04/08/2017 Soil 15/08/2017 16/08/2017			
VTRH(C6-C10)/BTEXN in Soil Our Reference Your Reference Depth Date Sampled Type of sample Date extracted Date analysed TRH C ₆ - C ₉	UNITS - - mg/kg	173257-17 17 0.0-0.15 07/08/2017 Soil 15/08/2017 16/08/2017 <25	173257-18 18 0.0-0.2 07/08/2017 Soil 15/08/2017 16/08/2017 <25	173257-19 19 0.0-0.15 07/08/2017 Soil 15/08/2017 16/08/2017 <25	173257-20 20 0.0-0.1 07/08/2017 Soil 15/08/2017 16/08/2017 <25	173257-21 21 0.0-0.1 04/08/2017 Soil 15/08/2017 16/08/2017 <25			
VTRH(C6-C10)/BTEXN in Soil Our Reference Your Reference Depth Date Sampled Type of sample Date extracted Date analysed TRH C6 - C9 TRH C6 - C10	UNITS - mg/kg mg/kg	173257-17 17 0.0-0.15 07/08/2017 Soil 15/08/2017 16/08/2017 <25 <25	173257-18 18 0.0-0.2 07/08/2017 Soil 15/08/2017 16/08/2017 <25 <25	173257-19 19 0.0-0.15 07/08/2017 Soil 15/08/2017 16/08/2017 <25 <25	173257-20 20 0.0-0.1 07/08/2017 Soil 15/08/2017 16/08/2017 <25 <25	173257-21 21 0.0-0.1 04/08/2017 Soil 15/08/2017 16/08/2017 <25 <25			
VTRH(C6-C10)/BTEXN in Soil Our Reference Your Reference Depth Date Sampled Type of sample Date extracted Date analysed TRH C6 - C9 TRH C6 - C10 VTPH C6 - C10 less BTEX (F1)	UNITS - mg/kg mg/kg mg/kg	173257-17 17 0.0-0.15 07/08/2017 Soil 15/08/2017 16/08/2017 <25 <25 <25	173257-18 18 0.0-0.2 07/08/2017 Soil 15/08/2017 16/08/2017 <25 <25 <25	173257-19 19 0.0-0.15 07/08/2017 Soil 15/08/2017 16/08/2017 <25 <25 <25	173257-20 20 0.0-0.1 07/08/2017 Soil 15/08/2017 16/08/2017 <25 <25 <25	173257-21 21 0.0-0.1 04/08/2017 Soil 15/08/2017 16/08/2017 <25 <25 <25			
VTRH(C6-C10)/BTEXN in SoilOur ReferenceYour ReferenceDepthDate SampledType of sampleDate extractedDate analysedTRH $C_6 - C_9$ TRH $C_6 - C_{10}$ vTPH $C_6 - C_{10}$ less BTEX (F1)Benzene	UNITS - - mg/kg mg/kg mg/kg mg/kg	173257-17 17 0.0-0.15 07/08/2017 Soil 15/08/2017 16/08/2017 <25 <25 <25 <25 <0.2	173257-18 18 0.0-0.2 07/08/2017 Soil 15/08/2017 16/08/2017 <25 <25 <25 <25 <0.2	173257-19 19 0.0-0.15 07/08/2017 Soil 15/08/2017 16/08/2017 <25 <25 <25 <25 <0.2	173257-20 20 0.0-0.1 07/08/2017 Soil 15/08/2017 16/08/2017 <25 <25 <25 <25 <0.2	173257-21 21 0.0-0.1 04/08/2017 Soil 15/08/2017 16/08/2017 <25 <25 <25 <25 <0.2			
VTRH(C6-C10)/BTEXN in Soil Our Reference Your Reference Depth Date Sampled Type of sample Date extracted Date analysed TRH C6 - C9 TRH C6 - C10 VTPH C6 - C10 less BTEX (F1) Benzene Toluene	UNITS - mg/kg mg/kg mg/kg mg/kg mg/kg	173257-17 17 0.0-0.15 07/08/2017 Soil 15/08/2017 16/08/2017 <25 <25 <25 <25 <0.2 <0.2	173257-18 18 0.0-0.2 07/08/2017 Soil 15/08/2017 16/08/2017 <25 <25 <25 <25 <0.2 <0.2	173257-19 19 0.0-0.15 07/08/2017 Soil 15/08/2017 16/08/2017 <25 <25 <25 <25 <0.2 <0.2	173257-20 20 0.0-0.1 07/08/2017 Soil 15/08/2017 16/08/2017 <25 <25 <25 <25 <0.2	173257-21 21 0.0-0.1 04/08/2017 Soil 15/08/2017 16/08/2017 <25 <25 <25 <25 <0.2			
VTRH(C6-C10)/BTEXN in SoilOur ReferenceYour ReferenceDepthDate SampledType of sampleDate extractedDate analysedTRH C6 - C9TRH C6 - C10vTPH C6 - C10 less BTEX (F1)BenzeneTolueneEthylbenzene	UNITS - - mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	173257-17 17 0.0-0.15 07/08/2017 Soil 15/08/2017 16/08/2017 <25 <25 <25 <25 <0.2 <0.2 <0.5 <1	173257-18 18 0.0-0.2 07/08/2017 Soil 15/08/2017 16/08/2017 <25 <25 <25 <0.2 <0.2 <0.5 <1	173257-19 19 0.0-0.15 07/08/2017 Soil 15/08/2017 16/08/2017 <25 <25 <25 <25 <0.2 <0.2 <0.5 <1	173257-20 20 0.0-0.1 07/08/2017 Soil 15/08/2017 16/08/2017 <25 <25 <25 <25 <0.2 <0.2 <0.5	173257-21 21 0.0-0.1 04/08/2017 Soil 15/08/2017 16/08/2017 <25 <25 <25 <25 <0.2 <0.2 <0.5 <1			
VTRH(C6-C10)/BTEXN in SoilOur ReferenceYour ReferenceDepthDate SampledType of sampleDate extractedDate analysedTRH C6 - C9TRH C6 - C10vTPH C6 - C10 less BTEX (F1)BenzeneTolueneEthylbenzenem+p-xylene	UNITS - - mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	173257-17 17 0.0-0.15 07/08/2017 Soil 15/08/2017 16/08/2017 16/08/2017 <25 <25 <25 <25 <0.2 <0.2 <0.5 <1 <2	173257-18 18 0.0-0.2 07/08/2017 Soil 15/08/2017 16/08/2017 <25 <25 <25 <0.2 <0.2 <0.5 <1 <2	173257-19 19 0.0-0.15 07/08/2017 Soil 15/08/2017 16/08/2017 <25 <25 <25 <25 <0.2 <0.2 <0.5 <1 <2	173257-20 20 0.0-0.1 07/08/2017 Soil 15/08/2017 16/08/2017 <25 <25 <25 <25 <0.2 <0.2 <0.2 <0.5 <1	173257-21 21 0.0-0.1 04/08/2017 Soil 15/08/2017 16/08/2017 <25 <25 <25 <25 <0.2 <0.2 <0.5 <1 <2			
VTRH(C6-C10)/BTEXN in SoilOur ReferenceYour ReferenceDepthDate SampledType of sampleDate extractedDate analysedTRH C6 - C9TRH C6 - C10vTPH C6 - C10 less BTEX (F1)BenzeneTolueneEthylbenzenem+p-xyleneo-Xylene	UNITS - - mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	173257-17 17 0.0-0.15 07/08/2017 Soil 15/08/2017 16/08/2017 <25 <25 <25 <25 <0.2 <0.2 <0.5 <1 <2 <1	173257-18 18 0.0-0.2 07/08/2017 Soil 15/08/2017 16/08/2017 <25 <25 <25 <0.2 <0.2 <0.5 <1 <2 <1	173257-19 19 0.0-0.15 07/08/2017 Soil 15/08/2017 16/08/2017 <25 <25 <25 <25 <0.2 <0.2 <0.5 <1 <2 <1	173257-20 20 0.0-0.1 07/08/2017 Soil 15/08/2017 16/08/2017 <25 <25 <25 <25 <0.2 <0.2 <0.2 <0.5 <1 <2 <1	173257-21 21 0.0-0.1 04/08/2017 Soil 15/08/2017 16/08/2017 <25 <25 <25 <25 <0.2 <0.2 <0.5 <1 <2 <1 <2			
VTRH(C6-C10)/BTEXN in SoilOur ReferenceYour ReferenceDepthDate SampledType of sampleDate extractedDate analysedTRH C6 - C9TRH C6 - C10vTPH C6 - C10 less BTEX (F1)BenzeneTolueneEthylbenzenem+p-xyleneo-XyleneTotal +ve Xylenes	UNITS - - mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	173257-17 17 0.0-0.15 07/08/2017 Soil 15/08/2017 16/08/2017 <25 <25 <25 <25 <0.2 <0.2 <0.5 <1 <2 <1 <2 <1	173257-18 18 0.0-0.2 07/08/2017 Soil 15/08/2017 16/08/2017 <25 <25 <25 <0.2 <0.2 <0.5 <1 <2 <1 <2 <1 <1 <1	173257-19 19 0.0-0.15 07/08/2017 Soil 15/08/2017 16/08/2017 <25 <25 <25 <25 <0.2 <0.2 <0.5 <1 <2 <1 <2 <1 <1	173257-20 20 0.0-0.1 07/08/2017 Soil 15/08/2017 (25 <25 <25 <25 <0.2 <0.2 <0.5 <1 <2 <1 <2 <1 <2 <1 <1 <1	173257-21 21 0.0-0.1 04/08/2017 Soil 15/08/2017 (25 <25 <25 <25 <25 <0.2 <0.2 <0.5 <1 <2 <1 <2 <1 <2 <1 <1			
VTRH(C6-C10)/BTEXN in SoilOur ReferenceYour ReferenceDepthDate SampledType of sampleDate extractedDate analysedTRH C6 - C9TRH C6 - C10vTPH C6 - C10 less BTEX (F1)BenzeneTolueneEthylbenzenem+p-xyleneo-XyleneTotal +ve Xylenesnaphthalene	UNITS - mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	173257-17 17 0.0-0.15 07/08/2017 Soil 15/08/2017 16/08/2017 <25 <25 <25 <25 <0.2 <0.2 <0.2 <0.5 <1 <2 <1 <2 <1 <1 <1	173257-18 18 0.0-0.2 07/08/2017 Soil 15/08/2017 16/08/2017 <25 <25 <25 <0.2 <0.2 <0.2 <0.5 <1 <2 <1 <1 <1 <1	173257-19 19 0.0-0.15 07/08/2017 Soil 15/08/2017 16/08/2017 <25 <25 <25 <0.2 <0.2 <0.2 <0.5 <1 <2 <1 <2 <1 <1 <1	173257-20 20 0.0-0.1 07/08/2017 Soil 15/08/2017 16/08/2017 <25 <25 <25 <25 <0.2 <0.2 <0.5 <1 <2 <1 <2 <1 <1 <1 <1	173257-21 21 0.0-0.1 04/08/2017 Soil 15/08/2017 16/08/2017 <25 <25 <25 <25 <0.2 <0.2 <0.5 <1 <2 <1 <2 <1 <1 <1 <1			

vTRH(C6-C10)/BTEXN in Soil					
Our Reference		173257-27	173257-36	173257-39	173257-41
Your Reference	UNITS	27	36	39	41
Depth		0.0-0.3	0.0-0.4	0.0-0.15	0.0-0.15
Date Sampled		04/08/2017	07/08/2017	08/08/2017	08/08/2017
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017
Date analysed	-	16/08/2017	16/08/2017	16/08/2017	16/08/2017
TRH C6 - C9	mg/kg	<25	<25	<25	<25
TRH C6 - C10	mg/kg	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	100	101	98	98

svTRH (C10-C40) in Soil									
Our Reference		173257-2	173257-3	173257-14	173257-15	173257-16			
Your Reference	UNITS	2	3	14	15	16			
Depth		0.0-0.2	0.0-0.3	0.0-0.05	0.0-0.1	0.0-0.08			
Date Sampled		07/08/2017	07/08/2017	07/08/2017	04/08/2017	04/08/2017			
Type of sample		Soil	Soil	Soil	Soil	Soil			
Date extracted	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017			
Date analysed	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017			
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	21,000	<50	<50			
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	150,000	<100	<100			
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	40,000	<100	<100			
TRH >C10 -C16	mg/kg	<50	<50	47,000	<50	<50			
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	47,000	<50	<50			
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	160,000	<100	<100			
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	19,000	<100	<100			
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	220,000	<50	<50			
Surrogate o-Terphenyl	%	93	97	#	94	95			
svTRH (C10-C40) in Soil									

Our Reference		173257-17	173257-18	173257-19	173257-20	173257-21
Your Reference	UNITS	17	18	19	20	21
Depth		0.0-0.15	0.0-0.2	0.0-0.15	0.0-0.1	0.0-0.1
Date Sampled		07/08/2017	07/08/2017	07/08/2017	07/08/2017	04/08/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017
Date analysed	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017
TRH C ₁₀ - C ₁₄	mg/kg	110	<50	<50	<50	160
TRH C ₁₅ - C ₂₈	mg/kg	670	<100	<100	<100	6,700
TRH C ₂₉ - C ₃₆	mg/kg	590	<100	<100	<100	4,500
TRH >C ₁₀ -C ₁₆	mg/kg	170	<50	<50	<50	280
TRH >C10 - C16 less Naphthalene (F2)	mg/kg	170	<50	<50	<50	280
TRH >C ₁₆ -C ₃₄	mg/kg	1,000	<100	<100	<100	10,000
TRH >C ₃₄ -C ₄₀	mg/kg	370	<100	<100	<100	1,100
Total +ve TRH (>C10-C40)	mg/kg	1,500	<50	<50	<50	11,000
Surrogate o-Terphenyl	%	115	95	94	96	#

svTRH (C10-C40) in Soil										
Our Reference		173257-27	173257-36	173257-39	173257-41					
Your Reference	UNITS	27	36	39	41					
Depth		0.0-0.3	0.0-0.4	0.0-0.15	0.0-0.15					
Date Sampled		04/08/2017	07/08/2017	08/08/2017	08/08/2017					
Type of sample		Soil	Soil	Soil	Soil					
Date extracted	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017					
Date analysed	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017					
TRH C10 - C14	mg/kg	<50	<50	<50	<50					
TRH C15 - C28	mg/kg	<100	<100	<100	<100					
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	170	220					
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50					
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50					
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	140	240					
TRH >C34 -C40	mg/kg	<100	<100	120	150					
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	270	390					
Surrogate o-Terphenyl	%	91	90	93	90					

PAHs in Soil						
Our Reference		173257-2	173257-3	173257-14	173257-15	173257-16
Your Reference	UNITS	2	3	14	15	16
Depth		0.0-0.2	0.0-0.3	0.0-0.05	0.0-0.1	0.0-0.08
Date Sampled		07/08/2017	07/08/2017	07/08/2017	04/08/2017	04/08/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017
Date analysed	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017
Naphthalene	mg/kg	<0.1	<0.1	<1.0	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<1.0	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<1.0	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<1.0	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<1.0	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<1.0	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<1.0	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<1.0	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<1.0	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<1.0	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<2.0	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.50	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<1.0	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<1.0	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<1.0	<0.1	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<5	<0.5	<0.5
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.5	<0.05	<0.05
Surrogate p-Terphenyl-d14	%	90	90	75	99	98

PAHs in Soil						
Our Reference		173257-17	173257-18	173257-19	173257-20	173257-21
Your Reference	UNITS	17	18	19	20	21
Depth		0.0-0.15	0.0-0.2	0.0-0.15	0.0-0.1	0.0-0.1
Date Sampled		07/08/2017	07/08/2017	07/08/2017	07/08/2017	04/08/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017
Date analysed	-	15/08/2017	15/08/2017	15/08/2017	16/08/2017	16/08/2017
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	26
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	1.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	3.0
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	20
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	1.5
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	130
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	180
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	300
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	220
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	530
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	240
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	88
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	27
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	76
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	360
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	360
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	360
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	1,800
Surrogate p-Terphenyl-d14	%	94	100	92	97	#

PAHs in Soil					
Our Reference		173257-27	173257-36	173257-39	173257-41
Your Reference	UNITS	27	36	39	41
Depth		0.0-0.3	0.0-0.4	0.0-0.15	0.0-0.15
Date Sampled		04/08/2017	07/08/2017	08/08/2017	08/08/2017
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017
Date analysed	-	16/08/2017	16/08/2017	16/08/2017	16/08/2017
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	0.2
Surrogate p-Terphenyl-d14	%	92	92	89	92

Organochlorine Pesticides in soil	Organochlorine Pesticides in soil							
Our Reference		173257-1	173257-3	173257-4	173257-5	173257-6		
Your Reference	UNITS	1	3	4	5	6		
Depth		0.0-0.2	0.0-0.3	0.0-0.2	0.0-0.4	0.0-0.2		
Date Sampled		07/08/2017	07/08/2017	07/08/2017	07/08/2017	08/08/2017		
Type of sample		Soil	Soil	Soil	Soil	Soil		
Date extracted	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017		
Date analysed	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017		
НСВ	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Surrogate TCMX	%	94	96	91	93	93		

Organochlorine Pesticides in soil	Organochlorine Pesticides in soil							
Our Reference		173257-7	173257-8	173257-9	173257-10	173257-11		
Your Reference	UNITS	7	8	9	10	11		
Depth		0.0-0.3	0.0-0.5	0.0-0.2	0.0-0.3	0.0-0.5		
Date Sampled		07/08/2017	07/08/2017	07/08/2017	07/08/2017	07/08/2017		
Type of sample		Soil	Soil	Soil	Soil	Soil		
Date extracted	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017		
Date analysed	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017		
НСВ	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Surrogate TCMX	%	101	95	95	94	91		

Organochlorine Pesticides in soil								
Our Reference		173257-12	173257-13	173257-14	173257-15	173257-16		
Your Reference	UNITS	12	13	14	15	16		
Depth		0.0-0.2	0.0-0.3	0.0-0.05	0.0-0.1	0.0-0.08		
Date Sampled		07/08/2017	07/08/2017	07/08/2017	04/08/2017	04/08/2017		
Type of sample		Soil	Soil	Soil	Soil	Soil		
Date extracted	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017		
Date analysed	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017		
нсв	mg/kg	<0.1	<0.1	<1.0	<0.1	<0.1		
alpha-BHC	mg/kg	<0.1	<0.1	<1.0	<0.1	<0.1		
gamma-BHC	mg/kg	<0.1	<0.1	<1.0	<0.1	<0.1		
beta-BHC	mg/kg	<0.1	<0.1	<1.0	<0.1	<0.1		
Heptachlor	mg/kg	<0.1	<0.1	<1.0	<0.1	<0.1		
delta-BHC	mg/kg	<0.1	<0.1	<1.0	<0.1	<0.1		
Aldrin	mg/kg	<0.1	<0.1	<1.0	<0.1	<0.1		
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<1.0	<0.1	<0.1		
gamma-Chlordane	mg/kg	<0.1	<0.1	<1.0	<0.1	<0.1		
alpha-chlordane	mg/kg	<0.1	<0.1	<1.0	<0.1	<0.1		
Endosulfan I	mg/kg	<0.1	<0.1	<1.0	<0.1	<0.1		
pp-DDE	mg/kg	<0.1	<0.1	<1.0	<0.1	<0.1		
Dieldrin	mg/kg	<0.1	<0.1	<1.0	<0.1	<0.1		
Endrin	mg/kg	<0.1	<0.1	<1.0	<0.1	<0.1		
pp-DDD	mg/kg	<0.1	<0.1	<1.0	<0.1	<0.1		
Endosulfan II	mg/kg	<0.1	<0.1	<1.0	<0.1	<0.1		
pp-DDT	mg/kg	<0.1	<0.1	<1.0	<0.1	<0.1		
Endrin Aldehyde	mg/kg	<0.1	<0.1	<1.0	<0.1	<0.1		
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<1.0	<0.1	<0.1		
Methoxychlor	mg/kg	<0.1	<0.1	<1.0	<0.1	<0.1		
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<1.0	<0.1	<0.1		
Surrogate TCMX	%	93	95	69	94	96		

Organochlorine Pesticides in soil	Organochlorine Pesticides in soil							
Our Reference		173257-17	173257-18	173257-19	173257-22	173257-23		
Your Reference	UNITS	17	18	19	22	23		
Depth		0.0-0.15	0.0-0.2	0.0-0.15	0.0-0.2	0.0-0.4		
Date Sampled		07/08/2017	07/08/2017	07/08/2017	07/08/2017	07/08/2017		
Type of sample		Soil	Soil	Soil	Soil	Soil		
Date extracted	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017		
Date analysed	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017		
нсв	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Heptachlor	mg/kg	0.5	<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	1.2	<0.1	<0.1	<0.1	<0.1		
Heptachlor Epoxide	mg/kg	1.1	<0.1	<0.1	<0.1	<0.1		
gamma-Chlordane	mg/kg	2.6	<0.1	<0.1	<0.1	<0.1		
alpha-chlordane	mg/kg	0.4	<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	25	<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	<0.3	<0.1	<0.1	<0.1	<0.1		
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Surrogate TCMX	%	126	94	93	91	91		

Organochlorine Pesticides in soil								
Our Reference		173257-24	173257-25	173257-26	173257-28	173257-29		
Your Reference	UNITS	24	25	26	28	29		
Depth		0.0-0.4	0.0-0.6	0.0-0.4	0.0-0.4	0.0-0.2		
Date Sampled		04/08/2017	04/08/2017	04/08/2017	04/08/2017	04/08/2017		
Type of sample		Soil	Soil	Soil	Soil	Soil		
Date extracted	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017		
Date analysed	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017		
нсв	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Surrogate TCMX	%	89	91	91	92	94		

Organochlorine Pesticides in soil	Organochlorine Pesticides in soil							
Our Reference		173257-30	173257-31	173257-32	173257-33	173257-34		
Your Reference	UNITS	30	31	32	33	34		
Depth		0.0-0.3	0.0-0.2	0.0-0.2	0.0-0.1	0.1-0.3		
Date Sampled		04/08/2017	04/08/2017	04/08/2017	04/08/2017	04/08/2017		
Type of sample		Soil	Soil	Soil	Soil	Soil		
Date extracted	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017		
Date analysed	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017		
НСВ	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Surrogate TCMX	%	93	91	91	92	93		

Organochlorine Pesticides in soil									
Our Reference		173257-35	173257-37	173257-38	173257-40				
Your Reference	UNITS	35	37	38	40				
Depth		0.0-0.5	0.0-0.5	0.0-0.15	0.0-0.2				
Date Sampled		04/08/2017	04/08/2017	04/08/2017	08/08/2017				
Type of sample		Soil	Soil	Soil	Soil				
Date extracted	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017				
Date analysed	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017				
НСВ	mg/kg	<0.1	<0.1	<0.1	<0.1				
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1				
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1				
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1				
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1				
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1				
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1				
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1				
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1				
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1				
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1				
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1				
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1				
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1				
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1				
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1				
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1				
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1				
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1				
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1				
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1				
Surrogate TCMX	%	93	95	93	89				

Organophosphorus Pesticides								
Our Reference		173257-1	173257-3	173257-4	173257-5	173257-6		
Your Reference	UNITS	1	3	4	5	6		
Depth		0.0-0.2	0.0-0.3	0.0-0.2	0.0-0.4	0.0-0.2		
Date Sampled		07/08/2017	07/08/2017	07/08/2017	07/08/2017	08/08/2017		
Type of sample		Soil	Soil	Soil	Soil	Soil		
Date extracted	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017		
Date analysed	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017		
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1		
Surrogate TCMX	%	94	96	91	93	93		

Organophosphorus Pesticides						
Our Reference		173257-7	173257-8	173257-9	173257-10	173257-11
Your Reference	UNITS	7	8	9	10	11
Depth		0.0-0.3	0.0-0.5	0.0-0.2	0.0-0.3	0.0-0.5
Date Sampled		07/08/2017	07/08/2017	07/08/2017	07/08/2017	07/08/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017
Date analysed	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	101	95	95	94	91
Organophosphorus Pesticides						
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Our Reference		173257-12	173257-13	173257-14	173257-15	173257-16
Your Reference	UNITS	12	13	14	15	16
Depth		0.0-0.2	0.0-0.3	0.0-0.05	0.0-0.1	0.0-0.08
Date Sampled		07/08/2017	07/08/2017	07/08/2017	04/08/2017	04/08/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017
Date analysed	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<1.0	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<1.0	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<1.0	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<1.0	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<1.0	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<1.0	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<1.0	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<1.0	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<1.0	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<1.0	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<1.0	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<1.0	<0.1	<0.1
Surrogate TCMX	%	93	95	69	94	96

Organophosphorus Pesticides						
Our Reference		173257-17	173257-18	173257-19	173257-22	173257-23
Your Reference	UNITS	17	18	19	22	23
Depth		0.0-0.15	0.0-0.2	0.0-0.15	0.0-0.2	0.0-0.4
Date Sampled		07/08/2017	07/08/2017	07/08/2017	07/08/2017	07/08/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017
Date analysed	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	0.2	<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	%	126	94	93	91	91

Organophosphorus Pesticides						
Our Reference		173257-24	173257-25	173257-26	173257-28	173257-29
Your Reference	UNITS	24	25	26	28	29
Depth		0.0-0.4	0.0-0.6	0.0-0.4	0.0-0.4	0.0-0.2
Date Sampled		04/08/2017	04/08/2017	04/08/2017	04/08/2017	04/08/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017
Date analysed	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	89	91	91	92	94

Organophosphorus Pesticides						
Our Reference		173257-30	173257-31	173257-32	173257-33	173257-34
Your Reference	UNITS	30	31	32	33	34
Depth		0.0-0.3	0.0-0.2	0.0-0.2	0.0-0.1	0.1-0.3
Date Sampled		04/08/2017	04/08/2017	04/08/2017	04/08/2017	04/08/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017
Date analysed	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	93	91	91	92	93

Organophosphorus Pesticides					
Our Reference		173257-35	173257-37	173257-38	173257-40
Your Reference	UNITS	35	37	38	40
Depth		0.0-0.5	0.0-0.5	0.0-0.15	0.0-0.2
Date Sampled		04/08/2017	04/08/2017	04/08/2017	08/08/2017
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017
Date analysed	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	93	95	93	89

PCBs in Soil						
Our Reference		173257-3	173257-14	173257-15	173257-16	173257-17
Your Reference	UNITS	3	14	15	16	17
Depth		0.0-0.3	0.0-0.05	0.0-0.1	0.0-0.08	0.0-0.15
Date Sampled		07/08/2017	07/08/2017	04/08/2017	04/08/2017	07/08/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017
Date analysed	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017
Aroclor 1016	mg/kg	<0.1	<1	<0.1	<0.1	<1
Aroclor 1221	mg/kg	<0.1	<1	<0.1	<0.1	<1
Aroclor 1232	mg/kg	<0.1	<1	<0.1	<0.1	<1
Aroclor 1242	mg/kg	<0.1	<1	<0.1	<0.1	<1
Aroclor 1248	mg/kg	<0.1	<1	<0.1	<0.1	<1
Aroclor 1254	mg/kg	<0.1	<1	<0.1	<0.1	<1
Aroclor 1260	mg/kg	<0.1	<1	<0.1	<0.1	<1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<1	<0.1	<0.1	<1
Surrogate TCLMX	%	96	69	94	96	126

PCBS IN SOIL			
Our Reference		173257-18	173257-19
Your Reference	UNITS	18	19
Depth		0.0-0.2	0.0-0.15
Date Sampled		07/08/2017	07/08/2017
Type of sample		Soil	Soil
Date extracted	-	15/08/2017	15/08/2017
Date analysed	-	15/08/2017	15/08/2017
Aroclor 1016	mg/kg	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1
Surrogate TCLMX	%	94	93

Acid Extractable metals in soil						
Our Reference		173257-1	173257-2	173257-3	173257-4	173257-5
Your Reference	UNITS	1	2	3	4	5
Depth		0.0-0.2	0.0-0.2	0.0-0.3	0.0-0.2	0.0-0.4
Date Sampled		07/08/2017	07/08/2017	07/08/2017	07/08/2017	07/08/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017
Date analysed	-	16/08/2017	16/08/2017	16/08/2017	16/08/2017	16/08/2017
Arsenic	mg/kg	8	9	8	7	5
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	14	16	15	16	13
Lead	mg/kg	23	25	21	20	17
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	12	13	16	11	19
Zinc	mg/kg	53	49	53	33	39
Copper	mg/kg	24	22	26	17	21
Manganese	mg/kg	780	[NA]	[NA]	2,000	1,200

Acid Extractable metals in soli						
Our Reference		173257-6	173257-7	173257-8	173257-9	173257-10
Your Reference	UNITS	6	7	8	9	10
Depth		0.0-0.2	0.0-0.3	0.0-0.5	0.0-0.2	0.0-0.3
Date Sampled		08/08/2017	07/08/2017	07/08/2017	07/08/2017	07/08/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017
Date analysed	-	16/08/2017	16/08/2017	16/08/2017	16/08/2017	16/08/2017
Arsenic	mg/kg	9	7	6	9	10
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	13	13	11	13	11
Lead	mg/kg	20	24	18	24	21
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	8	9	13	15	32
Zinc	mg/kg	25	33	54	53	67
Copper	mg/kg	12	15	34	24	27
Manganese	mg/kg	1,300	1,400	650	1,900	3,100

Acid Extractable metals in soil						
Our Reference		173257-11	173257-12	173257-13	173257-14	173257-15
Your Reference	UNITS	11	12	13	14	15
Depth		0.0-0.5	0.0-0.2	0.0-0.3	0.0-0.05	0.0-0.1
Date Sampled		07/08/2017	07/08/2017	07/08/2017	07/08/2017	04/08/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017
Date analysed	-	16/08/2017	16/08/2017	16/08/2017	16/08/2017	16/08/2017
Arsenic	mg/kg	8	6	11	<4	9
Cadmium	mg/kg	<0.4	<0.4	<0.4	0.6	<0.4
Chromium	mg/kg	12	7	12	11	15
Lead	mg/kg	30	15	22	20	27
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	11	8	18	7	16
Zinc	mg/kg	47	33	64	160	42
Copper	mg/kg	23	18	27	14	24
Manganese	mg/kg	1,500	700	3,200	[NA]	[NA]

Acid Extractable metals in soil						
Our Reference		173257-16	173257-17	173257-18	173257-19	173257-20
Your Reference	UNITS	16	17	18	19	20
Depth		0.0-0.08	0.0-0.15	0.0-0.2	0.0-0.15	0.0-0.1
Date Sampled		04/08/2017	07/08/2017	07/08/2017	07/08/2017	07/08/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017
Date analysed	-	16/08/2017	16/08/2017	16/08/2017	16/08/2017	16/08/2017
Arsenic	mg/kg	4	9	9	10	8
Cadmium	mg/kg	<0.4	2	<0.4	<0.4	<0.4
Chromium	mg/kg	4	91	9	12	18
Lead	mg/kg	11	790	70	51	19
Mercury	mg/kg	<0.1	0.4	0.3	2.6	<0.1
Nickel	mg/kg	16	17	10	14	8
Zinc	mg/kg	42	1,700	160	100	19
Copper	mg/kg	18	97	84	30	12

Acid Extractable metals in soil	Acid Extractable metals in soil								
Our Reference		173257-21	173257-22	173257-23	173257-24	173257-25			
Your Reference	UNITS	21	22	23	24	25			
Depth		0.0-0.1	0.0-0.2	0.0-0.4	0.0-0.4	0.0-0.6			
Date Sampled		04/08/2017	07/08/2017	07/08/2017	04/08/2017	04/08/2017			
Type of sample		Soil	Soil	Soil	Soil	Soil			
Date prepared	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017			
Date analysed	-	16/08/2017	16/08/2017	16/08/2017	16/08/2017	16/08/2017			
Arsenic	mg/kg	4	12	13	12	10			
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4			
Chromium	mg/kg	23	13	16	15	10			
Lead	mg/kg	18	22	25	23	19			
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1			
Nickel	mg/kg	14	15	13	9	10			
Zinc	mg/kg	89	55	45	45	36			
Copper	mg/kg	28	23	19	14	17			
Manganese	mg/kg	[NA]	2,000	1,900	1,800	1,100			

Acid Extractable metals in soil						
Our Reference		173257-26	173257-27	173257-28	173257-29	173257-30
Your Reference	UNITS	26	27	28	29	30
Depth		0.0-0.4	0.0-0.3	0.0-0.4	0.0-0.2	0.0-0.3
Date Sampled		04/08/2017	04/08/2017	04/08/2017	04/08/2017	04/08/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017
Date analysed	-	16/08/2017	16/08/2017	16/08/2017	16/08/2017	16/08/2017
Arsenic	mg/kg	8	9	8	5	8
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	15	14	10	10	13
Lead	mg/kg	26	20	17	17	19
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	12	9	6	11	10
Zinc	mg/kg	42	44	21	35	46
Copper	mg/kg	17	19	11	20	11
Manganese	mg/kg	1,300	[NA]	940	1,100	940

Acid Extractable metals in soil						
Our Reference		173257-31	173257-32	173257-33	173257-34	173257-35
Your Reference	UNITS	31	32	33	34	35
Depth		0.0-0.2	0.0-0.2	0.0-0.1	0.1-0.3	0.0-0.5
Date Sampled		04/08/2017	04/08/2017	04/08/2017	04/08/2017	04/08/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017
Date analysed	-	16/08/2017	16/08/2017	16/08/2017	16/08/2017	16/08/2017
Arsenic	mg/kg	9	9	9	7	10
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	10	17	13	14	11
Lead	mg/kg	14	22	18	19	30
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	17	26	19	30	13
Zinc	mg/kg	48	79	64	72	88
Copper	mg/kg	25	36	33	33	27
Manganese	mg/kg	1,200	3,000	1,100	3,700	1,000

Acid Extractable metals in soil						
Our Reference		173257-36	173257-37	173257-38	173257-39	173257-40
Your Reference	UNITS	36	37	38	39	40
Depth		0.0-0.4	0.0-0.5	0.0-0.15	0.0-0.15	0.0-0.2
Date Sampled		07/08/2017	04/08/2017	04/08/2017	08/08/2017	08/08/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017
Date analysed	-	16/08/2017	16/08/2017	16/08/2017	16/08/2017	16/08/2017
Arsenic	mg/kg	8	7	7	5	8
Cadmium	mg/kg	<0.4	<0.4	<0.4	1	<0.4
Chromium	mg/kg	16	11	18	17	10
Lead	mg/kg	20	18	21	390	15
Mercury	mg/kg	<0.1	<0.1	<0.1	3.7	<0.1
Nickel	mg/kg	7	19	19	16	16
Zinc	mg/kg	21	46	38	750	46
Copper	mg/kg	16	22	19	100	22
Manganese	mg/kg	[NA]	2,500	2,200	[NA]	290

Acid Extractable metals in soil		
Our Reference		173257-41
Your Reference	UNITS	41
Depth		0.0-0.15
Date Sampled		08/08/2017
Type of sample		Soil
Date prepared	-	15/08/2017
Date analysed	-	16/08/2017
Arsenic	mg/kg	7
Cadmium	mg/kg	2
Chromium	mg/kg	19
Lead	mg/kg	170
Mercury	mg/kg	<0.1
Nickel	mg/kg	21
Zinc	mg/kg	1,300
Copper	mg/kg	94

Misc Soil - Inorg						
Our Reference		173257-1	173257-4	173257-5	173257-6	173257-7
Your Reference	UNITS	1	4	5	6	7
Depth		0.0-0.2	0.0-0.2	0.0-0.4	0.0-0.2	0.0-0.3
Date Sampled		07/08/2017	07/08/2017	07/08/2017	08/08/2017	07/08/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	18/08/2017	18/08/2017	18/08/2017	18/08/2017	18/08/2017
Date analysed	-	18/08/2017	18/08/2017	18/08/2017	18/08/2017	18/08/2017
Hexavalent Chromium, Cr ⁶⁺	mg/kg	<1	<1	<1	<1	<1
Misc Soil - Inorg						
Our Reference		173257-8	173257-9	173257-10	173257-11	173257-12
Your Reference	UNITS	8	9	10	11	12
Depth		0.0-0.5	0.0-0.2	0.0-0.3	0.0-0.5	0.0-0.2
Date Sampled		07/08/2017	07/08/2017	07/08/2017	07/08/2017	07/08/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	18/08/2017	18/08/2017	18/08/2017	18/08/2017	18/08/2017
Date analysed	-	18/08/2017	18/08/2017	18/08/2017	18/08/2017	18/08/2017
Hexavalent Chromium, Cr ⁶⁺	mg/kg	<1	<1	<1	<1	<1
Misc Soil - Inorg						
		173257-13	173257-22	173257-23	173257-24	173257-25
Our Reference		175257-15				
Our Reference Your Reference	UNITS	13	22	23	24	25
Our Reference Your Reference Depth	UNITS	13 0.0-0.3	22 0.0-0.2	23 0.0-0.4	24 0.0-0.4	25 0.0-0.6
Our Reference Your Reference Depth Date Sampled	UNITS	13 0.0-0.3 07/08/2017	22 0.0-0.2 07/08/2017	23 0.0-0.4 07/08/2017	24 0.0-0.4 04/08/2017	25 0.0-0.6 04/08/2017
Our Reference Your Reference Depth Date Sampled Type of sample	UNITS	13 0.0-0.3 07/08/2017 Soil	22 0.0-0.2 07/08/2017 Soil	23 0.0-0.4 07/08/2017 Soil	24 0.0-0.4 04/08/2017 Soil	25 0.0-0.6 04/08/2017 Soil
Our Reference Your Reference Depth Date Sampled Type of sample Date prepared	UNITS	13 0.0-0.3 07/08/2017 Soil 18/08/2017	22 0.0-0.2 07/08/2017 Soil 18/08/2017	23 0.0-0.4 07/08/2017 Soil 18/08/2017	24 0.0-0.4 04/08/2017 Soil 18/08/2017	25 0.0-0.6 04/08/2017 Soil 18/08/2017
Our Reference Your Reference Depth Date Sampled Type of sample Date prepared Date analysed	UNITS - -	13 0.0-0.3 07/08/2017 Soil 18/08/2017 18/08/2017	22 0.0-0.2 07/08/2017 Soil 18/08/2017 18/08/2017	23 0.0-0.4 07/08/2017 Soil 18/08/2017 18/08/2017	24 0.0-0.4 04/08/2017 Soil 18/08/2017 18/08/2017	25 0.0-0.6 04/08/2017 Soil 18/08/2017 18/08/2017
Our Reference Your Reference Depth Date Sampled Type of sample Date prepared Date analysed Hexavalent Chromium, Cr ⁶⁺	UNITS - - mg/kg	13 0.0-0.3 07/08/2017 Soil 18/08/2017 18/08/2017 <1	22 0.0-0.2 07/08/2017 Soil 18/08/2017 18/08/2017 <1	23 0.0-0.4 07/08/2017 Soil 18/08/2017 18/08/2017 <1	24 0.0-0.4 04/08/2017 Soil 18/08/2017 18/08/2017 <1	25 0.0-0.6 04/08/2017 Soil 18/08/2017 18/08/2017 <1
Our Reference Your Reference Depth Date Sampled Type of sample Date prepared Date analysed Hexavalent Chromium, Cr ⁶⁺	UNITS - - mg/kg	13 0.0-0.3 07/08/2017 Soil 18/08/2017 18/08/2017 <1	22 0.0-0.2 07/08/2017 Soil 18/08/2017 18/08/2017 <1	23 0.0-0.4 07/08/2017 Soil 18/08/2017 18/08/2017 <1	24 0.0-0.4 04/08/2017 Soil 18/08/2017 18/08/2017 <1	25 0.0-0.6 04/08/2017 Soil 18/08/2017 18/08/2017 <1
Our Reference Your Reference Depth Date Sampled Type of sample Date prepared Date analysed Hexavalent Chromium, Cr ⁶⁺ Misc Soil - Inorg Our Reference	UNITS - - mg/kg	13 0.0-0.3 07/08/2017 Soil 18/08/2017 18/08/2017 <1	22 0.0-0.2 07/08/2017 Soil 18/08/2017 18/08/2017 <1	23 0.0-0.4 07/08/2017 Soil 18/08/2017 18/08/2017 <1	24 0.0-0.4 04/08/2017 Soil 18/08/2017 18/08/2017 <1	25 0.0-0.6 04/08/2017 Soil 18/08/2017 18/08/2017 <1
Our Reference Your Reference Depth Date Sampled Type of sample Date prepared Date analysed Hexavalent Chromium, Cr ⁶⁺ Misc Soil - Inorg Our Reference Your Reference	UNITS - mg/kg UNITS	13 13 0.0-0.3 07/08/2017 Soil 18/08/2017 18/08/2017 <1 173257-26 26	22 0.0-0.2 07/08/2017 Soil 18/08/2017 18/08/2017 <1 173257-28 28	23 0.0-0.4 07/08/2017 Soil 18/08/2017 18/08/2017 <1 18/08/2017 <1 29	24 0.0-0.4 04/08/2017 Soil 18/08/2017 18/08/2017 <1 173257-30 30	25 0.0-0.6 04/08/2017 Soil 18/08/2017 18/08/2017 <1 173257-31 31
Our Reference Your Reference Depth Date Sampled Type of sample Date prepared Date analysed Hexavalent Chromium, Cr ⁶⁺ Misc Soil - Inorg Our Reference Your Reference Depth	UNITS - mg/kg UNITS	1/3257-13 13 0.0-0.3 07/08/2017 Soil 18/08/2017 18/08/2017 <1 173257-26 26 0.0-0.4	22 0.0-0.2 07/08/2017 Soil 18/08/2017 18/08/2017 <1 173257-28 28 0.0-0.4	23 0.0-0.4 07/08/2017 Soil 18/08/2017 18/08/2017 <1 173257-29 29 0.0-0.2	24 0.0-0.4 04/08/2017 Soil 18/08/2017 18/08/2017 <1 173257-30 30 0.0-0.3	25 0.0-0.6 04/08/2017 Soil 18/08/2017 18/08/2017 <1 173257-31 31 0.0-0.2
Our Reference Your Reference Depth Date Sampled Type of sample Date prepared Date analysed Hexavalent Chromium, Cr ⁶⁺ Misc Soil - Inorg Our Reference Your Reference Depth Date Sampled	UNITS - mg/kg UNITS	13 13 0.0-0.3 07/08/2017 Soil 18/08/2017 18/08/2017 <1 173257-26 26 0.0-0.4 04/08/2017	22 0.0-0.2 07/08/2017 Soil 18/08/2017 18/08/2017 <1 173257-28 28 0.0-0.4 04/08/2017	23 0.0-0.4 07/08/2017 Soil 18/08/2017 18/08/2017 <1 173257-29 29 0.0-0.2 04/08/2017	24 0.0-0.4 04/08/2017 Soil 18/08/2017 18/08/2017 <1 173257-30 30 0.0-0.3 04/08/2017	25 0.0-0.6 04/08/2017 Soil 18/08/2017 18/08/2017 <1 173257-31 31 0.0-0.2 04/08/2017
Our Reference Your Reference Depth Date Sampled Type of sample Date prepared Date analysed Hexavalent Chromium, Cr ⁶⁺ Misc Soil - Inorg Our Reference Your Reference Depth Date Sampled Type of sample	UNITS - mg/kg UNITS	13 13 0.0-0.3 07/08/2017 Soil 18/08/2017 18/08/2017 <1 173257-26 26 0.0-0.4 04/08/2017 Soil	22 0.0-0.2 07/08/2017 Soil 18/08/2017 18/08/2017 <1 173257-28 28 0.0-0.4 04/08/2017 Soil	23 0.0-0.4 07/08/2017 Soil 18/08/2017 18/08/2017 <1 18/08/2017 29 0.0-0.2 04/08/2017 Soil	24 0.0-0.4 04/08/2017 Soil 18/08/2017 18/08/2017 <173257-30 30 0.0-0.3 04/08/2017 Soil	25 0.0-0.6 04/08/2017 Soil 18/08/2017 18/08/2017 <1 173257-31 31 0.0-0.2 04/08/2017 Soil
Our Reference Your Reference Depth Date Sampled Type of sample Date prepared Date analysed Hexavalent Chromium, Cr ⁶⁺ Misc Soil - Inorg Our Reference Your Reference Depth Date Sampled Type of sample Date Sampled Type of sample Date prepared	UNITS mg/kg UNITS	1/32/37-13 13 0.0-0.3 07/08/2017 Soil 18/08/2017 <1 173257-26 26 0.0-0.4 04/08/2017 Soil 18/08/2017	22 0.0-0.2 07/08/2017 Soil 18/08/2017 18/08/2017 <1 173257-28 28 0.0-0.4 04/08/2017 Soil 18/08/2017	23 0.0-0.4 07/08/2017 Soil 18/08/2017 <1 18/08/2017 <1 173257-29 29 0.0-0.2 04/08/2017 Soil 18/08/2017	24 0.0-0.4 04/08/2017 Soil 18/08/2017 18/08/2017 <1 173257-30 30 0.0-0.3 04/08/2017 Soil 18/08/2017	25 0.0-0.6 04/08/2017 Soil 18/08/2017 18/08/2017 <1 173257-31 31 0.0-0.2 04/08/2017 Soil 18/08/2017
Our Reference Your Reference Depth Date Sampled Type of sample Date prepared Date analysed Hexavalent Chromium, Cr ⁶⁺ Misc Soil - Inorg Our Reference Your Reference Depth Date Sampled Type of sample Date Sampled Type of sample Date prepared Date analysed	UNITS mg/kg UNITS	13 13 0.0-0.3 07/08/2017 Soil 18/08/2017 18/08/2017 <1 173257-26 26 0.0-0.4 04/08/2017 Soil 18/08/2017 18/08/2017 18/08/2017	22 0.0-0.2 07/08/2017 Soil 18/08/2017 18/08/2017 <1 173257-28 28 0.0-0.4 04/08/2017 Soil 18/08/2017 18/08/2017	23 0.0-0.4 07/08/2017 Soil 18/08/2017 18/08/2017 <1 173257-29 29 0.0-0.2 04/08/2017 Soil 18/08/2017 18/08/2017	24 0.0-0.4 04/08/2017 Soil 18/08/2017 18/08/2017 30 0.0-0.3 04/08/2017 Soil 18/08/2017 18/08/2017	25 0.0-0.6 04/08/2017 Soil 18/08/2017 18/08/2017 <1 173257-31 31 0.0-0.2 04/08/2017 Soil 18/08/2017 18/08/2017

Misc Soil - Inorg						
Our Reference		173257-32	173257-33	173257-34	173257-35	173257-37
Your Reference	UNITS	32	33	34	35	37
Depth		0.0-0.2	0.0-0.1	0.1-0.3	0.0-0.5	0.0-0.5
Date Sampled		04/08/2017	04/08/2017	04/08/2017	04/08/2017	04/08/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	18/08/2017	18/08/2017	18/08/2017	18/08/2017	18/08/2017
Date analysed	-	18/08/2017	18/08/2017	18/08/2017	18/08/2017	18/08/2017
Hexavalent Chromium, Cr ⁶⁺	mg/kg	<1	<1	<1	<1	<1

Misc Soil - Inorg			
Our Reference		173257-38	173257-40
Your Reference	UNITS	38	40
Depth		0.0-0.15	0.0-0.2
Date Sampled		04/08/2017	08/08/2017
Type of sample		Soil	Soil
Date prepared	-	18/08/2017	18/08/2017
Date analysed	-	18/08/2017	18/08/2017
Hexavalent Chromium, Cr ⁶⁺	mg/kg	<1	<1

Moisture						
Our Reference		173257-1	173257-2	173257-3	173257-4	173257-5
Your Reference	UNITS	1	2	3	4	5
Depth		0.0-0.2	0.0-0.2	0.0-0.3	0.0-0.2	0.0-0.4
Date Sampled		07/08/2017	07/08/2017	07/08/2017	07/08/2017	07/08/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017
Date analysed	-	16/08/2017	16/08/2017	16/08/2017	16/08/2017	16/08/2017
Moisture	%	19	21	19	13	19
Moisture						
Our Reference		173257-6	173257-7	173257-8	173257-9	173257-10
Your Reference	UNITS	6	7	8	9	10
Depth		0.0-0.2	0.0-0.3	0.0-0.5	0.0-0.2	0.0-0.3
Date Sampled		08/08/2017	07/08/2017	07/08/2017	07/08/2017	07/08/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017
Date analysed	-	16/08/2017	16/08/2017	16/08/2017	16/08/2017	16/08/2017
Moisture	%	17	19	13	15	15
Moisture						
		173257-11	173257-12	173257-13	173257-14	173257-15
Our Reference		175257-11				
Our Reference Your Reference	UNITS	11	12	13	14	15
Our Reference Your Reference Depth	UNITS	11 0.0-0.5	12 0.0-0.2	13 0.0-0.3	14 0.0-0.05	15 0.0-0.1
Our Reference Your Reference Depth Date Sampled	UNITS	11 0.0-0.5 07/08/2017	12 0.0-0.2 07/08/2017	13 0.0-0.3 07/08/2017	14 0.0-0.05 07/08/2017	15 0.0-0.1 04/08/2017
Our Reference Your Reference Depth Date Sampled Type of sample	UNITS	11 0.0-0.5 07/08/2017 Soil	12 0.0-0.2 07/08/2017 Soil	13 0.0-0.3 07/08/2017 Soil	14 0.0-0.05 07/08/2017 Soil	15 0.0-0.1 04/08/2017 Soil
Our Reference Your Reference Depth Date Sampled Type of sample Date prepared	UNITS -	11 0.0-0.5 07/08/2017 Soil 15/08/2017	12 0.0-0.2 07/08/2017 Soil 15/08/2017	13 0.0-0.3 07/08/2017 Soil 15/08/2017	14 0.0-0.05 07/08/2017 Soil 15/08/2017	15 0.0-0.1 04/08/2017 Soil 15/08/2017
Our Reference Your Reference Depth Date Sampled Type of sample Date prepared Date analysed	UNITS - -	11 0.0-0.5 07/08/2017 Soil 15/08/2017 16/08/2017	12 0.0-0.2 07/08/2017 Soil 15/08/2017 16/08/2017	13 0.0-0.3 07/08/2017 Soil 15/08/2017 16/08/2017	14 0.0-0.05 07/08/2017 Soil 15/08/2017 16/08/2017	15 0.0-0.1 04/08/2017 Soil 15/08/2017 16/08/2017
Our Reference Your Reference Depth Date Sampled Type of sample Date prepared Date analysed Moisture	UNITS - - %	11 0.0-0.5 07/08/2017 Soil 15/08/2017 16/08/2017 16	12 0.0-0.2 07/08/2017 Soil 15/08/2017 16/08/2017 20	13 0.0-0.3 07/08/2017 Soil 15/08/2017 16/08/2017 15	14 0.0-0.05 07/08/2017 Soil 15/08/2017 16/08/2017 7.3	15 0.0-0.1 04/08/2017 Soil 15/08/2017 16/08/2017 9.3
Our Reference Your Reference Depth Date Sampled Type of sample Date prepared Date analysed Moisture	UNITS - - %	11 11 0.0-0.5 07/08/2017 Soil 15/08/2017 16/08/2017 16	12 0.0-0.2 07/08/2017 Soil 15/08/2017 16/08/2017 20	13 0.0-0.3 07/08/2017 Soil 15/08/2017 16/08/2017 15	14 0.0-0.05 07/08/2017 Soil 15/08/2017 16/08/2017 7.3	15 0.0-0.1 04/08/2017 Soil 15/08/2017 16/08/2017 9.3
Our Reference Your Reference Depth Date Sampled Type of sample Date prepared Date analysed Moisture Our Reference	UNITS - %	11 11 0.0-0.5 07/08/2017 Soil 15/08/2017 16/08/2017 16 173257-16	12 0.0-0.2 07/08/2017 Soil 15/08/2017 16/08/2017 20	13 0.0-0.3 07/08/2017 Soil 15/08/2017 16/08/2017 15	14 0.0-0.05 07/08/2017 Soil 15/08/2017 16/08/2017 7.3	15 0.0-0.1 04/08/2017 Soil 15/08/2017 16/08/2017 9.3
Our Reference Your Reference Depth Date Sampled Type of sample Date prepared Date analysed Moisture Our Reference Your Reference	UNITS - % UNITS	11 11 0.0-0.5 07/08/2017 Soil 15/08/2017 16/08/2017 16 173257-16 16	12 0.0-0.2 07/08/2017 Soil 15/08/2017 16/08/2017 20 173257-17 17	13 0.0-0.3 07/08/2017 Soil 15/08/2017 16/08/2017 15 173257-18 18	14 0.0-0.05 07/08/2017 Soil 15/08/2017 16/08/2017 7.3 173257-19 19	15 0.0-0.1 04/08/2017 Soil 15/08/2017 16/08/2017 9.3 173257-20 20
Our Reference Your Reference Depth Date Sampled Type of sample Date prepared Date analysed Moisture Our Reference Your Reference Depth	UNITS - % UNITS	11 11 0.0-0.5 07/08/2017 Soil 15/08/2017 16/08/2017 16 173257-16 16 0.0-0.08	12 0.0-0.2 07/08/2017 Soil 15/08/2017 16/08/2017 20 173257-17 17 0.0-0.15	13 0.0-0.3 07/08/2017 Soil 15/08/2017 16/08/2017 15 173257-18 18 0.0-0.2	14 0.0-0.05 07/08/2017 Soil 15/08/2017 16/08/2017 7.3 173257-19 19 0.0-0.15	15 0.0-0.1 04/08/2017 Soil 15/08/2017 16/08/2017 9.3 173257-20 20 0.0-0.1
Our Reference Your Reference Depth Date Sampled Type of sample Date prepared Date analysed Moisture Moisture Our Reference Your Reference Depth Date Sampled	UNITS - % UNITS	11 11 0.0-0.5 07/08/2017 Soil 15/08/2017 16/08/2017 16 173257-16 16 0.0-0.08 04/08/2017	12 0.0-0.2 07/08/2017 Soil 15/08/2017 16/08/2017 20 173257-17 17 0.0-0.15 07/08/2017	13 0.0-0.3 07/08/2017 Soil 15/08/2017 16/08/2017 15 173257-18 18 0.0-0.2 07/08/2017	14 0.0-0.05 07/08/2017 Soil 15/08/2017 16/08/2017 7.3 173257-19 19 0.0-0.15 07/08/2017	15 0.0-0.1 04/08/2017 Soil 15/08/2017 16/08/2017 9.3 173257-20 20 0.0-0.1 07/08/2017
Our Reference Your Reference Depth Date Sampled Type of sample Date prepared Date analysed Moisture Moisture Our Reference Your Reference Depth Date Sampled Type of sample	UNITS - % UNITS	113237-11 11 0.0-0.5 07/08/2017 Soil 15/08/2017 16/08/2017 16 173257-16 16 0.0-0.08 04/08/2017 Soil	12 0.0-0.2 07/08/2017 Soil 15/08/2017 16/08/2017 20 173257-17 17 0.0-0.15 07/08/2017 Soil	13 0.0-0.3 07/08/2017 Soil 15/08/2017 16/08/2017 15 173257-18 18 0.0-0.2 07/08/2017 Soil	14 0.0-0.05 07/08/2017 Soil 15/08/2017 16/08/2017 7.3 173257-19 19 0.0-0.15 07/08/2017 Soil	15 0.0-0.1 04/08/2017 Soil 15/08/2017 16/08/2017 9.3 173257-20 20 0.0-0.1 07/08/2017 Soil
Our Reference Your Reference Depth Date Sampled Type of sample Date prepared Date analysed Moisture Moisture Our Reference Your Reference Your Reference Depth Date Sampled Type of sample Date prepared	UNITS - % UNITS	11 11 0.0-0.5 07/08/2017 Soil 15/08/2017 16/08/2017 16 173257-16 16 0.0-0.08 04/08/2017 Soil 15/08/2017	12 0.0-0.2 07/08/2017 Soil 15/08/2017 20 173257-17 17 0.0-0.15 07/08/2017 Soil 15/08/2017	13 0.0-0.3 07/08/2017 Soil 15/08/2017 16/08/2017 15 173257-18 18 0.0-0.2 07/08/2017 Soil 15/08/2017	14 0.0-0.05 07/08/2017 Soil 15/08/2017 16/08/2017 7.3 173257-19 19 0.0-0.15 07/08/2017 Soil 15/08/2017	15 0.0-0.1 04/08/2017 Soil 15/08/2017 9.3 16/08/2017 9.3 173257-20 20 0.0-0.1 07/08/2017 Soil 15/08/2017
Our Reference Your Reference Depth Date Sampled Type of sample Date prepared Date analysed Moisture Moisture Our Reference Your Reference Depth Date Sampled Type of sample Date prepared Date analysed	UNITS - % UNITS - UNITS	113237-11 11 0.0-0.5 07/08/2017 Soil 15/08/2017 16/08/2017 16 0.0-0.08 04/08/2017 Soil 15/08/2017 16/08/2017	12 0.0-0.2 07/08/2017 Soil 15/08/2017 16/08/2017 20 173257-17 17 0.0-0.15 07/08/2017 Soil 15/08/2017	13 0.0-0.3 07/08/2017 Soil 15/08/2017 16/08/2017 15 173257-18 18 0.0-0.2 07/08/2017 Soil 15/08/2017 16/08/2017	14 0.0-0.05 07/08/2017 Soil 15/08/2017 16/08/2017 7.3 173257-19 19 0.0-0.15 07/08/2017 Soil 15/08/2017 16/08/2017	15 0.0-0.1 04/08/2017 Soil 15/08/2017 16/08/2017 9.3 173257-20 20 0.0-0.1 07/08/2017 Soil 15/08/2017 16/08/2017

Moisture					_	
Our Reference		173257-21	173257-22	173257-23	173257-24	173257-25
Your Reference	UNITS	21	22	23	24	25
Depth		0.0-0.1	0.0-0.2	0.0-0.4	0.0-0.4	0.0-0.6
Date Sampled		04/08/2017	07/08/2017	07/08/2017	04/08/2017	04/08/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017
Date analysed	-	16/08/2017	16/08/2017	16/08/2017	16/08/2017	16/08/2017
Moisture	%	10	16	15	13	17
Moisture						
Our Reference		173257-26	173257-27	173257-28	173257-29	173257-30
Your Reference	UNITS	26	27	28	29	30
Depth		0.0-0.4	0.0-0.3	0.0-0.4	0.0-0.2	0.0-0.3
Date Sampled		04/08/2017	04/08/2017	04/08/2017	04/08/2017	04/08/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017
Date analysed	-	16/08/2017	16/08/2017	16/08/2017	16/08/2017	16/08/2017
Moisture	%	15	17	12	17	17
Moisture						
Moisture Our Reference		173257-31	173257-32	173257-33	173257-34	173257-35
Moisture Our Reference Your Reference	UNITS	173257-31 31	173257-32 32	173257-33 33	173257-34 34	173257-35 35
Moisture Our Reference Your Reference Depth	UNITS	173257-31 31 0.0-0.2	173257-32 32 0.0-0.2	173257-33 33 0.0-0.1	173257-34 34 0.1-0.3	173257-35 35 0.0-0.5
Moisture Our Reference Your Reference Depth Date Sampled	UNITS	173257-31 31 0.0-0.2 04/08/2017	173257-32 32 0.0-0.2 04/08/2017	173257-33 33 0.0-0.1 04/08/2017	173257-34 34 0.1-0.3 04/08/2017	173257-35 35 0.0-0.5 04/08/2017
Moisture Our Reference Your Reference Depth Date Sampled Type of sample	UNITS	173257-31 31 0.0-0.2 04/08/2017 Soil	173257-32 32 0.0-0.2 04/08/2017 Soil	173257-33 33 0.0-0.1 04/08/2017 Soil	173257-34 34 0.1-0.3 04/08/2017 Soil	173257-35 35 0.0-0.5 04/08/2017 Soil
Moisture Our Reference Your Reference Depth Date Sampled Type of sample Date prepared	UNITS -	173257-31 31 0.0-0.2 04/08/2017 Soil 15/08/2017	173257-32 32 0.0-0.2 04/08/2017 Soil 15/08/2017	173257-33 33 0.0-0.1 04/08/2017 Soil 15/08/2017	173257-34 34 0.1-0.3 04/08/2017 Soil 15/08/2017	173257-35 35 0.0-0.5 04/08/2017 Soil 15/08/2017
Moisture Our Reference Your Reference Depth Date Sampled Type of sample Date prepared Date analysed	UNITS - -	173257-31 31 0.0-0.2 04/08/2017 Soil 15/08/2017 16/08/2017	173257-32 32 0.0-0.2 04/08/2017 Soil 15/08/2017 16/08/2017	173257-33 33 0.0-0.1 04/08/2017 Soil 15/08/2017 16/08/2017	173257-34 34 0.1-0.3 04/08/2017 Soil 15/08/2017 16/08/2017	173257-35 35 0.0-0.5 04/08/2017 Soil 15/08/2017 16/08/2017
MoistureOur ReferenceYour ReferenceDepthDate SampledType of sampleDate preparedDate analysedMoisture	UNITS - %	173257-31 31 0.0-0.2 04/08/2017 Soil 15/08/2017 16/08/2017 13	173257-32 32 0.0-0.2 04/08/2017 Soil 15/08/2017 16/08/2017 22	173257-33 33 0.0-0.1 04/08/2017 Soil 15/08/2017 16/08/2017 23	173257-34 34 0.1-0.3 04/08/2017 Soil 15/08/2017 16/08/2017 25	173257-35 35 0.0-0.5 04/08/2017 Soil 15/08/2017 16/08/2017 21
Moisture Our Reference Your Reference Depth Date Sampled Type of sample Date prepared Date analysed Moisture	UNITS - %	173257-31 31 0.0-0.2 04/08/2017 Soil 15/08/2017 16/08/2017 13	173257-32 32 0.0-0.2 04/08/2017 Soil 15/08/2017 16/08/2017 22	173257-33 33 0.0-0.1 04/08/2017 Soil 15/08/2017 16/08/2017 23	173257-34 34 0.1-0.3 04/08/2017 Soil 15/08/2017 16/08/2017 25	173257-35 35 0.0-0.5 04/08/2017 Soil 15/08/2017 16/08/2017 21
Moisture Our Reference Your Reference Depth Date Sampled Type of sample Date prepared Date analysed Moisture Moisture	UNITS - - %	173257-31 31 0.0-0.2 04/08/2017 Soil 15/08/2017 16/08/2017 13 173257-36	173257-32 32 0.0-0.2 04/08/2017 Soil 15/08/2017 16/08/2017 22 173257-37	173257-33 33 0.0-0.1 04/08/2017 Soil 15/08/2017 16/08/2017 23	173257-34 34 0.1-0.3 04/08/2017 Soil 15/08/2017 16/08/2017 25	173257-35 35 0.0-0.5 04/08/2017 Soil 15/08/2017 16/08/2017 21
Moisture Our Reference Your Reference Depth Date Sampled Type of sample Date prepared Date analysed Moisture Moisture Our Reference Your Reference	UNITS - % UNITS	173257-31 31 0.0-0.2 04/08/2017 Soil 15/08/2017 16/08/2017 13 173257-36 36	173257-32 32 0.0-0.2 04/08/2017 Soil 15/08/2017 16/08/2017 22 173257-37 37	173257-33 33 0.0-0.1 04/08/2017 Soil 15/08/2017 16/08/2017 23 173257-38 38	173257-34 34 0.1-0.3 04/08/2017 Soil 15/08/2017 16/08/2017 25 173257-39 39	173257-35 35 0.0-0.5 04/08/2017 Soil 15/08/2017 16/08/2017 21 173257-40 40
Moisture Our Reference Your Reference Depth Date Sampled Type of sample Date prepared Date analysed Moisture Our Reference Your Reference Depth	UNITS - % UNITS	173257-31 31 0.0-0.2 04/08/2017 Soil 15/08/2017 16/08/2017 13 13 173257-36 36 0.0-0.4	173257-32 32 0.0-0.2 04/08/2017 Soil 15/08/2017 16/08/2017 22 173257-37 37 0.0-0.5	173257-33 33 0.0-0.1 04/08/2017 Soil 15/08/2017 16/08/2017 23 173257-38 38 0.0-0.15	173257-34 34 0.1-0.3 04/08/2017 Soil 15/08/2017 16/08/2017 25 173257-39 39 0.0-0.15	173257-35 35 0.0-0.5 04/08/2017 Soil 15/08/2017 16/08/2017 21 173257-40 40 0.0-0.2
Moisture Our Reference Your Reference Depth Date Sampled Type of sample Date prepared Date analysed Moisture Moisture Our Reference Your Reference Depth Date Sampled	UNITS - % UNITS	173257-31 31 0.0-0.2 04/08/2017 Soil 15/08/2017 16/08/2017 13 173257-36 36 0.0-0.4 07/08/2017	173257-32 32 0.0-0.2 04/08/2017 Soil 15/08/2017 16/08/2017 22 173257-37 37 0.0-0.5 04/08/2017	173257-33 33 0.0-0.1 04/08/2017 Soil 15/08/2017 16/08/2017 23 173257-38 38 0.0-0.15 04/08/2017	173257-34 34 0.1-0.3 04/08/2017 Soil 15/08/2017 16/08/2017 25 173257-39 39 0.0-0.15 08/08/2017	173257-35 35 0.0-0.5 04/08/2017 Soil 15/08/2017 16/08/2017 21 173257-40 40 0.0-0.2 08/08/2017
Moisture Our Reference Your Reference Depth Date Sampled Type of sample Date prepared Date analysed Moisture Moisture Our Reference Your Reference Depth Date Sampled Type of sample	UNITS - % UNITS	173257-31 31 0.0-0.2 04/08/2017 Soil 15/08/2017 16/08/2017 13 13 173257-36 36 0.0-0.4 07/08/2017 Soil	173257-32 32 0.0-0.2 04/08/2017 Soil 15/08/2017 16/08/2017 22 173257-37 37 0.0-0.5 04/08/2017 Soil	173257-33 33 0.0-0.1 04/08/2017 Soil 15/08/2017 16/08/2017 23 173257-38 38 0.0-0.15 04/08/2017 Soil	173257-34 34 0.1-0.3 04/08/2017 Soil 15/08/2017 16/08/2017 25 173257-39 39 0.0-0.15 08/08/2017 Soil	173257-35 35 0.0-0.5 04/08/2017 Soil 15/08/2017 16/08/2017 21 173257-40 40 0.0-0.2 08/08/2017 Soil
MoistureOur ReferenceYour ReferenceDepthDate SampledType of sampleDate preparedDate analysedMoistureVour ReferenceYour ReferenceDepthDate SampledType of sampleDepthDate SampledType of sampleDate prepared	UNITS - % UNITS	173257-31 31 0.0-0.2 04/08/2017 Soil 15/08/2017 16/08/2017 13 173257-36 36 0.0-0.4 07/08/2017 Soil 15/08/2017	173257-32 32 0.0-0.2 04/08/2017 Soil 15/08/2017 16/08/2017 22 173257-37 37 0.0-0.5 04/08/2017 Soil 15/08/2017	173257-33 33 0.0-0.1 04/08/2017 Soil 15/08/2017 16/08/2017 23 173257-38 38 0.0-0.15 04/08/2017 Soil 15/08/2017	173257-34 34 0.1-0.3 04/08/2017 Soil 15/08/2017 16/08/2017 25 173257-39 39 0.0-0.15 08/08/2017 Soil 15/08/2017	173257-35 35 0.0-0.5 04/08/2017 Soil 15/08/2017 16/08/2017 21 173257-40 40 0.0-0.2 08/08/2017 Soil 15/08/2017
MoistureOur ReferenceYour ReferenceDepthDate SampledType of sampleDate preparedDate analysedMoistureMoistureOur ReferenceYour ReferenceDepthDate SampledType of sampleDate SampledDate SampledDate analysedDate analysed	UNITS % UNITS	173257-31 31 0.0-0.2 04/08/2017 Soil 15/08/2017 16/08/2017 13 173257-36 36 0.0-0.4 07/08/2017 Soil 15/08/2017 16/08/2017	173257-32 32 0.0-0.2 04/08/2017 Soil 15/08/2017 16/08/2017 22 173257-37 37 0.0-0.5 04/08/2017 Soil 15/08/2017 16/08/2017	173257-33 33 0.0-0.1 04/08/2017 Soil 15/08/2017 16/08/2017 23 173257-38 38 0.0-0.15 04/08/2017 Soil 15/08/2017 16/08/2017	173257-34 34 0.1-0.3 04/08/2017 Soil 15/08/2017 16/08/2017 25 173257-39 39 0.0-0.15 08/08/2017 Soil 15/08/2017 16/08/2017	173257-35 35 0.0-0.5 04/08/2017 Soil 15/08/2017 16/08/2017 21 173257-40 40 0.0-0.2 08/08/2017 Soil 15/08/2017 16/08/2017

Moisture		
Our Reference		173257-41
Your Reference	UNITS	41
Depth		0.0-0.15
Date Sampled		08/08/2017
Type of sample		Soil
Date prepared	-	15/08/2017
Date analysed	-	16/08/2017
Moisture	%	19

Misc Soil - Inorg						
Our Reference		173257-3	173257-14	173257-15	173257-16	173257-1
Your Reference	UNITS	3	14	15	16	17
Depth		0.0-0.3	0.0-0.05	0.0-0.1	0.0-0.08	0.0-0.15
Date Sampled		07/08/2017	07/08/2017	04/08/2017	04/08/2017	07/08/201
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/201
Date analysed	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/201
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	8
Misc Soil - Inorg						
Our Reference		173257-18	173257-19	173257-20	173257-21	
Your Reference	UNITS	18	19	20	21	
Depth		0.0-0.2	0.0-0.15	0.0-0.1	0.0-0.1	
Date Sampled		07/08/2017	07/08/2017	07/08/2017	04/08/2017	
Type of sample		Soil	Soil	Soil	Soil	
Date prepared	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	
Date analysed	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	

Asbestos ID - soils						
Our Reference		173257-2	173257-3	173257-14	173257-15	173257-16
Your Reference	UNITS	2	3	14	15	16
Depth		0.0-0.2	0.0-0.3	0.0-0.05	0.0-0.1	0.0-0.08
Date Sampled		07/08/2017	07/08/2017	07/08/2017	04/08/2017	04/08/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	17/08/2017	17/08/2017	17/08/2017	17/08/2017	17/08/2017
Sample mass tested	g	Approx. 35g	Approx. 25g	Approx. 30g	Approx. 35g	Approx. 70g
Sample Description	-	Brown fine- grained soil & rocks	Brown fine- grained soil & rocks	Brown fine- grained soil & rocks	Brown fine- grained soil & rocks	Brown fine- grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres	No asbestos detected at reporting limit of 0.1g/kg Organic fibres	No asbestos detected at reporting limit of 0.1g/kg Organic fibres	No asbestos detected at reporting limit of 0.1g/kg Organic fibres	No asbestos detected at reporting limit of 0.1g/kg Organic fibres
		detected	detected	detected	detected	detected
Trace Analysis	-	No aspestos detected	No aspestos detected	No aspestos detected	No aspestos detected	No aspestos detected
Asbestos ID - soils						
Asbestos ID - soils Our Reference		173257-17	173257-18	173257-19	173257-27	173257-36
Asbestos ID - soils Our Reference Your Reference	UNITS	173257-17 17	173257-18 18	173257-19 19	173257-27 27	173257-36 36
Asbestos ID - soils Our Reference Your Reference Depth	UNITS	173257-17 17 0.0-0.15	173257-18 18 0.0-0.2	173257-19 19 0.0-0.15	173257-27 27 0.0-0.3	173257-36 36 0.0-0.4
Asbestos ID - soils Our Reference Your Reference Depth Date Sampled	UNITS	173257-17 17 0.0-0.15 07/08/2017	173257-18 18 0.0-0.2 07/08/2017	173257-19 19 0.0-0.15 07/08/2017	173257-27 27 0.0-0.3 04/08/2017	173257-36 36 0.0-0.4 07/08/2017
Asbestos ID - soils Our Reference Your Reference Depth Date Sampled Type of sample	UNITS	173257-17 17 0.0-0.15 07/08/2017 Soil	173257-18 18 0.0-0.2 07/08/2017 Soil	173257-19 19 0.0-0.15 07/08/2017 Soil	173257-27 27 0.0-0.3 04/08/2017 Soil	173257-36 36 0.0-0.4 07/08/2017 Soil
Asbestos ID - soils Our Reference Your Reference Depth Date Sampled Type of sample Date analysed	UNITS	173257-17 17 0.0-0.15 07/08/2017 Soil 17/08/2017	173257-18 18 0.0-0.2 07/08/2017 Soil 17/08/2017	173257-19 19 0.0-0.15 07/08/2017 Soil 17/08/2017	173257-27 27 0.0-0.3 04/08/2017 Soil 17/08/2017	173257-36 36 0.0-0.4 07/08/2017 Soil 17/08/2017
Asbestos ID - soils Our Reference Your Reference Depth Date Sampled Type of sample Date analysed Sample mass tested	UNITS - g	173257-17 17 0.0-0.15 07/08/2017 Soil 17/08/2017 Approx. 25g	173257-18 18 0.0-0.2 07/08/2017 Soil 17/08/2017 Approx. 25g	173257-19 19 0.0-0.15 07/08/2017 Soil 17/08/2017 Approx. 25g	173257-27 27 0.0-0.3 04/08/2017 Soil 17/08/2017 Approx. 45g	173257-36 36 0.0-0.4 07/08/2017 Soil 17/08/2017 Approx. 50g
Asbestos ID - soils Our Reference Your Reference Depth Date Sampled Type of sample Date analysed Sample mass tested Sample Description	UNITS - g -	173257-17 17 0.0-0.15 07/08/2017 Soil 17/08/2017 Approx. 25g Brown fine- grained soil & rocks	173257-18 18 0.0-0.2 07/08/2017 Soil 17/08/2017 Approx. 25g Brown fine- grained soil & rocks	173257-19 19 0.0-0.15 07/08/2017 Soil 17/08/2017 Approx. 25g Brown fine- grained soil & rocks	173257-27 27 0.0-0.3 04/08/2017 Soil 17/08/2017 Approx. 45g Brown fine- grained soil & rocks	173257-36 36 0.0-0.4 07/08/2017 Soil 17/08/2017 Approx. 50g Brown fine- grained soil & rocks
Asbestos ID - soils Our Reference Your Reference Depth Date Sampled Type of sample Date analysed Sample mass tested Sample Description Asbestos ID in soil	UNITS - g -	173257-17 17 0.0-0.15 07/08/2017 Soil 17/08/2017 Approx. 25g Brown fine- grained soil & rocks No asbestos detected at reporting limit of 0.1g/kg Organic fibres	173257-18 18 0.0-0.2 07/08/2017 Soil 17/08/2017 Approx. 25g Brown fine- grained soil & rocks No asbestos detected at reporting limit of 0.1g/kg	173257-19 19 0.0-0.15 07/08/2017 Soil 17/08/2017 Approx. 25g Brown fine- grained soil & rocks No asbestos detected at reporting limit of 0.1g/kg	173257-27 27 0.0-0.3 04/08/2017 Soil 17/08/2017 Approx. 45g Brown fine- grained soil & rocks No asbestos detected at reporting limit of 0.1g/kg	173257-36 36 0.0-0.4 07/08/2017 Soil 17/08/2017 Approx. 50g Brown fine- grained soil & rocks No asbestos detected at reporting limit of 0.1g/kg

Asbestos ID - soils			
Our Reference		173257-39	173257-41
Your Reference	UNITS	39	41
Depth		0.0-0.15	0.0-0.15
Date Sampled		08/08/2017	08/08/2017
Type of sample		Soil	Soil
Date analysed	-	17/08/2017	17/08/2017
Sample mass tested	g	Approx. 10g	Approx. 15g
Sample Description	-	Brown fine- grained soil & rocks	Brown fine- grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
		Organic fibres detected	Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected

Asbestos ID - materials		
Our Reference		173257-42
Your Reference	UNITS	39
Depth		0.15
Date Sampled		08/08/2017
Type of sample		Material
Date analysed	-	16/08/2017
Mass / Dimension of Sample	-	70x42x4mm
Sample Description	-	Grey compressed fibre cement material
Asbestos ID in materials	-	Chrysotile asbestos detected

Misc Inorg - Soil						
Our Reference		173257-43	173257-44	173257-45	173257-46	173257-47
Your Reference	UNITS	1	1	1	1	1
Depth		0.5	1.0	1.5	2.0	2.5
Date Sampled		07/08/2017	07/08/2017	07/08/2017	07/08/2017	07/08/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/08/2017	14/08/2017	14/08/2017	14/08/2017	14/08/2017
Date analysed	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017
pH 1:5 soil:water	pH Units	5.6	5.8	6.6	6.7	7.4
Electrical Conductivity 1:5 soil:water	µS/cm	110	580	810	750	650
Chloride, Cl 1:5 soil:water	mg/kg	30	[NA]	960	[NA]	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	81	[NA]	360	[NA]	[NA]

Misc Inorg - Soil						
Our Reference		173257-48	173257-49	173257-50	173257-51	173257-52
Your Reference	UNITS	1	2	2	2	2
Depth		3.0	0.5	1.0	1.5	2.0
Date Sampled		07/08/2017	07/08/2017	07/08/2017	07/08/2017	07/08/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/08/2017	14/08/2017	14/08/2017	14/08/2017	14/08/2017
Date analysed	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017
pH 1:5 soil:water	pH Units	7.8	5.2	4.8	5.0	5.5
Electrical Conductivity 1:5 soil:water	µS/cm	610	74	410	880	510
Chloride, Cl 1:5 soil:water	mg/kg	720	[NA]	510	[NA]	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	230	[NA]	160	[NA]	[NA]

Misc Inorg - Soil						
Our Reference		173257-53	173257-54	173257-55	173257-56	173257-57
Your Reference	UNITS	2	2	3	3	3
Depth		2.5	3.0	0.5	1.0	1.5
Date Sampled		07/08/2017	07/08/2017	07/08/2017	07/08/2017	07/08/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/08/2017	14/08/2017	14/08/2017	14/08/2017	14/08/2017
Date analysed	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017
pH 1:5 soil:water	pH Units	6.5	6.7	6.3	5.5	4.6
Electrical Conductivity 1:5 soil:water	µS/cm	340	340	48	79	490
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	[NA]	[NA]	[NA]	530
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	[NA]	[NA]	[NA]	280

Misc Inorg - Soil					_	
Our Reference		173257-58	173257-59	173257-60	173257-61	173257-62
Your Reference	UNITS	3	3	3	4	4
Depth		2.0	2.5	3.0	0.5	1.0
Date Sampled		07/08/2017	07/08/2017	07/08/2017	07/08/2017	07/08/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/08/2017	14/08/2017	14/08/2017	14/08/2017	14/08/2017
Date analysed	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017
pH 1:5 soil:water	pH Units	4.7	4.6	4.7	5.6	5.2
Electrical Conductivity 1:5 soil:water	µS/cm	660	750	640	58	140

	173257-63	173257-64	173257-65	173257-66	173257-67
UNITS	4	4	4	4	5
	1.5	2.0	2.5	3.0	0.5
	07/08/2017	07/08/2017	07/08/2017	07/08/2017	07/08/2017
	Soil	Soil	Soil	Soil	Soil
-	14/08/2017	14/08/2017	14/08/2017	14/08/2017	14/08/2017
-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017
pH Units	5.1	5.0	4.9	5.0	7.0
µS/cm	260	390	650	620	120
mg/kg	[NA]	460	[NA]	[NA]	[NA]
mg/kg	[NA]	180	[NA]	[NA]	[NA]
	UNITS - - PH Units µS/cm mg/kg mg/kg	173257-63 UNITS 4 1.5 07/08/2017 Soil 5 - 14/08/2017 - 15/08/2017 PH Units 5.1 pH Units 5.1 µS/cm 260 mg/kg [NA]	I173257-63 I173257-64 UNITS 4 4 1.5 2.0 07/08/2017 07/08/2017 Soil Soil - 14/08/2017 14/08/2017 - 15/08/2017 15/08/2017 pH Units 5.1 5.0 µS/cm 260 390 mg/kg [NA] 180	IT3257-63 IT3257-64 IT3257-65 UNITS 4 4 4 1.5 2.0 2.5 07/08/2017 07/08/2017 07/08/2017 Soil Soil Soil - 14/08/2017 14/08/2017 15/08/2017 15/08/2017 15/08/2017 pH Units 5.1 5.0 4.9 µS/cm 260 390 650 mg/kg [NA] 180 [NA]	IT3257-63 IT3257-64 IT3257-65 IT3257-66 UNITS 4 4 4 4 1.5 2.0 2.5 3.0 07/08/2017 07/08/2017 07/08/2017 07/08/2017 Soil Soil Soil Soil - 14/08/2017 14/08/2017 14/08/2017 - 15/08/2017 15/08/2017 15/08/2017 PH Units 5.1 5.0 4.9 5.0 µS/cm 260 390 650 620 mg/kg [NA] 180 [NA] [NA]

Misc Inorg - Soil						
Our Reference		173257-68	173257-69	173257-70	173257-71	173257-72
Your Reference	UNITS	5	5	5	5	5
Depth		1.0	1.5	2.0	2.5	3.0
Date Sampled		07/08/2017	07/08/2017	07/08/2017	07/08/2017	07/08/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/08/2017	14/08/2017	14/08/2017	14/08/2017	14/08/2017
Date analysed	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017
pH 1:5 soil:water	pH Units	6.1	7.0	8.1	8.1	8.4
Electrical Conductivity 1:5 soil:water	µS/cm	660	600	320	280	280
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	[NA]	[NA]	250	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	[NA]	[NA]	90	[NA]

Misc Inorg - Soil						
Our Reference		173257-73	173257-74	173257-75	173257-76	173257-77
Your Reference	UNITS	6	6	6	7	7
Depth		0.5	1.0	1.5	0.5	1.0
Date Sampled		08/08/2017	08/08/2017	08/08/2017	07/08/2017	07/08/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/08/2017	14/08/2017	14/08/2017	14/08/2017	14/08/2017
Date analysed	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017
pH 1:5 soil:water	pH Units	5.2	5.1	5.2	5.7	5.9
Electrical Conductivity 1:5 soil:water	µS/cm	36	96	100	42	400
Chloride, Cl 1:5 soil:water	mg/kg		28	78	[NA]	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	73	54	[NA]	[NA]

Misc Inorg - Soil						
Our Reference		173257-78	173257-79	173257-80	173257-81	173257-82
Your Reference	UNITS	7	7	7	7	8
Depth		1.5	2.0	2.5	3.0	0.5
Date Sampled		07/08/2017	07/08/2017	07/08/2017	07/08/2017	07/08/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/08/2017	14/08/2017	14/08/2017	14/08/2017	14/08/2017
Date analysed	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017
pH 1:5 soil:water	pH Units	7.0	8.1	8.3	8.4	5.9
Electrical Conductivity 1:5 soil:water	µS/cm	570	330	540	330	62
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	[NA]	[NA]	370	31
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	[NA]	[NA]	63	10

Misc Inorg - Soil						
Our Reference		173257-83	173257-84	173257-85	173257-86	173257-87
Your Reference	UNITS	8	8	9	9	9
Depth		1.0	1.5	0.5	1.0	1.5
Date Sampled		07/08/2017	07/08/2017	07/08/2017	07/08/2017	07/08/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/08/2017	14/08/2017	14/08/2017	14/08/2017	14/08/2017
Date analysed	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017
pH 1:5 soil:water	pH Units	9.5	7.9	5.7	5.2	5.0
Electrical Conductivity 1:5 soil:water	µS/cm	510	250	42	70	180
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	270	[NA]	40	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	47	[NA]	39	[NA]

Misc Inorg - Soil						
Our Reference		173257-88	173257-89	173257-90	173257-91	173257-92
Your Reference	UNITS	9	10	10	10	10
Depth		2.0	0.5	1.0	1.5	2.0
Date Sampled		07/08/2017	07/08/2017	07/08/2017	07/08/2017	07/08/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/08/2017	14/08/2017	14/08/2017	14/08/2017	14/08/2017
Date analysed	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017
pH 1:5 soil:water	pH Units	5.0	5.7	5.5	5.3	6.9
Electrical Conductivity 1:5 soil:water	µS/cm	240	59	66	22	54
Chloride, Cl 1:5 soil:water	mg/kg	230	[NA]	[NA]	<10	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	84	[NA]	[NA]	<10	[NA]

Misc Inorg - Soil						
Our Reference		173257-93	173257-94	173257-95	173257-96	173257-97
Your Reference	UNITS	11	11	11	11	11
Depth		0.5	1.0	1.5	2.0	2.5
Date Sampled		07/08/2017	07/08/2017	07/08/2017	07/08/2017	07/08/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/08/2017	14/08/2017	14/08/2017	14/08/2017	14/08/2017
Date analysed	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017
pH 1:5 soil:water	pH Units	5.3	5.5	5.1	5.1	5.1
Electrical Conductivity 1:5 soil:water	µS/cm	33	32	170	190	220
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	[NA]	[NA]	190	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	[NA]	[NA]	69	[NA]

Misc Inorg - Soil						
Our Reference		173257-98	173257-99	173257-100	173257-101	173257-102
Your Reference	UNITS	12	12	12	12	12
Depth		0.5	1.0	1.5	2.0	2.5
Date Sampled		07/08/2017	07/08/2017	07/08/2017	07/08/2017	07/08/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/08/2017	14/08/2017	14/08/2017	14/08/2017	14/08/2017
Date analysed	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017
pH 1:5 soil:water	pH Units	6.6	6.9	7.0	7.2	7.4
Electrical Conductivity 1:5 soil:water	µS/cm	23	23	26	48	79
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	[NA]	[NA]	[NA]	31
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	[NA]	[NA]	[NA]	21

Misc Inorg - Soil						
Our Reference		173257-103	173257-104	173257-105	173257-106	173257-107
Your Reference	UNITS	13	13	13	13	13
Depth		0.5	1.0	1.5	2.0	2.5
Date Sampled		07/08/2017	07/08/2017	07/08/2017	07/08/2017	07/08/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/08/2017	14/08/2017	14/08/2017	14/08/2017	14/08/2017
Date analysed	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017
pH 1:5 soil:water	pH Units	5.8	5.1	5.6	5.9	6.9
Electrical Conductivity 1:5 soil:water	µS/cm	94	110	60	49	56
Chloride, Cl 1:5 soil:water	mg/kg		[NA]	10		20
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	[NA]	71	[NA]	10

Misc Inorg - Soil		
Our Reference		173257-108
Your Reference	UNITS	13
Depth		3.0
Date Sampled		07/08/2017
Type of sample		Soil
Date prepared	-	14/08/2017
Date analysed	-	15/08/2017
pH 1:5 soil:water	pH Units	8.0
Electrical Conductivity 1:5 soil:water	µS/cm	130
Chloride, Cl 1:5 soil:water	mg/kg	52
Sulphate, SO4 1:5 soil:water	mg/kg	20

ESP/CEC						
Our Reference		173257-50	173257-69	173257-77	173257-82	173257-83
Your Reference	UNITS	2	5	7	8	8
Depth		1.0	1.5	1.0	0.5	1.0
Date Sampled		07/08/2017	07/08/2017	07/08/2017	07/08/2017	07/08/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/08/2017	14/08/2017	14/08/2017	14/08/2017	14/08/2017
Date analysed	-	15/08/2017	15/08/2017	15/08/2017	15/08/2017	15/08/2017
Exchangeable Ca	meq/100g	0.3	1.5	0.2	4.9	15
Exchangeable K	meq/100g	0.2	0.1	<0.1	0.3	0.2
Exchangeable Mg	meq/100g	8.3	7.1	4.9	9.7	11
Exchangeable Na	meq/100g	2.5	2.6	3.2	1.2	2.2
Cation Exchange Capacity	meq/100g	11	11	8.5	16	29
ESP	%	22	23	38	8	7

ESP/CEC				
Our Reference		173257-88	173257-90	173257-94
Your Reference	UNITS	9	10	11
Depth		2.0	1.0	1.0
Date Sampled		07/08/2017	07/08/2017	07/08/2017
Type of sample		Soil	Soil	Soil
Date prepared	-	14/08/2017	14/08/2017	14/08/2017
Date analysed	-	15/08/2017	15/08/2017	15/08/2017
Exchangeable Ca	meq/100g	0.5	5.4	0.6
Exchangeable K	meq/100g	0.2	0.2	0.2
Exchangeable Mg	meq/100g	7.0	4.0	4.5
Exchangeable Na	meq/100g	3.0	1.0	1.4
Cation Exchange Capacity	meq/100g	11	11	6.6
ESP	%	28	10	20

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell at 25°C in accordance with APHA latest edition 2510 and Rayment & Lyons.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Inorg-024	Hexavalent Chromium (Cr6+) - determined colourimetrically.
Inorg-031	Total Phenolics by segmented flow analyser (in line distillation with colourimetric finish). Solids are extracted in a caustic media prior to analysis.
Inorg-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B. Alternatively determined by colourimetry/turbidity using Discrete Analyer.
Metals-009	Determination of exchangeable cations and cation exchange capacity in soils using 1M Ammonium Chloride exchange and ICP-AES analytical finish.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.
	F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
	Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual
	Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <pql actually="" are="" at="" conservative<br="" is="" most="" pql.="" the="" this="">approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <pql and<="" approach="" are="" conservative="" is="" least="" th="" the="" this="" zero.=""></pql></pql>
	is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <pql a="" are="" half="" hence="" mid-point<br="" pql.="" stipulated="" the="">between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.</pql>
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
	Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONT	ROL: vTRH	(C6-C10)	/BTEXN in Soil		Duplicate					Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	173257-14	
Date extracted	-			15/08/2017	3	15/08/2017	15/08/2017		15/08/2017	15/08/2017	
Date analysed	-			16/08/2017	3	16/08/2017	16/08/2017		16/08/2017	16/08/2017	
TRH C ₆ - C ₉	mg/kg	25	Org-016	<25	3	<25	<25	0	104	99	
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	<25	3	<25	<25	0	104	99	
Benzene	mg/kg	0.2	Org-016	<0.2	3	<0.2	<0.2	0	102	90	
Toluene	mg/kg	0.5	Org-016	<0.5	3	<0.5	<0.5	0	97	85	
Ethylbenzene	mg/kg	1	Org-016	<1	3	<1	<1	0	103	98	
m+p-xylene	mg/kg	2	Org-016	<2	3	<2	<2	0	108	112	
o-Xylene	mg/kg	1	Org-016	<1	3	<1	<1	0	112	127	
naphthalene	mg/kg	1	Org-014	<1	3	<1	<1	0	[NT]	[NT]	
Surrogate aaa-Trifluorotoluene	%		Org-016	106	3	102	96	6	108	97	

QUALITY CONT	ROL: vTRH	(C6-C10)	BTEXN in Soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	15	15/08/2017	15/08/2017		[NT]	[NT]
Date analysed	-			[NT]	15	16/08/2017	16/08/2017		[NT]	[NT]
TRH C ₆ - C ₉	mg/kg	25	Org-016	[NT]	15	<25	<25	0	[NT]	[NT]
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	[NT]	15	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-016	[NT]	15	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-016	[NT]	15	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-016	[NT]	15	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-016	[NT]	15	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-016	[NT]	15	<1	<1	0	[NT]	[NT]
naphthalene	mg/kg	1	Org-014	[NT]	15	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	15	101	103	2	[NT]	[NT]

QUALITY CO	NTROL: svT	RH (C10	-C40) in Soil		Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	173257-14
Date extracted	-			14/08/2017	3	15/08/2017	15/08/2017		14/08/2017	14/08/2017
Date analysed	-			15/08/2017	3	15/08/2017	15/08/2017		15/08/2017	15/08/2017
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	<50	3	<50	<50	0	107	#
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	<100	3	<100	<100	0	106	#
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	<100	3	<100	<100	0	106	#
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	<50	3	<50	<50	0	107	#
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	<100	3	<100	<100	0	106	#
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	<100	3	<100	<100	0	106	#
Surrogate o-Terphenyl	%		Org-003	94	3	97	94	3	101	#

QUALITY CO	NTROL: svT	RH (C10	-C40) in Soil			Du		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	15	15/08/2017	15/08/2017		[NT]	[NT]
Date analysed	-			[NT]	15	15/08/2017	15/08/2017		[NT]	[NT]
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	[NT]	15	<50	<50	0	[NT]	[NT]
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	[NT]	15	<100	<100	0	[NT]	[NT]
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	[NT]	15	<100	<100	0	[NT]	[NT]
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	[NT]	15	<50	<50	0	[NT]	[NT]
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	[NT]	15	<100	<100	0	[NT]	[NT]
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	[NT]	15	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-003	[NT]	15	94	93	1	[NT]	[NT]

QUALIT	Y CONTRC	L: PAHs	in Soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	173257-14
Date extracted	-			15/08/2017	3	15/08/2017	15/08/2017		15/08/2017	15/08/2017
Date analysed	-			15/08/2017	3	15/08/2017	15/08/2017		15/08/2017	15/08/2017
Naphthalene	mg/kg	0.1	Org-012	<0.1	3	<0.1	<0.1	0	84	#
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	<0.1	3	<0.1	<0.1	0	96	#
Phenanthrene	mg/kg	0.1	Org-012	<0.1	3	<0.1	<0.1	0	94	#
Anthracene	mg/kg	0.1	Org-012	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	3	<0.1	<0.1	0	86	#
Pyrene	mg/kg	0.1	Org-012	<0.1	3	<0.1	<0.1	0	88	#
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	<0.1	3	<0.1	<0.1	0	79	66
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	<0.2	3	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	3	<0.05	<0.05	0	85	94
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	95	3	90	92	2	116	81

QUALIT	Y CONTRO	L: PAHs	in Soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	15	15/08/2017	15/08/2017		[NT]	[NT]
Date analysed	-			[NT]	15	15/08/2017	15/08/2017		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-012	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-012	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-012	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-012	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	[NT]	15	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	[NT]	15	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	[NT]	15	99	99	0	[NT]	[NT]

QUALITY CONTR	ROL: Organo	chlorine l	Pesticides in soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	173257-14
Date extracted	-			15/08/2017	3	15/08/2017	15/08/2017		15/08/2017	15/08/2017
Date analysed	-			15/08/2017	3	15/08/2017	15/08/2017		15/08/2017	15/08/2017
НСВ	mg/kg	0.1	Org-005	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	3	<0.1	<0.1	0	76	66
gamma-BHC	mg/kg	0.1	Org-005	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	<0.1	3	<0.1	<0.1	0	80	62
Heptachlor	mg/kg	0.1	Org-005	<0.1	3	<0.1	<0.1	0	89	71
delta-BHC	mg/kg	0.1	Org-005	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	<0.1	3	<0.1	<0.1	0	97	74
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	3	<0.1	<0.1	0	91	71
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	<0.1	3	<0.1	<0.1	0	82	63
Dieldrin	mg/kg	0.1	Org-005	<0.1	3	<0.1	<0.1	0	101	82
Endrin	mg/kg	0.1	Org-005	<0.1	3	<0.1	<0.1	0	87	73
pp-DDD	mg/kg	0.1	Org-005	<0.1	3	<0.1	<0.1	0	78	69
Endosulfan II	mg/kg	0.1	Org-005	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	3	<0.1	<0.1	0	95	81
Methoxychlor	mg/kg	0.1	Org-005	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	94	3	96	94	2	105	83

QUALITY CONTR	ROL: Organo	chlorine I	Pesticides in soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	173257-31
Date extracted	-			[NT]	15	15/08/2017	15/08/2017		15/08/2017	15/08/2017
Date analysed	-			[NT]	15	15/08/2017	15/08/2017		15/08/2017	15/08/2017
НСВ	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	80	86
gamma-BHC	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	78	81
Heptachlor	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	81	78
delta-BHC	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	97	101
Heptachlor Epoxide	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	91	94
gamma-Chlordane	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	82	85
Dieldrin	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	102	104
Endrin	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	81	81
pp-DDD	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	79	82
Endosulfan II	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	66	72
Methoxychlor	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	[NT]	15	94	95	1	109	92

QUALITY CONTR	OL: Organo	chlorine I	Pesticides in soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	30	15/08/2017	15/08/2017		[NT]	[NT]
Date analysed	-			[NT]	30	15/08/2017	15/08/2017		[NT]	[NT]
НСВ	mg/kg	0.1	Org-005	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-005	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-005	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-005	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-005	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-005	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-005	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-005	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-005	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-005	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-005	[NT]	30	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	[NT]	30	93	93	0	[NT]	[NT]

QUALITY CONTR	OL: Organo	chlorine I	Pesticides in soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	17	15/08/2017	16/08/2017		[NT]	[NT]
Date analysed	-			[NT]	17	15/08/2017	17/08/2017		[NT]	[NT]
НСВ	mg/kg	0.1	Org-005	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-005	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-005	[NT]	17	0.5	0.4	22	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-005	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	[NT]	17	1.2	0.8	40	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-005	[NT]	17	1.1	1	10	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-005	[NT]	17	2.6	2.5	4	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	[NT]	17	0.4	0.4	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-005	[NT]	17	25	24	4	[NT]	[NT]
Endrin	mg/kg	0.1	Org-005	[NT]	17	0.1	0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-005	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-005	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	[NT]	17	<0.3	<0.1	100	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-005	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	[NT]	17	126	118	7	[NT]	[NT]

QUALITY CONT	ROL: Organ	ophosph	orus Pesticides			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	173257-14
Date extracted	-			15/08/2017	3	15/08/2017	15/08/2017		15/08/2017	15/08/2017
Date analysed	-			15/08/2017	3	15/08/2017	15/08/2017		15/08/2017	15/08/2017
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-008	<0.1	3	<0.1	<0.1	0	87	85
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	<0.1	3	<0.1	<0.1	0	86	111
Dimethoate	mg/kg	0.1	Org-008	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	<0.1	3	<0.1	<0.1	0	97	99
Fenitrothion	mg/kg	0.1	Org-008	<0.1	3	<0.1	<0.1	0	91	77
Malathion	mg/kg	0.1	Org-008	<0.1	3	<0.1	<0.1	0	78	81
Parathion	mg/kg	0.1	Org-008	<0.1	3	<0.1	<0.1	0	88	63
Ronnel	mg/kg	0.1	Org-008	<0.1	3	<0.1	<0.1	0	97	88
Surrogate TCMX	%		Org-008	94	3	96	94	2	91	65

QUALITY CONT	ROL: Organ	ophospho	orus Pesticides			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	173257-31
Date extracted	-			[NT]	15	15/08/2017	15/08/2017		15/08/2017	15/08/2017
Date analysed	-			[NT]	15	15/08/2017	15/08/2017		15/08/2017	15/08/2017
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-008	[NT]	15	<0.1	<0.1	0	94	91
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	[NT]	15	<0.1	<0.1	0	96	94
Dimethoate	mg/kg	0.1	Org-008	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	[NT]	15	<0.1	<0.1	0	104	101
Fenitrothion	mg/kg	0.1	Org-008	[NT]	15	<0.1	<0.1	0	97	88
Malathion	mg/kg	0.1	Org-008	[NT]	15	<0.1	<0.1	0	76	74
Parathion	mg/kg	0.1	Org-008	[NT]	15	<0.1	<0.1	0	91	90
Ronnel	mg/kg	0.1	Org-008	[NT]	15	<0.1	<0.1	0	101	97
Surrogate TCMX	%		Org-008	[NT]	15	94	95	1	92	91

QUALITY CONT	ROL: Organ	ophosph	orus Pesticides			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	30	15/08/2017	15/08/2017			
Date analysed	-			[NT]	30	15/08/2017	15/08/2017			
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	[NT]	30	<0.1	<0.1	0		
Bromophos-ethyl	mg/kg	0.1	Org-008	[NT]	30	<0.1	<0.1	0		
Chlorpyriphos	mg/kg	0.1	Org-008	[NT]	30	<0.1	<0.1	0		
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	[NT]	30	<0.1	<0.1	0		
Diazinon	mg/kg	0.1	Org-008	[NT]	30	<0.1	<0.1	0		
Dichlorvos	mg/kg	0.1	Org-008	[NT]	30	<0.1	<0.1	0		
Dimethoate	mg/kg	0.1	Org-008	[NT]	30	<0.1	<0.1	0		
Ethion	mg/kg	0.1	Org-008	[NT]	30	<0.1	<0.1	0		
Fenitrothion	mg/kg	0.1	Org-008	[NT]	30	<0.1	<0.1	0		
Malathion	mg/kg	0.1	Org-008	[NT]	30	<0.1	<0.1	0		
Parathion	mg/kg	0.1	Org-008	[NT]	30	<0.1	<0.1	0		
Ronnel	mg/kg	0.1	Org-008	[NT]	30	<0.1	<0.1	0		
Surrogate TCMX	%		Org-008	[NT]	30	93	93	0		

QUALITY CONT	ROL: Organ	ophospho	orus Pesticides			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	17	15/08/2017	16/08/2017		[NT]	[NT]
Date analysed	-			[NT]	17	15/08/2017	17/08/2017		[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-008	[NT]	17	0.2	0.2	0	[NT]	[NT]
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-008	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-008	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-008	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-008	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-008	[NT]	17	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-008	[NT]	17	126	118	7	[NT]	[NT]

QUALIT	Y CONTRO	L: PCBs	in Soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	173257-14
Date extracted	-			15/08/2017	3	15/08/2017	15/08/2017		15/08/2017	15/08/2017
Date analysed	-			15/08/2017	3	15/08/2017	15/08/2017		15/08/2017	15/08/2017
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	3	<0.1	<0.1	0	102	102
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCLMX	%		Org-006	94	3	96	94	2	91	65

QUALIT	Y CONTRO	L: PCBs	in Soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	15	15/08/2017	15/08/2017		[NT]	[NT]
Date analysed	-			[NT]	15	15/08/2017	15/08/2017		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-006	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-006	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCLMX	%		Org-006	[NT]	15	94	95	1	[NT]	[NT]

QUALIT	Y CONTRO	L: PCBs	in Soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	17	15/08/2017	16/08/2017		[NT]	
Date analysed	-			[NT]	17	15/08/2017	17/08/2017		[NT]	
Aroclor 1016	mg/kg	0.1	Org-006	[NT]	17	<1	<1	0	[NT]	
Aroclor 1221	mg/kg	0.1	Org-006	[NT]	17	<1	<1	0	[NT]	
Aroclor 1232	mg/kg	0.1	Org-006	[NT]	17	<1	<1	0	[NT]	
Aroclor 1242	mg/kg	0.1	Org-006	[NT]	17	<1	<1	0	[NT]	
Aroclor 1248	mg/kg	0.1	Org-006	[NT]	17	<1	<1	0	[NT]	
Aroclor 1254	mg/kg	0.1	Org-006	[NT]	17	<1	<1	0	[NT]	
Aroclor 1260	mg/kg	0.1	Org-006	[NT]	17	<1	<1	0	[NT]	
Surrogate TCLMX	%		Org-006	[NT]	17	126	118	7	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Du	Spike Recovery %			
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	173257-14
Date prepared	-			15/08/2017	3	15/08/2017	15/08/2017		15/08/2017	15/08/2017
Date analysed	-			16/08/2017	3	16/08/2017	16/08/2017		16/08/2017	16/08/2017
Arsenic	mg/kg	4	Metals-020	<4	3	8	7	13	105	106
Cadmium	mg/kg	0.4	Metals-020	<0.4	3	<0.4	<0.4	0	95	98
Chromium	mg/kg	1	Metals-020	<1	3	15	15	0	101	104
Lead	mg/kg	1	Metals-020	<1	3	21	19	10	102	100
Mercury	mg/kg	0.1	Metals-021	<0.1	3	<0.1	<0.1	0	104	102
Nickel	mg/kg	1	Metals-020	<1	3	16	16	0	97	103
Zinc	mg/kg	1	Metals-020	<1	3	53	51	4	99	84
Copper	mg/kg	1	Metals-020	<1	3	26	26	0	105	109
Manganese	mg/kg	1	Metals-020	<1	30	940	800	16	120	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Du	Spike Recovery %			
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	173257-31
Date prepared	-			[NT]	15	15/08/2017	15/08/2017		15/08/2017	15/08/2017
Date analysed	-			[NT]	15	16/08/2017	16/08/2017		16/08/2017	16/08/2017
Arsenic	mg/kg	4	Metals-020	[NT]	15	9	8	12	112	103
Cadmium	mg/kg	0.4	Metals-020	[NT]	15	<0.4	<0.4	0	98	97
Chromium	mg/kg	1	Metals-020	[NT]	15	15	13	14	107	105
Lead	mg/kg	1	Metals-020	[NT]	15	27	21	25	105	103
Mercury	mg/kg	0.1	Metals-021	[NT]	15	<0.1	<0.1	0	104	103
Nickel	mg/kg	1	Metals-020	[NT]	15	16	13	21	102	107
Zinc	mg/kg	1	Metals-020	[NT]	15	42	41	2	104	116
Copper	mg/kg	1	Metals-020	[NT]	15	24	22	9	109	124
Manganese	mg/kg	1	Metals-020	[NT]	37	2500	2000	22	126	#

QUALITY CONTROL: Acid Extractable metals in soil						Du	Spike Recovery %			
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date prepared	-			[NT]	30	15/08/2017	15/08/2017		15/08/2017	
Date analysed	-			[NT]	30	16/08/2017	16/08/2017		16/08/2017	
Arsenic	mg/kg	4	Metals-020	[NT]	30	8	7	13	106	
Cadmium	mg/kg	0.4	Metals-020	[NT]	30	<0.4	<0.4	0	95	
Chromium	mg/kg	1	Metals-020	[NT]	30	13	13	0	103	
Lead	mg/kg	1	Metals-020	[NT]	30	19	18	5	102	
Mercury	mg/kg	0.1	Metals-021	[NT]	30	<0.1	<0.1	0	100	
Nickel	mg/kg	1	Metals-020	[NT]	30	10	12	18	100	
Zinc	mg/kg	1	Metals-020	[NT]	30	46	48	4	101	
Copper	mg/kg	1	Metals-020	[NT]	30	11	12	9	106	
Manganese	mg/kg	1	Metals-020	[NT]	[NT]		[NT]	[NT]	119	
QUALITY CONT	ROL: Acid E	xtractabl	e metals in soil			Du	plicate		Spike Re	covery %
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Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	37	15/08/2017	15/08/2017		[NT]	[NT]
Date analysed	-			[NT]	37	16/08/2017	16/08/2017		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	37	7	6	15	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	37	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	37	11	11	0	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	37	18	15	18	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	37	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	37	19	20	5	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	37	46	51	10	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	37	22	17	26	[NT]	[NT]

QUALITY CONT	ROL: Acid E	xtractabl	e metals in soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	41	15/08/2017	15/08/2017		[NT]	[NT]
Date analysed	-			[NT]	41	16/08/2017	16/08/2017		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	41	7	9	25	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	41	2	2	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	41	19	24	23	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	41	170	200	16	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	41	21	21	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	41	1300	2000	42	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	41	94	65	36	[NT]	[NT]

QUALITY	CONTROL	Misc Soi	il - Inorg			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	173257-31
Date prepared	-			18/08/2017	30	18/08/2017	18/08/2017		18/08/2017	18/08/2017
Date analysed	-			18/08/2017	30	18/08/2017	18/08/2017		18/08/2017	18/08/2017
Hexavalent Chromium, Cr6+	mg/kg	1	Inorg-024	<1	30	<1	<1	0	85	#
		Mice Soi	il Inora			Du	olicato		Spiko Po	covorv %
QUALITI	CONTROL.		i - morg			Du	Jiicale		эріке Ке	COvery 70
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	173257-4
Date prepared	-			[NT]	37	18/08/2017	18/08/2017		18/08/2017	18/08/2017
Date analysed	-			[NT]	37	18/08/2017	18/08/2017		18/08/2017	18/08/2017
Hexavalent Chromium, Cr6+	mg/kg	1	Inorg-024	[NT]	37	<1	<1	0	84	#
										~
QUALITY	CONTROL	Misc Soi	il - Inorg			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	1	18/08/2017	18/08/2017		[NT]	[NT]
Date analysed	-			[NT]	1	18/08/2017	18/08/2017		[NT]	[NT]

1

<1

Inorg-024

mg/kg

1

Hexavalent Chromium, Cr6+

0

<1

QUALITY	CONTROL:	Misc Soi	I - Inorg			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	173257-14
Date prepared	-			15/08/2017	3	15/08/2017	15/08/2017		15/08/2017	15/08/2017
Date analysed	-			15/08/2017	3	15/08/2017	15/08/2017		15/08/2017	15/08/2017
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	<5	3	<5	<5	0	99	107
QUALITY	CONTROL	Misc Soi	l - Inorg			Du	plicate		Spike Re	covery %
QUALITY Test Description	CONTROL: Units	Misc Soi	I - Inorg Method	Blank	#	Du Base	plicate Dup.	RPD	Spike Re [NT]	covery % [NT]
QUALITY Test Description Date prepared	CONTROL: Units	Misc Soi PQL	I - Inorg Method	Blank [NT]	# 21	Du Base 15/08/2017	plicate Dup. 15/08/2017	RPD	Spike Re [NT] [NT]	covery % [NT]
QUALITY Test Description Date prepared Date analysed	CONTROL: Units -	Misc Soi PQL	I - Inorg Method	Blank [NT] [NT]	# 21 21	Du Base 15/08/2017 15/08/2017	plicate Dup. 15/08/2017 15/08/2017	RPD	Spike Re [NT] [NT]	COVERY % [NT] [NT] [NT]

QUALITY	CONTROL	Misc Ino	rg - Soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	173257-45
Date prepared	-			14/08/2017	43	14/08/2017	14/08/2017		14/08/2017	14/08/2017
Date analysed	-			14/08/2017	43	15/08/2017	15/08/2017		14/08/2017	14/08/2017
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	43	5.6	5.4	4	101	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	<1	43	110	140	24	103	[NT]
Chloride, Cl 1:5 soil:water	mg/kg	10	Inorg-081	<10	43	30	42	33	94	#
Sulphate, SO4 1:5 soil:water	mg/kg	10	Inorg-081	<10	43	81	110	30	110	#

QUALITY	CONTROL	: Misc Ino	rg - Soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date prepared	-			[NT]	57	14/08/2017	14/08/2017		14/08/2017	[NT]
Date analysed	-			[NT]	57	15/08/2017	15/08/2017		14/08/2017	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	57	4.6	4.7	2	101	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	[NT]	57	490	460	6	102	[NT]
Chloride, Cl 1:5 soil:water	mg/kg	10	Inorg-081	[NT]	57	530	510	4	98	[NT]
Sulphate, SO4 1:5 soil:water	mg/kg	10	Inorg-081	[NT]	57	280	290	4	114	[NT]

QUALITY	CONTROL:	Misc Ino	rg - Soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date prepared	-			[NT]	64	14/08/2017	14/08/2017		14/08/2017	[NT]
Date analysed	-			[NT]	64	15/08/2017	15/08/2017		14/08/2017	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	64	5.0	5.0	0	101	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	[NT]	64	390	430	10	101	[NT]
Chloride, Cl 1:5 soil:water	mg/kg	10	Inorg-081	[NT]	64	460	530	14	97	[NT]
Sulphate, SO4 1:5 soil:water	mg/kg	10	Inorg-081	[NT]	64	180	180	0	112	[NT]

QUALITY	CONTROL	Misc Ino	rg - Soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-				74	14/08/2017	14/08/2017		[NT]	
Date analysed	-				74	15/08/2017	15/08/2017		[NT]	
pH 1:5 soil:water	pH Units		Inorg-001		74	5.1	5.3	4	[NT]	
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002		74	96	73	27	[NT]	
Chloride, Cl 1:5 soil:water	mg/kg	10	Inorg-081		74	28	23	20	[NT]	
Sulphate, SO4 1:5 soil:water	mg/kg	10	Inorg-081	[NT]	74	73	53	32	[NT]	[NT]

QUALITY	CONTROL:	Misc Ino	rg - Soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-				84	14/08/2017	14/08/2017		[NT]	[NT]
Date analysed	-				84	15/08/2017	15/08/2017		[NT]	[NT]
pH 1:5 soil:water	pH Units		Inorg-001		84	7.9	6.9	14	[NT]	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002		84	250	230	8	[NT]	[NT]
Chloride, Cl 1:5 soil:water	mg/kg	10	Inorg-081		84	270	270	0	[NT]	[NT]
Sulphate, SO4 1:5 soil:water	mg/kg	10	Inorg-081	[NT]	84	47	45	4	[NT]	[NT]

QUALITY	CONTROL	Misc Ino	rg - Soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	96	14/08/2017	14/08/2017			[NT]
Date analysed	-			[NT]	96	15/08/2017	15/08/2017			[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	96	5.1	5.2	2		[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	[NT]	96	190	190	0		[NT]
Chloride, Cl 1:5 soil:water	mg/kg	10	Inorg-081	[NT]	96	190	190	0		[NT]
Sulphate, SO4 1:5 soil:water	mg/kg	10	Inorg-081	[NT]	96	69	70	1		[NT]

QUALITY	CONTROL:	Misc Ino	rg - Soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-				102	14/08/2017	14/08/2017		[NT]	
Date analysed	-				102	15/08/2017	15/08/2017		[NT]	
pH 1:5 soil:water	pH Units		Inorg-001		102	7.4	7.5	1	[NT]	
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002		102	79	74	7	[NT]	
Chloride, Cl 1:5 soil:water	mg/kg	10	Inorg-081		102	31	[NT]		[NT]	
Sulphate, SO4 1:5 soil:water	mg/kg	10	Inorg-081	[NT]	102	21	[NT]		[NT]	[NT]

QUAL	ITY CONTR	OL: ESP/	CEC			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			14/08/2017	94	14/08/2017	14/08/2017		14/08/2017	
Date analysed	-			15/08/2017	94	15/08/2017	15/08/2017		15/08/2017	
Exchangeable Ca	meq/100g	0.1	Metals-009	<0.1	94	0.6	0.6	0	103	
Exchangeable K	meq/100g	0.1	Metals-009	<0.1	94	0.2	0.2	0	115	
Exchangeable Mg	meq/100g	0.1	Metals-009	<0.1	94	4.5	4.3	5	101	
Exchangeable Na	meq/100g	0.1	Metals-009	<0.1	94	1.4	1.3	7	116	
ESP	%	1	Metals-009	[NT]	94	20	21	5	[NT]	[NT]

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

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

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

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

Report Comments

OC/OP/PCB in soil: PQL has been raised due to interference from analytes(other than those being tested) in the sample/s.

vTRH & BTEXN in Soil NEPM - PQL has been raised due to interference from analytes(other than those being tested) in the sample/s.

TRH Soil C10-C40 NEPM - PQL has been raised due to the high concentration of analytes in the sample/s, resulting in the sample/s requiring dilution.

PAHs in Soil - PQL has been raised due to the high concentration of analytes in the sample/s, resulting in the sample/s requiring dilution.

Percent recovery is not possible to report due to interference from analytes (other than those being tested) in the sample/s. # Percent recovery is not possible to report as the high concentration of analytes in the sample/s have caused interference. PQL has been raised due to interference from analytes(other than those being tested) in the sample/s.

Acid Extractable Metals in Soils:

Percent recovery is not possible to report due to the high concentration of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

Asbestos: Excessive sample volume was provided for asbestos analysis. A portion of the supplied sample was sub-sampled according to Envirolab procedures. We cannot guarantee that this sub-sample is indicative of the entire sample. Envirolab recommends supplying 40-50g (50mL) of sample in its own container as per AS4964-2004.

Note: Samples for asbestos testing were sub-sampled from bags provided by the client.

MISC INORG

Percent recovery is not possible to report due to the high concentration of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

MISC_INORG_CRVI: # Percent recovery is not possible to report due to matrix interference. Sample was diluted and reanalysed and the poor recovery was confirmed. However an acceptable recovery was obtained for the LCS.

Appendix E

Proposed Development Masterplan 20170605

Macarthur Memorial Park Masterplan ST ANDREWS ROAD, VARROVILLE

