

Attachment 4 (RSD) - Appendix G
Preliminary Geotech and Baseline
Contamination Report



PROPOSED WIND FARM IN SCOTT RIVER

Preliminary Geotechnical and Baseline Contamination Report

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Proposed Wind Farm in Scott River

1 Introduction

1 Introduction

Synergy Renewable Energy Developments Pty Ltd (Synergy) is currently progressing through the planning and approvals phase for the Proposed Wind Farm in Scott River (the project), which will be developed approximately 15 km north-east of Augusta in WA's Margaret River region as shown on the project location plan below (Figure 1-1).

It is understood that the project layout to be implemented is not yet finalised, however, preliminary plans and information provided by Synergy suggest that the project will likely comprise the installation of up to 22 wind turbines as well as the associated supporting infrastructure. At this stage of the project, preliminary geotechnical and contamination information is required to enable design and construct proponents to more accurately tender for the project. This report presents the findings of a preliminary geotechnical and baseline contamination investigation undertaken to recover such information.

Figure 1-1 Project Location Plan



Proposed Wind Farm in Scott River

1 Introduction

1.1 Aims

Based on the scope requested from Synergy, given the scale of the site and the intent of the preliminary investigation, the primary objectives of the investigation is to provide:

- A presentation of factual information regarding the investigation undertaken and the results obtained;
- A preliminary summary of the subsurface conditions encountered across the project, including depth to rock and groundwater (if/where encountered);
- Preliminary comments and recommendations regarding earthworks and site preparation, including:
 - Removal of topsoil and uncontrolled fill;
 - Proof compaction
 - Structural fill specification requirements; and
 - Temporary slopes during earthworks.
- Preliminary comments and recommendations regarding Potential Acid Sulfate Soil and Baseline contamination.

It is noted that during subsequent phases of work, additional geotechnical information will be required specific to the confirmed project layout in order to progress design objectives.

1.2 Desktop Study Report

A geotechnical and contamination desktop study report was prepared for this project for Synergy by Stantec in July 2023 (refer Appendix F of this report). Desktop level information is therefore not re-presented in great detail again within this preliminary investigation report.



2 Investigation

2.1 Fieldwork

A preliminary geotechnical and contamination investigation was undertaken at the proposed wind farm project area between February and March 2024 and comprised intrusive testing (geotechnical boreholes and test pits) with the aim of achieving a relatively uniform distribution of data at accessible locations as planned by Synergy. A test location plan which shows the approximate location of each completed test is presented as Appendix A of this report.

2.1.1 SUPERVISION

Fieldwork was undertaken under the supervision of a representative from Stantec who was responsible for both the technical direction and oversight of staff and subcontractors as well as the safe execution of the scope of works.

2.1.2 UNDERGROUND SERVICES

Before commencing testing onsite, a dial before you dig (BYDA) enquiry was submitted, with the results of relevant asset owners reviewed to ensure appropriate clearances at proposed test locations. In addition, the intrusive works were carried out under Synergy's ground disturbance permit system, with Synergy having undertaken their due diligence prior to planning regarding private asset locations across the project area.

2.1.3 GEOTECHNICAL BOREHOLES

Three (3) geotechnical boreholes (WM01, WM02 & WM03) were drilled across the project area at the locations shown on Appendix A to a depth of 25 m below ground level (bgl) using a track mounted Geoprobe model 7822DT, operated by a suitably qualified subcontractor of Stantec. The boreholes were advanced using a combination of direct push probe (DPP) and diamond coring (HQ-3) drilling techniques to achieve the target depth, with Standard Penetration Test (SPT) undertaken at nominal 1.5 m intervals to assist in assessing soil strengths throughout the ground profile.

The recovered material was placed in 1 m length core trays, logged in accordance with AS1726, 2017, sampled and photographed by a geotechnical engineer / engineering geologist (field engineer) from Stantec with the geotechnical logs presented as Appendix B of this report.

2.1.3.1 Standpipe Piezometer

A standpipe piezometer was installed by a Class 3 driller within each of the boreholes to allow for ongoing groundwater level and quality testing (separate scope of works). A graphic of the well design for each borehole is presented within their respective borehole log (Appendix B).

Initial groundwater level readings were recovered by the field engineer after groundwater levels had presumably stabilised. A water level logger was installed in each of the wells for long-term groundwater level data monitoring.



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2.1.3.2 Additional Shallow Standpipe Piezometers

Additional standpipes were installed during the geotechnical investigation to allow for shallow groundwater monitoring and a hydrogeological assessment to be undertaken (separate scope of works to this investigation report). The locations of the wells, however, have been presented alongside the geotechnical test locations on the test location plan of Appendix A.

2.1.4 GEOTECHNICAL TEST PITS

Twenty geotechnical test pits (TP01 to TP20) were excavated across the project area at the locations presented within Appendix A, using an 11-tonne backhoe operated by a suitably experienced contractor to Stantec. The test pits were excavated to a target depth of 3 m bgl, or prior refusal (caused by collapsing soils, inundation of groundwater or intersection of rock strength materials).

Bulk and disturbed sampling was undertaken from the excavated materials, targeted by the field engineer as to best capture material variation and representative conditions across the project area. The recovered material and side walls of the test pits were logged in accordance with AS1726-2017 and photographed before completion.

Upon completion, the test pits were backfilled using the excavated spoil. Material was compacted in layers using the bucket before the excess at the surface was mounded and wheel rolled to prevent future excessive settlement.

A summary of the test pits, including their coordinates and final termination depths is presented in Table 2-1 below. Geotechnical logs are included within Appendix B of this report.

Table 2-1 Summary of Test Pits

Test ID	Coordinates (MGA94)		Termination Depth (m bgl)	Termination Comment
	Easting	Northing		
TP01	340863	6216098	2.1	Refusal (machine limit - penetration)
TP02	341925	6215486	1	Refusal (machine limit - penetration)
TP03	344783	6212893	2	Practical Refusal (side wall collapse)
TP04	343930	6212893	1.75	Practical Refusal (side wall collapse)
TP05	341167	6209303	0.9	Refusal (machine limit - penetration)
TP06	344443	6210783	0.7	Refusal (machine limit - penetration)
TP07	340730	6210619	1.7	Practical Refusal (side wall collapse)
TP08	343190	6213977	2	Practical Refusal (side wall collapse)
TP09	343986	6214241	1.5	Practical Refusal (side wall collapse)
TP10	345034	6214318	1.2	Refusal (machine limit - penetration)
TP11	341041	6211370	2	Practical Refusal (side wall collapse)
TP12	342786	6210510	0.2	Refusal (machine limit - penetration)
TP13	343538	6211851	2	Practical Refusal (side wall collapse)
TP14	344875	6211256	0.4	Refusal (machine limit - penetration)
TP15	341697	6209876	1	Refusal (machine limit - penetration)
TP16	342673	6209242	0.15	Refusal (machine limit - penetration)



**Proposed Wind Farm in Scott River
2 Investigation**

Test ID	Coordinates (MGA94)		Termination Depth (m bgl)	Termination Comment
	Easting	Northing		
TP17	343812	6209922	0.5	Refusal (machine limit - penetration)
TP18	343477	6208439	0.15	Refusal (machine limit - penetration)
TP19	343836	6207845	0.6	Refusal (machine limit - penetration)
TP20	345245	6209951	0.9	Refusal (machine limit - penetration)

2.1.5 DYNAMIC CONE PENETROMETER

A Dynamic Cone Penetrometer (DCP) test was undertaken adjacent to each of the test pits to assist in assessing the strength and variability of the soil profile. Penetration refusal was encountered in all test locations prior to the 3 m target depth. The results of the DCP tests are presented graphically in the geotechnical logs (Appendix B).

2.1.6 CONTAMINATION AND ACID SULFATE SOILS SAMPLING

Environmental sampling was undertaken from each of the geotechnical intrusive tests (geotechnical boreholes and test pits) in general accordance with the following documents:

- Department of Water and Environmental Regulation (DWER) (2021) Assessment and management of contaminated sites guideline.
- National Environment Protection Council (NEPC) (2013) National Environment Protection (Assessment of Site Contamination) Measure (NEPM).
- AS4482.1-2005 Guide to the Sampling and Investigation of Potentially Contaminated Soil. Part 1: Non-volatile and semi volatile compounds.
- AS 4482.2-1999 Guide to the Sampling and Investigation of Potentially Contaminated Soil. Part 2: Volatile substances.
- Friebel, E. & Nadebaum, P. (2011) Health screening levels for petroleum hydrocarbons in soil and groundwater. Summary, CRC CARE Technical Report no. 10.
- Department of Health (DoH) (2009) Guidelines for the Assessment, Remediation and Management of Asbestos Contaminated Sites in Western Australia.

The following sampling and analysis program was undertaken:

- Environmental soil samples were recovered from surface level (0.0 m) and at subsequent 0.5 m intervals to a maximum depth of 1.5 m bgl. Screening for volatile organic compounds (VOC) using a calibrated photoionisation detector (PID) was also undertaken on recovered samples and recorded on the geotechnical logs.
- Sampling was undertaken for potential acid sulphate soils at 0.0 m and subsequent 0.25 m intervals to a maximum depth of 10 m bgl.
- Quality assurance and quality control (QA/QC) samples were recovered and transported for laboratory analyses at the following frequency:
 - Soil duplicate samples – 1 per 20 primary samples.
 - Soil triplicate samples – 1 per 20 primary samples.



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- Rinsate samples – 1 per each day.
- Field blank samples – 1 per each day.
- Transport blank (laboratory supplied) samples – 1 per laboratory batch.

2.1.6.1 Laboratory Testing

2.1.7 GEOTECHNICAL

Samples were transported from the project area to a NATA accredited laboratory in Perth where the following was undertaken (scheduled based on the material types and quantities recovered):

- 14 nos. Natural Moisture Content tests;
- 9 nos. Particle Size Distribution (PSD) tests;
- 8 nos. Atterberg Limits tests;
- 5 nos. Modified Maximum Dry Density (MMDD) tests;
- 2 nos. California Bearing Ratio (CBR) tests (4-days soaked);
- 3 nos. Thermal Resistivity tests;
- 2 nos. Emerson Class tests;
- 8 nos. Aggressivity Suite tests (pH, EC, Cl- & SO42-);
- 2 nos. Direct Shear (multi-stage) tests; and
- 1 no. Point Load Index (PLI) Strength test.

2.1.8 CONTAMINATION

Samples recovered for environmental, contamination and ASS purposes were stored, chilled / frozen (where required), and transported in laboratory supplied coolers in accordance with the above guidelines to a NATA accredited laboratory in Perth. The following subsections provide a summary of the analysis undertaken.

2.1.9 CONTAMINANTS OF POTENTIAL CONCERN

The number of primary samples associated with the contaminants of potential concern (CoPC) are presented below:

- 50 nos. Benzene, Toluene, Ethylbenzene, Xylenes and Naphthalene (BTEXN);
- 50 nos. Total Recoverable Hydrocarbons (TRH) (NEPM 2013 fractions);
- 50 nos. Metals (arsenic, beryllium, boron, cadmium, cobalt, copper, lead, manganese, mercury, nickel, selenium and zinc);
- 50 nos Organochlorine (OC) and Organophosphate (OP) pesticides;
- 50 nos. Nutrients (ammonia, nitrate, nitrite, nitrate and nitrite (NOx-N), total kjeldahl nitrogen (TKN), total nitrogen (TN), reactive phosphorus, total phosphorus); and



Proposed Wind Farm in Scott River 2 Investigation

- 52 nos. Asbestos in soil (fibrous)
- 10 nos. Per- and polyfluoroalkyl substances (PFAS)

2.1.10 ACID SULFATE SOILS

A review of the Acid Sulphate Soil Risk Map indicates that the area is in a high to moderate risk of acid sulfate soil (ASS) occurring within 3 m of natural soil surface.

An ASS assessment was undertaken as presented below:

- 206 nos. field suite tests (pH_F & pH_{FOX}); and
- 70 nos. confirmatory analyses suspension peroxide oxidation combined acidity and sulfate (SPOCAS) suite tests.



3 Assessment Criteria

3.1 Contaminants of Potential Concern

The material characterisation soil results were compared against the soil assessment criteria presented in Table 3-1 to assess human health and ecological risks.

Table 3-1 Contaminants of Potential Concern Assessment Criteria

Soil Assessment Criteria	Justification for Use
CRC Care 2011 Soil HSL Intrusive Maintenance Worker (shallow trench)	Vapour intrusion from soil is a potential pathway.
CRC Care 2011 Soil HSL Direct Contact (Intrusive Maintenance Worker)	Direct contact between workers and impacted soils
NEPM 2013 HSL Screening levels (HSL) for vapour intrusion Commercial / Industrial	Vapour intrusion from soil is a potential pathway.
NEPM 2013 Health Investigation Levels (HILs) Commercial / Industrial	Exposure to soils impacted by contaminants of potential concern (COPC) by future users
NEPM 2013 Ecological Screening levels (ESL) Commercial / Industrial	Ephemeral creeks are present across each of the mine sites
NEPM 2013 Ecological Investigation Levels (EIL) Commercial / Industrial	Ephemeral creeks are present across each of the mine sites

3.2 Per- and Polyfluoroalkyl Substances

Criteria for PFAS are adopted from the PFAS NEMP (2020). The PFAS NEMP (version 2, 2020) provides nationally agreed guidance on the management of PFAS contamination in the environment, including prevention of the spread of contamination. It supports collaborative action on PFAS by the Commonwealth, state and territory and local governments around Australia. The NEMP is an Appendix to the Intergovernmental Agreement on a National Framework Responding to PFAS Contamination.

The identification of PFAS above relevant guideline values acts as a trigger to undertake further investigations (such as site-specific risk assessment, as opposed to the assumption that harm will have occurred). The guideline values can also prompt consideration of management action to meet the environmental values and mitigate, where practicable, human health and ecological risks.

3.2.1 HUMAN HEALTH

The human health-based assessment criteria for soil were derived using a methodology consistent with assumptions set out in the ASC NEPM for the health investigation levels (HILs). The following assessment criteria has been adopted based on current and future exposure pathways:

- Industrial/commercial - Assumes 8 hours is spent indoors and 1 hour spent outdoors at a site such as a shop, office, factory or industrial site. If the typical exposure for a site is predominantly outdoors with significant earthen areas, recalculation of a site-specific value is recommended.



**Proposed Wind Farm in Scott River
3 Assessment Criteria**

It is noted that assessment criteria developed for soils should not be applied directly to the assessment of sediments and the Interim sediment quality guidelines (ISQG) should be adopted. However, the ISQG only provide criteria for a number of common metal, metalloid and organometallic contaminants and organics, principally PAHs and organochlorine pesticides (OCPs), with no sediment criteria for PFAS developed, therefore, assessment criteria developed within the PFAS NEMP for soils have been adopted. The adopted human health assessment criteria for soil and sediment are shown in Table 3-2.

Table 3-2 Human Health PFAS Assessment Criteria

Land Use	PFOS (mg/kg)	PFOS + PFHxS (mg/kg)	PFOA (mg/kg)
Industrial/commercial	Refer to value for PFOS + PFHxS*	20	50
1) Notes:			
2) * - Table 2 PFAS NEMP (2020)			

3.2.2 ECOLOGICAL

The ecological assessment criteria within the NEMP are currently interim. The direct exposure ecological soil criteria apply specifically to protection of organisms that live within, or in close contact with soil, such as earthworms and plants. This direct exposure value can be used to assess the possibility of direct harm to these organisms. In the absence of acceptable and sufficient published guideline values for direct exposure, human health soil criteria are recommended as an interim position. The adopted ecological assessment criteria for soil and sediment are shown in Table 3-3.

Table 3-3 Ecological PFAS Assessment Criteria

Land Use	PFOS (mg/kg)	PFOS + PFHxS (mg/kg)	PFOA (mg/kg)
Ecological direct exposure	1	No value	10
Ecological indirect exposure	0.01	No value	0.005
Ecological indirect exposure (no secondary consumers)	0.14	No value	No value
Notes:			
* - Table 3 PFAS NEMP (2020)			

The ecological indirect exposure guideline value is based on dietary exposure of a secondary consumer as the most sensitive exposure pathway assessed. This value may not be protective of specific animals relevant to Australia, including predatory animals such as quolls, antechinus and reptiles. The value of 0.14 mg/kg has been based on an intensively developed site with no secondary consumers and minimal potential for indirect ecological exposure.



Proposed Wind Farm in Scott River 4 Results

4 Results

4.1 Project Area Description

The Proposed Wind Farm in Scott River is located in the southwestern region of Western Australia, approximately 15 km northeast of the township of Augusta (within the Shire of Augusta-Margaret River).

The current project area spans more than 5,500 Ha across private agricultural land, bound by the Blackwood River to the South, Scott River Road to the West, Dennis Road to the East and the other private land parcels to the North as shown on Figure 4-1.

The regional topography comprises a widely undulating but generally increasing elevation profile northwards from the Indian Ocean shoreline to the South. The local topography at the project area comprises a broad and gently undulating surface with lower lying areas often supporting wetland and creek vegetation.

Although the project area is primarily used for agricultural purposes (predominantly cattle grazing), several land parcels of native forest and gum plantation exist, identifiable as darker green patches on the plan. At the time of the investigation, the remainder of the project area's surface comprised vast open fields blanketed by short, dry grasses and sporadic trees (<10 m height) persisting throughout. Numerous wire fence lines separate land parcels and paddocks throughout the project area.

Where exposed, the surface soils were observed to be dry, loose and primarily comprising grey and pale brown sands. However, outcrops of iron cemented rock (Ferricrete) are found scattered across the project area.

Some representative photos of the project area are presented as Figure 4-2 to Figure 4-6 below.

Figure 4-1 Current Site Boundary



**Proposed Wind Farm in Scott River
4 Results**

Figure 4-2 Typical Ferricrete Exposure



Figure 4-3 Typical Grassy Fields and Small Trees



**Proposed Wind Farm in Scott River
4 Results**

Figure 4-4 Typical Fencing and Surface Conditions



Figure 4-5 Typical Fencing and Surface Conditions



Figure 4-6 Typical Plantation Area



4.2 Encountered Subsurface Conditions

4.2.1 FIELD TESTING

Logs pertaining to the intrusive testing undertaken as part of this preliminary investigation are presented as Appendix B of this report and should be referred to for geotechnical information inherent to specific locations / infrastructure.

Due to the relatively large distances between test locations, developing a ground model for the >5,500 Hectare project area based on the limited data recovered would unlikely be representative and therefore, has not been developed. The geotechnical information contained within this report should only be relied upon for discussion and high-level costing purposes.

It is understood that additional geotechnical testing will be undertaken to inform design objectives at a later time.

4.2.1.1 Test Pits

Based on the conditions encountered within the test pit excavations across the project area, the shallow (<3 m) sub-surface profile generally comprised a thin layer of topsoil, overlying sand (of various silty fines fraction), often overlying iron cemented rock strength material (ferricrete). Where ferricrete was not encountered, further sand was present to termination depth though, some layers of rich organic materials were encountered.

DCP testing undertaken through the sandy soils encountered a range of resistance through the ground profile with interpreted relative densities ranging from Loose to Very Dense. A table of the DCP results is presented below Table 4-1.

**Proposed Wind Farm in Scott River
4 Results**

Table 4-1 DCP Test Results

ID / Blows Depth	TP01	TP02	TP03	TP04	TP05	TP06	TP07	TP08	TP09	TP10	TP11	TP12	TP13	TP14	TP15	TP16	TP17	TP18	TP19	TP20
0.0-0.1	2	2	30	35	2	2	1	4	2	6	2	2	2	3	2	R	2	R	4	2
0.1-0.2	3	3	3	5	2	3	2	3	2	4	4	R	1	5	3		R		5	3
0.2-0.3	4	3	2	3	4	3	5	2	2	4	4		3	R	3				6	5
0.3-0.4	5	4	3	2	4	3	6	2	2	4	5		2		5				6	6
0.4-0.5	4	4	3	2	5	6	7	1	2	4	6		2		4				8	6
0.5-0.6	4	3	2	3	6	R	7	2	1	4	6		3		4				8	6
0.6-0.7	5	4	2	3	5		8	2	2	5	8		3		5				8	6
0.7-0.8	6	4	3	3	4		9	1	2	4	8		3		6				R	6
0.8-0.9	5	R	3	3	R		8	2	2	3	7		3		R					R
0.9-1.0	6		3	2			7	2	1	3	5		3							
1.0-1.1	5		2	2			8	3	2	3	4		5							
1.1-1.2	7		2	3			9	4	2	R	5		5							
1.2-1.3	7		3	3			9	4	3		5		6							
1.3-1.4	7		2	3			10	4	4		6		8							
1.4-1.5	11		2	3			9	6	25		4		10							
1.5-1.6	23		2	3			26	10	R		6		15							
1.6-1.7	28		2	4			24	25			8		20							
1.7-1.8	R		2	4			25	22			6		15							
1.8-1.9			3	3			23	30			7									
1.9-2.0			3	4			22	35			7									
2.0-2.1			3	4			23	40			8									
2.1-2.2			4	5			25	R			8									
2.2-2.3			4	5			R				7									
2.3-2.4			5	6							6									
2.4-2.5			5	5							5									
2.5-2.6			4	4							6									
2.6-2.7			6	5																
2.7-2.8			6	6																
2.8-2.9			7	6																
2.9-3.0			8	6																



Proposed Wind Farm in Scott River 4 Results

4.2.1.2 Geotechnical Boreholes

Subsurface conditions encountered within the geotechnical boreholes varied significantly, particularly between the north of the project area (WM01) and the southern and central portions of the project area (WM02 and WM03 respectively).

A range of SPT values were recovered which are presented graphically in Figure 4-7. A brief summary of the conditions encountered within each borehole is provided below.

WM01

A thin layer of dune sands (< 1.6 m) was present immediately overlying saturated grey and dark grey, interbedded / alternating bands of clayey and sandy soils and frequent pockets of organic and peaty material. Though little published geological information specific to the project area was available for reference, the deeper conditions underlying thin Quaternary Dune Deposits are likely residual soils derived from the Leederville Formation. This unit was encountered to the boreholes termination depth (~25 m).

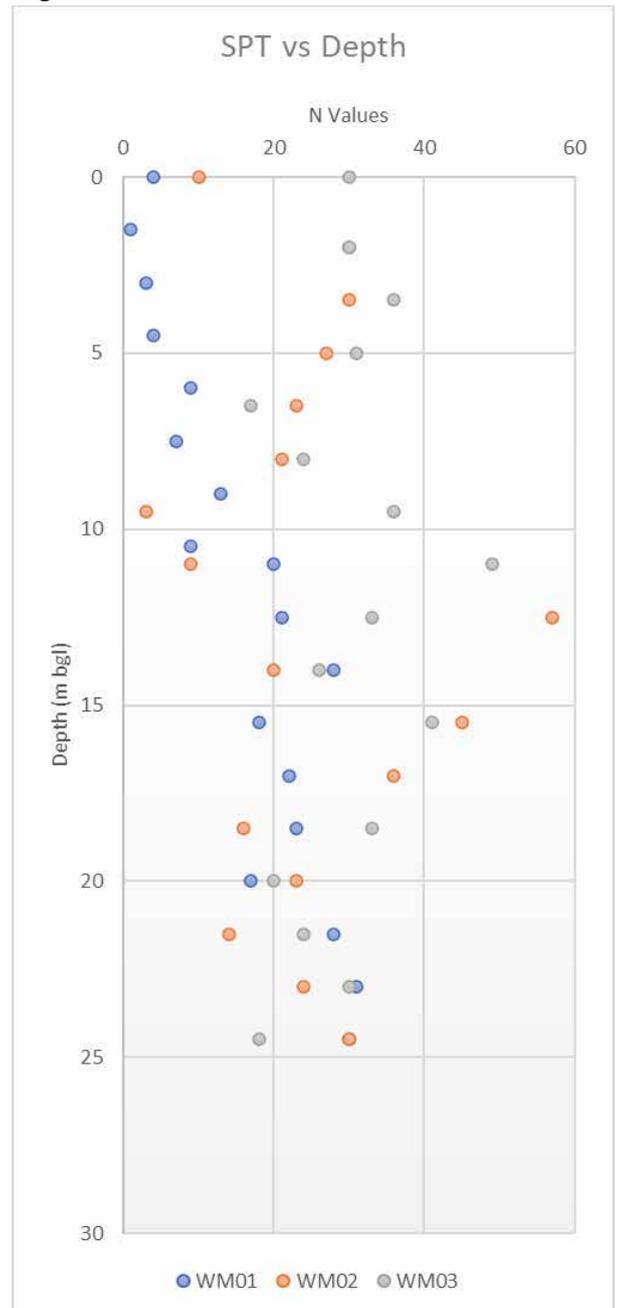
WM02

A thin layer of dune sands (<1.0 m) was present overlying iron-cemented sands (Ferricrete), indurated to a DI grade duricrust. The Ferricrete was encountered as a 1.7 m thick, massive rock unit directly overlying weakly cemented (easily broken apart by hand) organic rich sands, likely associated with historic dune swales and lacustrine depositional environments. Residual sands and clays likely derived from the Leederville Formation are present underlying this unit, which were encountered to termination depth (~25 m).

WM03

Similar to WM02, though Ferricrete was present only 0.35 m below surface, underlying topsoil and dune sands, and was encountered as a 2.05 m thick, massive rock unit (Grade DI duricrust). Weakly cemented organic rich sands were present directly beneath Ferricrete, extending to 6.2 m before intersecting clayey and sandy soils likely residuals of the Leederville Formation. A thin layer of sandstone was encountered at 19.65 m overlying more residual soils which were encountered to the base of the hole (~25 m).

Figure 4-7 SPT Plot



**Proposed Wind Farm in Scott River
4 Results**

4.2.2 GEOTECHNICAL TEST RESULTS

The laboratory test certificates for the geotechnical, contamination, and acid sulphate soils testing are presented in Appendix C.1 and C.2 respectively.

The results of geotechnical laboratory testing are summarised in Table 4-2 and Table 4-3 with a graphical representation of the classification test results shown in Figure 4-8 and Figure 4-9.

As expected, based on the logging undertaken in the field and considering the large distances between test locations, significant variability exists across the project area, both in the material classification and performance characteristics.

Table 4-2 Thermal Resistivity Test Results

Sample ID	Moisture Content (%)	Thermal Resistivity (K.M/W)
TP10 - 1.0m	0	1.96
	3.5	0.653
	8.6	0.389
	11.9	0.289
TP13 - 1.5m	0.1	1.76
	5.3	0.616
	11.4	0.348
	16.7	0.216
TP15 - 1.0m	0.1	1.47
	4.6	0.653
	9.8	0.469
	14.5	0.39
Note: All samples were compacted to a target of 95% MMDD		



**Proposed Wind Farm in Scott River
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Table 4-3 Laboratory Testing (Geotechnical)

Borehole ID	Depth (m bgl)	Moisture Content (%)	Particle Size Distribution (%)			Atterberg Limits (%)			MMDD (t/m ³)	OMC (%)	CBR (%)*	Direct Shear**		Emerson Class	Point Load Index (MPa)		Aggressivity Suite		
			G	S	F	LL	PI	LS				Peak (°)	Residual (°)		Is	Is(50)	pH	Cl ⁻ (mg/kg)	SO ₄ ²⁻ (mg/kg)
WM01	1.0 - 1.6	7.3	0	85	15	-	-	-	-	-	-	-	-	-	-	-	-	-	
WM01	4.0 - 5.0	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	
WM01	17.0 - 18.0	30.2	0	18	82	61	27	9.5	-	-	-	-	-	-	-	-	5.4	26	810
WM01	22.0 - 23.0	0.5	2	71	27	26	9	4	-	-	-	-	-	-	-	-	5.1	41	190
WM02	4.5 - 5.0	9.3	0	97	3	N.P	-	-	-	-	-	-	-	-	-	-	3.6	34	5200
WM02	10.0 - 11.0	5.9	0	87	13	N.P	-	-	-	-	-	-	-	-	-	-	2.6	20	1800
WM02	16.0 - 17.0	0.4	5	90	5	N.P	-	-	-	-	-	-	-	-	-	-	4.1	54	1100
WM03	0.35 - 3.4	-	-	-	-	-	-	-	-	-	-	-	-	-	2.21	2.90	-	-	-
WM03	4.0 - 5.0	7.3	0	85	5	N.P	-	-	-	-	-	-	-	-	-	-	4	50	1800
WM03	24.0 - 24.9	17.1	9	60	31	34	14	5.5	-	-	-	-	-	-	-	-	5.3	33	110
TP07	1.7	15.0	-	-	-	-	-	-	1.79	15.0	-	45.00	35.37	-	-	-	-	-	-
TP08	2.0	13.5	-	-	-	-	-	-	1.93	13.5	-	47.47	39.69	-	-	-	-	-	-
TP10	1.0	12.0	-	-	-	-	-	-	1.93	11.5-12.0	25	-	-	-	-	-	-	-	-
TP11	2.0	20.2	1	94	5	N.P	-	-	-	-	-	-	-	5	-	-	5.2	51	790
TP13	1.5	17.0	-	-	-	-	-	-	1.76	17.0	-	-	-	-	-	-	-	-	-
TP15	1.0	14.5	-	-	-	-	-	-	1.95	12.5	20	-	-	-	-	-	-	-	-

Notes:

G = Gravel
S = Sand
F = Fines

N.P = Non-plastic
LL = Liquid Limit
PI = Plasticity Index
LS = Linear Shrinkage

MMDD = Modified Maximum Dry Density
OMC = Optimum Moisture Content
CBR = California Bearing Ratio

*Samples compacted to a target of 95% MMDD and at OMC
**Samples compacted to a target of 98% MMDD and at OMC



Proposed Wind Farm in Scott River
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Figure 4-8 PSD Curves

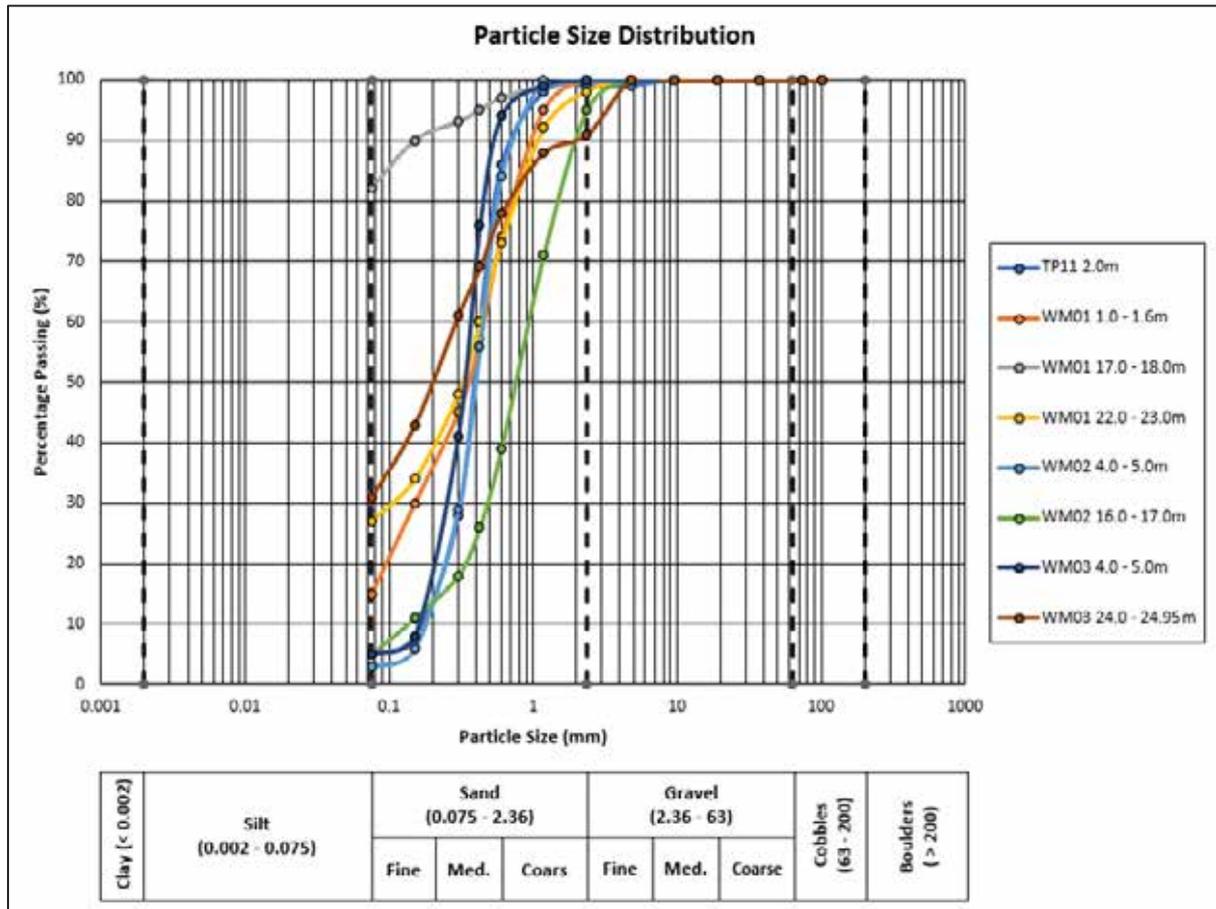
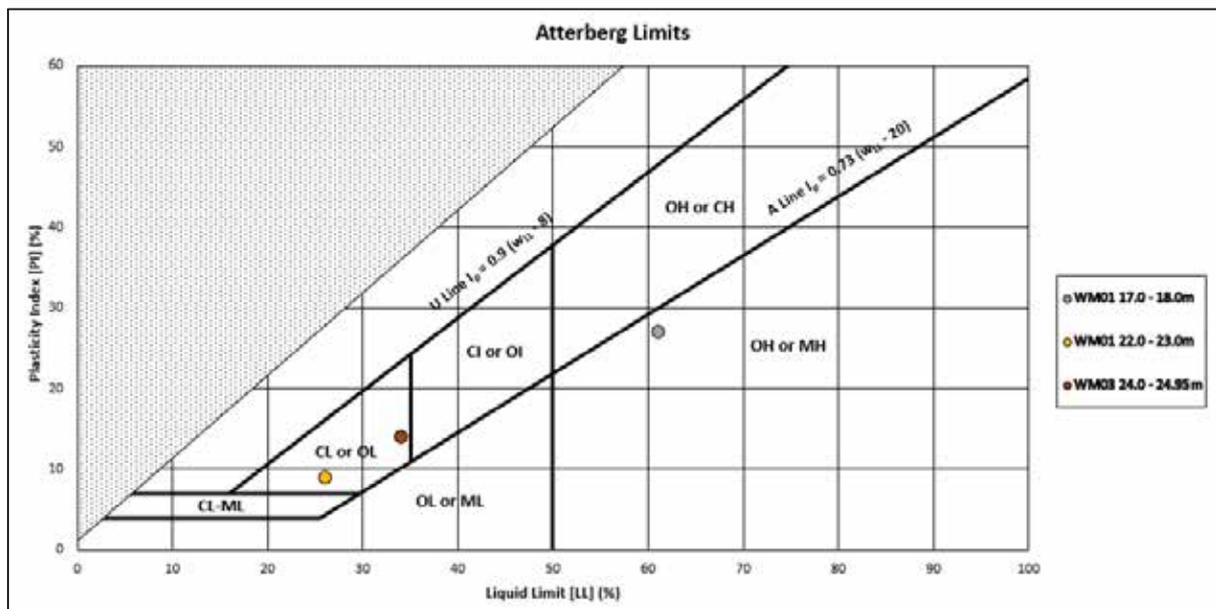


Figure 4-9 Atterberg Limits Plot



Proposed Wind Farm in Scott River

4 Results

4.2.3 CONTAMINANTS OF POTENTIAL CONCERN

The laboratory test certificates for the CoPC are presented in Appendix C.2, with an analytical results table presenting all data against adopted assessment criteria in Appendix E.

4.2.3.1 Benzene, Toluene, Ethylbenzene, Xylenes and Naphthalene (BTEXN)

All BTEXN concentrations were recorded below the laboratory limit of reporting (LOR).

4.2.3.2 Total Recoverable Hydrocarbons (TRH)

A total of 50 primary samples were submitted for TRH analysis. A total of nine samples recorded TRH ($C_{10} - C_{40}$) concentrations above the laboratory LOR. Details of the TRH results recording concentrations above the laboratory LOR are presented in Table 4-4.

The highest TRH fraction concentrations were reported within the surface sample at TP01; however, all TRH concentrations were recorded below the adopted assessment criteria.



**Proposed Wind Farm in Scott River
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Table 4-4 Soil Analytical Results - TRH

Analyte	No. Samples	No. Detects	Max Conc (mg/kg)	Ecological Screening Levels ¹		Health Screening Levels – Vapour Intrusion ²		Health Screening Levels – Direct Contact ³				Management Limits ⁴	
				Com / Ind (mg/kg)	No. of Conc > Criteria	HSL-D (mg/kg)	No. of Conc > Criteria	HSL-D (mg/kg)	No. of Conc > Criteria	Int Main Worker (mg/kg)	No. of Conc > Criteria	Com / Ind (mg/kg)	No. of Conc > Criteria
C ₆ – C ₁₀	50	0	<20	NC	-	NC	-	26,000	0	82,000	0	700	0
F1 (C ₆ - C ₁₀ minus BTEX)	50	0	<00	215	0	250	0	NC	-	NC	-	NC	-
C ₁₀ – C ₁₆	50	1	150 (TP01 – 0.0)	NC	-	NC	-	20,000	0	62,000	0	1,000	0
F2 (C ₁₀ - C ₁₆ minus Naphthalene)	50	1	150 (TP01 – 0.0)	170	0	NC	-	NC	-	NC	-	NC	-
F3 C ₁₆ – C ₃₄	50	11	1,600 (TP01 – 0.0)	1,700	0	NC	-	27,000	0	85,000	0	3,500	1
F4 C ₃₄ – C ₄₀	50	3	380 (TP01 – 0.0)	3,300	0	NC	-	38,000	0	120,000	0	10,000	0
C ₁₀ – C ₄₀	50	11	2,130 (TP01 – 0.0)	NC	-	NC	-	NC	-	NC	-	NC	-

Notes:
1. Ecological Screening Levels from NEPC (2013). Values for coarse soil texture applied
2. Health Screening Levels from NEPC (2013). Values for coarse soils at 0 to <1.0m depth applied.
3. Health Screening Levels from Friebel & Nadebaum (2011) CRCCARE
4. Management Limits from NEPC (2013). Values for coarse soil texture applied
5. "NC": no criteria adopted.



**Proposed Wind Farm in Scott River
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4.2.3.3 Metals

Concentrations of arsenic, cadmium, copper, lead, manganese, mercury, nickel and zinc were recorded above the laboratory LOR. A summary of the heavy metal concentrations recorded are presented in Table 4-5, however, all concentrations were recorded below the adopted assessment criteria.

Table 4-5 Soil Analytical Results - Metals

Metal	No. Samples	No. Detects	Max Conc (mg/kg)	Location of Max Concentration	HIL Recreational (mg/kg)	HIL Comm/Ind (mg/kg)
Arsenic	50	3	11	WM03-0.5	300	3,000
Cadmium	50	3	0.8	TP03 - 0.0	100	800
Copper	50	21	12	TP03 - 0.0	20,000	250,000
Lead	50	16	20	WM03-0.5	600	1,500
Manganese	50	10	27	TP04 - 0.0	9,000	40,000
Mercury	50	7	0.05	WM03-0.0 WM03-0.5	400	4,000
Nickel	50	2	2.6	TP09 - 1.0	800	4,000
Zinc	50	6	32	TP04 - 0.0	30,000	400,000

4.2.3.4 Organochlorine (OC) and Organophosphate (OP) pesticides

All OC and OP pesticides concentrations were recorded below the laboratory LOR.

4.2.3.5 Nutrients

Concentrations of KNT, nitrate, nitrite, nitrogen and phosphorus were recorded above the laboratory LOR. A summary of the nutrient concentrations recorded are presented in Table 4-6, however, it is noted that there are no assessment criteria for nutrients.

Table 4-6 Soil Analytical Results - Nutrients

Metal	No of Conc > LOR	Min Conc (mg/kg)	Max Conc (mg/kg)	Location of Max Concentration
KNT	50	40	5,200	WM03-0.0
Nitrate	29	<1	37	TP11-0.0
Nitrite	9	1	15	WM02-0.0
Nitrogen	50	40	5,200	WM03-0.0
Phosphorus	50	1.7	1,300	TP03 - 0.0



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4.2.3.6 Asbestos in soil (fibrous)

Asbestos was not detected in any of the samples.

4.2.3.7 Per- and polyfluoroalkyl substances (PFAS)

All PFAS concentrations were recorded below the laboratory LOR.

4.2.4 ACID SULFATE SOILS

The laboratory test certificates for the CoPC are presented in Appendix C.2.

4.2.4.1 Preliminary Acid Sulfate Soils Assessment

The results of the initial laboratory screening of pH_F and pH_{Fox} analysis are summarised in Table 4-7 below and in further detail in Appendix D.1. The results were assessed under the framework provided in Table A1 and A2 of the Department of Water and Environmental Regulation (DWER) Identification and investigation of acid sulfate soils and acidic landscapes (June 2015).

Table 4-7 ASS Field Screening Test Results

Location	No. of Samples	Max Sample Depth (m BGL)	Average pH_F	Average pH_{Fox}	ΔpH	Reaction Rate
TP01	8	2.0	4.66	3.56	1.10	Moderate
TP02	5	1.0	4.80	3.80	1.00	Moderate
TP03	3	1.0	6.23	4.57	1.67	Moderate
TP04	5	1.75	5.88	3.96	1.92	Moderate
TP05	4	0.75	5.95	3.48	2.48	Moderate
TP06	3	0.5	4.93	4.13	0.80	Moderate
TP07	7	1.5	6.27	4.89	1.39	Moderate
TP08	9	2.0	5.47	4.23	1.24	Moderate
TP09	4	1.5	5.45	4.68	0.78	Moderate
TP10	2	1.0	6.05	4.05	2.00	Moderate
TP11	9	2.0	6.09	4.10	1.99	Moderate, with a single extreme reaction @ 2.0 m BGL
TP12	1	0.0	6.00	4.10	1.90	Moderate
TP13	9	2.0	4.84	4.17	0.68	Moderate
TP14	2	0.25	5.65	3.60	2.05	Moderate
TP15	5	1.0	5.74	4.54	1.24	Moderate
TP16	1	0.0	5.80	3.00	2.80	Moderate
TP17	3	0.5	5.30	3.00	2.30	Moderate



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Location	No. of Samples	Max Sample Depth (m BGL)	Average pH _F	Average pH _{FOX}	ΔpH	Reaction Rate
TP18	1	0.0	5.90	3.80	2.10	Moderate
TP19	3	0.5	5.63	4.67	0.97	Moderate
TP20	1	0.0	5.20	4.60	0.60	Moderate
WM01	41	10.0	5.93	2.71	3.22	Moderate, with extreme reactions below 5.25 m BGL
WM02	41	10.0	5.83	3.23	2.58	Moderate, with extreme reactions below 3.5 m BGL
WM03	39	10.0	6.17	3.38	2.79	Moderate, with extreme reactions below 3.25 m BGL

The initial ASS field screening test results indicate that none of the sample locations recorded an average pH_F value in excess of 6.3 indicating the potential occurrence of marine muds, and reflecting seawater influence, and the presence of potential acid sulfate soils (PASS).

The pH_{FOX} test is used to indicate the presence of iron sulfides or PASS. This test involves adding 30 per cent hydrogen peroxide (pH adjusted to 4.5–5.5) to a sample of soil. If sulfides are present a reaction will occur. The reaction can be influenced by the amount of sulfides present in the sample, the presence of organic matter, or the presence of manganese.

All reactions recorded moderate to extreme reactions indicating the possible presence of PASS. This is supported by the difference between the pH_F and pH_{FOX} results, with the samples collected from the groundwater monitoring bores indicating an average 2.5 or greater difference.

4.2.4.2 SPOCAS Assessment

The complete SPOCAS method provides 12 individual analytes (plus five calculated parameters), enabling the quantification of some key fractions in the soil sample, leading to better prediction of its likely acid-generating potential. It involves the measurement of pH, titratable acidity, sulfur and cations on two soil sub-samples. One soil sub-sample is oxidised with hydrogen peroxide and the other is not. The differences between the two values of the analytes from the two sub-samples are then calculated.

A summary of the SPOCAS results are presented in Appendix D.2.

The results indicate that 50 of the 70 samples submitted for SPOCAS analysis exceeded the net acidity action criteria.



5 Comments and Recommendations

The information presented below is preliminary and should be further refined, where required, based on future investigations closer to confirmed infrastructure locations.

5.1 Preliminary Baseline Contamination Conditions

It is considered based on the soil investigation completed that the concentrations of the identified CoPC do not pose a risk to human health or the environment.

5.2 Preliminary Acid Sulphate Soil Conditions

The initial ASS field screening test results indicate that none of the sample locations recorded an average pHF value in excess of 6.3 indicating the potential occurrence of marine muds, and reflecting seawater influence, and the presence of potential acid sulfate soils (PASS).

The pHFOX test is used to indicate the presence of iron sulfides or PASS. This test involves adding 30 per cent hydrogen peroxide (pH adjusted to 4.5–5.5) to a sample of soil. If sulfides are present a reaction will occur. The reaction can be influenced by the amount of sulfides present in the sample, the presence of organic matter, or the presence of manganese.

All reactions recorded moderate to extreme reactions indicating the possible presence of PASS. This is supported by the difference between the pHF and pHFOX results, with the samples collected from the groundwater monitoring bores indicating an average 2.5 or greater difference.

The results indicate that 50 of the 70 samples submitted for SPOCAS analysis exceeded the net acidity action criteria. An ASS management plan (ASSMP) will need to be developed and implemented for disturbance of ASS for the project.

5.3 Construction Recommendations

5.3.1 GENERAL EARTHWORKS (LIGHT STRUCTURES AND PAVEMENTS)

It is recommended where light structures and pavements are proposed, general earthworks shall be undertaken conforming to the following:

All uncontrolled fill, vegetation, soil horizons with >5% fines content (<75 microns), rich in organics and / or topsoil material (if present) should be stripped and stockpiled for disposal off-site or for landscaping purposes, exposing the natural competent subgrade.

Should fill be required to achieve design levels, it should comprise clean granular material with <5% fines content and a maximum particle size of 100 mm, that is moisture conditioned to within $\pm 3\%$ of the soil's optimum moisture content. The pale coloured, natural dune sands located across the project area are likely suitable for re-use as engineered fill, provided oversize and deleterious materials are removed. Similarly, where suitable crushing of Ferricrete is undertaken, this may also be used.

Assuming the above have been undertaken, excavations to design subgrade levels are expected to recover sand which should be readily excavated using a conventional earthmoving plant. However, extensive Ferricrete was observed across the project area, often at or immediately below the surface which would likely require rock breaking and ripping to remove.



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At the completion of excavations to design levels (including foundations), the subgrade shall be compacted to achieve at least 95% compaction with respect to Modified Maximum Dry Density (MMDD). Proof rolling of the subgrade shall also be undertaken where practicable. Any loose/soft, weak or organic materials observed during the proof roll shall be removed and replaced with compacted clean fill.

Material for use as fill shall be moisture conditioned and compacted in layers not exceeding 300 mm to achieve at least 95% compaction with respect to MMDD, as defined above. This includes material placed adjacent to foundations. Care must be exercised when compacting in the vicinity of existing structures, particularly if vibratory compaction is being carried out.

Temporary cut batters above the water table may be excavated to a gradient of up to 1V:2H to maximum heights of 3 m, provided no load-bearing structures or heavy loadings are positioned within 2 m of the batter crest. Cut batters exceeding 3 m in height must be benched (minimum 1.5 m wide level benches). Permanent cut and fill batters should be created at a gradient of no steeper than 1V:3H.

The poorly graded sandy nature of the surface soils in the project area will mean that they will dry quickly where exposed and the trafficability of construction vehicles will be poor, leading to significant rutting. In addition, the Emerson Class tests undertaken indicate the soils may be susceptible to erosion from surface water flow. We recommend that all completed earthworks surfaces be hydro-seeded or dust stop be used, to prevent erosion and excess dust on the project.

The technical and control requirements for Engineered Fill, including site observation and compaction testing, are outlined in AS3798. We recommend that this work, and in particular, determining the depth and extent of any uncontrolled fill removal during earthworks, is completed under the direction and control of a suitably experienced Geotechnical Professional familiar with the contents of this report.

5.3.2 WTG FOUNDATION EXCAVATIONS

5.3.2.1 Dewatering

It is noted that groundwater levels were recorded at shallow depths in each of the boreholes. Given the potential for excavations for WTG foundations to be up to 6m deep, significant dewatering may be required to facilitate construction. A dewatering management plan to inform the disposal conditions is recommended to be developed. This dewatering will likely require dewatering spears to be installed to maintain groundwater level at least 1m beneath foundation subgrade level.

5.3.2.2 Forward Planning

The presence of interbedded sandy and clayey material (noted in WM01) significantly increases the potential for softening and disturbance of footing bases during and following excavation. Once wetting and softening of the footing occurs it will be necessary to remove the softened disturbed material and replace it with compacted granular fill unless it can be dried out and compacted.

It is therefore imperative that footing excavations, inspection and base blinding is planned to occur quickly, using excavation and haulage plant that minimises rutting and disturbance of the excavation base, and is planned and timed to coincide with weather windows where rainfall is not forecasted. Provision should also be made to drain water from footing bases even after blinding is placed. To



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facilitate this, it is recommended that lined sumps be installed to minimise the risk of sapping back of the side of the sump disturbing the footing footprint.

Even in the absence of rainfall some softening due to absorption of atmospheric moisture can occur. The excavations should be scheduled so that they can be excavated, inspected and blinded in the shortest practical window to minimise the impact of atmospheric softening.

5.3.2.3 Excavatability

Excavations to design subgrade levels and footing excavations are expected to be through superficial sand, ferricrete duricrust and sandy clay. Refusal during backhoe excavation was encountered on the ferricrete duricrust.

The duricrust is likely to have variable strength, from soil strength to well cemented rock strength material. Given the large size of the WTG foundation excavations an excavator of >40T is likely required which, using a toothed bucket, may prove sufficiently effective to excavate through the rock mass. However, it is possible that isolated areas may require the use of a mechanical rock breaker. Given the variable thickness of the unit across such a large project area and with only limited rock strength information, the potential requirement of adopting drill & blast techniques should be considered. Additional geotechnical (particularly rock strength and extent) information to each wind turbine and infrastructure locations and excavatability methods will be required to be assessed during the detailed design and construct phase. Given the history of farming practices and developments across the project area, existing landowners/stakeholders may offer some additional insight into historical rock removal techniques adopted in the area, particularly whether drill and blast has historically been required.

5.3.2.4 Batter Angles and Formwork

It is understood that the WTG foundations generally require lateral support surrounding the foundation. Therefore, it may be preferable to excavate vertical sides rather than batter back and undertake the construction of foundation formwork. It is noted that, in accordance with West Australian codes of practice, a person must not work within an excavation which is greater than 1.5m deep without adequate shoring or safe batter angles provided. It is recommended that the sides of the excavation are benched to achieve stable and safe batters to allow personnel to access the excavation.

The effect of any load bearing structures, stockpiles, crane or plant loadings etc. located within 2.0 m of the cut slope crest must also be considered.

5.3.2.5 Base Protection and Preparation

Recommendations associated with this work are summarised as follows:

At the completion of excavation to design level, the upper 300mm of the exposed subgrade must be moisture conditioned and compacted to achieve at least 95% compaction with respect to Modified Maximum Dry Density (MMDD);

Given the potential variation in soil conditions across a large diameter (20 – 25 m) foundation excavation, the exposed subgrade must be assessed by a geotechnical engineer to ensure consistency and to check that naturally occurring or construction induced soft zones are present. This should be undertaken by observing a proof roll, by visual assessment and by Dynamic Cone



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Penetrometer (DCP) and or shear vane testing. It may be necessary to undertake excavation and replacement with either compacted fill or lean mix concrete where unsuitable soils are encountered. The requirement for, and size of, this remediation can be decided on a case by case basis during earthworks and based on the final design.

5.3.2.6 Footing Base Backfilling

Once concrete has cured and formwork removed the footing based should be backfilled. Granular fill shall be selected for backfill and compacted in 300 mm layers to achieve a modified density ratio of 95%. This specification pertains to geotechnical engineering (material strength) characteristics to satisfy structural designs only. If confinement of groundwater surrounding footings is required based on environmental or hydrogeological assessments, additional backfill requirements and treatment options would likely be required whilst still maintaining sufficient load bearing capacities, such as use of grout or ground improvement techniques. Additional design by specialist wind turbine foundation designers will likely be required to meet these objectives.

The finished surface around footings should be graded to shed surface water way from the footing and to minimise the potential for water to seep into backfill materials.

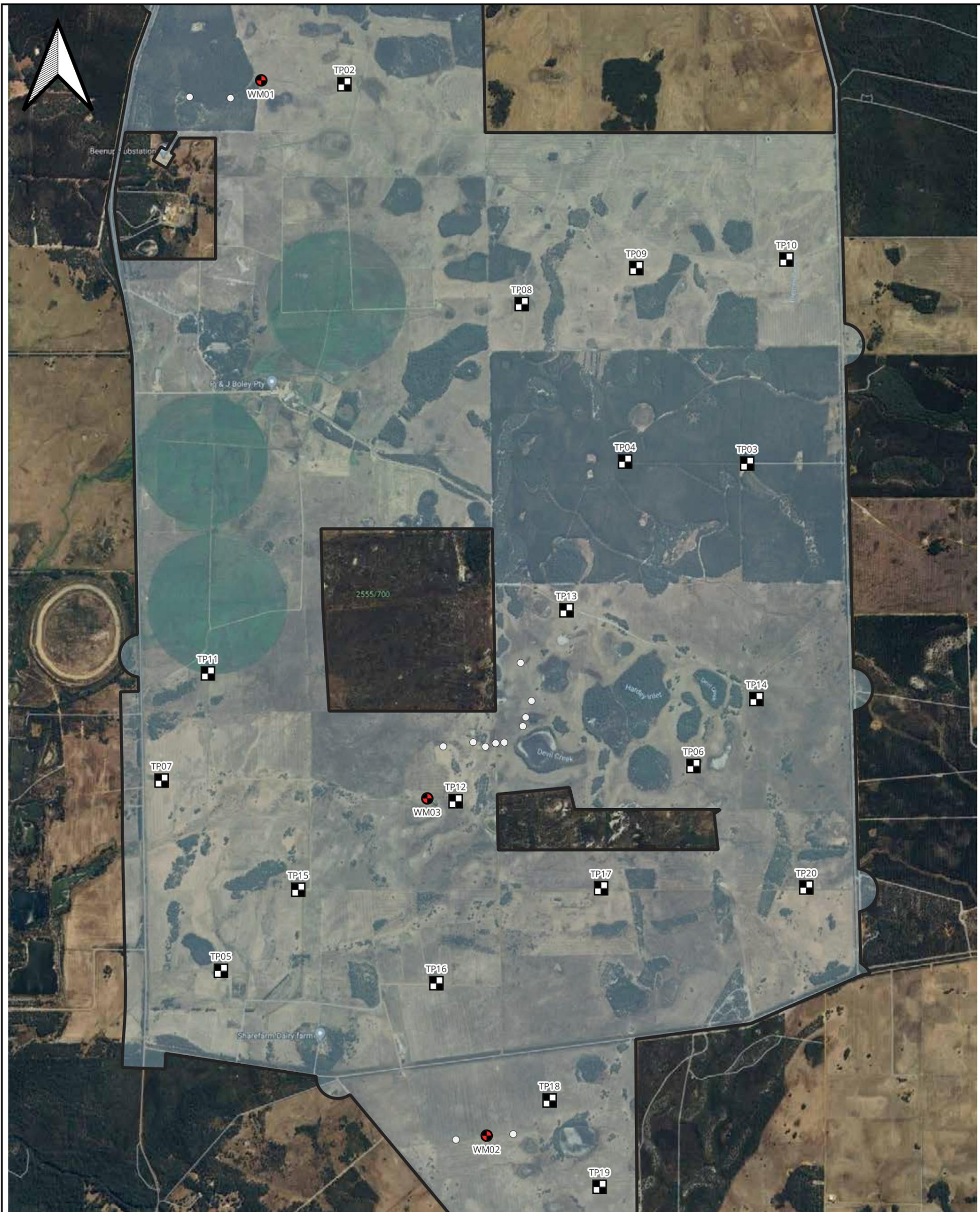


APPENDICES



Appendix A Test Location Plan





Beenup Wind Farm

Preliminary Geotechnical and Baseline Contamination Investigation

Test Location Plan

Project Code: 304501017

Drawn By: Singh, Edvinder, Checked By: BP

Date: (2024-05-15)

Appendix A



Legend

Boundary Extents

Geotechnical Investigation Type

Geotechnical Boreholes (WM)

Shallow Wells

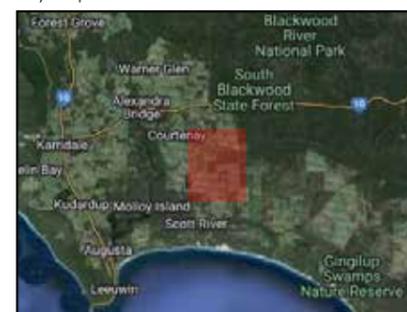
Geotechnical Test Pits (TP)

0 500 1,000 m



Scale at A3: 1:30000

Key Map



Appendix B Geotechnical Logs



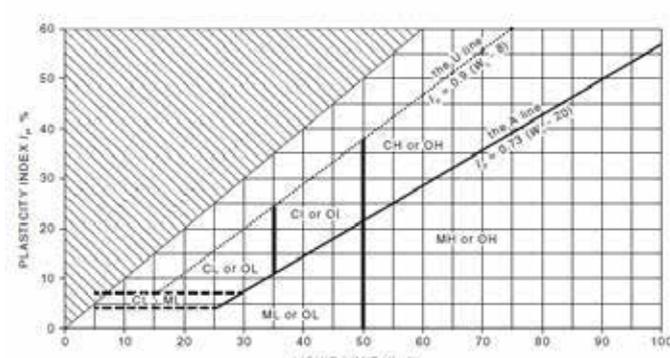
SOIL AND ROCK EXPLANATORY NOTES, ABBREVIATIONS & TERMS (DESCRIPTIONS, CLASSIFICATION CHARTS AND LOG KEYS)

CLASSIFICATION AND INFERRED STRATISGRAPHY

Soil and rock are classified and described in accordance with the recommendations of Australian Standard AS 1726-2017 Geotechnical Site Investigations which unless mentioned otherwise has been used to prepare these notes. The material properties are assessed in the field by visual/tactile methods. The order in which descriptions are provided on logs is as follows:

SOIL TYPE (AS 1726-2017 Classification) using BLOCK LETTERS, colour, structure, particle characteristics, geological origin, other minor components. The consistency/density and moisture conditions are listed as abbreviations in separate columns.

The presence of FILL and TOPSOIL shall be indicated at the beginning of the description using BLOCK LETTERS.

Particle Size Definitions				Plasticity Properties
Fraction	Components	Sub Division	Particle Size	
Oversize	BOULDERS		> 200mm	
	COBBLES		63 – 200mm	
Coarse Grained	GRAVEL	Coarse	19 – 63mm	
		Medium	6.70 – 19mm	
		Fine	2.36 – 6.70mm	
	SAND	Coarse	0.60 – 2.36mm	
		Medium	0.21 – 0.60mm	
		Fine	0.075 – 0.21mm	
Fine Grained	SILT		0.002 – 0.075mm	
	CLAY		< 0.002mm	

NOTE: The U line is an approximate upper bound for most natural soils. Data which plots above the U line may represent unusual/problem soil behaviour, or unreliable data and should be considered carefully.

UNIFIED SOIL CLASSIFICATION SYSTEM (USCS)

Major Soil Group	Descriptor	Coefficient of Uniformity (C_u) : $C_u = D_{60} / D_{10}$
G - Gravel S - Sand	W - Well-Graded P - Poorly-Graded S - Silty C - Clayey	Coefficient of Curvature (C_c) : $C_c = (D_{30})^2 / (D_{10}D_{60})$
		D_{10} – Grain Diameter (mm) Corresponding to 10% Soil Passing
		D_{30} – Grain Diameter (mm) Corresponding to 30% Soil Passing
		D_{60} – Grain Diameter (mm) Corresponding to 60% Soil Passing
M - Silt C - Clay O - Organic	L - Low Plasticity (LL < 35%) H - High Plasticity (LL > 50%)	NOTE: Well-Graded Sand (SW) : $C_u > 6$ and $C_c = 1-3$ Well-Graded Gravel (GW) : $C_u > 4$ and $C_c = 1-3$

Organic – The soil has between 20% – 75% Organic Matter / Medium Plasticity (Fine Grained Clay Soils ONLY): 35% < LL < 50%

MINOR COMPONENTS

Zoning	Description
Layer	The zone is continuous across the exposure or sample
Lens	Discontinuous layer of different material, with lenticular shape
Pocket	Irregular inclusions of different material
Interbedded / Interlaminated	Layers of alternating soil types are too thin to be described individually

The structure of soil layers may include: defects such as softened zones, fissures, cracks, joints and root-holes; and coarse-grained soils may be described as strongly or weakly cemented.

Cementation State	Description
Uncemented (U_c)	No cementation present
Weakly Cemented (W_k)	The soil may be easily disaggregated by hand in air or water
Moderately Cemented (M_o)	Effort is required to disaggregate the soil by hand in air or water

Terminology	Field Guide	Coarse Grained Soils		Fine Grained Soils
		Percentage Fines	Percentage Coarse	Percentage Coarse
Trace	Presence just detectable	≤ 5%	≤ 15%	≤ 15%
With	Presence easily detectable	> 5% / ≤ 12%	> 15% / ≤ 30%	> 15% / ≤ 30%

Soil types may be qualified by the presence of minor components on the basis of field examination methods and/or the soil grading

SYMBOLS

	GRAVEL (GW / GP / GM / GC)		COBBLES & BOULDERS
	SAND (SW / SP / SM / SC)		PEAT (Pt)
	SILT (ML / OL / MH / OH)		TOPSOIL
	CLAY (CL / OL / CH / OH)		FILL

Combinations of these basic graphic symbols may be used to indicate and describe mixed materials such as Gravelly CLAY. EXAMPLE: GP-GC = Poorly-Graded GRAVEL with Silt

SOIL ORIGIN DESCRIPTIONS

Fill	Anthropogenic deposits or disturbed material
Topsoil	Zone of soil affected by roots and root fibres
Peat	Significantly organic soils
Colluvial	Transported down slopes by gravity and/or water
Aeolian	Transported and deposited by wind
Alluvial	Deposited by streams and rivers
Estuarine	Deposited in coastal estuaries
Lacustrine	Deposited in freshwater lakes
Marine	Deposits in marine environments
Residual Soil	Soil formed by in situ weathering of rock, with no structure/fabric of parent rock evident
Extremely Weathered Material	Formed by in-situ weathering of geological formations, with the structure/fabric of parent rock intact but with soil strength properties

MOISTURE CONDITIONS (COARSE GRAINED AND FINED GRAINED SOILS)

Symbol	Term	Description
Coarse Grained Soils -		
D	Dry	Non-cohesive and free running/flowing
M	Moist	Soil feels cool, darkened in colour, soil tends to stick together
W	Wet	Soil feels cool, darkened in colour, soil tends to stick together, free water forms when handling
Fine Grained Soils -		
w < PL	Moist	Moist, Dry of Plastic Limit (PL), hard and friable or powdery
w ≈ PL		Moist, near Plastic Limit (PL), soils can be moulded at a moisture content approximately equal to the Plastic Limit (PL)
w > PL		Moist, Wet of Plastic Limit (PL), soils usually weakened and free water forms on hands when handling
w ≈ LL	Wet	Wet, near Liquid Limit (LL)
w > LL		Wet, Wet of Liquid Limit (LL)

MOISTURE CONDITIONS (ROCK)		
Symbol	Term	Description
D	Dry	Looks and feels dry
M	Moist	Feels cool, darkened in colour, but no water is visible on the surface
W	Wet	Feels cool, darkened in colour, water film or droplets visible on the surface

GROUNDWATER	
	Water Level at Date Shown
	Water Inflow - Water Flowing/Flooding into Hole
	Water Outflow - Partial Water Loss
	Water Outflow - Complete Water Loss
GROUNDWATER NOT OBSERVED	The observation of groundwater, whether present or not, was not possible due to drilling water surface seepage or cave in of the borehole and/or test pit
GROUNDWATER NOT ENCOUNTERED	The borehole and/or test pit was dry soon after excavation. However, groundwater could be present in less permeable strata. Inflow may have been observed had the borehole and/or test pit been left open for a longer period.

Perched groundwater may result in a misleading indication of the depth to the true water table. Groundwater levels are also likely to fluctuate with variations in climatic and site conditions.

DENSITY / CONSISTENCY (COARSE GRAINED AND FINE GRAINED SOILS)

Relative Density (Coarse Grained Soils) -

Symbol	Term	Density Index (%)	SPT (150mm) *	DCP (100mm) *	DCP (150mm) *
VLs	Very Loose	Less than 15%	0 - 4	0 - 1	0 - 1
Ls	Loose	15% - 35%	4 - 10	1 - 2	1 - 3
MD	Medium Dense	35% - 65%	10 - 30	2 - 5	3 - 8
D	Dense	65% - 85%	30 - 50	5 - 10	8 - 15
VD	Very Dense	More than 85%	> 50	> 10	> 15

Consistency (Fine Grained Soils) -

Symbol	Term	Undrained Shear Strength (kPa)	Field Guide	DCP (100mm) *	DCP (150mm) *
VS	Very Soft	Less than 12kPa	Exudes between fingers when squeezed in hand	0	0
S	Soft	12kPa - 25kPa	Can be moulded by light finger pressure	0 - 1	0 - 1.5
F	Firm	25kPa - 50kPa	Can be moulded by strong finger pressure	1 - 2	1.5 - 3
St	Stiff	50kPa - 100kPa	Cannot be moulded by fingers, can be indented by thumb	2 - 4	3 - 6
VSt	Very Stiff	100kPa - 200kPa	Can be easily indented by thumb nail	4 - 8	6 - 12
Hd	Hard	More than 200kPa	Can be indented with difficulty by thumb nail	> 8	> 12

(*) - Number of blows are depth related and can vary significantly. In the absence of test results, consistency and density may be assessed from correlations with the observed behaviour of the material. SPT and DCP are not stated in AS 1726-2017, and may be subject to corrections for overburden pressure and equipment type. Corrections have not been performed in preparing the following logs.

C	Curved	The defect has a gradual change in orientation.
U	Undulating	The defect has a wavy surface.
St	Stepped	The defect has one or more well defined steps.
I	Irregular	The defect has many sharp changes of orientation.

Alternatively, the surface roughness may be characterised by the Joint Roughness Coefficient (JRC) [AS 1726:2017 – Figure 9]

Defect Coatings and Composition of Seams -

KL	Clean	No visible coatings.
S	Stained	No visible coating but surfaces are discoloured.
V	Veneer	A visible coating of soil or mineral, too thin to measure; may be patchy.
C	Coating	A visible coating up to 1mm thick. Thicker soil material shall be described using defect terms (e.g. infilled seam). Thicker rock strength material shall be described as a vein.

DRILLING / EXCAVATION METHODS

Subsurface investigations may be conducted by either one or a combination of the following methods.

Test Pitting: Excavation/Trench [TP] -		Spiral Flight Auger Drilling [SFAD] -	
BH	Backhoe Bucket	AS	Auger Screwing
EX	Excavator Bucket	AD/V	Continuous Flight Auger with V-Bit
R	Ripper	AD/T	Continuous Spiral Flight Auger with TC-Bit
H	Hydraulic Hammer	ADH	Continuous Hollow Flight Auger
EE	Existing Excavation	Rotary Non-Core Drilling [RNCD] -	
N	Natural Exposure	WB	Washbore Drilling
Manual Drilling: Hand Operated Tools [MD] -		RR	Rock Roller
HA	Hand Auger	AIRCORE	Air Core
HAND	Excavated by Hand Methods	JET	Jetting
Continuous Sample Drilling [CSD] -		Rotary Core Drilling [RCD] -	
PT	Push Tube Sampling	PQ3	83mm - Diamond Wire Line Core Barrel
EPT	Extruded Push Tube	HMLC	63mm - Diamond Wire Line Core Barrel
PS	Percussion Sampling	HQ3	61mm - Diamond Wire Line Core Barrel
SONIC	Sonic Drilling	NMLC	52mm - Diamond Conventional Core Barrel
Hammer Drilling [HD] -		NQ3	45mm - Diamond Wire Line Core Barrel
AH	Air Hammer	DTC	Diatube Concrete Coring
AT	Air Track		
RAB	Percussion Rotary Air Blast		
RC	Reverse Circulation		

Boreholes -

Vertical Boreholes	The dip (inclination from horizontal) of the defect is given
Inclined Boreholes	The inclination is measured as the acute angle between the core axis and the vertical direction

PENETRATION / EXCAVATION RESISTANCE

VE	Very Easy	Rapid penetration possible with very little effort from the equipment used
E	Easy	Rapid penetration possible with little effort from the equipment used
F	Firm	Excavation possible at an acceptable rate with moderate effort from the equipment used
H	Hard	Further penetration is possible at a slow rate and requires significant effort from the equipment used
VH	Very Hard	Further penetration is possible at a very slow rate and requires maximum effort from the equipment used

These assessments are subjective and are dependent on many factors including the equipment power, weight, condition of excavation or drilling tools, and the experience of the operator.

EXCAVATION STABILITY CONDITIONS			
Stable	No obvious/gross short-term instability noted		
Unstable	Collapse of the majority, or one or more faces of the excavation		
Flooding	Excavation filled with water		
Major Spalling	Major material falling into excavation		
Minor Spalling	Minor material falling into excavation		
CORE DRILLING PARAMETERS			
There are a number of parameters that may be measured during core drilling (of both soil and rock profiles), and which may provide useful investigation data. The measurements that define these parameters should be taken during the drilling process, when drill core is relatively undamaged.			
Symbol	Term	Calculation Formula	
TCR	Total Core Recovery	$TCR = \frac{\text{Length of Core Recovered}}{\text{Length of Core Run}} \times 100\%$	
RQD	Rock Quality Designation	$RQD = \frac{\sum \text{Length of Sound Core Pieces} > 100\text{mm in Length}}{\text{Length of Core Run}} \times 100\%$	
FF	Fracture Frequency	$FF = \frac{\text{Number of Defects}}{\text{Length of Core Recovered (m)}}$	
SAMPLING METHODS			
BDS	Bulk Disturbed Sample	SPT	Standard Penetration Test Sample
DS	Disturbed Sample	ES	Environmental Soil Sample
U	Thin Wall Tube Undisturbed Sample	WS	Environmental Water Sample
C	Core Sample	ASS	Acid Sulfate Soil Sample
TESTING METHODS			
SPT	Standard Penetration Test (AS 1289.6.3.1) – Blows per 150mm and N Value		
N	Blows per 300mm Penetration following 150mm seating (First 150mm)		
RW	Penetration occurred under the rod weight only		
HW	Penetration occurred under the hammer and the rod weight only		
HB	Hammer double bouncing on anvil		
HP / PP	Hand/Pocket Penetrometer Test expressed as instrument reading in kPa		
PSP	Perth Sand Penetrometer (AS 1289.6.3.3) – Blows per 150mm		
DCP	Dynamic Cone Penetrometer (AS 1289.6.3.2) – Blows per 150mm		
CPT	Cone Penetration Test		
CPTu	Cone Penetration Test with Pore Pressure (u) measurement		
WPT	Water Pressure Test		
FP	Field Permeability Test over section noted		
FV	Field Vane Shear Test expressed as Uncorrected Shear Strength (sv = Peak Value / sr = Residual Value)		
PID	Photoionisation Detector Reading in ppm (Parts Per Million)		
PM	Pressuremeter Test over section noted		

Client: Synergy RED	Job No: 304501017	Sheet: 1 of 4
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation		
Location: Shire of Augusta Margaret River		
Position: E341346.000 N6215506.000	Angle from Horizontal: 90°	Surface Elevation: 40.000 m AHD
Rig Type: Geoprobe 7822dt	Mounting: Track	Contractor: National Geotech
Data Started: 26/2/24	Date Completed: 27/2/24	Logged By: ES
		Checked By: BP

Drilling		Material Description					Defect Description								
Method	Casing	Core Run	RL (m AHD)	Depth (m)	Geology	LITHOLOGY	Weathering / Cementation	Strength / Density / Consistency	Sample or Field Test	TCR (%)	RQD (%)	Average Natural Defect Spacing (mm)	Observations / Description of Defects	Water Level	Monitoring Well Details
PT	PVC	1	39.1	1	QDD	<p>0.10m TOPSOIL: SAND: fine to coarse grained, sub-rounded to sub-angular, quartz and organics, dark black brown mottled; with silt. (Topsoil)</p> <p>SAND (SP): fine to coarse grained, sub-rounded to sub-angular, pale grey brown to; with silty fines. (Aeolian)</p>	Uc	VLS to LS	SPT 0.00 - 0.45 m 2, 2, 2 N*=4	100	0	20 60 200 600 2000	0.00: PID: 6.6ppm 0.00: PID: 6.6ppm; SPT Recovery: 0.45 m 0.00: QC1		
		2	38.2	2	Leederville Formation	Sandy CLAY (Cl): medium plasticity, pale grey and dark grey; sand, fine to coarse grained, sub angular to sub rounded; zones of clay high plasticity; zones of sand; medium to coarse grained, sub angular to sub rounded; (Residual Soil)	VS	VS	SPT 1.50 - 1.95 m 1, 0, 1 N*=1	100	0		0.50: PID: 4.0ppm 1.00: PID: 4.6ppm 1.50: PID: 5.3ppm 1.50: PID: 5.3ppm; SPT Recovery: 0.45 m		
		3	37.3	3			S to F		SPT 3.00 - 3.45 m 0, 1, 2 N*=3				3.00: SPT Recovery: 0.45 m		
		4	36.4	4					SPT 4.50 - 4.95 m 2, 1, 3 N*=4	100	0		4.50: SPT Recovery: 0.45 m		
		5	35.5	5					SPT 6.00 - 6.45 m 1, 4, 5 N*=9	100	0		6.00: SPT Recovery: 0.45 m		
			34.6	6				St	SPT 7.50 - 7.95 m 1, 3, 4 N*=7	100	0		7.50: SPT Recovery: 0.45 m		
			33.7	7											

DRILLING AD/V Solid flight auger: V-Bit AD/T Solid flight auger: TC-Bit HFA Hollow flight auger WB Washbore drilling RR Rock roller PQ Rotary core (85mm) HQ Rotary core (63.5mm) NMLC Rotary core (51.94mm) DT Diatube concrete coring PT Push tube PS Percussion sampling SON Sonic drilling AH Air hammer	WATER Water Level on date shown water inflow water outflow ROCK QUALITY DESCRIPTIONS RQD Rock Quality Designation (%) TCR Total Core Recovery (%)	ROCK STRENGTH EH Extremely High VH Very High H High M Medium L Low VL Very Low ROCK WEATHERING FR Fresh SW Slightly Weathered MW Moderately Weathered HW Highly Weathered XW Extremely Weathered	DEFECT TYPE J Joint P Parting SM Seam SZ Sheared zone FL Foliation V Vein CSM Crushed Seam FZ Fracture Zone HB Handing Break DB Drilling Break	PLANARITY PL Planar IR Irregular CU Curved DIS Discontinuous ST Stepped UN Undulose ROUGHNESS VR Very Rough RO Rough SO Smooth SL Stockensided POL Polished	COATING CN Clean STN Stained VN Veneer (thin or patchy) CT Coating (up to 1mm) INFILL MATERIALS X Carbonaceous MU Unidentified mineral MS Secondary mineral KT Chlorite CA Calcite Fe Iron Oxide Oz Quartz
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Refer to explanatory notes for details of abbreviations and basis of descriptions

Client: Synergy RED	Job No: 304501017	Sheet: 2 of 4
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation		
Location: Shire of Augusta Margaret River		
Position: E341346.000 N6215506.000	Angle from Horizontal: 90°	Surface Elevation: 40.000 m AHD
Rig Type: Geoprobe 7822dt	Mounting: Track	Contractor: National Geotech
Data Started: 26/2/24	Date Completed: 27/2/24	Logged By: ES
		Checked By: BP

Drilling		Material Description						Defect Description					
Method	Core Run	Geology	LITHOLOGY	Weathering / Cementation	Strength / Density / Consistency	Sample or Field Test	TCR (%)	RQD (%)	Average Natural Defect Spacing (mm)	Observations / Description of Defects	Water Level	Monitoring Well Details	
Casing	RL (m AHD)	Graphic Log							20 60 200 600 2000				
PT	6	Leederville Formation	Sandy CLAY (Cl): medium plasticity, pale grey and dark grey; sand, fine to coarse grained, sub angular to sub rounded; zones of clay high plasticity; zones of sand; medium to coarse grained, sub angular to sub rounded; (Residual Soil) (<i>continued</i>)	Uc	St		100	0		9.00: SPT Recovery: 0.75 m	Water Level	Monitoring Well Details	
	31						100	0					
	7						SPT 9.00 - 9.45 m 6, 8, 5 N*=13						
	30							100	0				10.50: SPT Recovery: 0.45 m
	8						SPT 10.50 - 10.95 m 6, 6, 3 N*=9						11.00: SPT Recovery: 0.45 m
	29			SAND (SP): medium to coarse grained, sub-rounded to sub-angular, quartz and lithics, pale grey mottled dark grey; with clay high plasticity; frequent lenses of clay and sandy clay, medium to high plasticity; (Residual Soil)		MD	SPT 11.00 - 11.45 m 3, 9, 11 N*=20						
	28							100	0				12.50: SPT Recovery: 0.45 m
	9						SPT 12.50 - 12.95 m 6, 10, 11 N*=21						
	27												12.95-13.8: Core Loss
	10							24	0				
	26												14.00: SPT Recovery: 0.45 m
	11												
	25		Clayey SAND (SC): fine to coarse grained, sub-rounded to sub-angular, quartz, lithics and peat, dark grey; high plasticity; trace black peat fragments; (Residual Soil)		VSt					15.50: SPT Recovery: 0.45 m			
	15.10m		CLAY (CH): high plasticity, dark grey and black; with peat; (Residual Soil)		MD	SPT 15.50 - 15.95 m 5, 9, 9 N*=18							
	15.40m												
	15.70m												

DRILLING AD/V Solid flight auger: V-Bit AD/T Solid flight auger: TC-Bit HFA Hollow flight auger WB Washbore drilling RR Rock roller PQ Rotary core (85mm) HQ Rotary core (63.5mm) NMLC Rotary core (51.94mm) DT Diatube concrete coring PT Push tube PS Percussion sampling SON Sonic drilling AH Air hammer	WATER Water Level on date shown water inflow water outflow ROCK QUALITY DESCRIPTIONS RQD Rock Quality Designation (%) TCR Total Core Recovery (%)	ROCK STRENGTH EH Extremely High VH Very High H High M Medium L Low VL Very Low ROCK WEATHERING FR Fresh SW Slightly Weathered MW Moderately Weathered HW Highly Weathered XW Extremely Weathered	DEFECT TYPE J Joint P Parting SM Seam SZ Sheared zone FL Foliation V Vein CSM Crushed Seam FZ Fracture Zone HB Handing Break DB Drilling Break	PLANARITY PL Planar IR Irregular CU Curved DIS Discontinuous ST Stepped UN Undulose ROUGHNESS VR Very Rough RO Rough SO Smooth SL Stockensided POL Polished	COATING CN Clean STN Stained VN Veneer (thin or patchy) CT Coating (up to 1mm) INFILL MATERIALS X Carbonaceous MU Unidentified mineral MS Secondary mineral KT Chlorite CA Calcite Fe Iron Oxide Oz Quartz
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Refer to explanatory notes for details of abbreviations and basis of descriptions

Client: Synergy RED	Job No: 304501017	Sheet: 3 of 4
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation		
Location: Shire of Augusta Margaret River		
Position: E341346.000 N6215506.000	Angle from Horizontal: 90°	Surface Elevation: 40.000 m AHD
Rig Type: Geoprobe 7822dt	Mounting: Track	Contractor: National Geotech
Data Started: 26/2/24	Date Completed: 27/2/24	Logged By: ES
		Checked By: BP

Drilling		Material Description				Defect Description					
Method	Core Run	Geology	LITHOLOGY	Weathering / Cementation	Sample or Field Test	TCR (%)	RQD (%)	Average Natural Defect Spacing (mm)	Observations / Description of Defects	Water Level	Monitoring Well Details
Casing	RL (m AHD)	Graphic Log		Strength / Density / Consistency				20 60 200 600 2000			
	12	Leederville Formation	16.10m Clayey SAND (SC): fine to coarse grained, sub-rounded to sub-angular, quartz, lithics and peat, dark grey; high plasticity; trace black peat fragments; (Residual Soil) <i>(continued)</i> CLAY (CH): high plasticity, dark grey and black; with peat; frequent lenses of clayey sand & sandy clay; (Residual Soil)	Uc	VSt to Hd	100	0				
	17						100	0		17.00: SPT Recovery: 0.45 m	
	18										
	13			18.55m Clayey SAND (SC): fine to coarse grained, sub-rounded to sub-angular, quartz, lithics, pale grey; high plasticity; (Residual Soil)		MD	SPT 18.50 - 18.95 m 6, 10, 13 N*=23			18.50: SPT Recovery: 0.45 m	
	19						100	0			
	14			19.90m CLAY (CH): high plasticity, dark grey and black; with peat; frequent lenses of clayey sand & sandy clay; (Residual Soil)		VSt	SPT 20.00 - 20.45 m 6, 7, 10 N*=17			20.00: SPT Recovery: 0.45 m	
	20										
	15			21.00m Clayey SAND (SC): fine to coarse grained, sub-rounded to sub-angular, quartz, lithics, pale grey; low plasticity. (Residual Soil)		CL				21-21.5: Core Loss	
	21						52	0		21.50: SPT Recovery: 0.45 m	
	16										
	22					100	0				
	17										
	23								23.00: SPT Recovery: 0.45 m		
	23.90m					100	0				

DRILLING AD/V Solid flight auger: V-Bit AD/T Solid flight auger: TC-Bit HFA Hollow flight auger WB Washbore drilling RR Rock roller PQ Rotary core (85mm) HQ Rotary core (63.5mm) NMLC Rotary core (51.94mm) DT Diatube concrete coring PS Push tube PS Percussion sampling SON Sonic drilling AH Air hammer	WATER Water Level on date shown water inflow water outflow ROCK QUALITY DESCRIPTIONS RQD Rock Quality Designation (%) TCR Total Core Recovery (%)	ROCK STRENGTH EH Extremely High VH Very High H High M Medium L Low VL Very Low ROCK WEATHERING FR Fresh SW Slightly Weathered MW Moderately Weathered HW Highly Weathered XW Extremely Weathered	DEFECT TYPE J Joint P Parting SM Seam SZ Sheared zone FL Foliation V Vein CSM Crushed Seam FZ Fracture Zone HB Handing Break DB Drilling Break	PLANARITY PL Planar IR Irregular CU Curved DIS Discontinuous ST Stepped UN Undulose ROUGHNESS VR Very Rough RO Rough SO Smooth SL Slockensided POL Polished	COATING CN Clean STN Stained VN Veneer (thin or patchy) CT Coating (up to 1mm) INFILL MATERIALS X Carbonaceous MU Unidentified mineral MS Secondary mineral KT Chlorite CA Calcite Fe Iron Oxide Oz Quartz
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2023.03.16 STANTEC PERTH GEOTECH LIBRARY - UPDATE 2024-03-06 GLB Log STANTEC PERTH - HYBRID LOG - 05/03/2024 BH_REVA.GPJ <<DrawingFile>> 17/05/2024 15:23 10.03.00.09 Datgel AGS RTA Photo_Monitoring Tools HQ-3

Client: Synergy RED	Job No: 304501017	Sheet: 4 of 4
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation	Angle from Horizontal: 90°	Surface Elevation: 40.000 m AHD
Location: Shire of Augusta Margaret River	Mounting: Track	Contractor: National Geotech
Position: E341346.000 N6215506.000	Date Completed: 27/2/24	Checked By: BP
Rig Type: Geoprobe 7822dt	Logged By: ES	

Drilling			Material Description						Defect Description							
Method	Casing	Core Run	RL (m AHD)	Depth (m)	Geology	Graphic Log	LITHOLOGY	Weathering / Cementation	Strength / Density / Consistency	Sample or Field Test	TCR (%)	RQD (%)	Average Natural Defect Spacing (mm)	Observations / Description of Defects	Water Level	Monitoring Well Details
HQ-3		17			Leederville Formation		<p>CLAY (CH): high plasticity, dark grey and black; with Peat; frequent lenses of clayey sand & sandy clay; (Residual Soil) <i>(continued)</i></p> <p>24.80m</p> <p>24.95m</p> <p>Clayey SAND (SC): fine to medium grained, sub-rounded to sub-angular, quartz, lithics, grey; high plasticity; (Residual Soil)</p> <p>TERMINATED AT 24.95 m Target depth</p>	Uc	Hd		100	0	20 60 200 600 2000	24.50: SPT Recovery: 0.45 m		
				15-25					MD to D	SPT 24.50 - 24.95 m 6, 15, 15 N*=30						
				14-26												
				13-27												
				12-28												
				11-29												
				10-30												
				9-31												

DRILLING AD/V Solid flight auger: V-Bit AD/T Solid flight auger: TC-Bit HFA Hollow flight auger WB Washbore drilling RR Rock roller PQ Rotary core (85mm) HQ Rotary core (63.5mm) NMLC Rotary core (51.94mm) DT Diatube concrete coring PT Push tube PS Percussion sampling SON Sonic drilling AH Air hammer	WATER Water Level on date shown water inflow water outflow ROCK QUALITY DESCRIPTIONS RQD Rock Quality Designation (%) TCR Total Core Recovery (%)	ROCK STRENGTH EH Extremely High VH Very High H High M Medium L Low VL Very Low ROCK WEATHERING FR Fresh SW Slightly Weathered MW Moderately Weathered HW Highly Weathered XW Extremely Weathered	DEFECT TYPE J Joint P Parting SM Seam SZ Sheared zone FL Foliation V Vein CSM Crushed Seam FZ Fracture Zone HB Handing Break DB Drilling Break	PLANARITY PL Planar IR Irregular CU Curved DIS Discontinuous ST Stepped UN Undulose ROUGHNESS VR Very Rough RO Rough SO Smooth SL Stockensided POL Polished	COATING CN Clean STN Stained VN Veneer (thin or patchy) CT Coating (up to 1mm) INFILL MATERIALS X Carbonaceous MU Unidentified mineral MS Secondary mineral KT Chlorite CA Calcite Fe Iron Oxide Oz Quartz
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Refer to explanatory notes for details of abbreviations and basis of descriptions

2023.03.16 STANTEC PERTH GEOTECH LIBRARY - UPDATE 2024-03-06 GLB Log STANTEC PERTH - HYBRID LOG - 05/03/2024 304501017_BH_REVA.GPJ <<DrawingFile>> 17/05/2024 15:23 10.03.00.09 Datgel AGS RTA, Photo, Monitoring Tools

Client: Synergy RED
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation
Location: Shire of Augusta Margaret River Job No: 304501017



WM01: 0 - 5m,
0.0 - 3.0m



WM01: 5 - 10m,
5.0 - 10.0 m

Client: Synergy RED
 Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation
 Location: Shire of Augusta Margaret River Job No: 304501017



**WM01: 10 - 15m,
10.0 - 15.0m**



**WM01: 15 - 20m,
15 m to 20m**

Client: Synergy RED
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation
Location: Shire of Augusta Margaret River Job No: 304501017



**WM01: 20 - 25m,
20.0 - 25.0 m**

Client: Synergy RED	Job No: 304501017	Sheet: 1 of 4
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation	Angle from Horizontal: 90°	Surface Elevation: 31.000 m AHD
Location: Shire of Augusta Margaret River	Mounting: Track	Contractor: National Geotech
Position: E343044.000 N6208189.000	Logged By: ES	Checked By: BP
Rig Type: Geoprobe 7822dt	Date Completed: 28/2/24	

Drilling		Material Description					Defect Description					
Method	Core Run	Geology	LITHOLOGY	Weathering / Cementation	Strength / Density / Consistency	Sample or Field Test	TCR (%)	RQD (%)	Average Natural Defect Spacing (mm)	Observations / Description of Defects	Water Level	Monitoring Well Details
Casing	RL (m AHD)	Graphic Log						20 60 200 600 2000				
PT			0.10m TOPSOIL: SAND: fine to coarse grained, sub-rounded to sub-angular, quartz and organics, dark black brown mottled; with silt. (Topsoil)	Uc	Ls	SPT 0.00 - 0.45 m 2, 4, 6 N*=10				0.00: PID: 3.2ppm 0.00: PID: 3.2ppm; SPT Recovery: 0.45 m 0.00: QC1		
PVC			SAND (SP): fine to medium grained, sub-rounded to sub-angular, pale grey brown to; trace; (Aeolian)							0.50: PID: 4.6ppm		
	30		1.00m FERRICRETE: granular, fine to coarse grained, dark orange brown to red-brown; <10% vuggs (DI Duricrust).	Mo	M to H		100			1.00: PID: 6.4ppm 1.50: PID: 3.2ppm		
	29		Duricrust			SPT 2.00 - 2.05 m 30/50mm N*=R				2.00: 50mm 2.00: SPT Recovery: 0.45 m; 50mm		
	28		2.70m SAND (SP): fine to medium grained, sub-rounded to sub-angular, quartz, lithics and rich in organics; dark brown to grey; with silty fines. (Aeolian)	Uc	MD to D		100			3.50: SPT Recovery: 0.45 m		
	27					SPT 3.50 - 3.95 m 11, 15, 16 N*=31				5.00: SPT Recovery: 0.45 m 5.45: Core was recovered but driller dropped core upon transfer to split		
	26		Quaternary Dune Deposits				100			6.50: SPT Recovery: 0.45 m		
	25					SPT 5.00 - 5.45 m 6, 10, 17 N*=27				8.00: SPT Recovery:		
	24					SPT 6.50 - 6.95 m 5, 10, 13 N*=23						

DRILLING AD/V Solid flight auger: V-Bit AD/T Solid flight auger: TC-Bit HFA Hollow flight auger WB Washbore drilling RR Rock roller PQ Rotary core (85mm) HQ Rotary core (63.5mm) NMLC Rotary core (51.94mm) DT Diatube concrete coring PT Push tube PS Percussion sampling SON Sonic drilling AH Air hammer	WATER Water Level on date shown water inflow water outflow ROCK QUALITY DESCRIPTIONS RQD Rock Quality Designation (%) TCR Total Core Recovery (%)	ROCK STRENGTH EH Extremely High VH Very High H High M Medium L Low VL Very Low ROCK WEATHERING FR Fresh SW Slightly Weathered MW Moderately Weathered HW Highly Weathered XW Extremely Weathered	DEFECT TYPE J Joint P Parting SM Seam SZ Sheared zone FL Foliation V Vein CSM Crushed Seam FZ Fracture Zone HB Handing Break DB Drilling Break	PLANARITY PL Planar IR Irregular CU Curved DIS Discontinuous ST Stepped UN Undulose ROUGHNESS VR Very Rough RO Rough SO Smooth SL Stockensided POL Polished	COATING CN Clean STN Stained CU Curved DIS Discontinuous ST Stepped UN Undulose INFILL MATERIALS X Carbonaceous MU Unidentified mineral MS Secondary mineral KT Chlorite CA Calcite Fe Iron Oxide QZ Quartz
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Refer to explanatory notes for details of abbreviations and basis of descriptions

2023.03.16 STANTEC PERTH GEOTECH LIBRARY - UPDATE 2024-03-06 GLB Log STANTEC PERTH - HYBRID LOG - 05/03/2024 304501017 BH_REVA.GPJ <<DrawingFile>> 17/05/2024 15:23 10.03.00.09 Datgel AGS RTA Photo Monitoring Tools

Client: Synergy RED	Job No: 304501017	Sheet: 2 of 4
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation		
Location: Shire of Augusta Margaret River		
Position: E343044.000 N6208189.000	Angle from Horizontal: 90°	Surface Elevation: 31.000 m AHD
Rig Type: Geoprobe 7822dt	Mounting: Track	Contractor: National Geotech
Data Started: 27/2/24	Date Completed: 28/2/24	Logged By: ES
		Checked By: BP

Drilling		Material Description					Defect Description								
Method	Casing	Core Run	RL (m AHD)	Depth (m)	Geology	LITHOLOGY	Weathering / Cementation	Strength / Density / Consistency	Sample or Field Test	TCR (%)	RQD (%)	Average Natural Defect Spacing (mm)	Observations / Description of Defects	Water Level	Monitoring Well Details
		6	22.9	9.25m	Quaternary Dune Deposits	SAND (SP): fine to medium grained, sub-rounded to sub-angular, quartz, lithics and rich in organics; dark brown to grey; with silty fines. (Aeolian) (continued)	Uc	MD to D	SPT 8.00 - 8.45 m 4, 7, 14 N*=21	100			0.45 m		
		7	21.10	11.00m	Leederville Formation	Sandy CLAY (Cl): medium plasticity; pale grey and dark grey; sand, fine to medium grained, sub angular to sub rounded; zones of clay, high plasticity; zones of sand; medium to coarse grained, sub angular to sub rounded. (Residual Soil)	F to St		SPT 9.50 - 9.95 m 0, 0, 3 N*=3	100			9.50: SPT Recovery: 0.45 m		
		8	20.11	12.70m		CLAY (CH): high plasticity, dark grey and black; frequent lenses of clayey sand & sandy clay. (Residual Soil)			SPT 11.00 - 11.45 m 1, 5, 4 N*=9	100			11.00: SPT Recovery: 0.45 m		
		9	19.12	15.10m		SAND (SP): fine to coarse grained, rounded to sub-rounded, quartz & lithics; trace clayey fines. (Residual Soil)		VD	SPT 12.50 - 12.95 m 12, 27, 30 N*=57	100			12.50: SPT Recovery: 1.05 m		
		10	17.14	15.55m		CLAY (CH): high plasticity, dark grey and black; frequent lenses of clayey sand & sandy clay. (Residual Soil)		MD	SPT 14.00 - 14.45 m 11, 13, 7 N*=20	100			14.00: SPT Recovery: 1.05 m		
			16.15			SAND (SP): fine to coarse grained, rounded to sub-rounded, quartz & lithics; trace clayey fines. (Residual Soil)		Hd	SPT 15.50 - 15.95 m 5, 17, 28 N*=45	100			15.50: SPT Recovery: 1.05 m		

DRILLING AD/V Solid flight auger: V-Bit AD/T Solid flight auger: TC-Bit HFA Hollow flight auger WB Washbore drilling RR Rock roller PQ Rotary core (85mm) HQ Rotary core (63.5mm) NMLC Rotary core (51.94mm) DT Diatube concrete coring PT Push tube PS Percussion sampling SON Sonic drilling AH Air hammer	WATER Water Level on date shown water inflow water outflow ROCK QUALITY DESCRIPTIONS RQD Rock Quality Designation (%) TCR Total Core Recovery (%)	ROCK STRENGTH EH Extremely High VH Very High H High M Medium L Low VL Very Low ROCK WEATHERING FR Fresh SW Slightly Weathered MW Moderately Weathered HW Highly Weathered XW Extremely Weathered	DEFECT TYPE J Joint P Parting SM Seam SZ Sheared zone FL Foliation V Vein CSM Crushed Seam FZ Fracture Zone HB Handing Break DB Drilling Break	PLANARITY PL Planar IR Irregular CU Curved DIS Discontinuous ST Stepped UN Undulose ROUGHNESS VR Very Rough RO Rough SO Smooth SL Stockensided POL Polished	COATING CN Clean STN Stained CU Curved DIS Discontinuous ST Stepped UN Undulose INFILL MATERIALS X Carbonaceous MU Unidentified mineral MS Secondary mineral KT Chlorite CA Calcite Fe Iron Oxide Oz Quartz
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Refer to explanatory notes for details of abbreviations and basis of descriptions

Client: Synergy RED	Job No: 304501017	Sheet: 3 of 4
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation		
Location: Shire of Augusta Margaret River		
Position: E343044.000 N6208189.000	Angle from Horizontal: 90°	Surface Elevation: 31.000 m AHD
Rig Type: Geoprobe 7822dt	Mounting: Track	Contractor: National Geotech
Data Started: 27/2/24	Date Completed: 28/2/24	Logged By: ES
		Checked By: BP

Drilling		Material Description					Defect Description					
Method	Core Run	Geology	LITHOLOGY	Weathering / Cementation	Strength / Density / Consistency	Sample or Field Test	TCR (%)	RQD (%)	Average Natural Defect Spacing (mm)	Observations / Description of Defects	Water Level	Monitoring Well Details
	11	Leederville Formation	SAND (SP): fine to coarse grained, rounded to sub-rounded, quartz & lithics; trace clayey fines. (Residual Soil) (<i>continued</i>)	Uc	D		100					
	12		SAND (SP): fine to coarse grained, sub-rounded to sub-angular; dark grey; with clay, medium plasticity. (Residual Soil)		MD		100				17.00: SPT Recovery: 1.05 m	
	13						100				18.50: SPT Recovery: 1.05 m	
	14			SAND (SP): fine to coarse grained, sub-rounded to sub-angular, quartz & lithics; pale grey; with clay, low to medium plasticity. (Residual Soil)			100				20.00: SPT Recovery: 1.05 m	
	15			CLAY (CH): medium plasticity, pale grey and black; frequent lenses of clayey sand & sandy clay. (Residual Soil)		VSt to Hd	100				21.50: SPT Recovery: 1.05 m	
	16						100				23.00: SPT Recovery: 1.05 m	

DRILLING AD/V Solid flight auger: V-Bit AD/T Solid flight auger: TC-Bit HFA Hollow flight auger WB Washbore drilling RR Rock roller PQ Rotary core (85mm) HQ Rotary core (63.5mm) NMLC Rotary core (51.94mm) DT Diatube concrete coring PT Push tube PS Percussion sampling SON Sonic drilling AH Air hammer	WATER Water Level on date shown water inflow water outflow ROCK QUALITY DESCRIPTIONS RQD Rock Quality Designation (%) TCR Total Core Recovery (%)	ROCK STRENGTH EH Extremely High VH Very High H High M Medium L Low VL Very Low ROCK WEATHERING FR Fresh SW Slightly Weathered MW Moderately Weathered HW Highly Weathered XW Extremely Weathered	DEFECT TYPE J Joint P Parting SM Seam SZ Sheared zone FL Foliation V Vein CSM Crushed Seam FZ Fracture Zone HB Handing Break DB Drilling Break	PLANARITY PL Planar IR Irregular CU Curved DIS Discontinuous ST Stepped UN Undulose ROUGHNESS VR Very Rough RO Rough SO Smooth SL Slockensided POL Polished	COATING CN Clean STN Stained VN Veneer (thin or patchy) CT Coating (up to 1mm) INFILL MATERIALS X Carbonaceous MU Unidentified mineral MS Secondary mineral KT Chlorite CA Calcite Fe Iron Oxide Oz Quartz
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Refer to explanatory notes for details of abbreviations and basis of descriptions

Client: Synergy RED	Job No: 304501017	Sheet: 4 of 4
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation		
Location: Shire of Augusta Margaret River		
Position: E343044.000 N6208189.000	Angle from Horizontal: 90°	Surface Elevation: 31.000 m AHD
Rig Type: Geoprobe 7822dt	Mounting: Track	Contractor: National Geotech
Data Started: 27/2/24	Date Completed: 28/2/24	Logged By: ES
		Checked By: BP

Drilling			Material Description						Defect Description							
Method	Casing	Core Run	RL (m AHD)	Depth (m)	Geology	Graphic Log	LITHOLOGY	Weathering / Cementation	Strength / Density / Consistency	Sample or Field Test	TCR (%)	RQD (%)	Average Natural Defect Spacing (mm)	Observations / Description of Defects	Water Level	Monitoring Well Details
HQ-3		16			Leederville Formation		CLAY (CH): medium plasticity, pale grey and black; frequent lenses of clayey sand & sandy clay. (Residual Soil) (continued)	Uc	VSt to Hd		100		20 60 200 600 2000	24.50: SPT Recovery: 1.05 m		
				6			TERMINATED AT 24.95 m Target depth			SPT 24.50 - 24.95 m 10, 14, 16 N*=30						
				25												
				26												
				27												
				28												
				29												
				30												
				31												

DRILLING AD/V Solid flight auger: V-Bit AD/T Solid flight auger: TC-Bit HFA Hollow flight auger WB Washbore drilling RR Rock roller PQ Rotary core (85mm) HQ Rotary core (63.5mm) NMLC Rotary core (51.94mm) DT Diatube concrete coring PT Push tube PS Percussion sampling SON Sonic drilling AH Air hammer	WATER Water Level on date shown water inflow water outflow ROCK QUALITY DESCRIPTIONS RQD Rock Quality Designation (%) TCR Total Core Recovery (%)	ROCK STRENGTH EH Extremely High VH Very High H High M Medium L Low VL Very Low ROCK WEATHERING FR Fresh SW Slightly Weathered MW Moderately Weathered HW Highly Weathered XW Extremely Weathered	DEFECT TYPE J Joint P Parting SM Seam SZ Sheared zone FL Foliation V Vein CSM Crushed Seam FZ Fracture Zone HB Handing Break DB Drilling Break	PLANARITY PL Planar IR Irregular CU Curved DIS Discontinuous ST Stepped UN Undulose ROUGHNESS VR Very Rough RO Rough SO Smooth SL Slockensided POL Polished	COATING CN Clean STN Stained VN Veneer (thin or patchy) CT Coating (up to 1mm) INFILL MATERIALS X Carbonaceous MU Unidentified mineral MS Secondary mineral KT Chlorite CA Calcite Fe Iron Oxide Oz Quartz
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Refer to explanatory notes for details of abbreviations and basis of descriptions

2023.03.16 STANTEC PERTH GEOTECH LIBRARY - UPDATE 2024-03-06 GLB Log STANTEC PERTH - HYBRID LOG - 05/03/2024 304501017 BH_REVA.GPJ <<DrawingFile>> 17/05/2024 15:23 10.03.00.09 Datgel AGS RTA, Photo, Monitoring Tools

Client: Synergy RED
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation
Location: Shire of Augusta Margaret River Job No: 304501017



WM02: 0 - 0.5m,
0.0 - 5.0

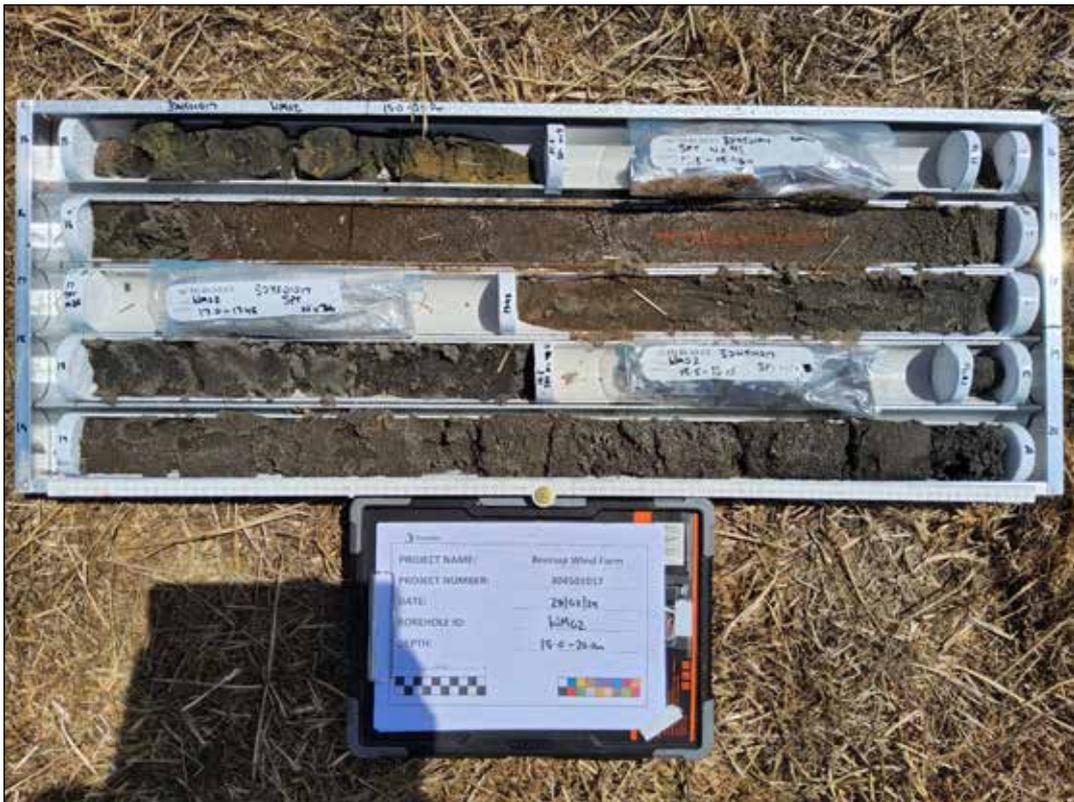


WM02: 5 - 10m,
5.0 - 10.0

Client: Synergy RED
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation
Location: Shire of Augusta Margaret River Job No: 304501017

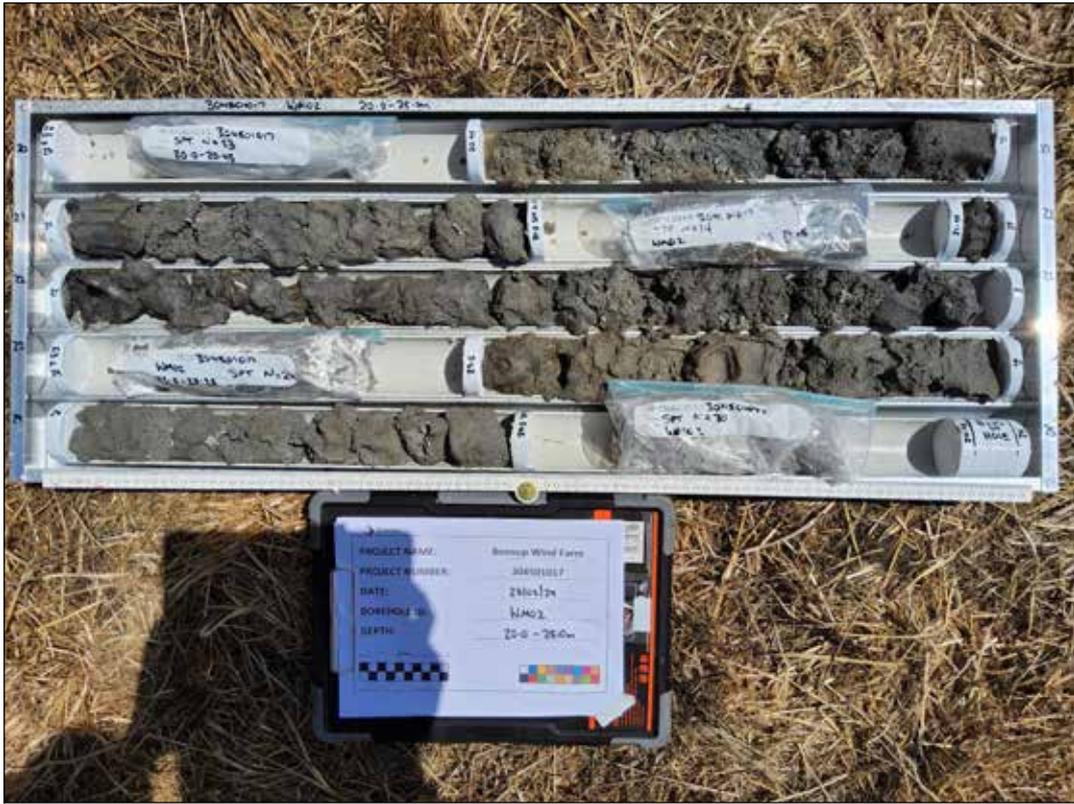


WM02: 10 - 15m,
10.0 - 15.0



WM02: 15 - 20m,
15.0 - 20.0

Client: Synergy RED
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation
Location: Shire of Augusta Margaret River Job No: 304501017



**WM02: 20 - 25m,
20.0 - 25.0**

Client: Synergy RED	Job No: 304501017	Sheet: 2 of 4
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation		
Location: Shire of Augusta Margaret River		
Position: E342583.000 N6210534.000	Angle from Horizontal: 90°	Surface Elevation: 32.000 m AHD
Rig Type: Geoprobe 7822dt	Mounting: Track	Contractor: National Geotech
Data Started: 28/2/24	Date Completed: 29/2/24	Logged By: ES
		Checked By: BP

Drilling			Material Description					Defect Description									
Method	Casing	Core Run	RL (m AHD)	Depth (m)	Geology	Graphic Log	LITHOLOGY	Weathering / Cementation	Strength / Density / Consistency	Sample or Field Test	TCR (%)	RQD (%)	Average Natural Defect Spacing (mm)	Observations / Description of Defects	Water Level	Monitoring Well Details	
		6	23	9	Leederville Formation		SAND (SP): fine to medium grained, sub-rounded to sub-angular, dark grey, mottled black. (Residual Soil) <i>(continued)</i>	Uc	MD	SPT 8.00 - 8.45 m 7, 10, 14 N*=24	100	20 60 200 600 2000	0.45 m				
										D					9.50: SPT Recovery: 0.45 m		
		7	22	10									100				
																11.00: SPT Recovery: 0.45 m	
		8	21	11													
		9	20	12									100			12.50: SPT Recovery: 0.45 m	
		10	19	13					SAND (SP): fine to coarse grained, rounded to sub-rounded, quartz & lithics; pale grey to dark grey; trace clayey fines. (Residual Soil)		MD	SPT 12.50 - 12.95 m 7, 15, 18 N*=33	100			14.00: SPT Recovery: 0.45 m	
			18	14													
			17	15			from 15.4m... with medium plasticity clay.		D	SPT 15.50 - 15.95 m 4, 12, 29 N*=41	100			15.50: SPT Recovery: 0.45 m			

DRILLING AD/V Solid flight auger: V-Bit AD/T Solid flight auger: TC-Bit HFA Hollow flight auger WB Washbore drilling RR Rock roller PQ Rotary core (85mm) HQ Rotary core (63.5mm) NMLC Rotary core (51.94mm) DT Diatube concrete coring PT Push tube PS Percussion sampling SON Sonic drilling AH Air hammer	WATER Water Level on date shown water inflow water outflow ROCK QUALITY DESCRIPTIONS RQD Rock Quality Designation (%) TCR Total Core Recovery (%)	ROCK STRENGTH EH Extremely High VH Very High H High M Medium L Low VL Very Low ROCK WEATHERING FR Fresh SW Slightly Weathered MW Moderately Weathered HW Highly Weathered XW Extremely Weathered	DEFECT TYPE J Joint P Parting SM Seam SZ Sheared zone FL Foliation V Vein CSM Crushed Seam FZ Fracture Zone HB Handing Break DB Drilling Break	PLANARITY PL Planar IR Irregular CU Curved DIS Discontinuous ST Stepped UN Undulose ROUGHNESS VR Very Rough RO Rough SO Smooth SL Stockensided POL Polished	COATING CN Clean STN Stained VN Veneer (thin or patchy) CT Coating (up to 1mm) INFILL MATERIALS X Carbonaceous MU Unidentified mineral MS Secondary mineral KT Chlorite CA Calcite Fe Iron Oxide Oz Quartz
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Refer to explanatory notes for details of abbreviations and basis of descriptions

2023.03.16 STANTEC PERTH GEOTECH LIBRARY - UPDATE 2024-03-06 GLB Log STANTEC PERTH - HYBRID LOG - 05/03/2024 304501017 BH_REVA.GPJ <<DrawingFile>> 17/05/2024 15:23 10.03.00.09 Datgel AGS RTA Photo Monitoring Tools HQ-3

Client: Synergy RED	Job No: 304501017	Sheet: 3 of 4
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation		
Location: Shire of Augusta Margaret River		
Position: E342583.000 N6210534.000	Angle from Horizontal: 90°	Surface Elevation: 32.000 m AHD
Rig Type: Geoprobe 7822dt	Mounting: Track	Contractor: National Geotech
Data Started: 28/2/24	Date Completed: 29/2/24	Logged By: ES
		Checked By: BP

Drilling		Material Description					Defect Description				
Method	Core Run	Geology	LITHOLOGY	Weathering / Cementation	Sample or Field Test	TCR (%)	RQD (%)	Average Natural Defect Spacing (mm)	Observations / Description of Defects	Water Level	Monitoring Well Details
Casing	RL (m AHD)	Graphic Log		Strength / Density / Consistency				20 60 200 600 2000			
	11		SAND (SP): fine to coarse grained, rounded to sub-rounded, quartz & lithics; pale grey to dark grey; trace clayey fines. (Residual Soil) (continued)	Uc	D		100				
	12		SAND (SP): fine to coarse grained, sub-rounded to sub-angular, quartz & lithics; pale grey to dark grey; layers of clay, low to medium plasticity. (Residual Soil)		VD	SPT 17.00 - 17.24 m 19, 30/90mm N*=R	100		17.00: 180mm 17.00: SPT Recovery: 0.45 m; 180mm		
	13		SANDSTONE: fine grained, siliceous; dark grey-brown. (Weathered Rock)		MD	SPT 18.50 - 18.95 m 10, 12, 21 N*=33	100		18.50: SPT Recovery: 0.45 m		
	14		SAND (SP): fine to coarse grained, sub-rounded to sub-angular, quartz & lithics; pale grey; with clay, low plasticity. (Residual Soil)			SPT 20.00 - 20.45 m 8, 9, 11 N*=20	100		20.00: SPT Recovery: 0.45 m		
	15					SPT 21.50 - 21.95 m 9, 12, 12 N*=24	100		21.50: SPT Recovery: 0.45 m		
	16					SPT 23.00 - 23.45 m 8, 13, 17 N*=30	100		23.00: SPT Recovery: 0.45 m		

DRILLING AD/V Solid flight auger: V-Bit AD/T Solid flight auger: TC-Bit HFA Hollow flight auger WB Washbore drilling RR Rock roller PQ Rotary core (85mm) HQ Rotary core (63.5mm) NMLC Rotary core (51.94mm) DT Diatube concrete coring PT Push tube PS Percussion sampling SON Sonic drilling AH Air hammer	WATER Water Level on date shown water inflow water outflow ROCK QUALITY DESCRIPTIONS RQD Rock Quality Designation (%) TCR Total Core Recovery (%)	ROCK STRENGTH EH Extremely High VH Very High H High M Medium L Low VL Very Low ROCK WEATHERING FR Fresh SW Slightly Weathered MW Moderately Weathered HW Highly Weathered XW Extremely Weathered	DEFECT TYPE J Joint P Parting SM Seam SZ Sheared zone FL Foliation V Vein CSM Crushed Seam FZ Fracture Zone HB Handing Break DB Drilling Break	PLANARITY PL Planar IR Irregular CU Curved DIS Discontinuous ST Stepped UN Undulose ROUGHNESS VR Very Rough RO Rough SO Smooth SL Stockensided POL Polished	COATING CN Clean STN Stained VN Veneer (thin or patchy) CT Coating (up to 1mm) INFILL MATERIALS X Carbonaceous MU Unidentified mineral MS Secondary mineral KT Chlorite CA Calcite Fe Iron Oxide Oz Quartz
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Client: Synergy RED	Job No: 304501017	Sheet: 4 of 4
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation	Angle from Horizontal: 90°	Surface Elevation: 32.000 m AHD
Location: Shire of Augusta Margaret River	Mounting: Track	Contractor: National Geotech
Position: E342583.000 N6210534.000	Logged By: ES	Checked By: BP
Rig Type: Geoprobe 7822dt	Date Completed: 29/2/24	Data Started: 28/2/24

Drilling			Material Description						Defect Description							
Method	Casing	Core Run	RL (m AHD)	Depth (m)	Geology	Graphic Log	LITHOLOGY	Weathering / Cementation	Strength / Density / Consistency	Sample or Field Test	TCR (%)	RQD (%)	Average Natural Defect Spacing (mm)	Observations / Description of Defects	Water Level	Monitoring Well Details
													20 60 200 600 2000			
HO-3		16			Leederville Formation		Sandy CLAY (Cl): medium plasticity, fine to coarse grained, sub-rounded to sub-angular; pale grey and dark grey; sand, fine to coarse grained, sub angular to sub rounded; interbedded high plasticity clays and fine to coarse-grained, sub-rounded to angular sands; trace fine gravel. (Residual Soil) (continued)	Uc	VSt		100			24.50: SPT Recovery: 0.45 m		
				7	25		TERMINATED AT 24.95 m Target depth			SPT 24.50 - 24.95 m 4, 7, 11 N*=18						
				6	26											
				5	27											
				4	28											
				3	29											
				2	30											
				1	31											

DRILLING AD/V Solid flight auger: V-Bit AD/T Solid flight auger: TC-Bit HFA Hollow flight auger WB Washbore drilling RR Rock roller PQ Rotary core (85mm) HQ Rotary core (63.5mm) NMLC Rotary core (51.94mm) DT Diatube concrete coring PT Push tube PS Percussion sampling SON Sonic drilling AH Air hammer	WATER Water Level on date shown water inflow water outflow ROCK QUALITY DESCRIPTIONS RQD Rock Quality Designation (%) TCR Total Core Recovery (%)	ROCK STRENGTH EH Extremely High VH Very High H High M Medium L Low VL Very Low ROCK WEATHERING FR Fresh SW Slightly Weathered MW Moderately Weathered HW Highly Weathered XW Extremely Weathered	DEFECT TYPE J Joint P Parting SM Seam SZ Sheared zone FL Foliation V Vein CSM Crushed Seam FZ Fracture Zone HB Handing Break DB Drilling Break	PLANARITY PL Planar IR Irregular CU Curved DIS Discontinuous ST Stepped UN Undulose ROUGHNESS VR Very Rough RO Rough SO Smooth SL Slockensided POL Polished	COATING CN Clean STN Stained VN Veneer (thin or patchy) CT Coating (up to 1mm) INFILL MATERIALS X Carbonaceous MU Unidentified mineral MS Secondary mineral KT Chlorite CA Calcite Fe Iron Oxide Oz Quartz
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Refer to explanatory notes for details of abbreviations and basis of descriptions

2023.03.16 STANTEC PERTH GEOTECH LIBRARY - UPDATE 2024-03-06 GLB Log STANTEC PERTH - HYBRID LOG - 05/03/2024 304501017 BH_REVA.GPJ <<DrawingFile>> 17/05/2024 15:23 10.03.00.09 Datgel AGS RTA Photo Monitoring Tools

Client: Synergy RED
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation
Location: Shire of Augusta Margaret River Job No: 304501017



WM03: 0 - 0.5m,
0.0 - 5.0



WM03: 5 - 10m,
5.0 - 10.0

Client: Synergy RED
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation
Location: Shire of Augusta Margaret River Job No: 304501017



**WM03: 10 - 15m,
10.0 - 15.0**



**WM03: 15 - 20m,
15.0 - 20.0**

Client: Synergy RED
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation
Location: Shire of Augusta Margaret River Job No: 304501017



**WM03: 20 - 25m,
20.0 - 25.0**

Client: Synergy RED	Job No: 304501017	Sheet: 1 of 1
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation		
Location: Shire of Augusta Margaret River		
Position: E340863.000 N6216098.000	Angle from Horizontal: 90°	Surface Elevation: 40.000 m AHD
Machine Type: Backhoe	Excavation Method: 600mm Toothed Trenching Bucket	
Excavation Dimensions: 3.00m (Length) by 1.00m (Width)	Contractor: RemX Australia	
Date Excavated: 14/3/24	Logged By: ES	Checked By: BP

Excavation			Sampling & Testing			Material Description										
Method	Resistance	Stability	Water	Sample or Field Test	DCP TEST Blows	RL (m AHD)	Depth (m)	Geology	Graphic Log	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Cementation / Weathering	Consistency / Relative Density	STRUCTURE & Other Observations		
BH VE Stable H				ES 0.00 m DUP 0.00 m TRIP 0.00 m	3 6 9 12			TS	0.10m	TOPSOIL: SAND: fine to medium grained, sub-rounded to sub-angular, dark grey; with gravel, sub-angular, iron cemented sand nodules; trace silty fines. (Topsoil)	D	Uc	Ls	0.00 m: PID - 3.5ppm		
				ES 0.25 m							SAND (SP): fine to coarse grained, sub-rounded, quartz, pale grey with dark grey; trace fines. (aeolian)			D		
				ES 0.50 m		39.5	0.5									0.50 m: PID - 2.8ppm
				ES 0.75 m												
				ES 1.00 m		39.0	1.0									1.00 m: PID - 4.1ppm
				ES 1.25 m												
				ES 1.50 m		38.5	1.5									VD
				ES 1.75 m												
				D 2.00 m	Refusal 23 28	38.0	2.0	Quaternary Dune Deposits (QDD)	2.00m 2.10m	SAND (SP): fine to coarse grained, sub-rounded to sub-angular, quartz and lithics; brown to dark brown, pockets of organics. (aeolian).	W	Wk		TERMINATED AT 2.10 m Refusal (machine limit - penetration)		
							37.5									

METHOD EX Excavator bucket R Ripper HA Hand auger PT Push tube SON Sonic drilling AH Air hammer PS Percussion sampler AS Short spiral auger AD/V Solid flight auger: V-Bit AD/T Solid flight auger: TC-Bit HFA Hollow flight auger WB Washbore drilling RR Rock roller	PENETRATION VE Very Easy (No Resistance) E Easy F Firm H Hard VH Very Hard (Refusal) WATER Water Level on Date shown water inflow water outflow	FIELD TESTS SPT - Standard Penetration Test HP - Hand/Pocket Penetrometer DCP - Dynamic Cone Penetrometer PSP - Perth Sand Penetrometer MC - Moisture Content PBT - Plate Bearing Test IMP - Borehole Impression Test PID - Photoionisation Detector VS - Vane Shear; P=Peak, R=Residual (uncorrected kPa)	SAMPLES Bs - Bulk disturbed sample D - Disturbed sample E - Environmental sample U - Thin wall tube 'undisturbed' MOISTURE D - Dry M - Moist W - Wet PL - Plastic limit LL - Liquid limit w - Moisture content	SOIL CONSISTENCY VS - Very Soft S - Soft F - Firm St - Stiff VSt - Very Stiff Hd - Hard RELATIVE DENSITY VLs - Very Loose Ls - Loose MD - Medium Dense D - Dense VD - Very Dense
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Refer to explanatory notes for details of abbreviations and basis of descriptions

Client: Synergy RED
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation
Location: Shire of Augusta Margaret River Job No: 304501017



TP01: Downhole



TP01: Coretray - 0.0 - 2.1

Client: Synergy RED	Job No: 304501017	Sheet: 1 of 1
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation	Angle from Horizontal: 90°	Surface Elevation: 43.000 m AHD
Location: Shire of Augusta Margaret River	Excavation Method: 600mm Toothed Trenching Bucket	
Position: E341925.000 N6215486.000	Excavation Dimensions: 2.50m (Length) by 4.00m (Width)	Contractor: RemX Australia
Machine Type: Backhoe	Date Excavated: 14/3/24	Logged By: ES
		Checked By: BP

Excavation			Sampling & Testing			Material Description										
Method	Resistance	Stability	Water	Sample or Field Test	DCP TEST Blows	RL (m AHD)	Depth (m)	Geology	Graphic Log	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Cementation / Weathering	Consistency / Relative Density	STRUCTURE & Other Observations		
EX VE Stable Not Encountered				ES 0.00 m	3 6 9 12			TS	0.10m	TOPSOIL: SAND: fine to medium grained, sub-rounded to sub-angular, dark grey; trace silty fines. (Topsoil)	D	Uc	Ls	0.00 m: PID - 2.3ppm		
				ES 0.25 m							SAND (SP): fine to coarse grained, sub-rounded, quartz; pale grey, with dark grey; trace silty fines. (aeolian)			MD to D		
				ES 0.50 m				42.5	0.5	Quaternary Dune Deposits (QDD)						0.50 m: PID - 3.2ppm
				ES 0.75 m												
VH				Refusal		42.0	1.0	DD	1.00m	FERRICRETE: fine grained; dark orange brown; massive; variably cemented comprising soil and rock strength fragments. (Dl duricrust). TERMINATED AT 1.00 m Refusal on rock	We	M		1.00 m: PID - 4.1ppm		
						41.5	1.5									
						41.0	2.0									
						40.5	2.5									

METHOD EX Excavator bucket R Ripper HA Hand auger PT Push tube SON Sonic drilling AH Air hammer PS Percussion sampler AS Short spiral auger AD/V Solid flight auger: V-Bit AD/T Solid flight auger: TC-Bit HFA Hollow flight auger WB Washbore drilling RR Rock roller	PENETRATION VE Very Easy (No Resistance) E Easy F Firm H Hard VH Very Hard (Refusal) WATER Water Level on Date shown water inflow water outflow	FIELD TESTS SPT - Standard Penetration Test HP - Hand/Pocket Penetrometer DCP - Dynamic Cone Penetrometer PSP - Perth Sand Penetrometer MC - Moisture Content PBT - Plate Bearing Test IMP - Borehole Impression Test PID - Photoionisation Detector VS - Vane Shear; P=Peak, R=Residual (uncorrected kPa)	SAMPLES Bs - Bulk disturbed sample D - Disturbed sample E - Environmental sample U - Thin wall tube 'undisturbed' MOISTURE D - Dry M - Moist W - Wet PL - Plastic limit LL - Liquid limit w - Moisture content	SOIL CONSISTENCY VS - Very Soft S - Soft F - Firm St - Stiff VSt - Very Stiff Hd - Hard RELATIVE DENSITY VLs - Very Loose Ls - Loose MD - Medium Dense D - Dense VD - Very Dense
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Refer to explanatory notes for details of abbreviations and basis of descriptions

Client: Synergy RED
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation
Location: Shire of Augusta Margaret River Job No: 304501017



TP02: Downhole



TP02: Coretray - 0.0 - 1.0m

Client: Synergy RED	Job No: 304501017	Sheet: 1 of 1
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation		
Location: Shire of Augusta Margaret River		
Position: E344783.000 N6212893.000	Angle from Horizontal: 90°	Surface Elevation: 43.000 m AHD
Machine Type: Backhoe	Excavation Method: 600mm Toothed Trenching Bucket	
Excavation Dimensions: 3.00m (Length) by 1.00m (Width)		Contractor: RemX Australia
Date Excavated: 12/3/24	Logged By: ES	Checked By: BP

Excavation			Sampling & Testing		Material Description									
Method	Resistance	Stability	Water	Sample or Field Test	DCP TEST Blows	RL (m AHD)	Depth (m)	Geology	Graphic Log	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Cementation / Weathering	Consistency / Relative Density	STRUCTURE & Other Observations
BH ↑ VE Unstable Not Encountered				ES 0.00 m	3 6 9 12	43.000	0.00	Fill	0.15m	FILL: Gravelly SAND: Fine to Coarse, sub angular to sub rounded, white sand; Fine to coarse, sub angular, white gravel. (Unsealed Road).	D	Uc	VD	
				ES 0.25 m	3	42.750	0.25		0.50m	SAND (SP): fine to medium grained, rounded to angular, quartz; pale grey, mottled pale brown. (aeolian)	D	Uc	MD	
				ES 0.50 m	3	42.500	0.50		0.50m	SAND (SP): fine to medium grained, sub-rounded to sub-angular, quartz; white. (aeolian)				
				ES 0.75 m	2	42.250	1.00	Quaternary Dune Deposits (QDD)						
				ES 1.00 m	3	42.000	1.50							
				ES 1.25 m	2	41.750	2.00							
				ES 1.50 m	2	41.500	2.50							
				ES 1.75 m	2	41.250								
ES 2.00 m	3	41.000					TERMINATED AT 2.00 m Practical Refusal (side wall collapse)							

METHOD EX Excavator bucket R Ripper HA Hand auger PT Push tube SON Sonic drilling AH Air hammer PS Percussion sampler AS Short spiral auger AD/V Solid flight auger: V-Bit AD/T Solid flight auger: TC-Bit HFA Hollow flight auger WB Washbore drilling RR Rock roller	PENETRATION VE Very Easy (No Resistance) E Easy F Firm H Hard VH Very Hard (Refusal) WATER Water Level on Date shown water inflow water outflow	FIELD TESTS SPT - Standard Penetration Test HP - Hand/Pocket Penetrometer DCP - Dynamic Cone Penetrometer PSP - Perth Sand Penetrometer MC - Moisture Content PBT - Plate Bearing Test IMP - Borehole Impression Test PID - Photoionisation Detector VS - Vane Shear; P=Peak, R=Residual (uncorrected kPa)	SAMPLES Bs - Bulk disturbed sample D - Disturbed sample E - Environmental sample U - Thin wall tube 'undisturbed' MOISTURE D - Dry M - Moist W - Wet PL - Plastic limit LL - Liquid limit w - Moisture content	SOIL CONSISTENCY VS - Very Soft S - Soft F - Firm St - Stiff VSt - Very Stiff Hd - Hard RELATIVE DENSITY VLs - Very Loose Ls - Loose MD - Medium Dense D - Dense VD - Very Dense
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Refer to explanatory notes for details of abbreviations and basis of descriptions

Client: Synergy RED
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation
Location: Shire of Augusta Margaret River Job No: 304501017



TP03: Downhole



TP03: Coretray - 0.0. - 2.0

Client: Synergy RED	Job No: 304501017	Sheet: 1 of 1
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation		
Location: Shire of Augusta Margaret River		
Position: E343930.000 N6212893.000	Angle from Horizontal: 90°	Surface Elevation: 41.000 m AHD
Machine Type: Backhoe	Excavation Method: 600mm Toothed Trenching Bucket	
Excavation Dimensions: 3.00m (Length) by 1.00m (Width)	Contractor: RemX Australia	
Date Excavated: 12/3/24	Logged By: ES	Checked By: BP

Excavation Method	Resistance	Stability	Water	Sampling & Testing		RL (m AHD)	Depth (m)	Geology	Graphic Log	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Cementation / Weathering	Consistency / Relative Density	STRUCTURE & Other Observations	
				Sample or Field Test	DCP TEST Blows										
BH ↑ VE ↓	Unstable	Not Encountered	Not Encountered	ES 0.00 m	3	41.000	Quaternary Dune Deposits (QDD)	TS	0.15m	TOPSOIL: Gravelly SAND: fine to coarse grained, sub angular to sub rounded, grey sand; Fine to coarse, Sub angular, white gravel; trace fines; Organics; (Topsoil)	D	Uc	VD	0.00 m: PID - 1.8ppm	
				DUP 0.00 m	6	0.5			0.50m	SAND (SP): fine to medium grained, rounded to angular, quartz; pale grey mottled pale brown. (aeolian)				MD	Ls to MD
				TRIP 0.00 m	9										
				ASS 0.25 m	12	1.5			1.75m	TERMINATED AT 1.75 m Practical Refusal (side wall collapse)				D	D
				ES 0.75 m	3										
				ES 1.00 m	2	2.5			39.5	39.0				38.5	38.5
				ES 1.25 m	3										
				ES 1.50 m	3	2.5			39.5	39.0				38.5	38.5
				ES 1.75 m	4										
						2.5			39.5	39.0				38.5	38.5

METHOD EX Excavator bucket R Ripper HA Hand auger PT Push tube SON Sonic drilling AH Air hammer PS Percussion sampler AS Short spiral auger AD/V Solid flight auger: V-Bit AD/T Solid flight auger: TC-Bit HFA Hollow flight auger WB Washbore drilling RR Rock roller	PENETRATION VE Very Easy (No Resistance) E Easy F Firm H Hard VH Very Hard (Refusal) WATER Water Level on Date shown water inflow water outflow	FIELD TESTS SPT - Standard Penetration Test HP - Hand/Pocket Penetrometer DCP - Dynamic Cone Penetrometer PSP - Perth Sand Penetrometer MC - Moisture Content PBT - Plate Bearing Test IMP - Borehole Impression Test PID - Photoionisation Detector VS - Vane Shear; P=Peak, R=Residual (uncorrected kPa)	SAMPLES Bs - Bulk disturbed sample D - Disturbed sample E - Environmental sample U - Thin wall tube 'undisturbed' MOISTURE D - Dry M - Moist W - Wet PL - Plastic limit LL - Liquid limit w - Moisture content	SOIL CONSISTENCY VS - Very Soft S - Soft F - Firm St - Stiff VSt - Very Stiff Hd - Hard RELATIVE DENSITY VLs - Very Loose Ls - Loose MD - Medium Dense D - Dense VD - Very Dense
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Refer to explanatory notes for details of abbreviations and basis of descriptions

Client: Synergy RED
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation
Location: Shire of Augusta Margaret River Job No: 304501017



TP04: Downhole



TP04: Core tray - 0.0 - 1.75m

Client: Synergy RED	Job No: 304501017	Sheet: 1 of 1
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation		
Location: Shire of Augusta Margaret River	Angle from Horizontal: 90°	Surface Elevation: 27.000 m AHD
Position: E341167.000 N6209303.000	Machine Type: Backhoe	Excavation Method: 600mm Toothed Trenching Bucket
Excavation Dimensions: 3.00m (Length) by 1.00m (Width)	Contractor: RemX Australia	
Date Excavated: 13/3/24	Logged By: ES	Checked By: BP

Excavation			Sampling & Testing			Material Description									
Method	Resistance	Stability	Water	Sample or Field Test	DCP TEST Blows	RL (m AHD)	Depth (m)	Geology	Graphic Log	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Cementation / Weathering	Consistency / Relative Density	STRUCTURE & Other Observations	
BH ↑ VE Stable ↓ VH	Not Encountered	Not Encountered	Not Encountered	ES 0.00 m	3 6 9 12	27.000	0.00	TS		TOPSOIL: SAND: fine to medium grained, sub-rounded to sub-angular, dark grey; trace silty fines. (Topsoil)	D	Uc	Ls to MD	0.00 m: PID - 2.0ppm	
				ES 0.25 m	2	26.750	0.25	Quaternary Dune Deposits (QDD)		SAND (SP): fine to coarse grained, sub-rounded to sub-angular, quartz and lithics; pale grey, mottled dark brown. (aeolian)	M	We	M	VD	0.50 m: PID - 4.5ppm
				ES 0.50 m	4	26.500	0.50			0.10m					
				ES 0.75 m	5	26.250	0.75			0.85m					
Refusal	1	26.000	1.00	0.90m											
						25.500	1.50			FERRICRETE: fine grained; dark orange brown; massive; variably cemented comprising soil and rock strength fragments. (Di duricrust). TERMINATED AT 0.90 m Refusal on rock					
						25.000	2.00								
						24.500	2.50								

METHOD EX Excavator bucket R Ripper HA Hand auger PT Push tube SON Sonic drilling AH Air hammer PS Percussion sampler AS Short spiral auger AD/V Solid flight auger: V-Bit AD/T Solid flight auger: TC-Bit HFA Hollow flight auger WB Washbore drilling RR Rock roller	PENETRATION VE Very Easy (No Resistance) E Easy F Firm H Hard VH Very Hard (Refusal) WATER Water Level on Date shown water inflow water outflow	FIELD TESTS SPT - Standard Penetration Test HP - Hand/Pocket Penetrometer DCP - Dynamic Cone Penetrometer PSP - Perth Sand Penetrometer MC - Moisture Content PBT - Plate Bearing Test IMP - Borehole Impression Test PID - Photoionisation Detector VS - Vane Shear; P=Peak, R=Residual (uncorrected kPa)	SAMPLES Bs - Bulk disturbed sample D - Disturbed sample E - Environmental sample U - Thin wall tube 'undisturbed' MOISTURE D - Dry M - Moist W - Wet PL - Plastic limit LL - Liquid limit w - Moisture content	SOIL CONSISTENCY VS - Very Soft S - Soft F - Firm St - Stiff VSt - Very Stiff Hd - Hard RELATIVE DENSITY VLs - Very Loose Ls - Loose MD - Medium Dense D - Dense VD - Very Dense
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Refer to explanatory notes for details of abbreviations and basis of descriptions

Client: Synergy RED
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation
Location: Shire of Augusta Margaret River Job No: 304501017



TP05: Downhole



TP05: Coretray - 0.0 - 0.9m

Client: Synergy RED	Job No: 304501017	Sheet: 1 of 1
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation	Angle from Horizontal: 90°	Surface Elevation: 40.000 m AHD
Location: Shire of Augusta Margaret River	Excavation Method: 600mm Toothed Trenching Bucket	
Position: E344443.000 N6210783.000	Excavation Dimensions: 1.00m (Length) by 3.00m (Width)	Contractor: RemX Australia
Machine Type: Backhoe	Date Excavated: 13/3/24	Logged By: ES
		Checked By: BP

Excavation			Sampling & Testing		Material Description									
Method	Resistance	Stability	Water	Sample or Field Test	DCP TEST Blows	RL (m AHD)	Depth (m)	Geology	Graphic Log	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Cementation / Weathering	Consistency / Relative Density	STRUCTURE & Other Observations
BH	VE	Stable	Not Encountered	ES 0.00 m	3 6 9 12	39.5	0.5	D Quaternary Dune Deposits (QDD)		TOPSOIL: SAND: fine to medium grained, sub-rounded to sub-angular, dark grey. (Topsoil)	D	Uc	Ls to MD	0.00 m: PID- 1.5ppm
				ES 0.25 m						SAND (SP): fine to medium grained, rounded to angular quartz; pale grey, mottled pale brown. (aeolian)				0.50 m: PID- 3.3ppm
VH				ES 0.50 m						FERRICRETE: fine grained; dark orange brown; massive; variably cemented comprising soil and rock strength fragments. (DI duricrust).	We	M		
				Refusal						TERMINATED AT 0.70 m Refusal on rock				

METHOD EX Excavator bucket R Ripper HA Hand auger PT Push tube SON Sonic drilling AH Air hammer PS Percussion sampler AS Short spiral auger AD/V Solid flight auger: V-Bit AD/T Solid flight auger: TC-Bit HFA Hollow flight auger WB Washbore drilling RR Rock roller	PENETRATION VE Very Easy (No Resistance) E Easy F Firm H Hard VH Very Hard (Refusal) WATER Water Level on Date shown water inflow water outflow	FIELD TESTS SPT - Standard Penetration Test HP - Hand/Pocket Penetrometer DCP - Dynamic Cone Penetrometer PSP - Perth Sand Penetrometer MC - Moisture Content PBT - Plate Bearing Test IMP - Borehole Impression Test PID - Photoionisation Detector VS - Vane Shear; P=Peak, R=Residual (uncorrected kPa)	SAMPLES Bs - Bulk disturbed sample D - Disturbed sample E - Environmental sample U - Thin wall tube 'undisturbed' MOISTURE D - Dry M - Moist W - Wet PL - Plastic limit LL - Liquid limit w - Moisture content	SOIL CONSISTENCY VS - Very Soft S - Soft F - Firm St - Stiff VSt - Very Stiff Hd - Hard RELATIVE DENSITY VLs - Very Loose Ls - Loose MD - Medium Dense D - Dense VD - Very Dense
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Refer to explanatory notes for details of abbreviations and basis of descriptions

Client: Synergy RED
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation
Location: Shire of Augusta Margaret River Job No: 304501017



TP06: Downhole



TP06: Coretray - 0.0 - 0.7m

Client: Synergy RED	Job No: 304501017	Sheet: 1 of 1
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation		
Location: Shire of Augusta Margaret River		
Position: E340730.000 N6210619.000	Angle from Horizontal: 90°	Surface Elevation: 25.000 m AHD
Machine Type: Backhoe	Excavation Method: 600mm Toothed Trenching Bucket	
Excavation Dimensions: 2.00m (Length) by 1.00m (Width)	Contractor: RemX Australia	
Date Excavated: 14/3/24	Logged By: ES	Checked By: BP

Excavation Method	Resistance	Stability	Water	Sampling & Testing		RL (m AHD)	Depth (m)	Geology	Graphic Log	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Cementation / Weathering	Consistency / Relative Density	STRUCTURE & Other Observations
				Sample or Field Test	DCP TEST Blows									
↑ BH ↓ VE Unstable			▽	ES 0.00 m	3 6 9 12	25.00	0.00	Quaternary Dune Deposits (QDD)		TOPSOIL: SAND: fine to medium grained, sub-rounded to sub-angular, dark grey; trace fines. (Topsoil)	D	Uc	Ls to MD	0.00 m: PID - 1.6ppm
				ES 0.25 m	2	24.5	0.5			SAND (SP): fine to coarse grained, sub-rounded to sub-angular, quartz and lithics; pale grey; trace silty fines. (aeolian)	M		D	0.50 m: PID - 3.1ppm
				ES 0.50 m	5					24.0	1.0	SAND (SP): fine to coarse grained, sub-rounded to sub-angular, quartz; dark grey, mottled dark brown; pockets of organics. (aeolian)	W	
				ES 0.75 m	7	23.5	1.5							26/100
				ES 1.00 m	7					23.0	2.0	23	23	
				ES 1.25 m	9	22.5	2.5							Practical refusal
				ES 1.50 m	9					Bs 1.70 m	24/100	24	24	

METHOD EX Excavator bucket R Ripper HA Hand auger PT Push tube SON Sonic drilling AH Air hammer PS Percussion sampler AS Short spiral auger AD/V Solid flight auger: V-Bit AD/T Solid flight auger: TC-Bit HFA Hollow flight auger WB Washbore drilling RR Rock roller	PENETRATION VE Very Easy (No Resistance) E Easy F Firm H Hard VH Very Hard (Refusal) WATER Water Level on Date shown water inflow water outflow	FIELD TESTS SPT - Standard Penetration Test HP - Hand/Pocket Penetrometer DCP - Dynamic Cone Penetrometer PSP - Perth Sand Penetrometer MC - Moisture Content PBT - Plate Bearing Test IMP - Borehole Impression Test PID - Photoionisation Detector VS - Vane Shear; P=Peak, R=Residual (uncorrected kPa)	SAMPLES Bs - Bulk disturbed sample D - Disturbed sample E - Environmental sample U - Thin wall tube 'undisturbed' MOISTURE D - Dry M - Moist W - Wet PL - Plastic limit LL - Liquid limit w - Moisture content	SOIL CONSISTENCY VS - Very Soft S - Soft F - Firm St - Stiff VSt - Very Stiff Hd - Hard RELATIVE DENSITY VLs - Very Loose Ls - Loose MD - Medium Dense D - Dense VD - Very Dense
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Refer to explanatory notes for details of abbreviations and basis of descriptions

Client: Synergy RED
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation
Location: Shire of Augusta Margaret River Job No: 304501017



TP07: Downhole



TP07: Coretray - 0.0 - 1.7m

Client: Synergy RED Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation Location: Shire of Augusta Margaret River	Job No: 304501017 Angle from Horizontal: 90° Excavation Method: 600mm Toothed Trenching Bucket Excavation Dimensions: 1.50m (Length) by 3.00m (Width)	Sheet: 1 of 1 Surface Elevation: 43.000 m AHD Contractor: RemX Australia Checked By: BP
Position: E343189.728 N6213977.040		Logged By: ES

Excavation			Sampling & Testing		RL (m AHD)	Depth (m)	Material Description							
Method	Resistance	Stability	Sample or Field Test	DCP TEST Blows			Geology	Graphic Log	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Cementation / Weathering	Consistency / Relative Density	STRUCTURE & Other Observations	
BH VE Unstable 			ES 0.00 m	3 6 9 12			TS 	TOPSOIL: SAND: fine to medium grained, sub-rounded to sub-angular, dark grey; trace fines. (Topsoil)	D	Uc	D	0.00 m: PID - 2.0ppm		
			ES 0.25 m		42.5	0.5		SAND (SP): fine to coarse grained, rounded to sub-angular, quartz; pale grey; trace silty fines. (aeolian)			MD			
			ES 0.50 m							M		Ls to MD	0.50 m: PID - 2.5ppm	
			ES 0.75 m											
			ES 1.00 m			42.0	1.0	Quaternary Dune Deposits (QDD)					1.00 m: PID - 5.6ppm	
			ES 1.25 m											
			ES 1.50 m			41.5	1.5							
			ES 1.75 m											
		ES 2.00 m			41.0	2.0								
		Bs 2.00 m												
			Refusal											
					40.5	2.5		SAND (SP): fine to coarse grained, sub-rounded to sub-angular, quartz and lithics; pale grey, mottled dark brown. (aeolian) TERMINATED AT 2.00 m Practical Refusal (side wall collapse)						

METHOD EX Excavator bucket R Ripper HA Hand auger PT Push tube SON Sonic drilling AH Air hammer PS Percussion sampler AS Short spiral auger AD/V Solid flight auger: V-Bit AD/T Solid flight auger: TC-Bit HFA Hollow flight auger WB Washbore drilling RR Rock roller	PENETRATION VE Very Easy (No Resistance) E Easy F Firm H Hard VH Very Hard (Refusal) WATER Water Level on Date shown water inflow water outflow	FIELD TESTS SPT - Standard Penetration Test HP - Hand/Pocket Penetrometer DCP - Dynamic Cone Penetrometer PSP - Perth Sand Penetrometer MC - Moisture Content PBT - Plate Bearing Test IMP - Borehole Impression Test PID - Photoionisation Detector VS - Vane Shear; P=Peak, R=Residual (uncorrected kPa)	SAMPLES Bs - Bulk disturbed sample D - Disturbed sample E - Environmental sample U - Thin wall tube 'undisturbed' MOISTURE D - Dry M - Moist W - Wet PL - Plastic limit LL - Liquid limit w - Moisture content	SOIL CONSISTENCY VS - Very Soft S - Soft F - Firm St - Stiff VSt - Very Stiff Hd - Hard RELATIVE DENSITY VLs - Very Loose Ls - Loose MD - Medium Dense D - Dense VD - Very Dense
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Refer to explanatory notes for details of abbreviations and basis of descriptions

Client: Synergy RED
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation
Location: Shire of Augusta Margaret River Job No: 304501017



TP08: Downhole view



TP08: Core tray 0.0 - 2.0

Client: Synergy RED
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation
Location: Shire of Augusta Margaret River Job No: 304501017



TP09: Downhole



TP09: Core tray 0.0- 1.5

Client: Synergy RED
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation
Location: Shire of Augusta Margaret River Job No: 304501017



TP10: 0.0 - 1.2



TP10: Downhole view

Client: Synergy RED	Job No: 304501017	Sheet: 1 of 1
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation		
Location: Shire of Augusta Margaret River		
Position: E341041.000 N6211370.000	Angle from Horizontal: 90°	Surface Elevation: 28.000 m AHD
Machine Type: Backhoe	Excavation Method: 600mm Toothed Trenching Bucket	
Excavation Dimensions: 2.50m (Length) by 1.00m (Width)	Contractor: RemX Australia	
Date Excavated: 14/3/24	Logged By: ES	Checked By: BP

Excavation Method	Resistance	Stability	Water	Sampling & Testing		RL (m AHD)	Depth (m)	Geology	Graphic Log	Material Description	Moisture Condition	Cementation / Weathering	Consistency / Relative Density	STRUCTURE & Other Observations						
				Sample or Field Test	DCP TEST Blows															
BH VE Unstable Not Encountered				ES 0.00 m	3	28.000	27.5	Quaternary Dune Deposits (QDD)		TOPSOIL: SAND: fine to medium grained, sub-rounded to sub-angular; dark grey; trace fines. (Topsoil)	D	Uc	Ls to MD	0.00 m: PID - 0.3ppm 0.01 m: had to move to new location due to spraying						
				DUP 0.00 m	6															
				TRIP 0.00 m	9															
				ES 0.25 m	12															
				ES 0.50 m																0.50 m: PID - 3.6ppm
				ES 0.75 m																
				ES 1.00 m																1.00 m: PID - 4.3ppm
				ES 1.25 m																
ES 1.50 m																				
ES 1.75 m																				
ES 2.00 m						26.0	2.0							TERMINATED AT 2.00 m Practical Refusal (side wall collapse)						
D 2.00 m																				
						25.5	2.5													

METHOD EX Excavator bucket R Ripper HA Hand auger PT Push tube SON Sonic drilling AH Air hammer PS Percussion sampler AS Short spiral auger AD/V Solid flight auger: V-Bit AD/T Solid flight auger: TC-Bit HFA Hollow flight auger WB Washbore drilling RR Rock roller	PENETRATION VE Very Easy (No Resistance) E Easy F Firm H Hard VH Very Hard (Refusal) WATER Water Level on Date shown water inflow water outflow	FIELD TESTS SPT - Standard Penetration Test HP - Hand/Pocket Penetrometer DCP - Dynamic Cone Penetrometer PSP - Perth Sand Penetrometer MC - Moisture Content PBT - Plate Bearing Test IMP - Borehole Impression Test PID - Photoionisation Detector VS - Vane Shear; P=Peak, R=Residual (uncorrected kPa)	SAMPLES Bs - Bulk disturbed sample D - Disturbed sample E - Environmental sample U - Thin wall tube 'undisturbed' MOISTURE D - Dry M - Moist W - Wet PL - Plastic limit LL - Liquid limit w - Moisture content	SOIL CONSISTENCY VS - Very Soft S - Soft F - Firm St - Stiff VSt - Very Stiff Hd - Hard RELATIVE DENSITY VLs - Very Loose Ls - Loose MD - Medium Dense D - Dense VD - Very Dense
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Refer to explanatory notes for details of abbreviations and basis of descriptions

Client: Synergy RED
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation
Location: Shire of Augusta Margaret River Job No: 304501017



TP11: Downhole



TP11: Coretray - 0.0 - 2.0m

Client: Synergy RED	Job No: 304501017	Sheet: 1 of 1
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation		
Location: Shire of Augusta Margaret River		
Position: E342786.000 N6210510.000	Angle from Horizontal: 90°	Surface Elevation: 36.000 m AHD
Machine Type: Backhoe	Excavation Method: 600mm Toothed Trenching Bucket	
Excavation Dimensions: 3.00m (Length) by 1.00m (Width)	Contractor: RemX Australia	
Date Excavated: 13/3/24	Logged By: ES	Checked By: BP

Excavation			Sampling & Testing			Material Description								
Method	Resistance	Stability	Water	Sample or Field Test	DCP TEST Blows	RL (m AHD)	Depth (m)	Geology	Graphic Log	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Cementation / Weathering	Consistency / Relative Density	STRUCTURE & Other Observations
BH	VE	Stable	N.E	ES 0.00 m	3 6 9 12			TS		TOPSOIL: SAND: fine to medium grained, sub-rounded to sub-angular; dark grey; trace fines. (Topsoil)	D	Uc	Ls	0.00 m: PID - 3.4ppm
VH					Refusal			DI		SAND (SP): fine to medium grained, rounded to angular, quartz; pale grey, mottled pale yellow-brown. (aeolian)	We	M		
							35.5			FERRICRETE: fine grained; dark orange brown; massive; variably cemented comprising soil and rock strength fragments. (DI duricrust).				
							35.0			TERMINATED AT 0.20 m Refusal on rock				
							34.5							
							34.0							
							33.5							

METHOD EX Excavator bucket R Ripper HA Hand auger PT Push tube SON Sonic drilling AH Air hammer PS Percussion sampler AS Short spiral auger AD/V Solid flight auger: V-Bit AD/T Solid flight auger: TC-Bit HFA Hollow flight auger WB Washbore drilling RR Rock roller	PENETRATION VE Very Easy (No Resistance) E Easy F Firm H Hard VH Very Hard (Refusal) WATER Water Level on Date shown water inflow water outflow	FIELD TESTS SPT - Standard Penetration Test HP - Hand/Pocket Penetrometer DCP - Dynamic Cone Penetrometer PSP - Perth Sand Penetrometer MC - Moisture Content PBT - Plate Bearing Test IMP - Borehole Impression Test PID - Photoionisation Detector VS - Vane Shear; P=Peak, R=Residual (uncorrected kPa)	SAMPLES Bs - Bulk disturbed sample D - Disturbed sample E - Environmental sample U - Thin wall tube 'undisturbed' MOISTURE D - Dry M - Moist W - Wet PL - Plastic limit LL - Liquid limit w - Moisture content	SOIL CONSISTENCY VS - Very Soft S - Soft F - Firm St - Stiff VSt - Very Stiff Hd - Hard RELATIVE DENSITY VLs - Very Loose Ls - Loose MD - Medium Dense D - Dense VD - Very Dense
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Refer to explanatory notes for details of abbreviations and basis of descriptions

Client: Synergy RED
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation
Location: Shire of Augusta Margaret River Job No: 304501017



TP12: Downhole



TP12: Coretray - 0.0 - 0.2m

Client: Synergy RED	Job No: 304501017	Sheet: 1 of 1
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation	Angle from Horizontal: 90°	Surface Elevation: 39.000 m AHD
Location: Shire of Augusta Margaret River	Excavation Method: 600mm Toothed Trenching Bucket	
Position: E343538.000 N6211851.000	Excavation Dimensions: 3.00m (Length) by 1.00m (Width)	Contractor: RemX Australia
Machine Type: Backhoe	Date Excavated: 13/3/24	Logged By: ES
		Checked By: BP

Excavation			Sampling & Testing		Material Description												
Method	Resistance	Stability	Water	Sample or Field Test	DCP TEST Blows	RL (m AHD)	Depth (m)	Geology	Graphic Log	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Cementation / Weathering	Consistency / Relative Density	STRUCTURE & Other Observations			
BH ↑ VE ↓	Unstable	Not Encountered	Not Encountered	ES 0.00 m	3 6 9 12			TS	0.10m	TOPSOIL: SAND: fine to medium grained, sub-rounded to sub-angular; dark grey; trace fines. (Topsoil)	D	Uc	Ls to MD	0.00 m: PID - 0.7ppm			
				ES 0.25 m	1						SAND (SP): fine to medium grained, rounded to angular, quartz; pale grey, mottled dark grey. (aeolian)						
				ES 0.50 m	2	38.5	0.5								MD	0.50 m: PID - 2.9ppm	
				ES 0.75 m	3												
				ES 1.00 m	3	38.0	1.0									D	1.00 m: PID - 4.2ppm
				ES 1.25 m	5												
				ES 1.50 m Bs 1.50 m	10	37.5	1.5								M		
				ES 1.75 m	20			Refusing 15					1.70m	SAND (SP): fine to coarse grained, sub-rounded to sub-angular, quartz and lithics; dark grey; pockets of organics. (aeolian)		Wk	
				ES 2.00 m D 2.00 m		37.0	2.0		2.00m	TERMINATED AT 2.00 m Practical Refusal (side wall collapse)							
						36.5	2.5										

METHOD EX Excavator bucket R Ripper HA Hand auger PT Push tube SON Sonic drilling AH Air hammer PS Percussion sampler AS Short spiral auger AD/V Solid flight auger: V-Bit AD/T Solid flight auger: TC-Bit HFA Hollow flight auger WB Washbore drilling RR Rock roller	PENETRATION VE Very Easy (No Resistance) E Easy F Firm H Hard VH Very Hard (Refusal) WATER Water Level on Date shown water inflow water outflow	FIELD TESTS SPT - Standard Penetration Test HP - Hand/Pocket Penetrometer DCP - Dynamic Cone Penetrometer PSP - Perth Sand Penetrometer MC - Moisture Content PBT - Plate Bearing Test IMP - Borehole Impression Test PID - Photoionisation Detector VS - Vane Shear; P=Peak, R=Residual (uncorrected kPa)	SAMPLES Bs - Bulk disturbed sample D - Disturbed sample E - Environmental sample U - Thin wall tube 'undisturbed' MOISTURE D - Dry M - Moist W - Wet PL - Plastic limit LL - Liquid limit w - Moisture content	SOIL CONSISTENCY VS - Very Soft S - Soft F - Firm St - Stiff VSt - Very Stiff Hd - Hard RELATIVE DENSITY VLs - Very Loose Ls - Loose MD - Medium Dense D - Dense VD - Very Dense
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Refer to explanatory notes for details of abbreviations and basis of descriptions

Client: Synergy RED
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation
Location: Shire of Augusta Margaret River Job No: 304501017



TP13: Downhole



TP13: Corebox - 0.0 - 2.0

Client: Synergy RED	Job No: 304501017	Sheet: 1 of 1
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation		
Location: Shire of Augusta Margaret River		
Position: E344875.000 N6211256.000	Angle from Horizontal: 90°	Surface Elevation: 38.000 m AHD
Machine Type: Backhoe	Excavation Method: 600mm Toothed Trenching Bucket	
Excavation Dimensions: 3.00m (Length) by 1.00m (Width)	Contractor: RemX Australia	
Date Excavated: 13/3/24	Logged By: ES	Checked By: BP

Excavation			Sampling & Testing			Material Description								
Method	Resistance	Stability	Water	Sample or Field Test	DCP TEST Blows	RL (m AHD)	Depth (m)	Geology	Graphic Log	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Cementation / Weathering	Consistency / Relative Density	STRUCTURE & Other Observations
BH	VE	Stable	Not Encountered	ASS 0.00 m	3 6 9 12			TS		TOPSOIL: SAND: fine to medium grained, sub-rounded to sub-angular; dark grey; trace fines. (Topsoil)	D	Uc	MD to D	0.00 m: PID - 2.5ppm
	VH			ES 0.25 m	Refusal			QDD		SAND (SP): fine to medium grained, rounded to angular, quartz; pale grey, mottled pale brown. (aeolian)				
						37.5	0.5			FERRICRETE: fine grained; dark orange brown; massive; variably cemented comprising soil and rock strength fragments. (Di duricrust). TERMINATED AT 0.40 m Refusal on rock	We	M		

METHOD EX Excavator bucket R Ripper HA Hand auger PT Push tube SON Sonic drilling AH Air hammer PS Percussion sampler AS Short spiral auger AD/V Solid flight auger: V-Bit AD/T Solid flight auger: TC-Bit HFA Hollow flight auger WB Washbore drilling RR Rock roller	PENETRATION VE Very Easy (No Resistance) E Easy F Firm H Hard VH Very Hard (Refusal) WATER Water Level on Date shown water inflow water outflow	FIELD TESTS SPT - Standard Penetration Test HP - Hand/Pocket Penetrometer DCP - Dynamic Cone Penetrometer PSP - Perth Sand Penetrometer MC - Moisture Content PBT - Plate Bearing Test IMP - Borehole Impression Test PID - Photoionisation Detector VS - Vane Shear; P=Peak, R=Residual (uncorrected kPa)	SAMPLES Bs - Bulk disturbed sample D - Disturbed sample E - Environmental sample U - Thin wall tube 'undisturbed' MOISTURE D - Dry M - Moist W - Wet PL - Plastic limit LL - Liquid limit w - Moisture content	SOIL CONSISTENCY VS - Very Soft S - Soft F - Firm St - Stiff VSt - Very Stiff Hd - Hard RELATIVE DENSITY VLs - Very Loose Ls - Loose MD - Medium Dense D - Dense VD - Very Dense
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Refer to explanatory notes for details of abbreviations and basis of descriptions

Client: Synergy RED
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation
Location: Shire of Augusta Margaret River Job No: 304501017



TP14: Downhole



TP14: Corebox - 0.0 - 0.4

Client: Synergy RED	Job No: 304501017	Sheet: 1 of 1
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation		
Location: Shire of Augusta Margaret River		
Position: E341697.000 N6209876.000	Angle from Horizontal: 90°	Surface Elevation: 28.000 m AHD
Machine Type: Backhoe	Excavation Method: 600mm Toothed Trenching Bucket	
Excavation Dimensions: 3.00m (Length) by 1.00m (Width)	Contractor: RemX Australia	
Date Excavated: 13/3/24	Logged By: ES	Checked By: BP

Excavation			Sampling & Testing		Material Description										
Method	Resistance	Stability	Water	Sample or Field Test	DCP TEST Blows	RL (m AHD)	Depth (m)	Geology	Graphic Log	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Cementation / Weathering	Consistency / Relative Density	STRUCTURE & Other Observations	
↑ BH ↓	VE	Stable	Not Encountered	ES 0.00 m	3 6 9 12	27.5	0.5	TS	0.10m	TOPSOIL: SAND: fine to medium grained, sub-rounded to sub-angular; dark grey; trace fines. (Topsoil)	D	Uc	Ls to MD	0.00 m: PID - 0.5ppm	
				ES 0.25 m							SAND (SP): fine to coarse grained, sub-rounded to sub-angular, quartz and iron oxide; dark yellow, stained dark orange. (aeolian)	M		MD to D	0.50 m: PID - 1.5ppm
				ES 0.50 m											
				ES 0.75 m											
				Refusal on coffee rock		27.0	1.0	D	1.00m	FERRICRETE: fine grained; dark orange brown; massive; variably cemented comprising soil and rock strength fragments. (DI duricrust). TERMINATED AT 1.00 m Refusal on rock	We	M		1.00 m: PID - 2.9ppm	

METHOD EX Excavator bucket R Ripper HA Hand auger PT Push tube SON Sonic drilling AH Air hammer PS Percussion sampler AS Short spiral auger AD/V Solid flight auger: V-Bit AD/T Solid flight auger: TC-Bit HFA Hollow flight auger WB Washbore drilling RR Rock roller	PENETRATION VE Very Easy (No Resistance) E Easy F Firm H Hard VH Very Hard (Refusal) WATER Water Level on Date shown water inflow water outflow	FIELD TESTS SPT - Standard Penetration Test HP - Hand/Pocket Penetrometer DCP - Dynamic Cone Penetrometer PSP - Perth Sand Penetrometer MC - Moisture Content PBT - Plate Bearing Test IMP - Borehole Impression Test PID - Photoionisation Detector VS - Vane Shear; P=Peak, R=Residual (uncorrected kPa)	SAMPLES Bs - Bulk disturbed sample D - Disturbed sample E - Environmental sample U - Thin wall tube 'undisturbed' MOISTURE D - Dry M - Moist W - Wet PL - Plastic limit LL - Liquid limit w - Moisture content	SOIL CONSISTENCY VS - Very Soft S - Soft F - Firm St - Stiff VSt - Very Stiff Hd - Hard RELATIVE DENSITY VLs - Very Loose Ls - Loose MD - Medium Dense D - Dense VD - Very Dense
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Refer to explanatory notes for details of abbreviations and basis of descriptions

Client: Synergy RED
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation
Location: Shire of Augusta Margaret River Job No: 304501017



TP15: Downhole



TP15: Coretray - 0.0 - 1.0m

Client: Synergy RED	Job No: 304501017	Sheet: 1 of 1
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation		
Location: Shire of Augusta Margaret River		
Position: E342673.000 N6209242.000	Angle from Horizontal: 90°	Surface Elevation: 30.000 m AHD
Machine Type: Backhoe	Excavation Method: 600mm Toothed Trenching Bucket	
Excavation Dimensions: 1.50m (Length) by 1.00m (Width)		Contractor: RemX Australia
Date Excavated: 13/3/24	Logged By: ES	Checked By: BP

Excavation				Sampling & Testing		Material Description								
Method	Resistance	Stability	Water	Sample or Field Test	DCP TEST Blows	RL (m AHD)	Depth (m)	Geology	Graphic Log	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Cementation / Weathering	Consistency / Relative Density	STRUCTURE & Other Observations
BH ↑	VE	Stable	N.E	ES 0.00 m DUP 0.00 m TRIP 0.00 m	3 6 9 12			TS		TOPSOIL: SAND: fine to medium grained, sub-rounded to sub-angular; dark grey; trace fines. (Topsoil)	D	Uc	VD	0.00 m: PID - 0.6ppm
VH ↓				Refusal on coffee rock						FERRICRETE: fine grained; dark orange brown; massive; variably cemented comprising soil and rock strength fragments. (DI duricrust).	We		M	
							29.5 0.5							
							29.0 1.0							
							28.5 1.5							
							28.0 2.0							
							27.5 2.5							

METHOD EX Excavator bucket R Ripper HA Hand auger PT Push tube SON Sonic drilling AH Air hammer PS Percussion sampler AS Short spiral auger AD/V Solid flight auger: V-Bit AD/T Solid flight auger: TC-Bit HFA Hollow flight auger WB Washbore drilling RR Rock roller	PENETRATION VE Very Easy (No Resistance) E Easy F Firm H Hard VH Very Hard (Refusal) WATER Water Level on Date shown water inflow water outflow	FIELD TESTS SPT - Standard Penetration Test HP - Hand/Pocket Penetrometer DCP - Dynamic Cone Penetrometer PSP - Perth Sand Penetrometer MC - Moisture Content PBT - Plate Bearing Test IMP - Borehole Impression Test PID - Photoionisation Detector VS - Vane Shear; P=Peak, R=Residual (uncorrected kPa)	SAMPLES Bs - Bulk disturbed sample D - Disturbed sample E - Environmental sample U - Thin wall tube 'undisturbed' MOISTURE D - Dry M - Moist W - Wet PL - Plastic limit LL - Liquid limit w - Moisture content	SOIL CONSISTENCY VS - Very Soft S - Soft F - Firm St - Stiff VSt - Very Stiff Hd - Hard RELATIVE DENSITY VLs - Very Loose Ls - Loose MD - Medium Dense D - Dense VD - Very Dense
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Refer to explanatory notes for details of abbreviations and basis of descriptions

Client: Synergy RED
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation
Location: Shire of Augusta Margaret River Job No: 304501017



TP16: Downhole



TP16: Coretray - 0.0 - 0.15m

Client: Synergy RED	Job No: 304501017	Sheet: 1 of 1
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation		
Location: Shire of Augusta Margaret River		
Position: E343812.000 N6209922.000	Angle from Horizontal: 90°	Surface Elevation: 37.000 m AHD
Machine Type: Backhoe	Excavation Method: 600mm Toothed Trenching Bucket	
Excavation Dimensions: 3.00m (Length) by 1.00m (Width)	Contractor: RemX Australia	
Date Excavated: 13/3/24	Logged By: ES	Checked By: BP

Excavation			Sampling & Testing		Material Description									
Method	Resistance	Stability	Water	Sample or Field Test	DCP TEST Blows	RL (m AHD)	Depth (m)	Geology	Graphic Log	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Cementation / Weathering	Consistency / Relative Density	STRUCTURE & Other Observations
↑ BH ↓ VH	VE Stable	Stable	Not Encountered	ES 0.00 m	3 6 9 12			TS		TOPSOIL: SAND: fine to medium grained, sub-rounded to sub-angular; dark grey; trace fines. (Topsoil)	D	Uc	Ls to MD	0.00 m: PID - 0.6ppm
				ES 0.25 m	Refusal			ODD		SAND (SP): fine to medium grained, rounded to angular, quartz; pale grey, mottled dark grey. (aeolian)			VD	
				ES 0.50 m		36.5	0.5	D		FERRICRETE: fine grained; dark orange brown; massive, variably cemented comprising soil and rock strength fragments. (Di duricrust). TERMINATED AT 0.50 m Refusal on rock	We		M	0.50 m: PID - 1.6ppm

METHOD EX Excavator bucket R Ripper HA Hand auger PT Push tube SON Sonic drilling AH Air hammer PS Percussion sampler AS Short spiral auger AD/V Solid flight auger: V-Bit AD/T Solid flight auger: TC-Bit HFA Hollow flight auger WB Washbore drilling RR Rock roller	PENETRATION VE Very Easy (No Resistance) E Easy F Firm H Hard VH Very Hard (Refusal) WATER Water Level on Date shown water inflow water outflow	FIELD TESTS SPT - Standard Penetration Test HP - Hand/Pocket Penetrometer DCP - Dynamic Cone Penetrometer PSP - Perth Sand Penetrometer MC - Moisture Content PBT - Plate Bearing Test IMP - Borehole Impression Test PID - Photoionisation Detector VS - Vane Shear; P=Peak, R=Residual (uncorrected kPa)	SAMPLES Bs - Bulk disturbed sample D - Disturbed sample E - Environmental sample U - Thin wall tube 'undisturbed' MOISTURE D - Dry M - Moist W - Wet PL - Plastic limit LL - Liquid limit w - Moisture content	SOIL CONSISTENCY VS - Very Soft S - Soft F - Firm St - Stiff VSt - Very Stiff Hd - Hard RELATIVE DENSITY VLs - Very Loose Ls - Loose MD - Medium Dense D - Dense VD - Very Dense
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Refer to explanatory notes for details of abbreviations and basis of descriptions

Client: Synergy RED
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation
Location: Shire of Augusta Margaret River Job No: 304501017



TP17: Downhole



TP17: Coretray - 0.0. - 0.5m

Client: Synergy RED	Job No: 304501017	Sheet: 1 of 1
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation		
Location: Shire of Augusta Margaret River		
Position: E343477.000 N6208439.000	Angle from Horizontal: 90°	Surface Elevation: 33.000 m AHD
Machine Type: Backhoe	Excavation Method: 600mm Toothed Trenching Bucket	
Excavation Dimensions: 2.00m (Length) by 1.00m (Width)		Contractor: RemX Australia
Date Excavated: 14/3/24	Logged By: ES	Checked By: BP

Excavation				Sampling & Testing		Material Description								
Method	Resistance	Stability	Water	Sample or Field Test	DCP TEST Blows	RL (m AHD)	Depth (m)	Geology	Graphic Log	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Cementation / Weathering	Consistency / Relative Density	STRUCTURE & Other Observations
↑ BH	VE	Stable	N.E	ES 0.00 m	3 6 9 12						D	Uc	VD	0.00 m: PID - 1.0ppm
↓ VH				Refusal						TOPSOIL: SAND: fine to medium grained, sub-rounded to sub-angular; dark grey; trace fines. (Topsoil)				
							32.5	0.5		FERRICRETE: fine grained; dark orange brown; massive; variably cemented comprising soil and rock strength fragments. (DI duricrust).		We	M	
							32.0	1.0		TERMINATED AT 0.15 m Refusal on rock				
							31.5	1.5						
							31.0	2.0						
							30.5	2.5						

METHOD EX Excavator bucket R Ripper HA Hand auger PT Push tube SON Sonic drilling AH Air hammer PS Percussion sampler AS Short spiral auger AD/V Solid flight auger: V-Bit AD/T Solid flight auger: TC-Bit HFA Hollow flight auger WB Washbore drilling RR Rock roller	PENETRATION VE Very Easy (No Resistance) E Easy F Firm H Hard VH Very Hard (Refusal) WATER Water Level on Date shown water inflow water outflow	FIELD TESTS SPT - Standard Penetration Test HP - Hand/Pocket Penetrometer DCP - Dynamic Cone Penetrometer PSP - Perth Sand Penetrometer MC - Moisture Content PBT - Plate Bearing Test IMP - Borehole Impression Test PID - Photoionisation Detector VS - Vane Shear; P=Peak, R=Residual (uncorrected kPa)	SAMPLES Bs - Bulk disturbed sample D - Disturbed sample E - Environmental sample U - Thin wall tube 'undisturbed' MOISTURE D - Dry M - Moist W - Wet PL - Plastic limit LL - Liquid limit w - Moisture content	SOIL CONSISTENCY VS - Very Soft S - Soft F - Firm St - Stiff VSt - Very Stiff Hd - Hard RELATIVE DENSITY VLs - Very Loose Ls - Loose MD - Medium Dense D - Dense VD - Very Dense
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Refer to explanatory notes for details of abbreviations and basis of descriptions

Client: Synergy RED
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation
Location: Shire of Augusta Margaret River Job No: 304501017



TP18: Downhole



TP18: Coretray - 0.0 - 0.15m

Client: Synergy RED
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation
Location: Shire of Augusta Margaret River Job No: 304501017



TP19: Downhole



TP19: Coretray - 0.0 - 0.6m

Client: Synergy RED	Job No: 304501017	Sheet: 1 of 1
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation	Angle from Horizontal: 90°	Surface Elevation: 33.000 m AHD
Location: Shire of Augusta Margaret River	Excavation Method: 600mm Toothed Trenching Bucket	
Position: E345245.000 N6209951.000	Excavation Dimensions: 3.00m (Length) by 1.00m (Width)	Contractor: RemX Australia
Machine Type: Backhoe	Date Excavated: 13/3/24	Logged By: ES
		Checked By: BP

Excavation			Sampling & Testing		Material Description											
Method	Resistance	Stability	Water	Sample or Field Test	DCP TEST Blows	RL (m AHD)	Depth (m)	Geology	Graphic Log	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Cementation / Weathering	Consistency / Relative Density	STRUCTURE & Other Observations		
BH VE Stable Not Encountered				ES 0.00 m DUP 0.00 m TRIP 0.00 m	3 6 9 12	32.5	0.5	TS	0.10m	TOPSOIL: SAND: fine to medium grained, sub-rounded to sub-angular; dark grey; trace fines. (Topsoil)	D	Uc	Ls to MD	0.00 m: PID - 0.1ppm		
				ES 0.25 m							SAND (SP): fine to coarse grained, sub-rounded to sub-angular, quartz; pale yellow stained orange-brown. (aeolian)					
				ES 0.50 m											MD	0.50 m: PID - 1.7ppm
				ES 0.75 m												
VH				ES 1.00 m	Refusal on rock	32.0	1.0	D	0.90m	FERRICRETE: fine grained; dark orange brown; massive; variably cemented comprising soil and rock strength fragments. (Di duricrust). TERMINATED AT 0.90 m Refusal on rock	We	M				

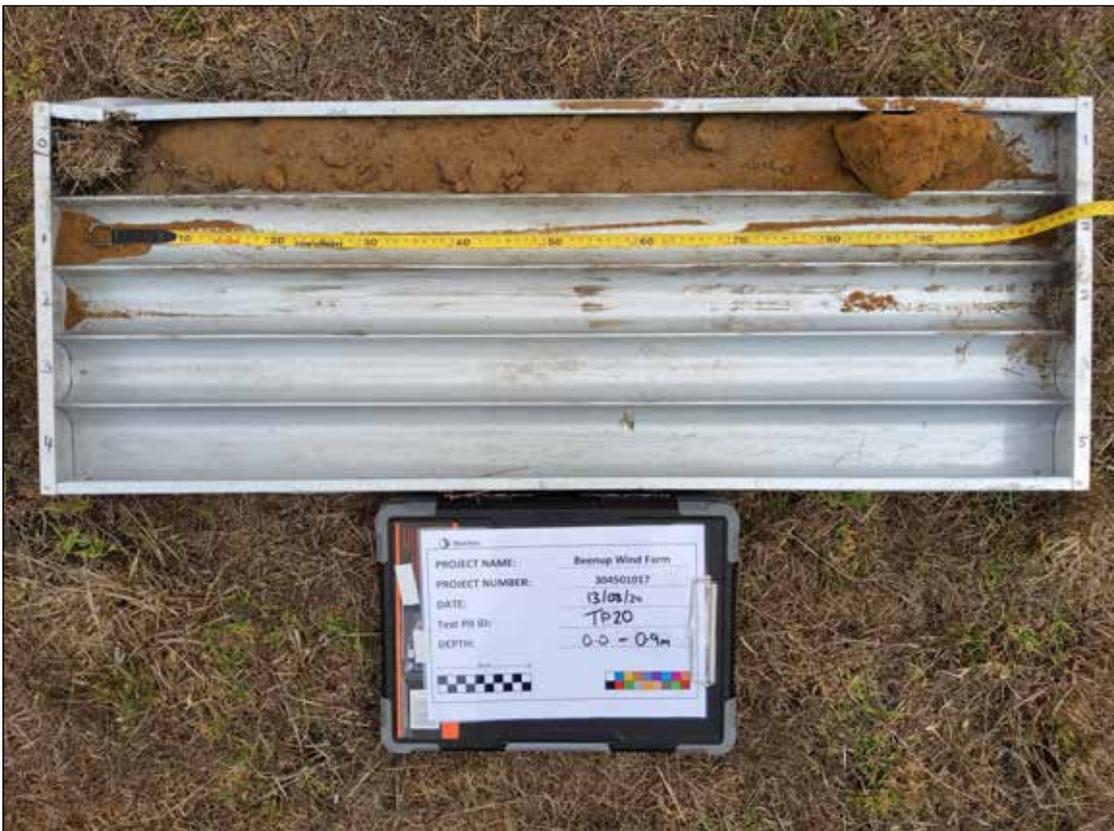
METHOD EX Excavator bucket R Ripper HA Hand auger PT Push tube SON Sonic drilling AH Air hammer PS Percussion sampler AS Short spiral auger AD/V Solid flight auger: V-Bit AD/T Solid flight auger: TC-Bit HFA Hollow flight auger WB Washbore drilling RR Rock roller	PENETRATION VE Very Easy (No Resistance) E Easy F Firm H Hard VH Very Hard (Refusal) WATER Water Level on Date shown water inflow water outflow	FIELD TESTS SPT - Standard Penetration Test HP - Hand/Pocket Penetrometer DCP - Dynamic Cone Penetrometer PSP - Perth Sand Penetrometer MC - Moisture Content PBT - Plate Bearing Test IMP - Borehole Impression Test PID - Photoionisation Detector VS - Vane Shear; P=Peak, R=Residual (uncorrected kPa)	SAMPLES Bs - Bulk disturbed sample D - Disturbed sample E - Environmental sample U - Thin wall tube 'undisturbed' MOISTURE D - Dry M - Moist W - Wet PL - Plastic limit LL - Liquid limit w - Moisture content	SOIL CONSISTENCY VS - Very Soft S - Soft F - Firm St - Stiff VSt - Very Stiff Hd - Hard RELATIVE DENSITY VLs - Very Loose Ls - Loose MD - Medium Dense D - Dense VD - Very Dense
--	--	--	---	--

Refer to explanatory notes for details of abbreviations and basis of descriptions

Client: Synergy RED
Project: Beenup Windfarm Project - Preliminary Geotechnical Investigation
Location: Shire of Augusta Margaret River Job No: 304501017



TP20: Downhole



TP20: Corebox - 0.0 - 0.9m

Appendix C Laboratory Test Certificates

C.1 Geotechnical





SOIL | AGGREGATE | CONCRETE | CRUSHING

TEST REPORT - AS 1289.2.1.1

Client:	Stantec	Ticket No.	S12721
Client Address:	11 Harvest Terrace, West Perth WA 6005	Report No.	WG24.5025-5032_1_MC
Project:	Beenup Wind Farm	Sample No.	WG24.5025-5032
Location:	Beenup	Date Sampled:	14/03/2024
Sample Identification:	Various - see below	Date Tested:	3/04/2024

TEST RESULTS - Soil Moisture Content

Sampling Method:

Sampled by Client, Tested as Received

Sample Number	Sample Identification	Moisture Content (%)
WG24.5025	WM01 (17.0-18.0)m	30.2
WG24.5026	WM01 (22.0-23.0)m	0.5
WG24.5027	WM02 (10.0-11.0)m	5.9
WG24.5028	WM02 (16.0-17.0)m	0.4
WG24.5029	WM03 (4.0-5.0)m	7.3
WG24.5030	WM03 (24.0-24.95)m	17.1
WG24.5031	WM01 (1.0-1.6)m	7.3
WG24.5032	WM02 (4.0-5.0)m	9.3

Comments:

Approved Signatory:

Name: Brooke Elliott

Date: 12/April/2024



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SOIL | AGGREGATE | CONCRETE | CRUSHING

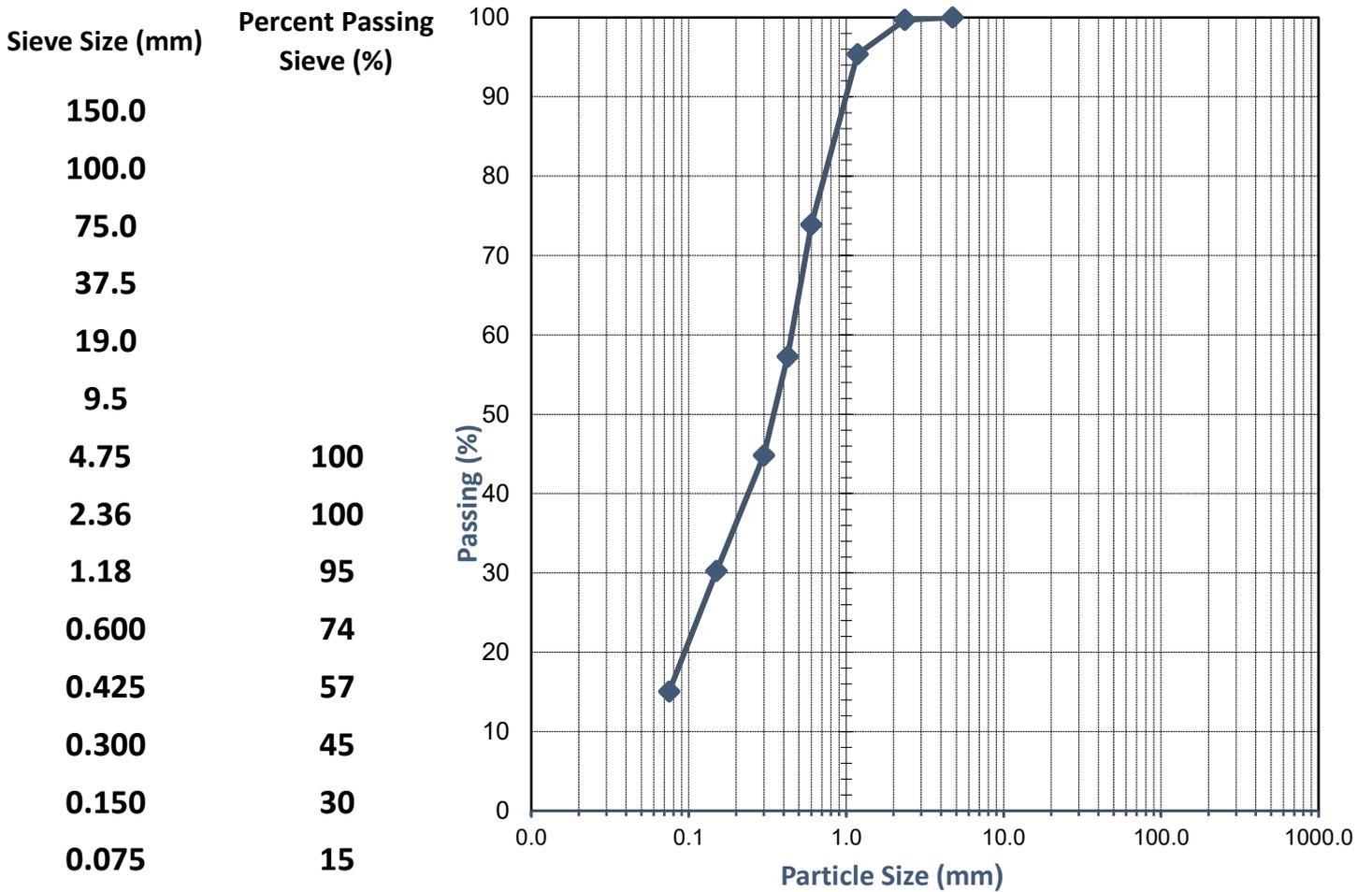
TEST REPORT - AS 1289.3.6.1, *AS 1289.1.1

Client:	Stantec	Ticket No.	S12721
Client Address:	11 Harvest Terrace, West Perth WA 6005	Report No.	WG24.5031_1_PSD
Project:	Beenup Wind Farm	Sample No.	WG24.5031
Location:	Beenup	Date Sampled:	14/03/2024
Sample Identification:	WM01 (1.0-1.6)m	Date Tested:	05/04 - 08/04/2024

TEST RESULTS - Particle Size Distribution of Soil

Sampling Method:

Sampled by Client, Tested as Received



Comments: *AS 1289.1.1- Deviation from standard: Insufficient sample according to test method requirements. NATA accreditation does not cover the performance of this service.

Approved Signatory:

Name: Matthew Lichon

Date: 08/April/2024



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SOIL | AGGREGATE | CONCRETE | CRUSHING

TEST REPORT - AS 1289.3.8.1

Client:	Stantec	Ticket No.	S12721
Client Address:	11 Harvest Terrace, West Perth WA 6005	Report No.	WG24.5024_1_ECN
Project:	Beenup Wind Farm	Sample No.	WG24.5024
Location:	Beenup	Date Sampled:	14/03/2024
Sample Identification:	WM01 (4.0-5.0)m	Date Tested:	9/04/2024

TEST RESULTS - Emerson Class Number

Sampling Method:	Sampled by Client, Tested as Received
Source of Material:	Not Specified
Soil Description:	Silty Sand
Water Used:	Distilled

**EMERSON CLASS
 NUMBER**

5

Comments:

Approved Signatory:

Name: Cody O'Neill

Date: 10/April/2024



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TEST REPORT - AS 1289.3.6.1

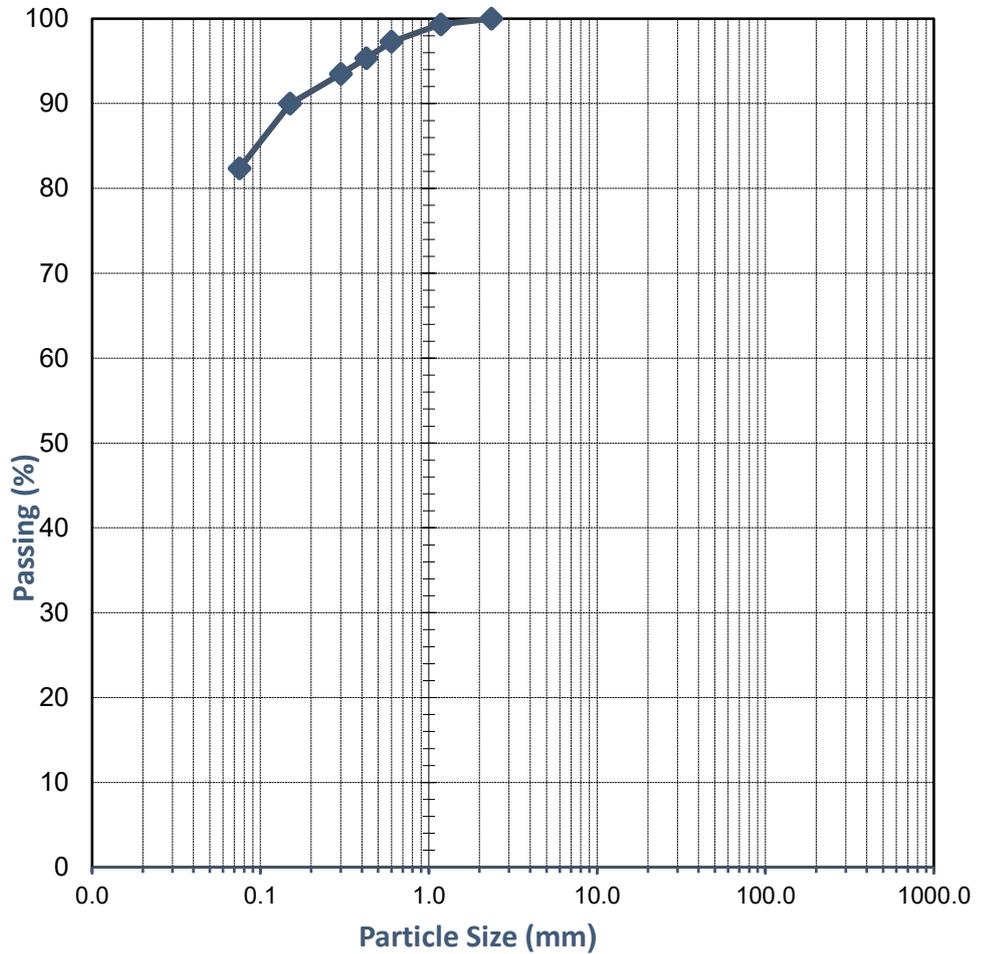
Client:	Stantec	Ticket No.	S12721
Client Address:	11 Harvest Terrace, West Perth WA 6005	Report No.	WG24.5025_1_PSD
Project:	Beenup Wind Farm	Sample No.	WG24.5025
Location:	Beenup	Date Sampled:	14/03/2024
Sample Identification:	WM01 (17.0-18.0)m	Date Tested:	09/04 - 10/04/2024

TEST RESULTS - Particle Size Distribution of Soil

Sampling Method:

Sampled by Client, Tested as Received

Sieve Size (mm)	Percent Passing Sieve (%)
150.0	
100.0	
75.0	
37.5	
19.0	
9.5	
4.75	
2.36	100
1.18	99
0.600	97
0.425	95
0.300	93
0.150	90
0.075	82



Comments:

Approved Signatory:

Name: Natasha Bielawski

Date: 10/April/2024



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SOIL | AGGREGATE | CONCRETE | CRUSHING

TEST REPORT - AS 1289.3.1.1, 3.2.1, 3.3.1 & 3.4.1

Client:	Stantec	Ticket No.	S12721
Client Address:	11 Harvest Terrace, West Perth WA 6005	Report No.	WG24.5025_1_PI
Project:	Beenup Wind Farm	Sample No.	WG24.5025
Location:	Beenup	Date Sampled:	14/03/2024
Sample Identification:	WM01 (17.0-18.0)m	Date Tested:	11/04/2024

TEST RESULTS - Consistency Limits (Casagrande)

Sampling Method: Sampled by Client, Tested as Received
History of Sample: Oven Dried <50°C
Method of Preparation: Dry Sieved

AS 1289.3.1.1	Liquid Limit (%)	61
AS 1289.3.2.1	Plastic Limit (%)	34
AS 1289.3.3.1	Plasticity Index (%)	27
AS 1289.3.4.1	Linear Shrinkage (%)	9.5
AS 1289.3.4.1	Length of Mould (mm)	250
AS 1289.3.4.1	Condition of Dry Specimen:	-

Comments:

Approved Signatory:

[Signature]
Name: Linda Chiu
Date: 12/April/2024



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SOIL | AGGREGATE | CONCRETE | CRUSHING

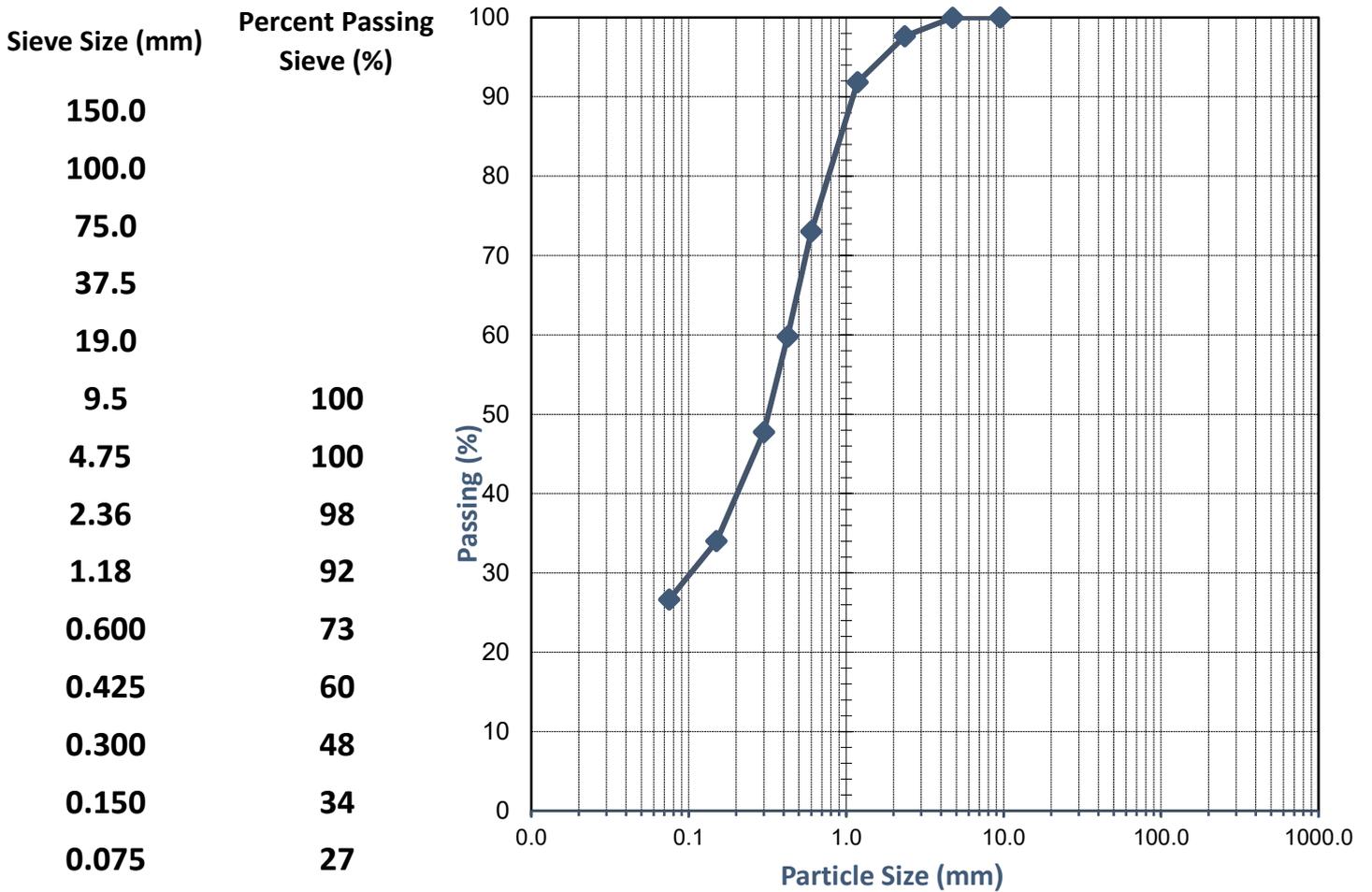
TEST REPORT - AS 1289.3.6.1

Client:	Stantec	Ticket No.	S12721
Client Address:	11 Harvest Terrace, West Perth WA 6005	Report No.	WG24.5026_1_PSD
Project:	Beenup Wind Farm	Sample No.	WG24.5026
Location:	Beenup	Date Sampled:	14/03/2024
Sample Identification:	WM01 (22.0-23.0)m	Date Tested:	05/04 - 08/04/2024

TEST RESULTS - Particle Size Distribution of Soil

Sampling Method:

Sampled by Client, Tested as Received



Comments:

Approved Signatory:

Name: Natasha Bielawski

Date: 08/April/2024



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SOIL | AGGREGATE | CONCRETE | CRUSHING

TEST REPORT - AS 1289.3.1.1, 3.2.1, 3.3.1 & 3.4.1

Client:	Stantec	Ticket No.	S12721
Client Address:	11 Harvest Terrace, West Perth WA 6005	Report No.	WG24.5026_1_PI
Project:	Beenup Wind Farm	Sample No.	WG24.5026
Location:	Beenup	Date Sampled:	14/03/2024
Sample Identification:	WM01 (22.0-23.0)m	Date Tested:	9/04/2024

TEST RESULTS - Consistency Limits (Casagrande)

Sampling Method: Sampled by Client, Tested as Received
History of Sample: Oven Dried <50°C
Method of Preparation: Dry Sieved

AS 1289.3.1.1	Liquid Limit (%)	26
AS 1289.3.2.1	Plastic Limit (%)	17
AS 1289.3.3.1	Plasticity Index (%)	9
AS 1289.3.4.1	Linear Shrinkage (%)	4.0
AS 1289.3.4.1	Length of Mould (mm)	250
AS 1289.3.4.1	Condition of Dry Specimen:	-

Comments:

Approved Signatory:

[Signature]
Name: Linda Chiu
Date: 10/April/2024



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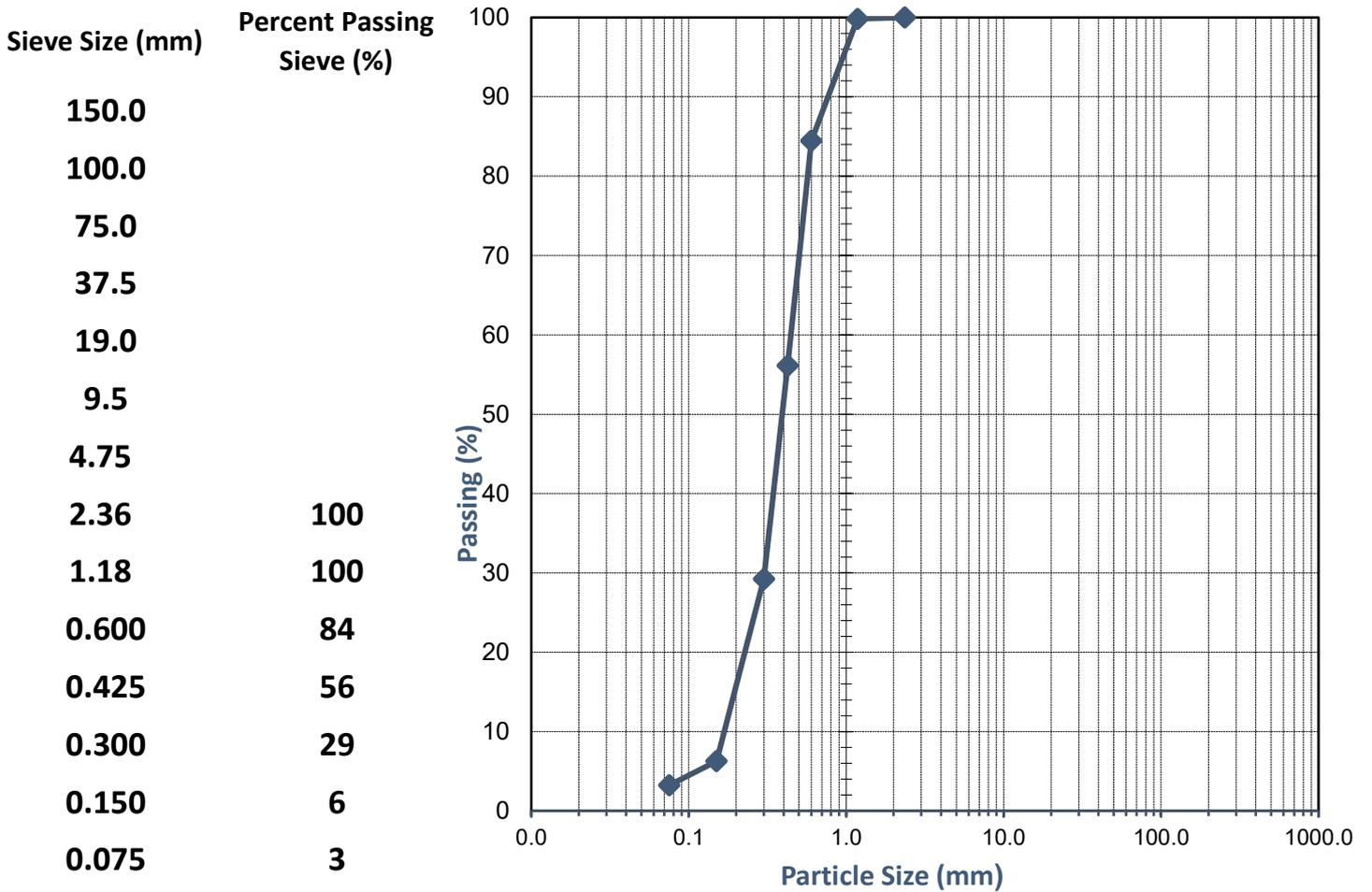
TEST REPORT - AS 1289.3.6.1

Client:	Stantec	Ticket No.	S12721
Client Address:	11 Harvest Terrace, West Perth WA 6005	Report No.	WG24.5032_1_PSD
Project:	Beenup Wind Farm	Sample No.	WG24.5032
Location:	Beenup	Date Sampled:	14/03/2024
Sample Identification:	WM02 (4.0-5.0)m	Date Tested:	05/04 - 08/04/2024

TEST RESULTS - Particle Size Distribution of Soil

Sampling Method:

Sampled by Client, Tested as Received



Comments:

Approved Signatory:

Name: Matthew Lichon

Date: 08/April/2024



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SOIL | AGGREGATE | CONCRETE | CRUSHING

TEST REPORT - AS 1289.3.1.1, 3.2.1, 3.3.1 & 3.4.1

Client:	Stantec	Ticket No.	S12721
Client Address:	11 Harvest Terrace, West Perth WA 6005	Report No.	WG24.5032_1_PI
Project:	Beenup Wind Farm	Sample No.	WG24.5032
Location:	Beenup	Date Sampled:	14/03/2024
Sample Identification:	WM02 (4.0-5.0)m	Date Tested:	11/04/2024

TEST RESULTS - Consistency Limits (Casagrande)

Sampling Method: Sampled by Client, Tested as Received
History of Sample: Oven Dried <50°C
Method of Preparation: Dry Sieved

AS 1289.3.1.1	Liquid Limit (%)	Not Obtainable
AS 1289.3.2.1	Plastic Limit (%)	Non-Plastic
AS 1289.3.3.1	Plasticity Index (%)	Non-Plastic
AS 1289.3.4.1	Linear Shrinkage (%)	0.0
AS 1289.3.4.1	Length of Mould (mm)	250
AS 1289.3.4.1	Condition of Dry Specimen:	-

Comments:

Approved Signatory:

[Signature]
Name: Linda Chiu
Date: 12/April/2024



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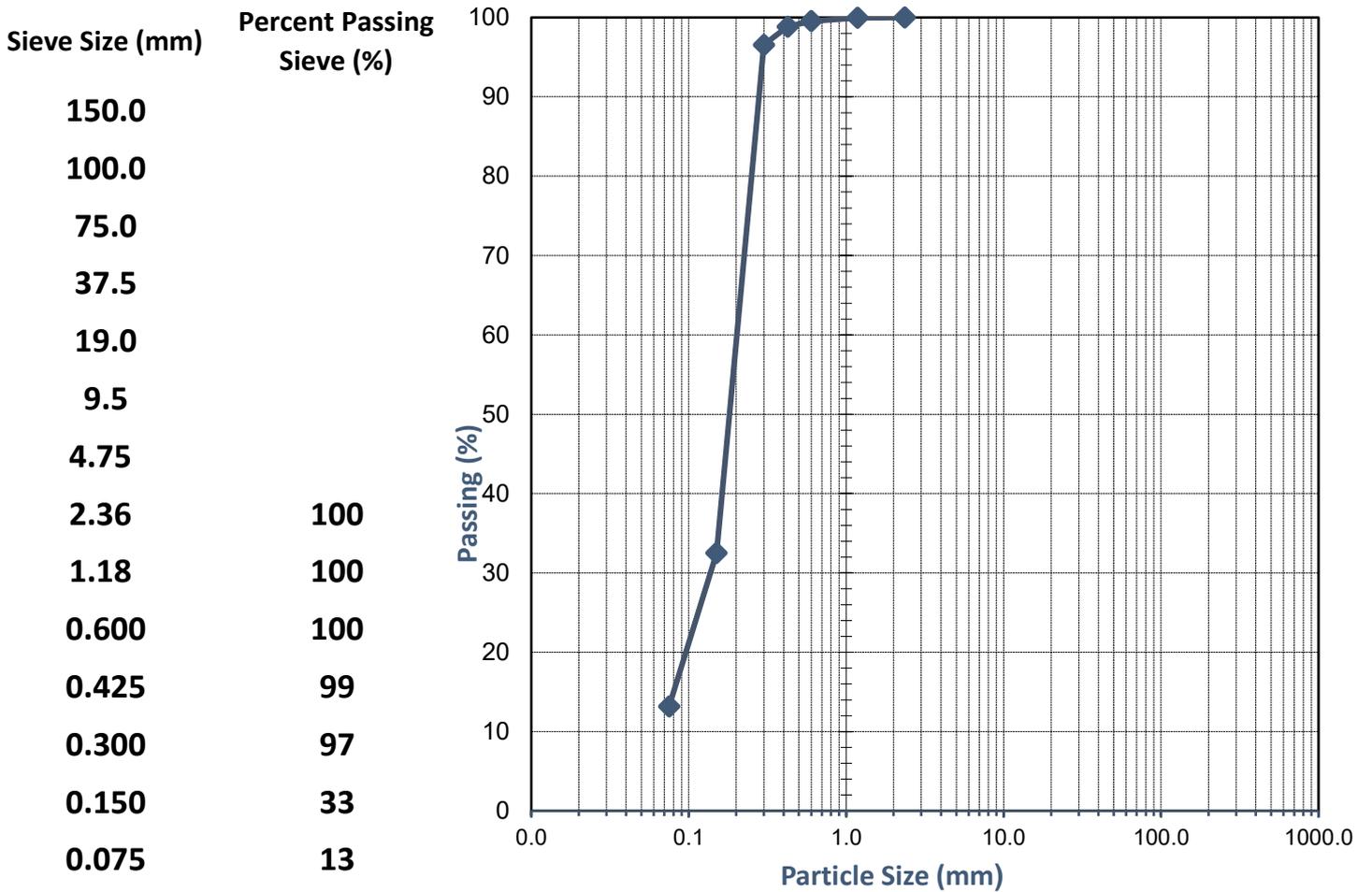
TEST REPORT - AS 1289.3.6.1

Client:	Stantec	Ticket No.	S12721
Client Address:	11 Harvest Terrace, West Perth WA 6005	Report No.	WG24.5027_1_PSD
Project:	Beenup Wind Farm	Sample No.	WG24.5027
Location:	Beenup	Date Sampled:	14/03/2024
Sample Identification:	WM02 (10.0-11.0)m	Date Tested:	096/04 - 11/04/2024

TEST RESULTS - Particle Size Distribution of Soil

Sampling Method:

Sampled by Client, Tested as Received



Comments:

Approved Signatory:

Name: Cody O'Neill

Date: 11/April/2024



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SOIL | AGGREGATE | CONCRETE | CRUSHING

TEST REPORT - AS 1289.3.1.1, 3.2.1, 3.3.1 & 3.4.1

Client:	Stantec	Ticket No.	S12721
Client Address:	11 Harvest Terrace, West Perth WA 6005	Report No.	WG24.5027_1_PI
Project:	Beenup Wind Farm	Sample No.	WG24.5027
Location:	Beenup	Date Sampled:	14/03/2024
Sample Identification:	WM02 (10.0-11.0)m	Date Tested:	11/04/2024

TEST RESULTS - Consistency Limits (Casagrande)

Sampling Method: Sampled by Client, Tested as Received
History of Sample: Oven Dried <50°C
Method of Preparation: Dry Sieved

AS 1289.3.1.1	Liquid Limit (%)	Not Obtainable
AS 1289.3.2.1	Plastic Limit (%)	Non-Plastic
AS 1289.3.3.1	Plasticity Index (%)	Non-Plastic
AS 1289.3.4.1	Linear Shrinkage (%)	0.0
AS 1289.3.4.1	Length of Mould (mm)	250
AS 1289.3.4.1	Condition of Dry Specimen:	-

Comments:

Approved Signatory:

Name: Linda Chiu
Date: 12/April/2024



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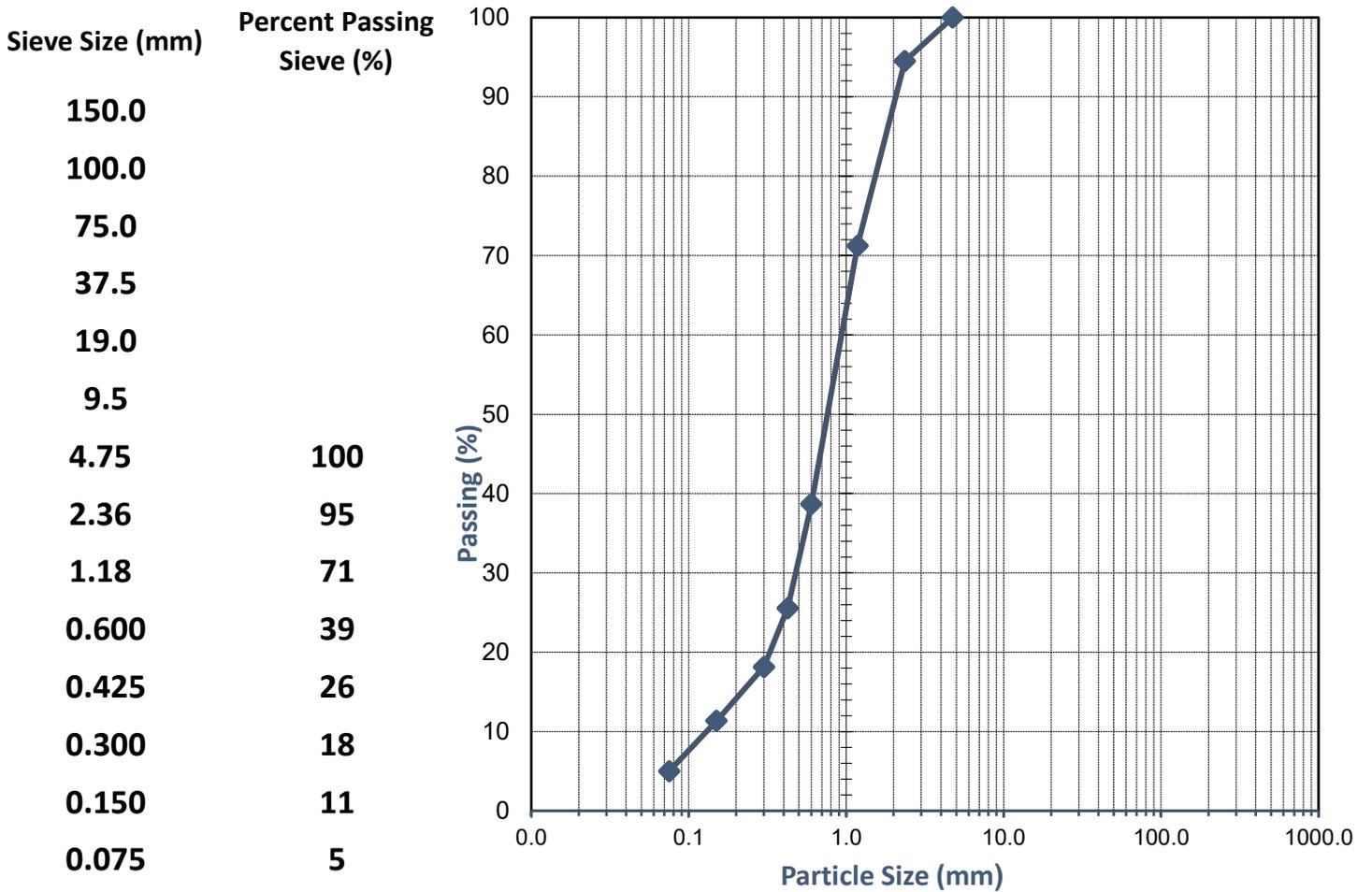
TEST REPORT - AS 1289.3.6.1

Client:	Stantec	Ticket No.	S12721
Client Address:	11 Harvest Terrace, West Perth WA 6005	Report No.	WG24.5028_1_PSD
Project:	Beenup Wind Farm	Sample No.	WG24.5028
Location:	Beenup	Date Sampled:	14/03/2024
Sample Identification:	WM02 (16.0-17.0)m	Date Tested:	05/04 - 08/04/2024

TEST RESULTS - Particle Size Distribution of Soil

Sampling Method:

Sampled by Client, Tested as Received



Comments:

Approved Signatory:

Name: Natasha Bielawski

Date: 08/April/2024



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TEST REPORT - AS 1289.3.1.1, 3.2.1, 3.3.1 & 3.4.1

Client:	Stantec	Ticket No.	S12721
Client Address:	11 Harvest Terrace, West Perth WA 6005	Report No.	WG24.5028_1_PI
Project:	Beenup Wind Farm	Sample No.	WG24.5028
Location:	Beenup	Date Sampled:	14/03/2024
Sample Identification:	WM02 (16.0-17.0)m	Date Tested:	8/04/2024

TEST RESULTS - Consistency Limits (Casagrande)

Sampling Method: Sampled by Client, Tested as Received
History of Sample: Oven Dried <50°C
Method of Preparation: Dry Sieved

AS 1289.3.1.1	Liquid Limit (%)	Not Obtainable
AS 1289.3.2.1	Plastic Limit (%)	Non-Plastic
AS 1289.3.3.1	Plasticity Index (%)	Non-Plastic
AS 1289.3.4.1	Linear Shrinkage (%)	0.0
AS 1289.3.4.1	Length of Mould (mm)	250
AS 1289.3.4.1	Condition of Dry Specimen:	-

Comments:

Approved Signatory:

[Signature]
Name: Linda Chiu
Date: 09/April/2024



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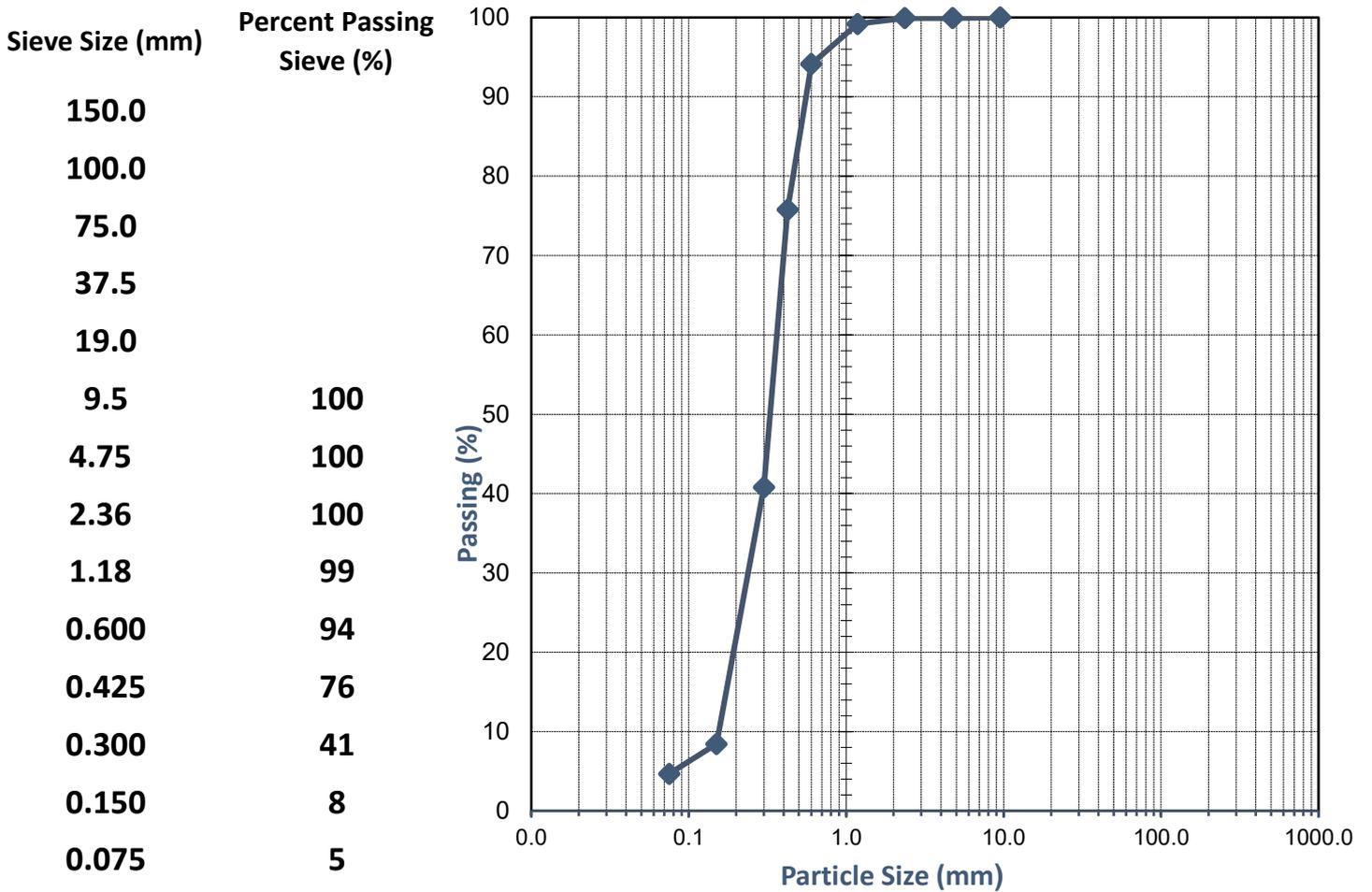
TEST REPORT - AS 1289.3.6.1

Client:	Stantec	Ticket No.	S12721
Client Address:	11 Harvest Terrace, West Perth WA 6005	Report No.	WG24.5029_1_PSD
Project:	Beenup Wind Farm	Sample No.	WG24.5029
Location:	Beenup	Date Sampled:	14/03/2024
Sample Identification:	WM03 (4.0-5.0)m	Date Tested:	05/04 - 08/04/2024

TEST RESULTS - Particle Size Distribution of Soil

Sampling Method:

Sampled by Client, Tested as Received



Comments:

Approved Signatory:

Name: Matthew Lichon

Date: 08/April/2024



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TEST REPORT - AS 1289.3.1.1, 3.2.1, 3.3.1 & 3.4.1

Client:	Stantec	Ticket No.	S12721
Client Address:	11 Harvest Terrace, West Perth WA 6005	Report No.	WG24.5029_1_PI
Project:	Beenup Wind Farm	Sample No.	WG24.5029
Location:	Beenup	Date Sampled:	14/03/2024
Sample Identification:	WM03 (4.0-5.0)m	Date Tested:	8/04/2024

TEST RESULTS - Consistency Limits (Casagrande)

Sampling Method: Sampled by Client, Tested as Received
History of Sample: Oven Dried <50°C
Method of Preparation: Dry Sieved

AS 1289.3.1.1	Liquid Limit (%)	Not Obtainable
AS 1289.3.2.1	Plastic Limit (%)	Non-Plastic
AS 1289.3.3.1	Plasticity Index (%)	Non-Plastic
AS 1289.3.4.1	Linear Shrinkage (%)	0.0
AS 1289.3.4.1	Length of Mould (mm)	250
AS 1289.3.4.1	Condition of Dry Specimen:	-

Comments:

Approved Signatory:

[Signature]
Name: Linda Chiu
Date: 09/April/2024



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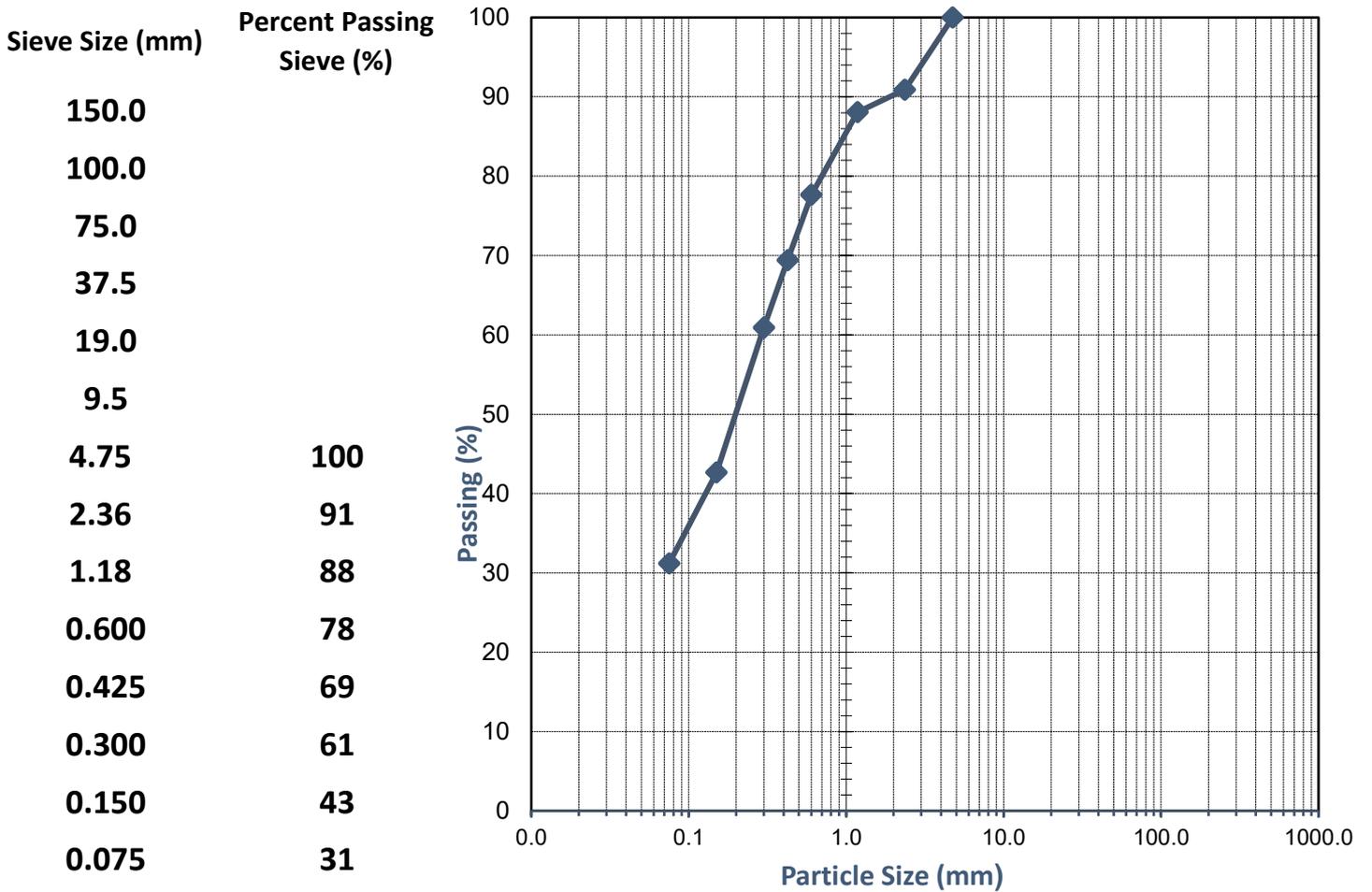
TEST REPORT - AS 1289.3.6.1

Client:	Stantec	Ticket No.	S12721
Client Address:	11 Harvest Terrace, West Perth WA 6005	Report No.	WG24.5030_1_PSD
Project:	Beenup Wind Farm	Sample No.	WG24.5030
Location:	Beenup	Date Sampled:	14/03/2024
Sample Identification:	WM03 (24.0-24.95)m	Date Tested:	09/04 - 11/04/2024

TEST RESULTS - Particle Size Distribution of Soil

Sampling Method:

Sampled by Client, Tested as Received



Comments:

Approved Signatory:

Name: Cody O'Neill

Date: 11/April/2024



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SOIL | AGGREGATE | CONCRETE | CRUSHING

TEST REPORT - AS 1289.3.1.1, 3.2.1, 3.3.1 & 3.4.1

Client:	Stantec	Ticket No.	S12721
Client Address:	11 Harvest Terrace, West Perth WA 6005	Report No.	WG24.5030_1_PI
Project:	Beenup Wind Farm	Sample No.	WG24.5030
Location:	Beenup	Date Sampled:	14/03/2024
Sample Identification:	WM03 (24.0-24.95)m	Date Tested:	11/04/2024

TEST RESULTS - Consistency Limits (Casagrande)

Sampling Method: Sampled by Client, Tested as Received
History of Sample: Oven Dried <50°C
Method of Preparation: Dry Sieved

AS 1289.3.1.1	Liquid Limit (%)	34
AS 1289.3.2.1	Plastic Limit (%)	20
AS 1289.3.3.1	Plasticity Index (%)	14
AS 1289.3.4.1	Linear Shrinkage (%)	5.5
AS 1289.3.4.1	Length of Mould (mm)	125
AS 1289.3.4.1	Condition of Dry Specimen:	-

Comments:

Approved Signatory:

[Signature]
Name: Linda Chiu
Date: 12/April/2024



Accreditation No. 20599
Accredited for compliance
with ISO/IEC 17025 - Testing

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TEST REPORT - AS 4133.4.1

Client:	Stantec	Ticket No.	S0120
Client Address:	Ground Floor - 226 Adelaide Terrace, Perth WA 6000	Report No.	ARC-R24.1599_1_PL
Project:	Beenup Wind Farm	Sample No.	ARC-R24.1599
Location:	Beenup	Date Sampled:	14/03/2024
Sample Identification:	WM03 (0.35-3.40)m	Date Tested:	5/04/2024

TEST RESULTS - Rock Strength Tests - Determination of Point Load Strength Index

Sampling Method:

Sampled by Client, Tested as Received

Sample Number:	ARC-R24.1599			
Sample Identification:	WM03			
Depth:	(0.35-3.40)m			
Test Type:	Axial			
Lithology/Description:	Sedimentary			
Moisture Condition:	As Submitted			
Diameter (mm):	60.45			
Length (mm):	55.56			
Length/Diameter Ratio:	0.92			
Mode of Failure:	Axial Split			
Load at Failure (kN):	10.440			
Is (MPa):	2.61			
Is (50)(MPa):	2.90			

Comments

Specimen Dimensions, Load at Failure and Specific Failure Mode Not covered by scope of Accreditation, reported as per clients request. Job Reference - 304501017

Approved Signatory:



Name: Beau Griffiths

Function: Laboratory Manager

Date: 05/April/2024



Accreditation No. 21169

Accredited for compliance with ISO/IEC 17025 - Testing

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AGGREGATE | ROCK | CONCRETE

TEST REPORT - AS 4133.4.1

Client:	Stantec	Ticket No.	S0120
Client Address:	Ground Floor - 226 Adelaide Terrace, Perth WA 6000	Report No.	ARC-R24.1599_1_PL
Project:	Beenup Wind Farm	Sample No.	ARC-R24.1599
Location:	Beenup	Date Sampled:	14/03/2024
Sample Identification:	WM03 (0.35-3.40)m	Date Tested:	5/04/2024

TEST PHOTOS - Pre Testing



Comments

Photo's as per client's request, photo's are not required as per AS 4133.4.1 - not covered under scope of accreditation. Job Reference - 304501017



AGGREGATE | ROCK | CONCRETE

TEST REPORT - AS 4133.4.1

Client:	Stantec	Ticket No.	S0120
Client Address:	Ground Floor - 226 Adelaide Terrace, Perth WA 6000	Report No.	ARC-R24.1599_1_PL
Project:	Beenup Wind Farm	Sample No.	ARC-R24.1599
Location:	Beenup	Date Sampled:	14/03/2024
Sample Identification:	WM03 (0.35-3.40)m	Date Tested:	5/04/2024

TEST PHOTOS - Post Testing



Comments

Photo's as per client's request, photo's are not required as per AS 4133.4.1 - not covered under scope of accreditation. Job Reference - 304501017



Certificate of Analysis PFD0332

Client Details

Client	Western Geotechnical & Laboratory Services
Contact	Brooke Elliot
Address	235 Bank Street, WELSHPOOL, WA, 6101

Sample Details

Your Reference	S122721 - Beenup Wind Farm
Number of Samples	7 Soil
Date Samples Received	04/04/2024
Date Instructions Received	04/04/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date Results Requested by	11/04/2024
Date of Issue	12/04/2024

NATA Accreditation Number 2901. This document shall not be reproduced except in full.

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

Authorisation Details

Results Approved By	Heram Halim, Operations Manager
Laboratory Manager	Michael Kubiak

Certificate of Analysis PFD0332

Samples in this Report

EnviroLab ID	Sample ID	Matrix	Date Sampled	Date Received
PFD0332-01	WG24.5025 - WM01 (17.0-18.0)m	Soil	04/04/2024	04/03/2024
PFD0332-02	WG24.5026 - WM01 (22.0-23.0)m	Soil	04/04/2024	04/03/2024
PFD0332-03	WG24.5027 - WM02 (10.0-11.0)m	Soil	04/04/2024	04/03/2024
PFD0332-04	WG24.5028 - WM02 (16.0-17.0)m	Soil	04/04/2024	04/03/2024
PFD0332-05	WG24.5029 - WM03 (4.0-5.0)m	Soil	04/04/2024	04/03/2024
PFD0332-06	WG24.5030 - WM03 (24.0-24.95)m	Soil	04/04/2024	04/03/2024
PFD0332-07	WG24.5032 - WM02 (4.0-5.0)m	Soil	04/04/2024	04/03/2024

Sample Comments

General Comment No sampling date(s) was/were provided by client. Therefore the sampling date(s) is/are assigned as the date(s) of sample receipt to the laboratory.

Certificate of Analysis PFD0332

Inorganics - General Physical Parameters (Soil)

Envirolab ID	Units	PQL	PFD0332-01	PFD0332-02	PFD0332-03	PFD0332-04	PFD0332-05
Your Reference			WG24.5025 - WM01	WG24.5026 - WM01	WG24.5027 - WM02	WG24.5028 - WM02	WG24.5029 - WM03
Date Sampled			(17.0-18.0)m 04/04/2024	(22.0-23.0)m 04/04/2024	(10.0-11.0)m 04/04/2024	(16.0-17.0)m 04/04/2024	(4.0-5.0)m 04/04/2024

pH	pH units	5.4	5.1	2.6	4.1	4.0
----	----------	-----	-----	-----	-----	-----

Envirolab ID	Units	PQL	PFD0332-06	PFD0332-07
Your Reference			WG24.5030 - WM03	WG24.5032 - WM02
Date Sampled			(24.0-24.95)m 04/04/2024	(4.0-5.0)m 04/04/2024

pH	pH units	5.3	3.6
----	----------	-----	-----

Certificate of Analysis PFD0332

Inorganics - General Chemical Parameters (Soil)

Envirolab ID	Units	PQL	PFD0332-01	PFD0332-02	PFD0332-03	PFD0332-04	PFD0332-05
Your Reference			WG24.5025 - WM01 (17.0-18.0)m	WG24.5026 - WM01 (22.0-23.0)m	WG24.5027 - WM02 (10.0-11.0)m	WG24.5028 - WM02 (16.0-17.0)m	WG24.5029 - WM03 (4.0-5.0)m
Date Sampled			04/04/2024	04/04/2024	04/04/2024	04/04/2024	04/04/2024

Chloride	mg/kg	10	26	41	20	54	50
Sulfate	mg/kg	10	810	190	18000	1100	1800

Envirolab ID	Units	PQL	PFD0332-06	PFD0332-07
Your Reference			WG24.5030 - WM03 (24.0-24.95)m	WG24.5032 - WM02 (4.0-5.0)m
Date Sampled			04/04/2024	04/04/2024

Chloride	mg/kg	10	33	34
Sulfate	mg/kg	10	110	5200

Certificate of Analysis PFD0332

Method Summary

Method ID	Methodology Summary
INORG-001	pH - Measured using pH meter and electrode. Please note that the results for water analyses are indicative only, as analysis can be completed outside of the recommended holding times. Solids are reported from a 1:5 water extract unless otherwise specified. Alternatively, pH is determined in a 1:5 extract using 0.01M calcium chloride or a solid is extracted at a ratio of 1:2.5 (AS1289.4.3.1), pH is measured in the extract.
INORG-081	Anions determined by Ion Chromatography. Waters samples are filtered on receipt prior to analysis. Solids are analysed from a water extract. Alternatively determined by colourimetry/turbidity using Discrete Analyser.

Certificate of Analysis PFD0332

Result Definitions

Identifier	Description
NR	Not reported
NEPM	National Environment Protection Measure
NS	Not specified
LCS	Laboratory Control Sample
RPD	Relative Percent Difference
>	Greater than
<	Less than
PQL	Practical Quantitation Limit
INS	Insufficient sample for this test
NA	Test not required
NT	Not tested
DOL	Samples rejected due to particulate overload (air filters only)
RFD	Samples rejected due to filter damage (air filters only)
RUD	Samples rejected due to uneven deposition (air filters only)
##	Indicates a laboratory acceptance criteria outlier, for further details, see Result Comments and/or QC Comments

Quality Control Definitions

Blank

This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, and is determined by processing solvents and reagents in exactly the same manner as for samples.

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.

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.

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.

Duplicate

This is the complete duplicate analysis of a sample from the process batch. The sample selected should be one where the analyte concentration is easily measurable.

Certificate of Analysis PFD0332

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.

General Acceptance Criteria (GAC) - Analyte specific criteria applies for some analytes and is reflected in QC recovery tables.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% - see ELN-P05 QAQC tables for details (available on request); <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase. Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

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

Miscellaneous Information

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. We have taken the sampling date as being the date received at the laboratory.

Two significant figures are reported for the majority of tests and with a high degree of confidence, for results <10*PQL, the second significant figure may be in doubt i.e. has a relatively high degree of uncertainty and is provided for information only.

Measurement Uncertainty estimates are available for most tests upon request.

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

Urine Analysis - The BEI values listed are taken from the 2022 edition of *TLVs and BEIs Threshold Limits by ACGIH*.

Air volume measurements are not covered by Envirolab's NATA accreditation.

Data Quality Assessment Summary PFD0332

Client Details

Client Western Geotechnical & Laboratory Services
Your Reference S122721 - Beenup Wind Farm
Date Issued 12/04/2024

Recommended Holding Time Compliance

No recommended holding time exceedances

Quality Control and QC Frequency

QC Type	Compliant	Details
Blank	Yes	No Outliers
LCS	Yes	No Outliers
Duplicates	Yes	No Outliers
Matrix Spike	Yes	No Outliers
Surrogates / Extracted Internal Standards	Yes	No Outliers
QC Frequency	Yes	No Outliers

Surrogates/Extracted Internal Standards, Duplicates and/or Matrix Spikes are not always relevant/applicable to certain analyses and matrices. Therefore, said QC measures are deemed compliant in these situations by default. See Laboratory Acceptance Criteria for more information

Data Quality Assessment Summary PFD0332

Recommended Holding Time Compliance

Analysis	Sample Number(s)	Date Sampled	Date Extracted	Date Analysed	Compliant
pH Soil	1-7	04/04/2024	08/04/2024	09/04/2024	Yes
Chloride Soil	1-3, 5-6	04/04/2024	08/04/2024	11/04/2024	Yes
	4, 7	04/04/2024	08/04/2024	12/04/2024	Yes
Sulfate Soil	1-2, 5-6	04/04/2024	08/04/2024	11/04/2024	Yes
	3-4, 7	04/04/2024	08/04/2024	12/04/2024	Yes

No sampling date(s) was/were provided by client. Therefore the sampling date(s) is/are assigned as the date(s) of sample receipt to the laboratory.

Quality Control PFD0332

INORG-001 | Inorganics - General Physical Parameters (Soil) | Batch BFD0899

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	
				BFD0899-DUP1#	PFD0332-06		
				Samp QC RPD %	Samp QC RPD %		
pH	pH units		5.6	9.7 9.7 0.103	5.3 5.3 0.00	102	

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-081 | Inorganics - General Chemical Parameters (Soil) | Batch BFD0900

Analyte	Units	PQL	Blank	DUP1	LCS %	Spike %
				PFD0332-01		
				Samp QC RPD %		
Chloride	mg/kg	10	<10	25.6 25.6 0.121	113	128
Sulfate	mg/kg	10	<10	805 807 0.175	109	120



SOIL | AGGREGATE | CONCRETE | CRUSHING

TEST REPORT - AS 1289.2.1.1

Client:	Stantec	Ticket No.	S12725
Client Address:	11 Harvest Terrace, West Perth WA 6005	Report No.	WG24.5050_1_MC
Project:	Beenup Wind Farm	Sample No.	WG24.5050
Location:	Beenup	Date Sampled:	14/03/2024
Sample Identification:	Various - see below	Date Tested:	3/04/2024

TEST RESULTS - Soil Moisture Content

Sampling Method:

Sampled by Client, Tested as Received

Sample Number	Sample Identification	Moisture Content (%)
WG24.5050	TP11 - 01 : 2.0m (S)	20.2

Comments:

Approved Signatory:

Name: Linda Chiu

Date: 04/April/2024



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SOIL | AGGREGATE | CONCRETE | CRUSHING

TEST REPORT - AS 1289.5.2.1

Client:	Stantec	Ticket No.	S12725
Client Address:	11 Harvest Terrace, West Perth WA 6005	Report No.	WG24.5046_1_MMDD
Project:	Beenup Wind Farm	Sample No.	WG24.5046
Location:	Beenup	Date Sampled:	14/03/2024
Sample Identification:	TP07 - 01,02,03,04 1.7m	Date Tested:	4/04/2024

TEST RESULTS - Modified Maximum Dry Density

Sampling Method:

Sampled by Client, Tested as Received

Sample Curing Time (Hours):

2

Method used to Determine Liquid Limit:

Visual / Tactile Assessment by Competent Technician

Material + 19.0mm (%):

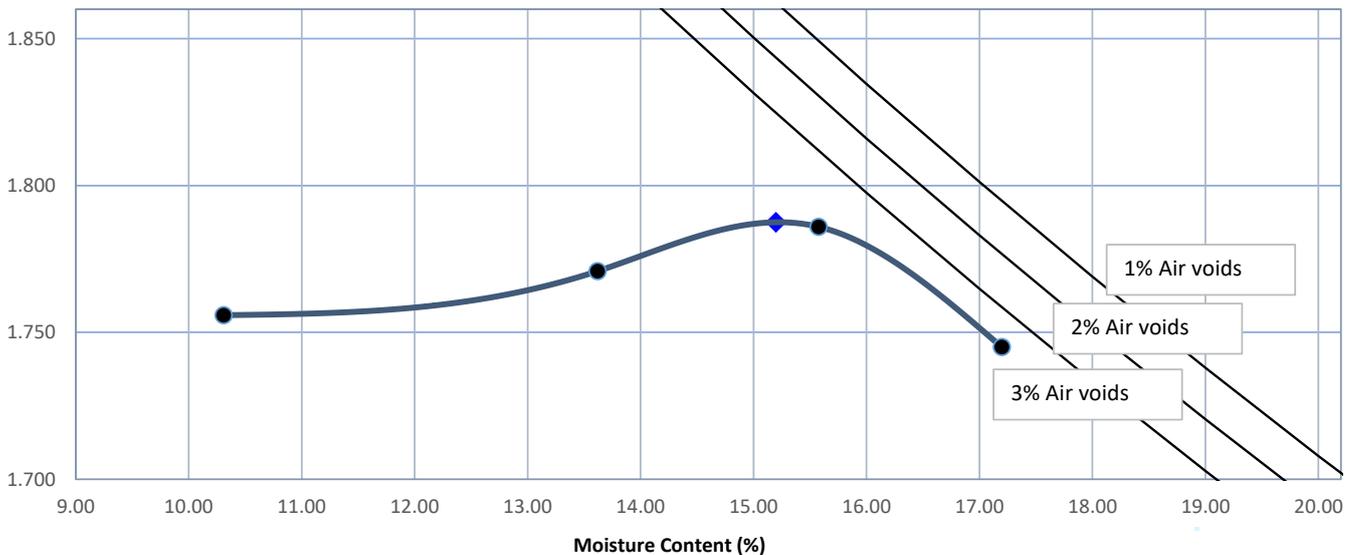
0

Material + 37.5mm (%):

-

Moisture Content (%)	10.3	13.6	15.6	17.2	
Dry Density (t/m³)	1.756	1.771	1.786	1.745	

Dry Density (t/m³)



Modified Maximum Dry Density (t/m³)

1.79

Optimum Moisture Content (%)

15.0

Comments: The above air void lines are derived from a calculated apparent particle density of 2.634 t/m³

Approved Signatory:

Name: Madhav Basnet

Date: 05/April/2024



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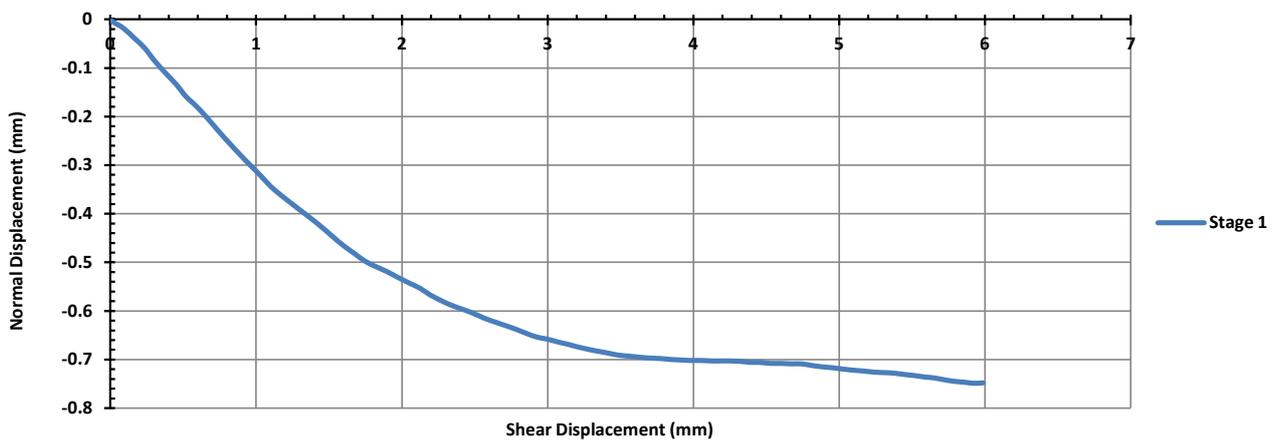
MULTISTAGE DRAINED DIRECT SHEAR TEST REPORT

Method: AS1289.6.2.2 / In-house Method

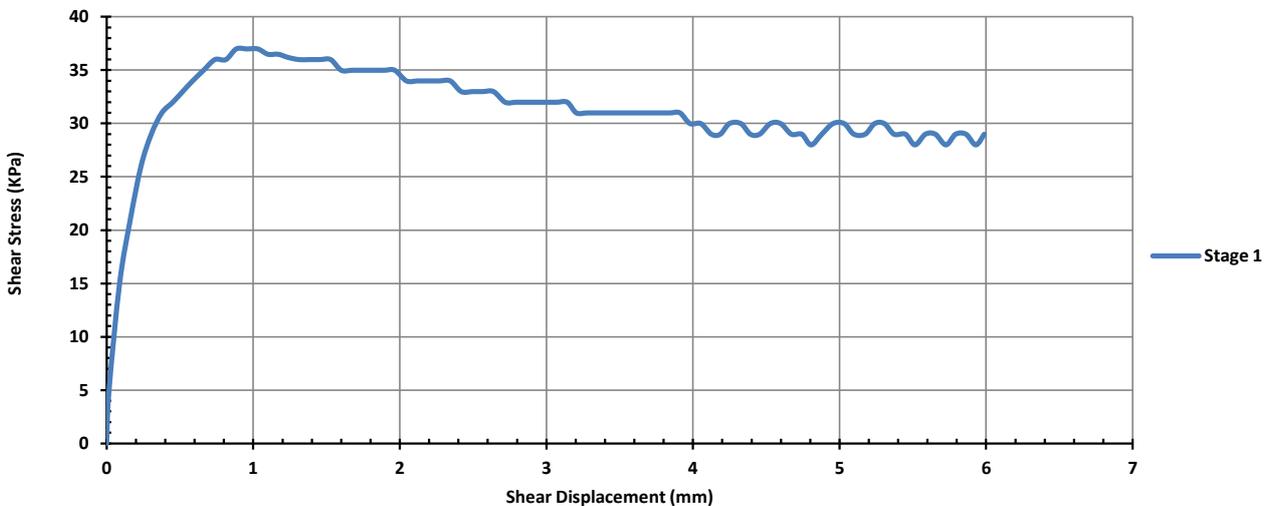
Client:	Western Geotechnical Lab Services	Date Tested:	22/04/2024
Project:	Beenup Wind Farm	EP Lab Job Number:	WGEO
Sample No:	TP07	Lab:	EPLab
Sample ID:	WG24_5046_IDST1		
Depth (m):	1.7	Room Temperature at Test:	20°

Type of Test: Multistage Drained DST	Sample Description: 98% Remolding
Dimensions (mm): 83.10 x 83.10 (Circular)	Shear Plane Dip Angle (°): N/A
Rate of Strain (mm/min): 0.015	Initial Bulk Density (t/m³): 2.02
Failure Criteria: Horizontal Shear	Initial Moisture Content (%): 14.95

Normal Displacement Vs Shear Displacement Plot



Shear Stress Vs Shear Displacement Plot



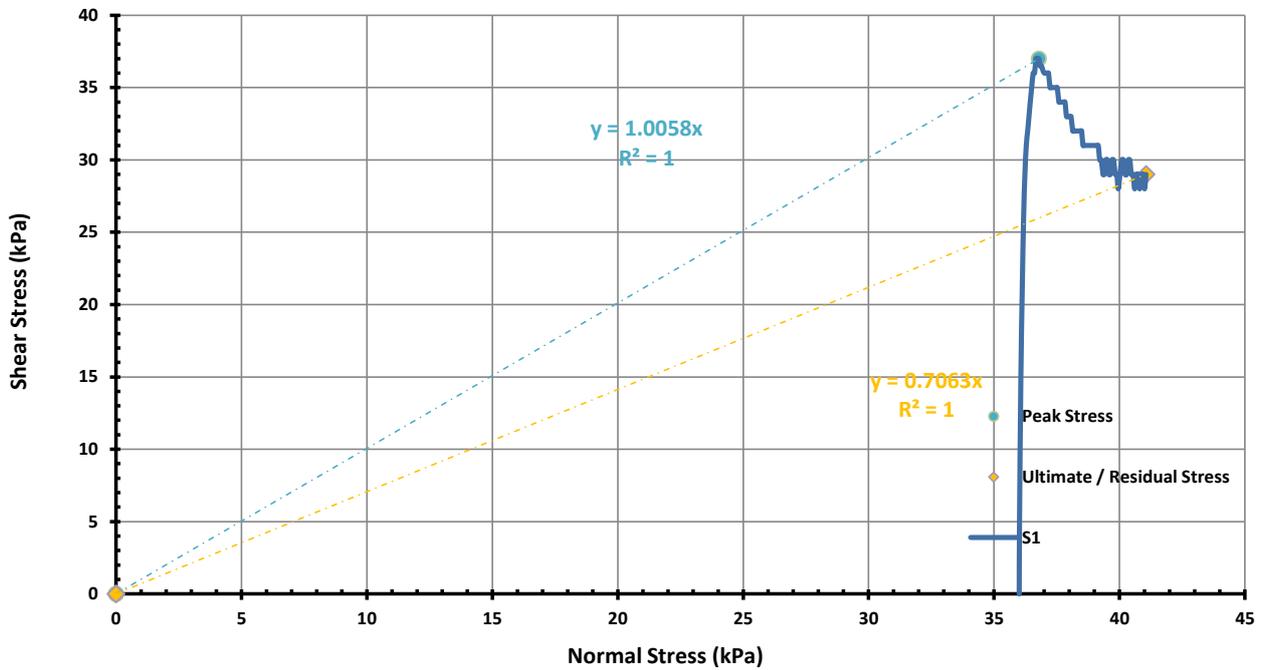


MULTISTAGE DRAINED DIRECT SHEAR TEST REPORT

Method: AS1289.6.2.2 / In-house Method

Client:	Western Geotechnical Lab Services	Date Tested:	22/04/2024
Project:	Beenup Wind Farm	EP Lab Job Number:	WGEO
Sample No:	TP07	Lab:	EPLab
Sample ID:	WG24_5046_IDST1		
Depth (m):	1.7	Room Temperature at Test:	20°

(Peak / Ultimate) Normal Stress Vs Shear Stress (Effective Stress)



Defect Surface:	N/A		
Dip Angle (°):	N/A		
Peak	Shear Angle (°)	45.00	Normal Stress (kPa)
	Cohesion (kPa)	0.00	Shear Stress (kPa)
	R²	1.0000	Stage 1
			Stage 2
* Assume Cohesion is 0kPa			
Ultimate / Residual	Shear Angle (°)	35.37	Normal Stress (kPa)
	Cohesion (kPa)	0.00	Shear Stress (kPa)
	R²	1.0000	Stage 1
			Stage 2
* Assume Cohesion is 0kPa			
		Stage 3	



MULTISTAGE DRAINED DIRECT SHEAR TEST REPORT

Method: AS1289.6.2.2 / In-house Method

Client:	Western Geotechnical Lab Services	Date Tested:	22/04/2024
Project:	Beenup Wind Farm	EP Lab Job Number:	WGEO
Sample No:	TP07	Lab:	EPLab
Sample ID:	WG24_5046_IDST1		
Depth (m):	1.7	Room Temperature at Test:	20°

Photo of Sample Post Testing



Notes: *Sample remolded to 98% MDD @ OMC*

Stored and Tested the Sample as received

Samples supplied by the Client

Authorised Signature (Geotechnical Engineer):

A handwritten signature in black ink, appearing to be 'P. Li', is written over a faint grid background.

The results of tests performed apply only to the specific sample at time of test unless otherwise clearly stated. Reference should be made to E-Precision Laboratory's "Standard Terms and Conditions" E-Precision Laboratory ABN 431 559 578 87



SOIL | AGGREGATE | CONCRETE | CRUSHING

TEST REPORT - AS 1289.5.2.1

Client:	Stantec	Ticket No.	S12725
Client Address:	11 Harvest Terrace, West Perth WA 6005	Report No.	WG24.5047_1_MMDD
Project:	Beenup Wind Farm	Sample No.	WG24.5047
Location:	Beenup	Date Sampled:	14/03/2024
Sample Identification:	TP08 - 01,02,03,04 2.0m	Date Tested:	4/04/2024

TEST RESULTS - Modified Maximum Dry Density

Sampling Method:

Sampled by Client, Tested as Received

Sample Curing Time (Hours):

2

Method used to Determine Liquid Limit:

Visual / Tactile Assessment by Competent Technician

Material + 19.0mm (%):

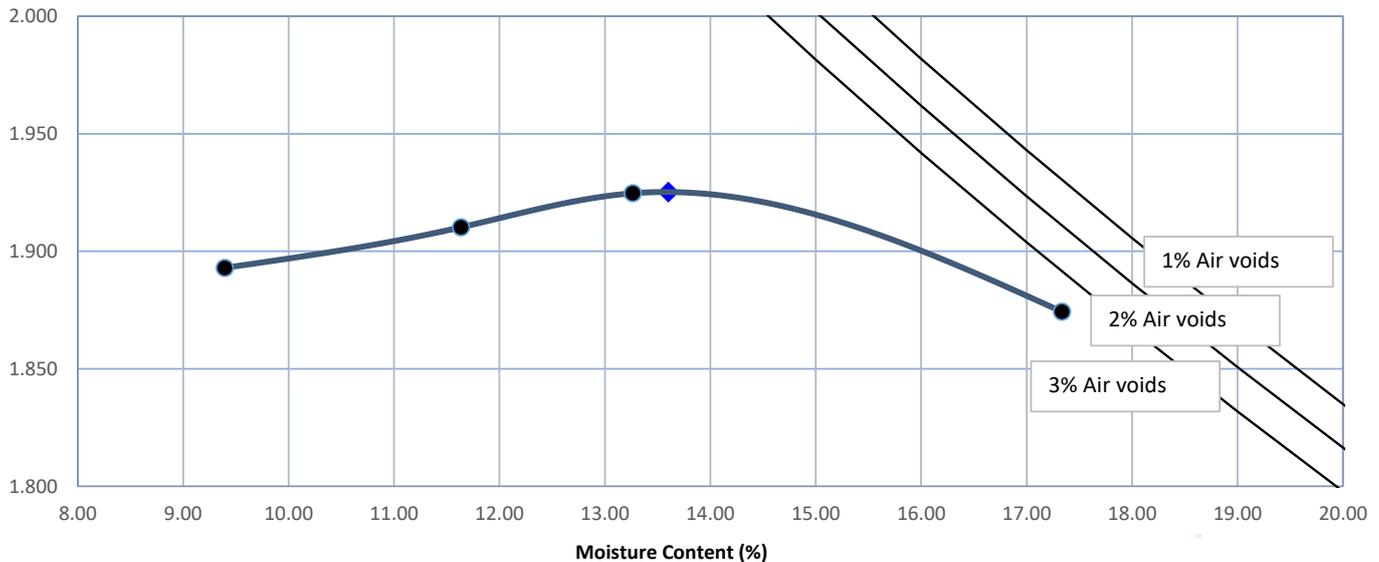
1

Material + 37.5mm (%):

-

Moisture Content (%)	9.4	11.6	13.3	17.3	
Dry Density (t/m³)	1.893	1.910	1.925	1.874	

Dry Density (t/m³)



Modified Maximum Dry Density (t/m³)

1.93

Optimum Moisture Content (%)

13.5

Comments: The above air void lines are derived from a calculated apparent particle density of 2.945 t/m³

Approved Signatory:

Name: Madhav Basnet

Date: 08/April/2024



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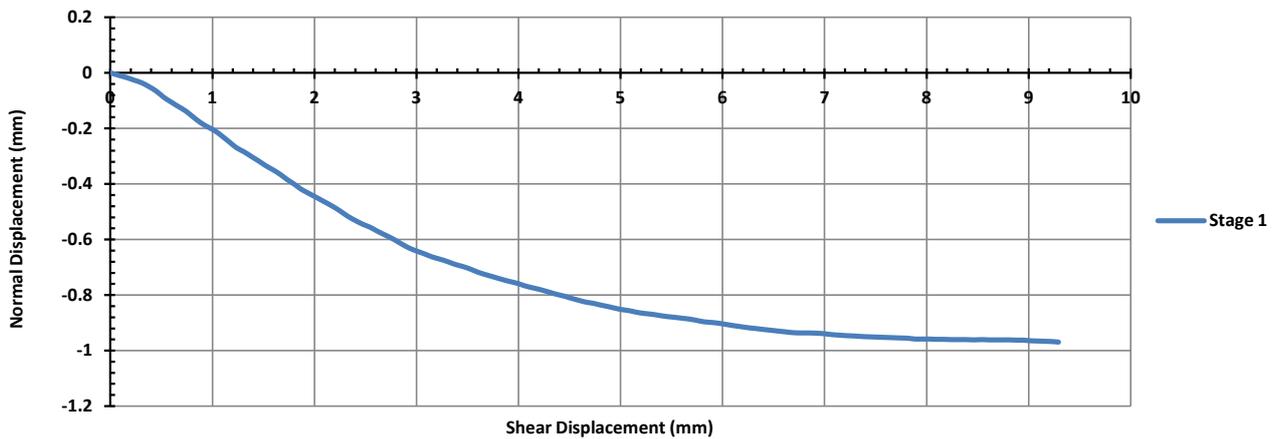
MULTISTAGE DRAINED DIRECT SHEAR TEST REPORT

Method: AS1289.6.2.2 / In-house Method

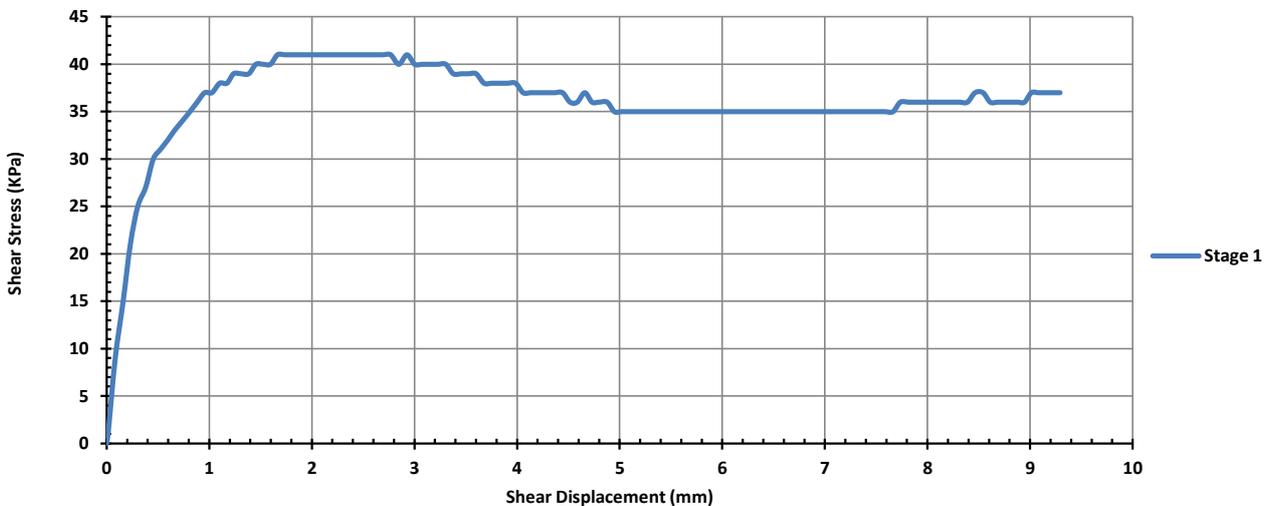
Client:	Western Geotechnical Lab Services	Date Tested:	22/04/2024
Project:	Beenup Wind Farm	EP Lab Job Number:	WGEO
Sample No:	TP08	Lab:	EPLab
Sample ID:	WG24_5047_IDST1		
Depth (m):	2	Room Temperature at Test:	20°

Type of Test: Multistage Drained DST	Sample Description: 98% Remolding
Dimensions (mm): 83.10 x 83.10 (Circular)	Shear Plane Dip Angle (°): N/A
Rate of Strain (mm/min): 0.015	Initial Bulk Density (t/m³): 2.15
Failure Criteria: Horizontal Shear	Initial Moisture Content (%): 13.55

Normal Displacement Vs Shear Displacement Plot



Shear Stress Vs Shear Displacement Plot



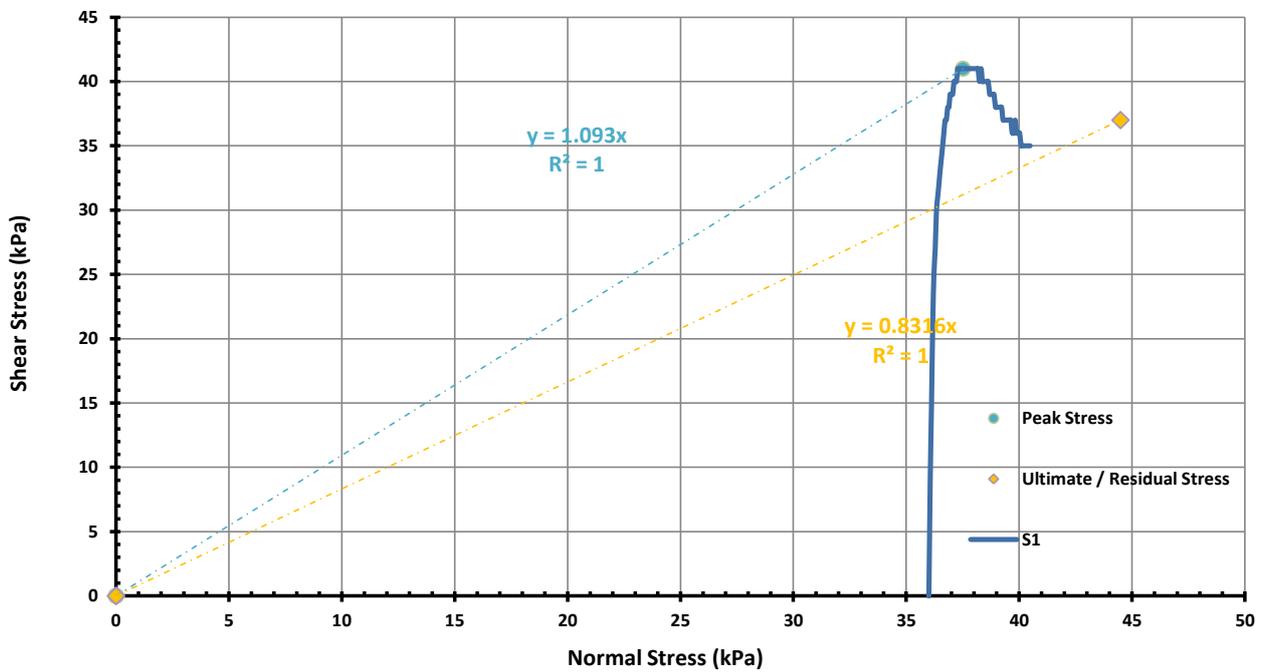


MULTISTAGE DRAINED DIRECT SHEAR TEST REPORT

Method: AS1289.6.2.2 / In-house Method

Client:	Western Geotechnical Lab Services	Date Tested:	22/04/2024
Project:	Beenup Wind Farm	EP Lab Job Number:	WGEO
Sample No:	TP08	Lab:	EPLab
Sample ID:	WG24_5047_IDST1		
Depth (m):	2	Room Temperature at Test:	20°

(Peak / Ultimate) Normal Stress Vs Shear Stress (Effective Stress)



Defect Surface:	N/A		
Dip Angle (°):	N/A		
Peak	Shear Angle (°)	47.47	Normal Stress (kPa)
	Cohesion (kPa)	0.00	Shear Stress (kPa)
	R²	1.0000	Stage 1
			Stage 2
* Assume Cohesion is 0kPa			Stage 3
Ultimate / Residual	Shear Angle (°)	39.69	Normal Stress (kPa)
	Cohesion (kPa)	0.00	Shear Stress (kPa)
	R²	1.0000	Stage 1
			Stage 2
* Assume Cohesion is 0kPa			Stage 3



MULTISTAGE DRAINED DIRECT SHEAR TEST REPORT

Method: AS1289.6.2.2 / In-house Method

Client:	Western Geotechnical Lab Services	Date Tested:	22/04/2024
Project:	Beenup Wind Farm	EP Lab Job Number:	WGEO
Sample No:	TP08	Lab:	EPLab
Sample ID:	WG24_5047_IDST1		
Depth (m):	2	Room Temperature at Test:	20°

Photo of Sample Post Testing



Notes: *Sample remolded to 98% MDD @ OMC*

Stored and Tested the Sample as received

Samples supplied by the Client

Authorised Signature (Geotechnical Engineer):

The results of tests performed apply only to the specific sample at time of test unless otherwise clearly stated. Reference should be made to E-Precision Laboratory's "Standard Terms and Conditions" E-Precision Laboratory ABN 431 559 578 87



SOIL | AGGREGATE | CONCRETE | CRUSHING

TEST REPORT - AS 1289.5.2.1

Client:	Stantec	Ticket No.	S12725
Client Address:	11 Harvest Terrace, West Perth WA 6005	Report No.	WG24.5049_1_MMDD
Project:	Beenup Wind Farm	Sample No.	WG24.5049
Location:	Beenup	Date Sampled:	14/03/2024
Sample Identification:	TP10 - 04 1.0m	Date Tested:	4/04/2024

TEST RESULTS - Modified Maximum Dry Density

Sampling Method:

Sampled by Client, Tested as Received

Sample Curing Time (Hours):

2

Method used to Determine Liquid Limit:

Visual / Tactile Assessment by Competent Technician

Material + 19.0mm (%):

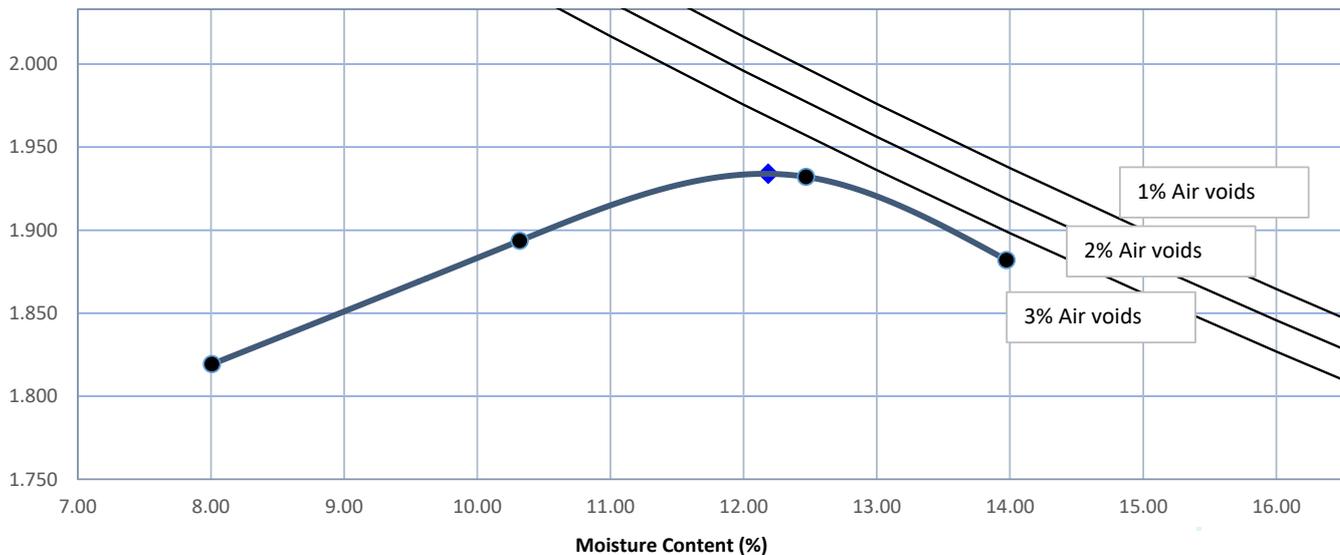
0

Material + 37.5mm (%):

-

Moisture Content (%)	8.0	10.3	12.5	14.0	
Dry Density (t/m³)	1.819	1.894	1.932	1.882	

Dry Density (t/m³)



Modified Maximum Dry Density (t/m³)

1.93

Optimum Moisture Content (%)

12.0

Comments: The above air void lines are derived from a calculated apparent particle density of 2.696 t/m³

Approved Signatory:

Name: Madhav Basnet

Date: 05/April/2024



Accreditation No. 20599

Accredited for compliance

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SOIL | AGGREGATE | CONCRETE | CRUSHING

TEST REPORT - AS 1289.6.1.1

Client:	Stantec	Ticket No.	S12725
Client Address:	11 Harvest Terrace, West Perth WA 6005	Report No.	WG24.5049_1_SCBR
Project:	Beenup Wind Farm	Sample No.	WG24.5049
Location:	Beenup	Date Sampled:	14/03/2024
Sample Identification:	TP10 - 04 1.0m	Date Tested:	04/04 - 09/04/2024

TEST RESULTS - CALIFORNIA BEARING RATIO

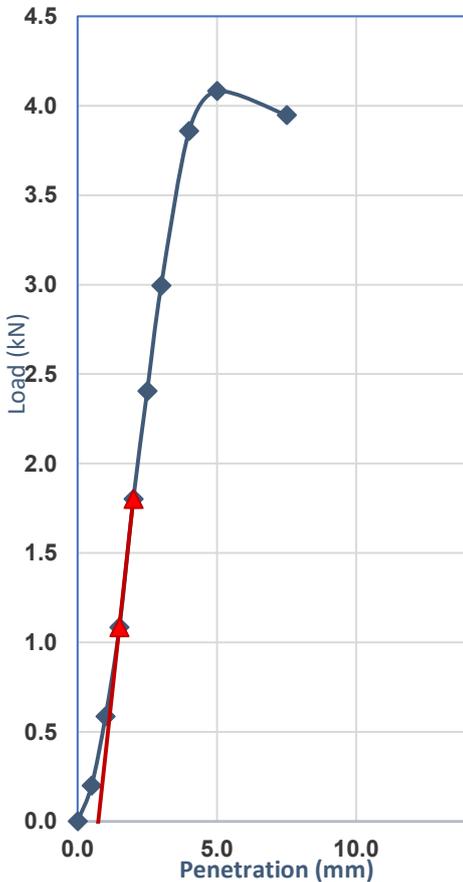
Sample Description:

Sand

Sampling Method:

Sampled by Client, Tested as Received

Load Penetration Curve



Compaction Details

Compaction Method	AS 1289.5.2.1	Hammer Type	Modified
Plasticity Determined by	Estimated	Curing Time (Hours)	2.0
% Retained 19.0mm	0	Excluded/Replaced	Excluded
Maximum Dry Density (t/m ³)	1.93	Optimum Moisture (%)	12.0
Target Dry Density Ratio (%)	95	Target Moisture Ratio (%)	100

Specimen Conditions At Compaction

Dry Density (t/m ³)	1.84	Moisture Content (%)	11.8
Density Ratio (%)	95.5	Moisture Ratio (%)	96.5

Specimen Conditions After Soak

Soaked or Unsoaked	Soaked	Soaking Period (days)	4
Surcharges Applied (kg)	4.50	Measured Swell (%)	0.0
Dry Density (t/m ³)	1.84	Dry Density Ratio (%)	95.5
Moisture Content (%)	12.8	Moisture Ratio (%)	105.5

Specimen Conditions After Test

Top 30mm Moisture (%)	12.2	Remaining Depth (%)	12.8
-----------------------	------	---------------------	------

Correction applied to Penetration: 0.7mm

Determined at a Penetration of: 2.5mm

California Bearing Ratio (CBR): 25%

Comments:

Approved Signatory:

Name: Cody O'Neill

Date: 10/April/2024



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SOIL | AGGREGATE | CONCRETE | CRUSHING

TEST REPORT - AS 1289.5.2.1

Client:	Stantec	Ticket No.	S12725
Client Address:	11 Harvest Terrace, West Perth WA 6005	Report No.	WG24.5048_1_MMDD
Project:	Beenup Wind Farm	Sample No.	WG24.5048
Location:	Beenup	Date Sampled:	14/03/2024
Sample Identification:	TP10 - 01,02,03 1.0m	Date Tested:	4/04/2024

TEST RESULTS - Modified Maximum Dry Density

Sampling Method:

Sampled by Client, Tested as Received

Sample Curing Time (Hours):

2

Method used to Determine Liquid Limit:

Visual / Tactile Assessment by Competent Technician

Material + 19.0mm (%):

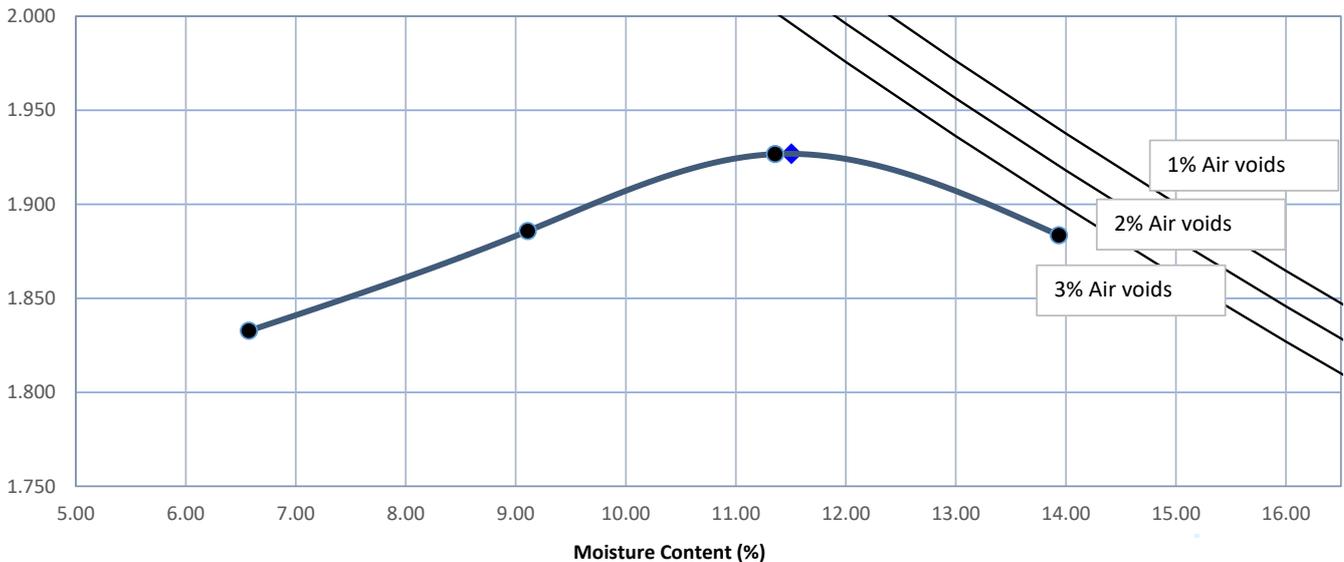
0

Material + 37.5mm (%):

-

Moisture Content (%)	6.6	9.1	11.4	13.9	
Dry Density (t/m³)	1.833	1.886	1.927	1.883	

Dry Density (t/m³)



Modified Maximum Dry Density (t/m³)

1.93

Optimum Moisture Content (%)

11.5

Comments: The above air void lines are derived from a calculated apparent particle density of 2.696 t/m³

Approved Signatory:

Name: Madhav Basnet

Date: 05/April/2024



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TEST REPORT - ‡IEEE Standard 442, ‡ ASTM D5334, AS 1289.2.1.1 & AS 1289.5.2.1

Client:	Stantec	Ticket No.	S12725
Client Address:	11 Harvest Terrace, West Perth WA 6005	Report No.	WG24.5048_1_TR
Project:	Beenup Wind Farm	Sample No.	WG24.5048
Location:	Beenup	Date Sampled:	14/03/2024
Sample Identification:	TP10 - 01,02,03 : 1.0m	Date Tested:	8/04/2024

TEST RESULTS - THERMAL RESISTIVITY & CONDUCTIVITY

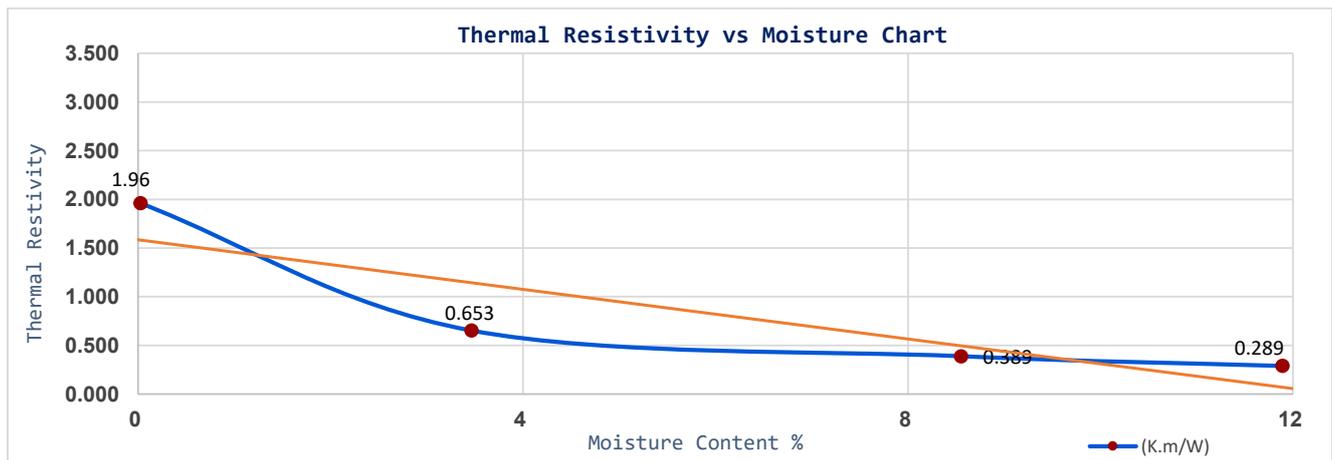
Sampling Method:

Sampled by Client, Tested as Received

Compaction Details		Reference MDD Details	
Maximum Dry Density (t/m ³)	1.930	Compaction Type	Modified
Optimum Moisture Content (%)	11.5	Compactive Effort (kJ/m ³)	2703
Target Dry Density Ratio (%)	95	Mass of Rammer (kg)	4.5
Target Moisture Ratio (%)	See Below	Number of Layers	5
% Retained on the 19.0mm Sieve	0	Blows per Layer	20

Specimen Conditions At Test and After Compaction				
Specimen No.	1	2	3	4
Dry Density Ratio (%)	94.8	94.9	94.8	94.5
Target Moisture Ratio (%)	0.0	3.5	8.5	11.5
Moisture Content (%)	0.0	3.5	8.6	11.9

‡ - Thermal Resistivity (K.m/V)	1.960	0.653	0.389	0.289
---------------------------------	-------	-------	-------	-------



Comments: Material dried back to 0%
 ‡ - NATA Accreditation does not cover the performance of this service .

Approved Signatory:
 Name: Matt van Herk
 Date: 10/April/2024

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SOIL | AGGREGATE | CONCRETE | CRUSHING

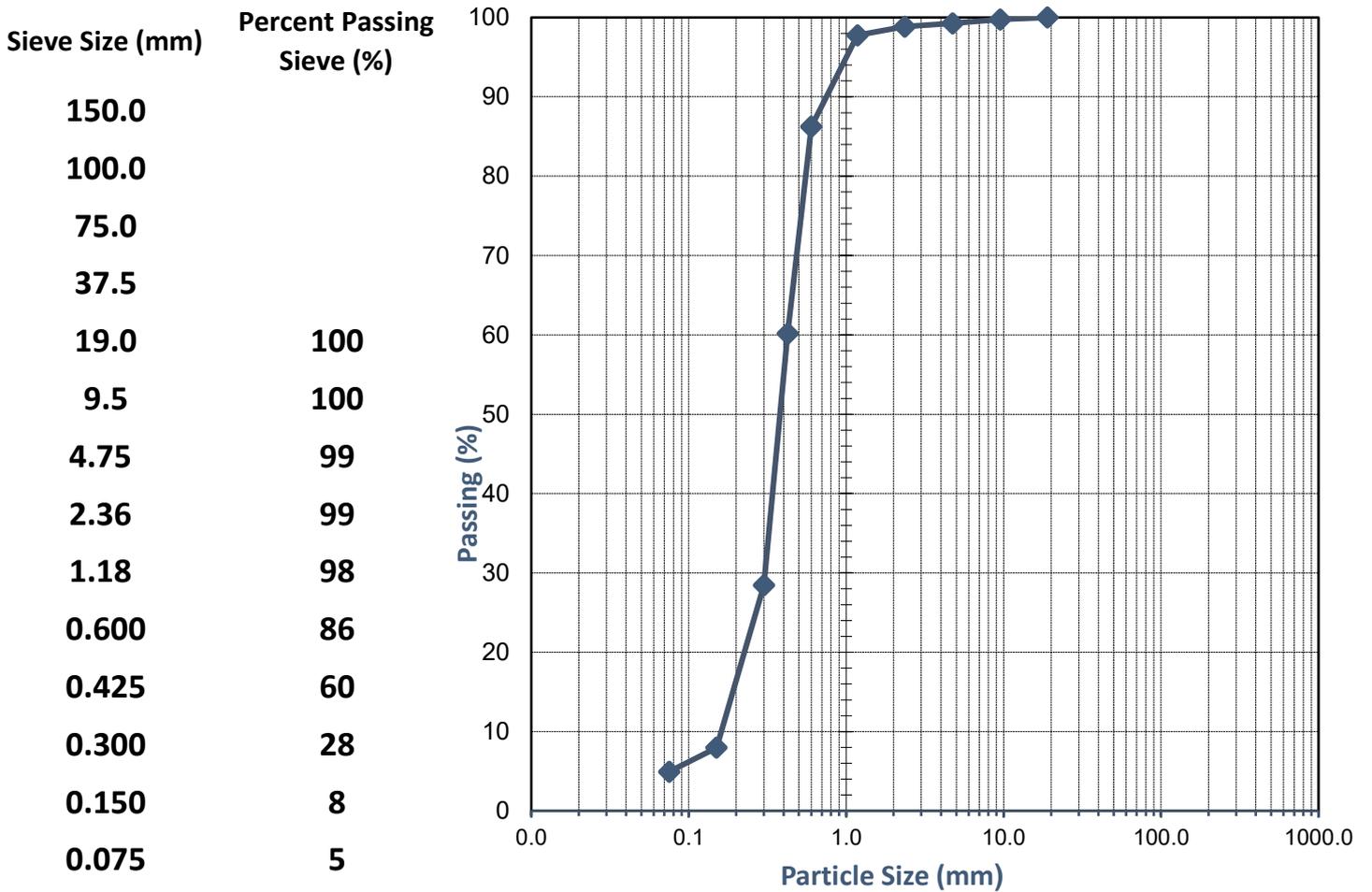
TEST REPORT - AS 1289.3.6.1

Client:	Stantec	Ticket No.	S12725
Client Address:	11 Harvest Terrace, West Perth WA 6005	Report No.	WG24.5050_1_PSD
Project:	Beenup Wind Farm	Sample No.	WG24.5050
Location:	Beenup	Date Sampled:	14/03/2024
Sample Identification:	TP11 - 01 2.0m (S)	Date Tested:	04/04 - 05/04/2024

TEST RESULTS - Particle Size Distribution of Soil

Sampling Method:

Sampled by Client, Tested as Received



Comments:

Approved Signatory:

Name: Natasha Bielawski

Date: 08/April/2024



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TEST REPORT - AS 1289.3.1.1, 3.2.1, 3.3.1 & 3.4.1

Client:	Stantec	Ticket No.	S12725
Client Address:	11 Harvest Terrace, West Perth WA 6005	Report No.	WG24.5050_1_PI
Project:	Beenup Wind Farm	Sample No.	WG24.5050
Location:	Beenup	Date Sampled:	14/03/2024
Sample Identification:	TP11 - 01 2.0m (S)	Date Tested:	5/04/2024

TEST RESULTS - Consistency Limits (Casagrande)

Sampling Method: Sampled by Client, Tested as Received
History of Sample: Oven Dried <50°C
Method of Preparation: Dry Sieved

AS 1289.3.1.1	Liquid Limit (%)	Not Obtainable
AS 1289.3.2.1	Plastic Limit (%)	Non-Plastic
AS 1289.3.3.1	Plasticity Index (%)	Non-Plastic
AS 1289.3.4.1	Linear Shrinkage (%)	0.0
AS 1289.3.4.1	Length of Mould (mm)	250
AS 1289.3.4.1	Condition of Dry Specimen:	-

Comments:

Approved Signatory:

[Signature]
Name: Linda Chiu
Date: 08/April/2024



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SOIL | AGGREGATE | CONCRETE | CRUSHING

TEST REPORT - AS 1289.3.8.1

Client:	Stantec	Ticket No.	S12725
Client Address:	11 Harvest Terrace, West Perth WA 6005	Report No.	WG24.5050_1_ECN
Project:	Beenup Wind Farm	Sample No.	WG24.5050
Location:	Beenup	Date Sampled:	14/03/2024
Sample Identification:	TP11 - 01 2.0m (S)	Date Tested:	9/04/2024

TEST RESULTS - Emerson Class Number

Sampling Method: Sampled by Client, Tested as Received
Source of Material: Not Specified
Soil Description: Sand
Water Used: Distilled

**EMERSON CLASS
 NUMBER**

5

Comments:

Approved Signatory:

Name: Cody O'Neill

Date: 10/April/2024



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SOIL | AGGREGATE | CONCRETE | CRUSHING

TEST REPORT - AS 1289.5.2.1

Client:	Stantec	Ticket No.	S12725
Client Address:	11 Harvest Terrace, West Perth WA 6005	Report No.	WG24.5051_1_MMDD
Project:	Beenup Wind Farm	Sample No.	WG24.5051
Location:	Beenup	Date Sampled:	14/03/2024
Sample Identification:	TP13 - 01,02,03 1.5m	Date Tested:	4/04/2024

TEST RESULTS - Modified Maximum Dry Density

Sampling Method:

Sampled by Client, Tested as Received

Sample Curing Time (Hours):

2

Method used to Determine Liquid Limit:

Visual / Tactile Assessment by Competent Technician

Material + 19.0mm (%):

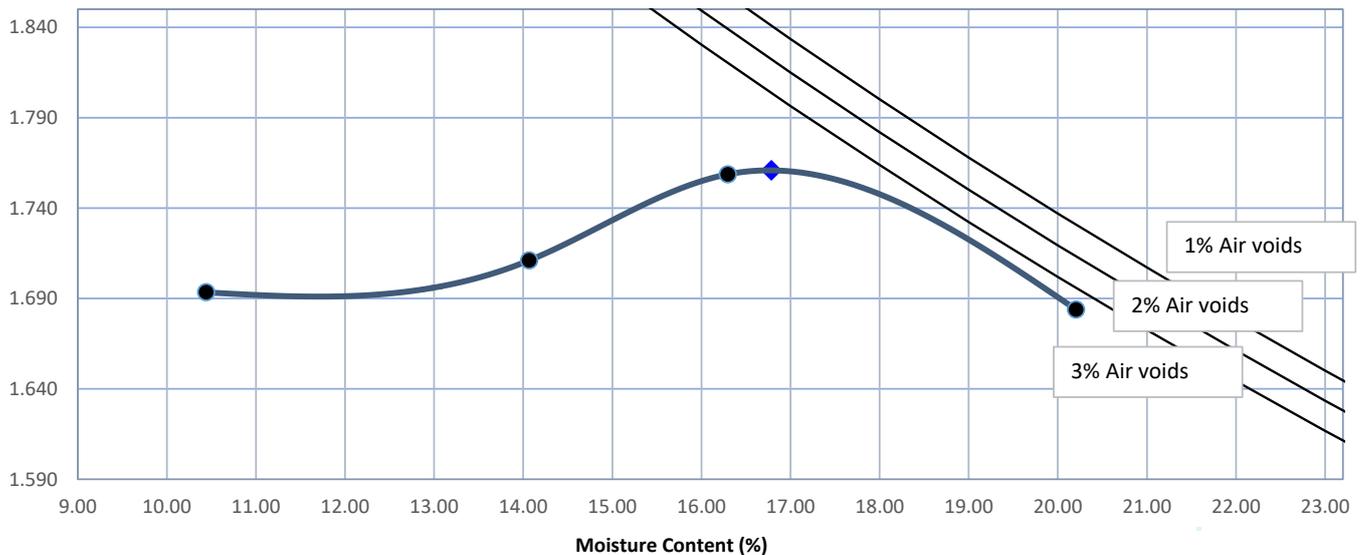
0

Material + 37.5mm (%):

-

Moisture Content (%)	10.4	14.1	16.3	20.2	
Dry Density (t/m³)	1.693	1.711	1.759	1.684	

Dry Density (t/m³)



Modified Maximum Dry Density (t/m³)

1.76

Optimum Moisture Content (%)

17.0

Comments: The above air void lines are derived from a calculated apparent particle density of 2.703 t/m³

Approved Signatory:

Name: Madhav Basnet

Date: 05/April/2024



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SOIL | AGGREGATE | CONCRETE | CRUSHING

TEST REPORT - ‡IEEE Standard 442, ‡ ASTM D5334, AS 1289.2.1.1 & AS 1289.5.2.1

Client:	Stantec	Ticket No.	S12725
Client Address:	11 Harvest Terrace, West Perth WA 6005	Report No.	WG24.5051_1_TR
Project:	Beenup Wind Farm	Sample No.	WG24.5051
Location:	Beenup	Date Sampled:	14/03/2024
Sample Identification:	TP13 - 01,02,03 : 1.5m	Date Tested:	9/04/2024

TEST RESULTS - THERMAL RESISTIVITY & CONDUCTIVITY

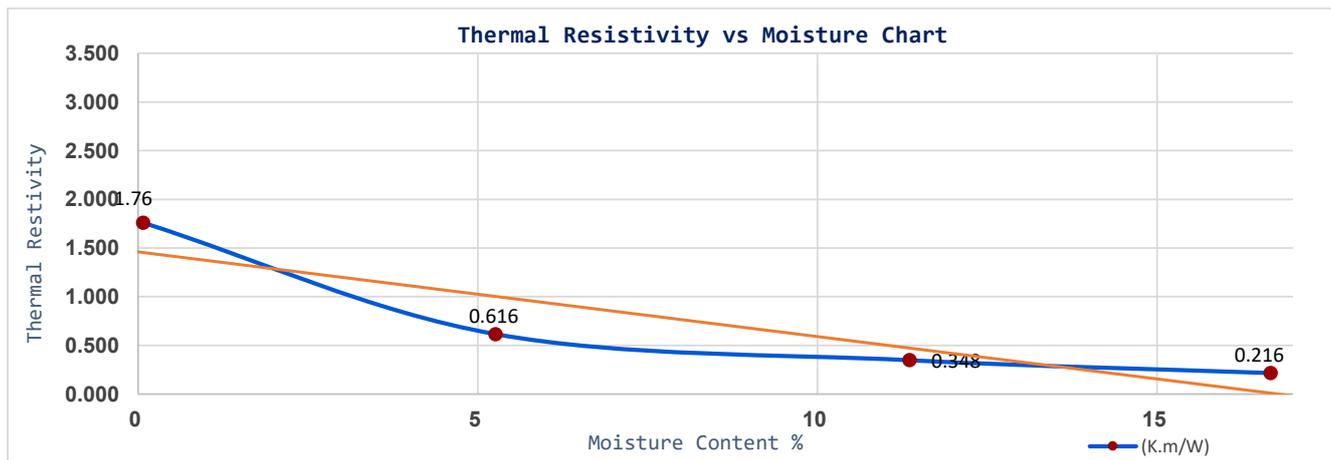
Sampling Method:

Sampled by Client, Tested as Received

Compaction Details		Reference MDD Details	
Maximum Dry Density (t/m ³)	1.760	Compaction Type	Modified
Optimum Moisture Content (%)	17.0	Compactive Effort (kJ/m ³)	2703
Target Dry Density Ratio (%)	95	Mass of Rammer (kg)	4.5
Target Moisture Ratio (%)	See Below	Number of Layers	5
% Retained on the 19.0mm Sieve	0	Blows per Layer	20

Specimen Conditions At Test and After Compaction				
Specimen No.	1	2	3	4
Dry Density Ratio (%)	94.7	95.0	95.0	95.1
Target Moisture Ratio (%)	0.0	5.5	11.5	17.0
Moisture Content (%)	0.1	5.3	11.4	16.7

‡ - Thermal Resistivity (K.m/V)	1.760	0.616	0.348	0.216
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Comments: Material dried back to 0%
 ‡ - NATA Accreditation does not cover the performance of this service .

Approved Signatory:
 Name: Matt van Herk
 Date: 10/April/2024

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TEST REPORT - AS 1289.5.2.1

Client:	Stantec	Ticket No.	S12725
Client Address:	11 Harvest Terrace, West Perth WA 6005	Report No.	WG24.5053_1_MMDD
Project:	Beenup Wind Farm	Sample No.	WG24.5053
Location:	Beenup	Date Sampled:	14/03/2024
Sample Identification:	TP15 - 04 1.0m	Date Tested:	4/04/2024

TEST RESULTS - Modified Maximum Dry Density

Sampling Method:

Sampled by Client, Tested as Received

Sample Curing Time (Hours):

2

Method used to Determine Liquid Limit:

Visual / Tactile Assessment by Competent Technician

Material + 19.0mm (%):

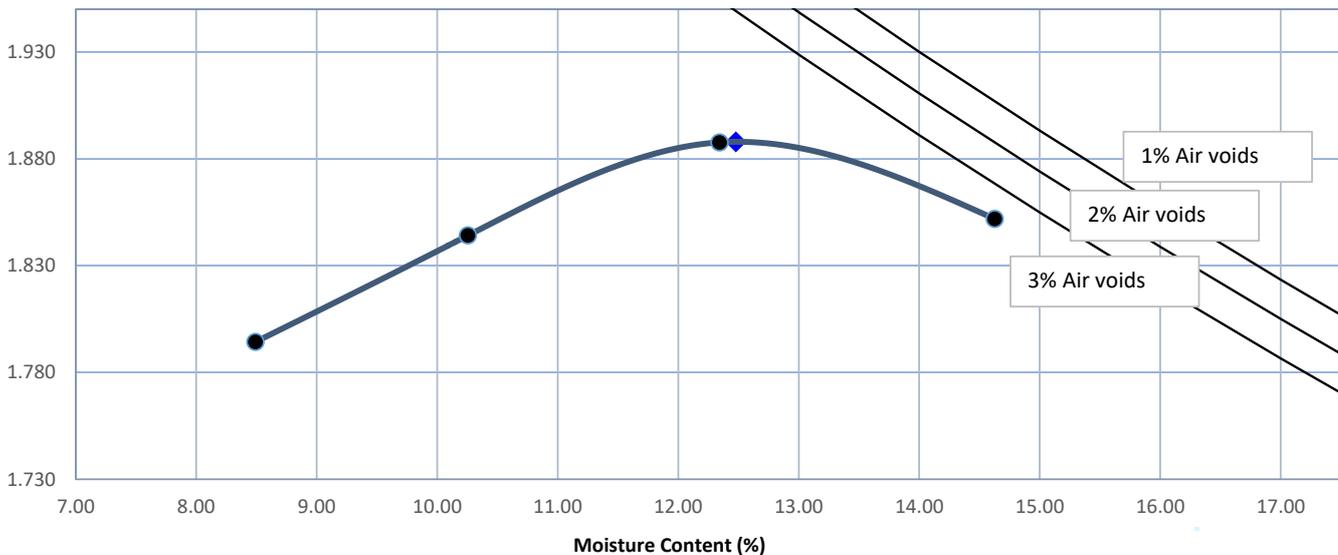
0

Material + 37.5mm (%):

-

Moisture Content (%)	8.5	10.3	12.3	14.6	
Dry Density (t/m³)	1.794	1.844	1.888	1.852	

Dry Density (t/m³)



Modified Maximum Dry Density (t/m³)

1.89

Optimum Moisture Content (%)

12.5

Comments: The above air void lines are derived from a calculated apparent particle density of 2.681 t/m³

Approved Signatory:

Name: Madhav Basnet

Date: 05/April/2024



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SOIL | AGGREGATE | CONCRETE | CRUSHING

TEST REPORT - AS 1289.6.1.1

Client:	Stantec	Ticket No.	S12725
Client Address:	11 Harvest Terrace, West Perth WA 6005	Report No.	WG24.5053_1_SCBR
Project:	Beenup Wind Farm	Sample No.	WG24.5053
Location:	Beenup	Date Sampled:	14/03/2024
Sample Identification:	TP15 - 04 1.0m	Date Tested:	04/04 - 09/04/2024

TEST RESULTS - CALIFORNIA BEARING RATIO

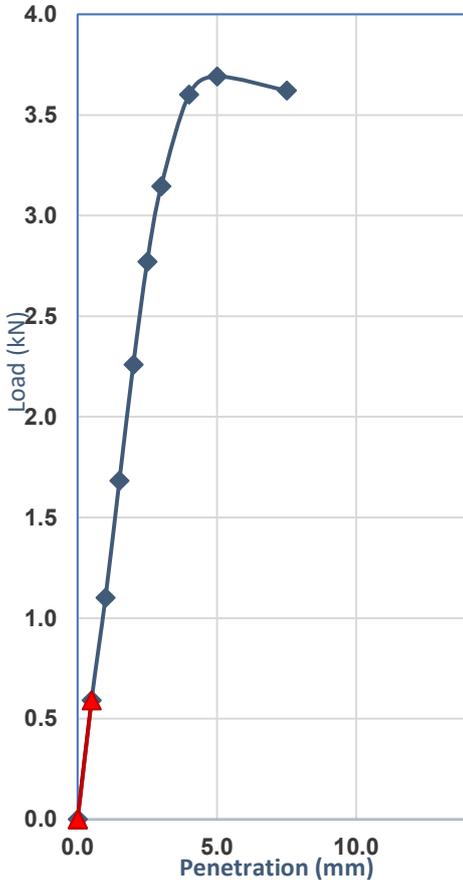
Sample Description:

Sand

Sampling Method:

Sampled by Client, Tested as Received

Load Penetration Curve



Compaction Details

Compaction Method	AS 1289.5.2.1	Hammer Type	Modified
Plasticity Determined by	Estimated	Curing Time (Hours)	2.0
% Retained 19.0mm	0	Excluded/Replaced	Excluded
Maximum Dry Density (t/m ³)	1.89	Optimum Moisture (%)	12.5
Target Dry Density Ratio (%)	95	Target Moisture Ratio (%)	100

Specimen Conditions At Compaction

Dry Density (t/m ³)	1.80	Moisture Content (%)	12.1
Density Ratio (%)	95.0	Moisture Ratio (%)	97.0

Specimen Conditions After Soak

Soaked or Unsoaked	Soaked	Soaking Period (days)	4
Surcharges Applied (kg)	4.50	Measured Swell (%)	0.0
Dry Density (t/m ³)	1.80	Dry Density Ratio (%)	95.0
Moisture Content (%)	15.3	Moisture Ratio (%)	122.5

Specimen Conditions After Test

Top 30mm Moisture (%)	14.7	Remaining Depth (%)	15.3
-----------------------	------	---------------------	------

Correction applied to Penetration: 0mm

Determined at a Penetration of: 2.5mm

California Bearing Ratio (CBR): 20%

Comments:

Approved Signatory:

Name: Cody O'Neill

Date: 10/April/2024



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SOIL | AGGREGATE | CONCRETE | CRUSHING

TEST REPORT - AS 1289.5.2.1

Client:	Stantec	Ticket No.	S12725
Client Address:	11 Harvest Terrace, West Perth WA 6005	Report No.	WG24.5052_1_MMDD
Project:	Beenup Wind Farm	Sample No.	WG24.5052
Location:	Beenup	Date Sampled:	14/03/2024
Sample Identification:	TP15 - 01,02,03 1.0m	Date Tested:	4/04/2024

TEST RESULTS - Modified Maximum Dry Density

Sampling Method:

Sampled by Client, Tested as Received

Sample Curing Time (Hours):

2

Method used to Determine Liquid Limit:

Visual / Tactile Assessment by Competent Technician

Material + 19.0mm (%):

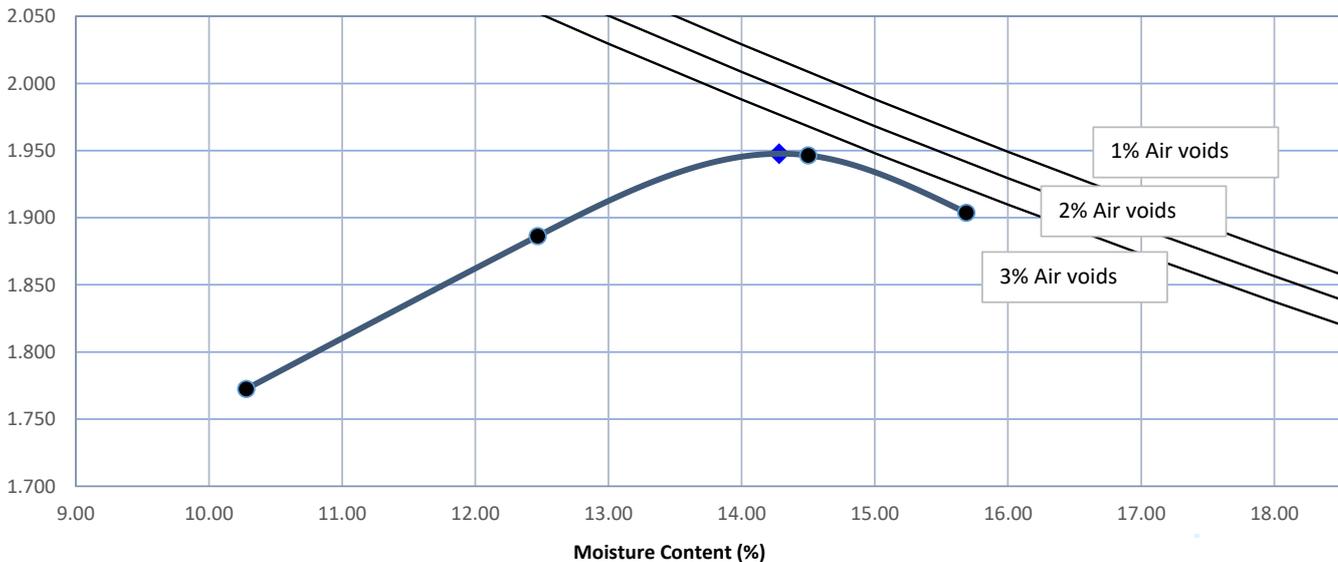
0

Material + 37.5mm (%):

-

Moisture Content (%)	10.3	12.5	14.5	15.7	
Dry Density (t/m³)	1.773	1.886	1.946	1.904	

Dry Density (t/m³)



Modified Maximum Dry Density (t/m³)

1.95

Optimum Moisture Content (%)

14.5

Comments: The above air void lines are derived from a calculated apparent particle density of 2.874 t/m³

Approved Signatory:

Name: Madhav Basnet

Date: 05/April/2024



Accreditation No. 20599

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SOIL | AGGREGATE | CONCRETE | CRUSHING

TEST REPORT - ‡IEEE Standard 442, ‡ ASTM D5334, AS 1289.2.1.1 & AS 1289.5.2.1

Client:	Stantec	Ticket No.	S12725
Client Address:	11 Harvest Terrace, West Perth WA 6005	Report No.	WG24.5052_1_TR
Project:	Beenup Wind Farm	Sample No.	WG24.5052
Location:	Beenup	Date Sampled:	14/03/2024
Sample Identification:	TP15 - 01,02,03 : 1.0m	Date Tested:	9/04/2024

TEST RESULTS - THERMAL RESISTIVITY & CONDUCTIVITY

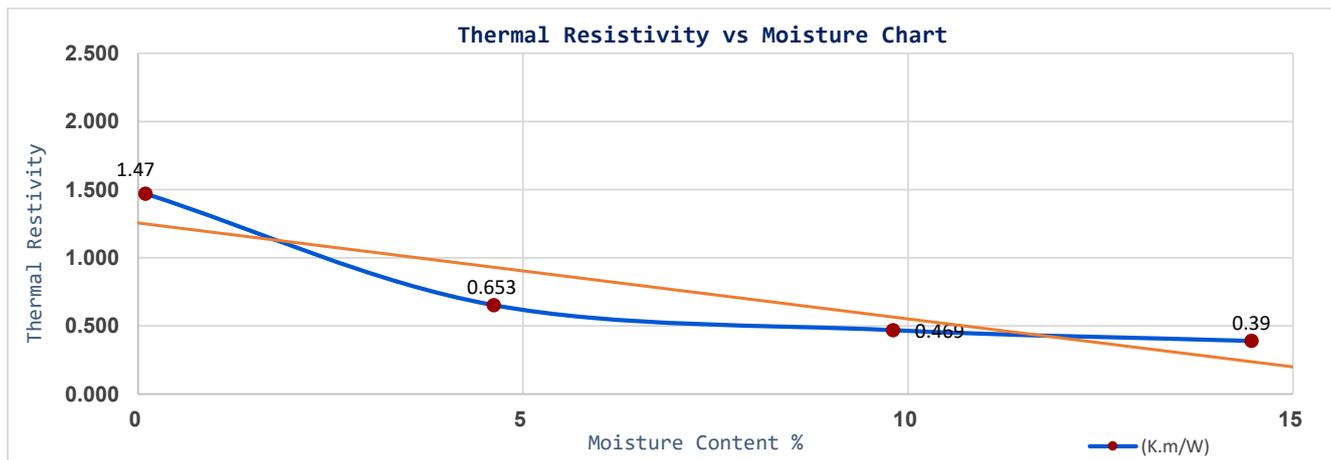
Sampling Method:

Sampled by Client, Tested as Received

Compaction Details		Reference MDD Details	
Maximum Dry Density (t/m ³)	1.950	Compaction Type	Modified
Optimum Moisture Content (%)	14.5	Compactive Effort (kJ/m ³)	2703
Target Dry Density Ratio (%)	95	Mass of Rammer (kg)	4.5
Target Moisture Ratio (%)	See Below	Number of Layers	5
% Retained on the 19.0mm Sieve	20	Blows per Layer	0

Specimen Conditions At Test and After Compaction				
Specimen No.	1	2	3	4
Dry Density Ratio (%)	94.7	94.7	94.6	94.9
Target Moisture Ratio (%)	0.0	4.5	9.5	14.5
Moisture Content (%)	0.1	4.6	9.8	14.5

‡ - Thermal Resistivity (K.m/V)	1.470	0.653	0.469	0.390
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Comments: Material dried back to 0%
 ‡ - NATA Accreditation does not cover the performance of this service .

Approved Signatory:
 Name: Matt van Herk
 Date: 10/April/2024

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Certificate of Analysis PFD0330

Client Details

Client	Western Geotechnical & Laboratory Services
Contact	Brooke Elliot
Address	235 Bank Street, WELSHPOOL, WA, 6101

Sample Details

Your Reference	S12725 - Beenup Wind Farm
Number of Samples	1 Soil
Date Samples Received	04/04/2024
Date Instructions Received	04/04/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date Results Requested by	11/04/2024
Date of Issue	11/04/2024

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

Authorisation Details

Results Approved By	Heram Halim, Operations Manager
Laboratory Manager	Michael Kubiak

Certificate of Analysis PFD0330

Samples in this Report

Envirolab ID	Sample ID	Matrix	Date Sampled	Date Received
PFD0330-01	WG24.505 - TP11 - 01 : 2.0m (S)	Soil	04/04/2024	04/04/2024

Sample Comments

General Comment No sampling date(s) was/were provided by client. Therefore the sampling date(s) is/are assigned as the date(s) of sample receipt to the laboratory.

Certificate of Analysis PFD0330

Inorganics - General Physical Parameters (Soil)

Envirolab ID	Units	PQL	PFD0330-01
Your Reference			WG24.505 - TP11 - 01 : 2.0m (S)
Date Sampled			04/04/2024
pH	pH units		5.2

Certificate of Analysis PFD0330

Inorganics - General Chemical Parameters (Soil)

Envirolab ID	Units	PQL	PFD0330-01
Your Reference			WG24.505 - TP11 - 01 : 2.0m (S)
Date Sampled			04/04/2024
Chloride	mg/kg	10	51
Sulfate	mg/kg	10	790

Certificate of Analysis PFD0330

Method Summary

Method ID	Methodology Summary
INORG-001	pH - Measured using pH meter and electrode. Please note that the results for water analyses are indicative only, as analysis can be completed outside of the recommended holding times. Solids are reported from a 1:5 water extract unless otherwise specified. Alternatively, pH is determined in a 1:5 extract using 0.01M calcium chloride or a solid is extracted at a ratio of 1:2.5 (AS1289.4.3.1), pH is measured in the extract.
INORG-081	Anions determined by Ion Chromatography. Waters samples are filtered on receipt prior to analysis. Solids are analysed from a water extract. Alternatively determined by colourimetry/turbidity using Discrete Analyser.

Certificate of Analysis PFD0330

Result Definitions

Identifier	Description
NR	Not reported
NEPM	National Environment Protection Measure
NS	Not specified
LCS	Laboratory Control Sample
RPD	Relative Percent Difference
>	Greater than
<	Less than
PQL	Practical Quantitation Limit
INS	Insufficient sample for this test
NA	Test not required
NT	Not tested
DOL	Samples rejected due to particulate overload (air filters only)
RFD	Samples rejected due to filter damage (air filters only)
RUD	Samples rejected due to uneven deposition (air filters only)
##	Indicates a laboratory acceptance criteria outlier, for further details, see Result Comments and/or QC Comments

Quality Control Definitions

Blank

This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, and is determined by processing solvents and reagents in exactly the same manner as for samples.

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.

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.

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.

Duplicate

This is the complete duplicate analysis of a sample from the process batch. The sample selected should be one where the analyte concentration is easily measurable.

Certificate of Analysis PFD0330

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.

General Acceptance Criteria (GAC) - Analyte specific criteria applies for some analytes and is reflected in QC recovery tables.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% - see ELN-P05 QAQC tables for details (available on request); <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase. Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

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

Miscellaneous Information

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. We have taken the sampling date as being the date received at the laboratory.

Two significant figures are reported for the majority of tests and with a high degree of confidence, for results <10*PQL, the second significant figure may be in doubt i.e. has a relatively high degree of uncertainty and is provided for information only.

Measurement Uncertainty estimates are available for most tests upon request.

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

Urine Analysis - The BEI values listed are taken from the 2022 edition of *TLVs and BEIs Threshold Limits by ACGIH*.

Air volume measurements are not covered by Envirolab's NATA accreditation.

Data Quality Assessment Summary PFD0330

Client Details

Client Western Geotechnical & Laboratory Services
Your Reference S12725 - Beenup Wind Farm
Date Issued 11/04/2024

Recommended Holding Time Compliance

No recommended holding time exceedances

Quality Control and QC Frequency

QC Type	Compliant	Details
Blank	Yes	No Outliers
LCS	Yes	No Outliers
Duplicates	Yes	No Outliers
Matrix Spike	Yes	No Outliers
Surrogates / Extracted Internal Standards	Yes	No Outliers
QC Frequency	Yes	No Outliers

Surrogates/Extracted Internal Standards, Duplicates and/or Matrix Spikes are not always relevant/applicable to certain analyses and matrices. Therefore, said QC measures are deemed compliant in these situations by default. See Laboratory Acceptance Criteria for more information

Data Quality Assessment Summary PFD0330

Recommended Holding Time Compliance

Analysis	Sample Number(s)	Date Sampled	Date Extracted	Date Analysed	Compliant
pH Soil	1	04/04/2024	05/04/2024	09/04/2024	Yes
Chloride Soil	1	04/04/2024	05/04/2024	11/04/2024	Yes
Sulfate Soil	1	04/04/2024	05/04/2024	11/04/2024	Yes

No sampling date(s) was/were provided by client. Therefore the sampling date(s) is/are assigned as the date(s) of sample receipt to the laboratory.

Quality Control PFD0330

INORG-001 | Inorganics - General Physical Parameters (Soil) | Batch BFD0687

Analyte	Units	PQL	Blank	DUP1	LCS %
				BFD0687-DUP1# Samp QC RPD %	
pH	pH units		5.5	9.6 9.6 0.00	101

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-081 | Inorganics - General Chemical Parameters (Soil) | Batch BFD0688

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BFD0688-DUP1# Samp QC RPD %	BFD0688-DUP2# Samp QC RPD %		
Chloride	mg/kg	10	<10	5430 5420 0.00623	316 315 0.305	115	101
Sulfate	mg/kg	10	<10	584 585 0.0753	53.2 53.0 0.493	111	72.3

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

C.2 Contamination and Acid Sulfate Soils



Stantec Australia Pty Limited
 6F 226, Adelaide Terrace
 Perth
 WA 6000



NATA Accredited
 Accreditation Number 2377
 Site Number 2370

Accredited for compliance with ISO/IEC 17025 – Testing
 NATA is a signatory to the ILAC Mutual Recognition
 Arrangement for the mutual recognition of the
 equivalence of testing, medical testing, calibration,
 inspection, proficiency testing scheme providers and
 reference materials producers reports and certificates.

Attention: **Brenton Petracca**

Report **1075587-S**
 Project name **BEENUP WIND FARM**
 Received Date **Mar 05, 2024**

Client Sample ID			WM01-0.0	WM01-0.5	WM01-1.0	WM01-1.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24- Ma0013729	L24- Ma0013730	L24- Ma0013731	L24- Ma0013732
Date Sampled			Feb 26, 2024	Feb 26, 2024	Feb 26, 2024	Feb 26, 2024
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
BTEX						
4-Bromofluorobenzene (surr.)	1	%	82	104	57	83
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20	< 20
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	< 100
OCOP in Soil						
Aldrin	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
alpha-BHC (HCH)	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
beta-BHC (HCH)	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
delta-BHC (HCH)	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Bifenthrin	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Bromophos Ethyl	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Chlordane	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Chlorpyrifos	0.02	mg/kg	< 0.02	< 0.02	< 0.02	< 0.02
Dieldrin	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
p,p-DDD	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01

Client Sample ID			WM01-0.0	WM01-0.5	WM01-1.0	WM01-1.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24- Ma0013729	L24- Ma0013730	L24- Ma0013731	L24- Ma0013732
Date Sampled			Feb 26, 2024	Feb 26, 2024	Feb 26, 2024	Feb 26, 2024
Test/Reference	LOR	Unit				
OCOP in Soil						
p,p-DDE	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
p,p-DDT	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
o,p-DDT	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Endosulfan I	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Endosulfan II	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Endosulfan Sulfate	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Endrin	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Heptachlor	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Heptachlor Epoxide	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Hexachlorobenzene (HCB)	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Lindane	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Methoxychlor	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Oxychlorane	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Diazinon	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethion	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Fenitrothion	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Malathion	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Trifluralin	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Nutrients						
Ammonia-N	10	mg/kg	36	37	38	36
Chromium (VI)	1	mg/kg	< 1	< 1	< 1	< 1
Filterable Reactive Phosphorus	1	mg/kg	7.9	< 1	< 1	< 1
Nitrate-N	1	mg/kg	1.6	1.3	1.2	< 1
Nitrite-N	1	mg/kg	1.6	1.3	1.2	< 1
NOx-N	1	mg/kg	1.6	1.4	1.2	< 1
Total Kjeldahl Nitrogen	10	mg/kg	370	680	280	40
Total Nitrogen	10	mg/kg	370	680	280	40
Phosphorus	1	mg/kg	19	27	4.5	3.4
Heavy Metals						
Arsenic	2	mg/kg	< 2	< 2	< 2	< 2
Beryllium	2	mg/kg	< 2	< 2	< 2	< 2
Boron	10	mg/kg	< 10	< 10	< 10	< 10
Cadmium	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Cobalt	5	mg/kg	< 5	< 5	< 5	< 5
Copper	1	mg/kg	< 1	< 1	< 1	< 1
Lead	1	mg/kg	5.2	4.6	7.8	6.1
Manganese	5	mg/kg	< 5	< 5	5.9	< 5
Mercury	0.02	mg/kg	< 0.02	< 0.02	0.02	< 0.02
Nickel	1	mg/kg	< 1	< 1	< 1	< 1
Selenium	2	mg/kg	< 2	< 2	< 2	< 2
Zinc	5	mg/kg	< 5	< 5	< 5	< 5
Sample Properties						
% Moisture	1	%	11	4.4	20	16

Client Sample ID			WM02-0.0	WM02-0.5	WM02-1.0	WM03-0.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24- Ma0013733	L24- Ma0013734	L24- Ma0013735	L24- Ma0013737
Date Sampled			Feb 28, 2024	Feb 28, 2024	Feb 28, 2024	Feb 29, 2024
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	61	< 50	180
TRH C29-C36	50	mg/kg	< 50	68	< 50	190
TRH C10-C36 (Total)	50	mg/kg	< 50	129	< 50	370
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
BTEX						
4-Bromofluorobenzene (surr.)	1	%	99	90	97	116
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20	< 20
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	110	< 100	310
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	100
TRH >C10-C40 (total)*	100	mg/kg	< 100	110	< 100	410
OCOP in Soil						
Aldrin	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
alpha-BHC (HCH)	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
beta-BHC (HCH)	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
delta-BHC (HCH)	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Bifenthrin	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Bromophos Ethyl	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Chlordane	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Chlorpyrifos	0.02	mg/kg	< 0.02	< 0.02	< 0.02	< 0.02
Dieldrin	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
p,p-DDD	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
p,p-DDE	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
p,p-DDT	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
o,p-DDT	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Endosulfan I	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Endosulfan II	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Endosulfan Sulfate	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Endrin	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Heptachlor	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Heptachlor Epoxide	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Hexachlorobenzene (HCB)	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Lindane	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Methoxychlor	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Oxychlorane	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01

Client Sample ID			WM02-0.0	WM02-0.5	WM02-1.0	WM03-0.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24-Ma0013733	L24-Ma0013734	L24-Ma0013735	L24-Ma0013737
Date Sampled			Feb 28, 2024	Feb 28, 2024	Feb 28, 2024	Feb 29, 2024
Test/Reference	LOR	Unit				
OCOP in Soil						
Diazinon	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethion	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Fenitrothion	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Malathion	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Trifluralin	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ammonia-N						
Ammonia-N	10	mg/kg	37	36	39	52
Chromium (VI)						
Chromium (VI)	1	mg/kg	< 1	< 1	< 1	< 1
Filterable Reactive Phosphorus						
Filterable Reactive Phosphorus	1	mg/kg	< 1	< 1	< 1	1.1
Nitrate-N						
Nitrate-N	1	mg/kg	15	13	2.2	< 1
Nitrite-N						
Nitrite-N	1	mg/kg	15	13	2.2	< 1
NOx-N						
NOx-N	1	mg/kg	< 1	< 1	2.4	< 1
Total Kjeldahl Nitrogen						
Total Kjeldahl Nitrogen	10	mg/kg	1200	700	86	5200
Total Nitrogen						
Total Nitrogen	10	mg/kg	1200	700	88	5200
Phosphorus						
Phosphorus	1	mg/kg	190	45	5.3	610
Heavy Metals						
Arsenic						
Arsenic	2	mg/kg	< 2	< 2	< 2	< 2
Beryllium						
Beryllium	2	mg/kg	< 2	< 2	< 2	< 2
Boron						
Boron	10	mg/kg	< 10	< 10	< 10	< 10
Cadmium						
Cadmium	0.1	mg/kg	< 0.1	< 0.1	< 0.1	0.1
Cobalt						
Cobalt	5	mg/kg	< 5	< 5	< 5	< 5
Copper						
Copper	1	mg/kg	2.9	< 1	< 1	6.5
Lead						
Lead	1	mg/kg	< 1	< 1	< 1	4.1
Manganese						
Manganese	5	mg/kg	< 5	< 5	< 5	14
Mercury						
Mercury	0.02	mg/kg	0.03	0.03	0.03	0.05
Nickel						
Nickel	1	mg/kg	< 1	< 1	< 1	< 1
Selenium						
Selenium	2	mg/kg	< 2	< 2	< 2	< 2
Zinc						
Zinc	5	mg/kg	5.4	< 5	< 5	8.4
Sample Properties						
% Moisture	1	%	< 1	2.6	20	6.6

Client Sample ID			WM03-0.5	WM01-0.0	WM01-0.25	WM01-0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24-Ma0013738	L24-Ma0013753	L24-Ma0013754	L24-Ma0013755
Date Sampled			Feb 29, 2024	Feb 26, 2024	Feb 26, 2024	Feb 26, 2024
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	-	-	-
TRH C10-C14	20	mg/kg	< 20	-	-	-
TRH C15-C28	50	mg/kg	< 50	-	-	-
TRH C29-C36	50	mg/kg	< 50	-	-	-
TRH C10-C36 (Total)	50	mg/kg	< 50	-	-	-
BTEX						
Benzene						
Benzene	0.1	mg/kg	< 0.1	-	-	-
Toluene						
Toluene	0.1	mg/kg	< 0.1	-	-	-
Ethylbenzene						
Ethylbenzene	0.1	mg/kg	< 0.1	-	-	-
m&p-Xylenes						
m&p-Xylenes	0.2	mg/kg	< 0.2	-	-	-

Client Sample ID			WM03-0.5	WM01-0.0	WM01-0.25	WM01-0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24- Ma0013738	L24- Ma0013753	L24- Ma0013754	L24- Ma0013755
Date Sampled			Feb 29, 2024	Feb 26, 2024	Feb 26, 2024	Feb 26, 2024
Test/Reference	LOR	Unit				
BTEX						
o-Xylene	0.1	mg/kg	< 0.1	-	-	-
Xylenes - Total*	0.3	mg/kg	< 0.3	-	-	-
BTEX						
4-Bromofluorobenzene (surr.)	1	%	79	-	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	-	-	-
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	-	-	-
TRH C6-C10	20	mg/kg	< 20	-	-	-
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	-	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	-	-	-
TRH >C16-C34	100	mg/kg	< 100	-	-	-
TRH >C34-C40	100	mg/kg	< 100	-	-	-
TRH >C10-C40 (total)*	100	mg/kg	< 100	-	-	-
OCOP in Soil						
Aldrin	0.01	mg/kg	< 0.01	-	-	-
alpha-BHC (HCH)	0.01	mg/kg	< 0.01	-	-	-
beta-BHC (HCH)	0.01	mg/kg	< 0.01	-	-	-
delta-BHC (HCH)	0.01	mg/kg	< 0.01	-	-	-
Bifenthrin	0.2	mg/kg	< 0.2	-	-	-
Bromophos Ethyl	0.05	mg/kg	< 0.05	-	-	-
Chlordane	0.01	mg/kg	< 0.01	-	-	-
Chlorpyrifos	0.02	mg/kg	< 0.02	-	-	-
Dieldrin	0.01	mg/kg	< 0.01	-	-	-
p,p-DDD	0.01	mg/kg	< 0.01	-	-	-
p,p-DDE	0.01	mg/kg	< 0.01	-	-	-
p,p-DDT	0.01	mg/kg	< 0.01	-	-	-
o,p-DDT	0.01	mg/kg	< 0.01	-	-	-
Endosulfan I	0.01	mg/kg	< 0.01	-	-	-
Endosulfan II	0.01	mg/kg	< 0.01	-	-	-
Endosulfan Sulfate	0.01	mg/kg	< 0.01	-	-	-
Endrin	0.01	mg/kg	< 0.01	-	-	-
Heptachlor	0.01	mg/kg	< 0.01	-	-	-
Heptachlor Epoxide	0.01	mg/kg	< 0.01	-	-	-
Hexachlorobenzene (HCB)	0.01	mg/kg	< 0.01	-	-	-
Lindane	0.01	mg/kg	< 0.01	-	-	-
Methoxychlor	0.2	mg/kg	< 0.2	-	-	-
Oxychlordane	0.01	mg/kg	< 0.01	-	-	-
Diazinon	0.2	mg/kg	< 0.2	-	-	-
Ethion	0.05	mg/kg	< 0.05	-	-	-
Fenitrothion	0.1	mg/kg	< 0.1	-	-	-
Malathion	0.1	mg/kg	< 0.1	-	-	-
Trifluralin	0.2	mg/kg	< 0.2	-	-	-
Ammonia-N						
Ammonia-N	10	mg/kg	43	-	-	-
Chromium (VI)						
Chromium (VI)	1	mg/kg	< 1	-	-	-
Filterable Reactive Phosphorus						
Filterable Reactive Phosphorus	1	mg/kg	< 1	-	-	-
Nitrate-N						
Nitrate-N	1	mg/kg	3.1	-	-	-

Client Sample ID			WM03-0.5	WM01-0.0	WM01-0.25	WM01-0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24-Ma0013738	L24-Ma0013753	L24-Ma0013754	L24-Ma0013755
Date Sampled			Feb 29, 2024	Feb 26, 2024	Feb 26, 2024	Feb 26, 2024
Test/Reference	LOR	Unit				
Nitrite-N						
	1	mg/kg	3.1	-	-	-
NOx-N						
	1	mg/kg	3.2	-	-	-
Total Kjeldahl Nitrogen						
	10	mg/kg	1100	-	-	-
Total Nitrogen						
	10	mg/kg	1100	-	-	-
Phosphorus						
	1	mg/kg	30	-	-	-
Heavy Metals						
Arsenic						
	2	mg/kg	11	-	-	-
Beryllium						
	2	mg/kg	< 2	-	-	-
Boron						
	10	mg/kg	< 10	-	-	-
Cadmium						
	0.1	mg/kg	< 0.1	-	-	-
Cobalt						
	5	mg/kg	< 5	-	-	-
Copper						
	1	mg/kg	< 1	-	-	-
Lead						
	1	mg/kg	20	-	-	-
Manganese						
	5	mg/kg	< 5	-	-	-
Mercury						
	0.02	mg/kg	0.05	-	-	-
Nickel						
	1	mg/kg	< 1	-	-	-
Selenium						
	2	mg/kg	< 2	-	-	-
Zinc						
	5	mg/kg	< 5	-	-	-
Sample Properties						
% Moisture						
	1	%	25	-	-	-
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*						
	0.1	pH Units	-	5.2	5.2	5.5
pH-FOX (Field pH Peroxide test)*						
	0.1	pH Units	-	3.9	3.9	3.7
Reaction Ratings**S05						
	0	comment	-	2.0	2.0	2.0

Client Sample ID			WM01-0.75	WM01-1.0	WM01-1.25	WM01-1.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24-Ma0013756	L24-Ma0013757	L24-Ma0013758	L24-Ma0013759
Date Sampled			Feb 26, 2024	Feb 26, 2024	Feb 26, 2024	Feb 26, 2024
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*						
	0.1	pH Units	5.5	5.4	5.3	5.2
pH-FOX (Field pH Peroxide test)*						
	0.1	pH Units	3.5	3.5	3.6	3.9
Reaction Ratings**S05						
	0	comment	2.0	2.0	2.0	2.0

Client Sample ID			WM01-1.75	WM01-2.0	WM01-2.25	WM01-2.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24-Ma0013760	L24-Ma0013761	L24-Ma0013762	L24-Ma0013763
Date Sampled			Feb 26, 2024	Feb 26, 2024	Feb 26, 2024	Feb 26, 2024
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*						
	0.1	pH Units	5.3	5.2	5.4	5.9
pH-FOX (Field pH Peroxide test)*						
	0.1	pH Units	3.0	2.9	2.9	3.4
Reaction Ratings**S05						
	0	comment	2.0	2.0	2.0	2.0

Client Sample ID			WM01-2.75	WM01-3.0	WM01-3.25	WM01-3.50
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24-Ma0013764	L24-Ma0013765	L24-Ma0013766	L24-Ma0013767
Date Sampled			Feb 26, 2024	Feb 26, 2024	Feb 26, 2024	Feb 26, 2024
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	5.7	5.9	5.8	6.2
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	3.3	3.0	3.1	2.7
Reaction Ratings**S05	0	comment	2.0	2.0	2.0	2.0

Client Sample ID			WM01-3.75	WM01-4.0	WM01-4.25	WM01-4.50
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24-Ma0013768	L24-Ma0013769	L24-Ma0013770	L24-Ma0013771
Date Sampled			Feb 26, 2024	Feb 26, 2024	Feb 26, 2024	Feb 26, 2024
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	6.2	6.1	6.0	6.2
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	2.5	2.6	2.6	2.5
Reaction Ratings**S05	0	comment	2.0	2.0	2.0	2.0

Client Sample ID			WM01-4.75	WM01-5.0	WM01-5.25	WM01-5.50
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24-Ma0013772	L24-Ma0013773	L24-Ma0013774	L24-Ma0013775
Date Sampled			Feb 26, 2024	Feb 26, 2024	Feb 26, 2024	Feb 26, 2024
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	6.3	6.3	6.1	6.3
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	2.2	2.4	2.4	2.3
Reaction Ratings**S05	0	comment	2.0	2.0	4.0	2.0

Client Sample ID			WM01-5.75	WM01-6.0	WM01-6.25	WM01-6.50
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24-Ma0013776	L24-Ma0013777	L24-Ma0013778	L24-Ma0013779
Date Sampled			Feb 26, 2024	Feb 26, 2024	Feb 26, 2024	Feb 26, 2024
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	6.3	6.0	6.1	6.1
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	1.9	2.3	2.3	2.4
Reaction Ratings**S05	0	comment	4.0	4.0	4.0	4.0

Client Sample ID			WM01-6.75	WM01-7.0	WM01-7.25	WM01-7.50
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24-Ma0013780	L24-Ma0013781	L24-Ma0013782	L24-Ma0013783
Date Sampled			Feb 26, 2024	Feb 26, 2024	Feb 26, 2024	Feb 26, 2024
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	6.1	6.1	6.7	6.3
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	2.4	2.3	2.3	2.2
Reaction Ratings**S05	0	comment	4.0	4.0	4.0	4.0

Client Sample ID			WM01-7.75	WM01-8.0	WM01-8.25	WM01-8.50
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24-Ma0013784	L24-Ma0013785	L24-Ma0013786	L24-Ma0013787
Date Sampled			Feb 26, 2024	Feb 26, 2024	Feb 26, 2024	Feb 26, 2024
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	6.3	6.4	6.4	6.3
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	2.4	2.4	2.3	2.1
Reaction Ratings**S05	0	comment	4.0	4.0	4.0	4.0

Client Sample ID			WM01-8.75	WM01-9.0	WM01-9.25	WM01-9.50
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24-Ma0013788	L24-Ma0013789	L24-Ma0013790	L24-Ma0013791
Date Sampled			Feb 26, 2024	Feb 26, 2024	Feb 26, 2024	Feb 26, 2024
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	6.1	6.2	6.4	5.8
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	2.3	2.5	2.3	2.3
Reaction Ratings**S05	0	comment	4.0	4.0	4.0	4.0

Client Sample ID			WM01-9.75	WM01-10.0	WM02-0.0	WM02-0.25
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24-Ma0013792	L24-Ma0013793	L24-Ma0013794	L24-Ma0013795
Date Sampled			Feb 26, 2024	Feb 26, 2024	Feb 26, 2024	Feb 26, 2024
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	6.0	5.4	5.5	6.0
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	2.3	2.3	3.6	3.2
Reaction Ratings**S05	0	comment	4.0	4.0	2.0	2.0

Client Sample ID			WM02-0.5	WM02-0.75	WM02-1.0	WM02-1.25
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24-Ma0013796	L24-Ma0013797	L24-Ma0013798	L24-Ma0013799
Date Sampled			Feb 26, 2024	Feb 26, 2024	Feb 26, 2024	Feb 26, 2024
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	6.4	6.3	6.4	5.7
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	4.0	4.1	4.5	4.7
Reaction Ratings**S05	0	comment	2.0	2.0	2.0	2.0

Client Sample ID			WM02-1.5	WM02-1.75	WM02-2.0	WM02-2.25
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24-Ma0013800	L24-Ma0013801	L24-Ma0013802	L24-Ma0013803
Date Sampled			Feb 26, 2024	Feb 26, 2024	Feb 26, 2024	Feb 26, 2024
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	6.9	5.7	6.2	7.2
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	4.4	4.3	5.0	3.2
Reaction Ratings**S05	0	comment	2.0	2.0	2.0	2.0

Client Sample ID			WM02-2.5	WM02-2.75	WM02-3.0	WM02-3.25
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24-Ma0013804	L24-Ma0013805	L24-Ma0013806	L24-Ma0013807
Date Sampled			Feb 26, 2024	Feb 26, 2024	Feb 26, 2024	Feb 26, 2024
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	6.9	7.6	7.2	6.5
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	3.4	2.6	2.8	2.8
Reaction Ratings**S05	0	comment	4.0	4.0	4.0	3.0

Client Sample ID			WM02-3.50	WM02-3.75	WM02-4.0	WM02-4.25
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24-Ma0013808	L24-Ma0013809	L24-Ma0013810	L24-Ma0013811
Date Sampled			Feb 26, 2024	Feb 26, 2024	Feb 26, 2024	Feb 26, 2024
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	6.6	6.1	7.2	5.8
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	3.2	2.7	2.8	3.1
Reaction Ratings**S05	0	comment	3.0	4.0	4.0	4.0

Client Sample ID			WM02-4.50	WM02-4.75	WM02-5.0	WM02-5.25
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24-Ma0013812	L24-Ma0013813	L24-Ma0013814	L24-Ma0013815
Date Sampled			Feb 26, 2024	Feb 26, 2024	Feb 26, 2024	Feb 26, 2024
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	5.7	5.8	5.2	5.5
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	3.2	2.9	2.9	3.1
Reaction Ratings**S05	0	comment	4.0	4.0	4.0	4.0

Client Sample ID			WM02-5.50	WM02-5.75	WM02-6.0	WM02-6.25
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24-Ma0013816	L24-Ma0013817	L24-Ma0013818	L24-Ma0013819
Date Sampled			Feb 26, 2024	Feb 26, 2024	Feb 26, 2024	Feb 26, 2024
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	5.4	6.5	6.5	5.7
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	3.2	2.8	2.7	2.4
Reaction Ratings**S05	0	comment	4.0	4.0	4.0	4.0

Client Sample ID			WM02-6.50	WM02-6.75	WM02-7.0	WM02-7.25
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24-Ma0013820	L24-Ma0013821	L24-Ma0013822	L24-Ma0013823
Date Sampled			Feb 26, 2024	Feb 26, 2024	Feb 26, 2024	Feb 26, 2024
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	6.0	4.6	7.7	4.5
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	2.9	2.5	2.5	2.3
Reaction Ratings**S05	0	comment	4.0	4.0	4.0	4.0

Client Sample ID			WM02-7.50	WM02-7.75	WM02-8.0	WM02-8.25
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24-Ma0013824	L24-Ma0013825	L24-Ma0013826	L24-Ma0013827
Date Sampled			Feb 26, 2024	Feb 26, 2024	Feb 26, 2024	Feb 26, 2024
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	4.8	5.0	4.8	6.1
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	2.3	2.7	2.6	2.3
Reaction Ratings**S05	0	comment	4.0	4.0	4.0	4.0

Client Sample ID			WM02-8.50	WM02-8.75	WM02-9.0	WM02-9.25
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24- Ma0013828	L24- Ma0013829	L24- Ma0013830	L24- Ma0013831
Date Sampled			Feb 26, 2024	Feb 26, 2024	Feb 26, 2024	Feb 26, 2024
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	5.3	4.9	5.0	5.2
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	2.7	2.7	2.8	2.6
Reaction Ratings**S05	0	comment	4.0	4.0	4.0	4.0

Client Sample ID			WM02-9.50	WM02-9.75	WM02-10.0	WM03-0.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24- Ma0013832	L24- Ma0013833	L24- Ma0013834	L24- Ma0013835
Date Sampled			Feb 26, 2024	Feb 26, 2024	Feb 26, 2024	Feb 26, 2024
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	4.9	5.2	4.8	5.6
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	3.0	2.9	2.9	3.1
Reaction Ratings**S05	0	comment	4.0	4.0	4.0	3.0

Client Sample ID			WM03-0.25	WM03-0.5	WM03-0.75	WM03-1.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24- Ma0013836	L24- Ma0013837	L24- Ma0013838	L24- Ma0013839
Date Sampled			Feb 26, 2024	Feb 26, 2024	Feb 26, 2024	Feb 26, 2024
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	6.8	6.2	5.5	5.2
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	4.0	4.3	4.6	4.4
Reaction Ratings**S05	0	comment	2.0	2.0	2.0	2.0

Client Sample ID			WM03-1.25	WM03-2.0	WM03-2.25	WM03-2.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24- Ma0013840	L24- Ma0013843	L24- Ma0013844	L24- Ma0013845
Date Sampled			Feb 26, 2024	Feb 26, 2024	Feb 26, 2024	Feb 26, 2024
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	5.3	5.2	5.5	5.7
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	4.7	4.6	4.4	4.6
Reaction Ratings**S05	0	comment	2.0	2.0	2.0	2.0

Client Sample ID			WM03-2.75	WM03-3.0	WM03-3.25	WM03-3.50
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24-Ma0013846	L24-Ma0013847	L24-Ma0013848	L24-Ma0013849
Date Sampled			Feb 26, 2024	Feb 26, 2024	Feb 26, 2024	Feb 26, 2024
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	5.5	5.8	6.1	6.7
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	4.7	4.1	3.3	3.0
Reaction Ratings**S05	0	comment	2.0	2.0	4.0	4.0

Client Sample ID			WM03-3.75	WM03-4.0	WM03-4.25	WM03-4.50
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24-Ma0013850	L24-Ma0013851	L24-Ma0013852	L24-Ma0013853
Date Sampled			Feb 26, 2024	Feb 26, 2024	Feb 26, 2024	Feb 26, 2024
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	6.2	7.3	6.7	6.6
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	3.1	2.7	3.0	3.1
Reaction Ratings**S05	0	comment	4.0	4.0	4.0	4.0

Client Sample ID			WM03-4.75	WM03-5.0	WM03-5.25	WM03-5.50
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24-Ma0013854	L24-Ma0013855	L24-Ma0013856	L24-Ma0013857
Date Sampled			Feb 26, 2024	Feb 26, 2024	Feb 26, 2024	Feb 26, 2024
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	7.1	7.2	7.8	7.7
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	3.2	3.2	2.5	2.5
Reaction Ratings**S05	0	comment	4.0	4.0	4.0	4.0

Client Sample ID			WM03-5.75	WM03-6.0	WM03-6.25	WM03-6.50
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24-Ma0013858	L24-Ma0013859	L24-Ma0013860	L24-Ma0013861
Date Sampled			Feb 26, 2024	Feb 26, 2024	Feb 26, 2024	Feb 26, 2024
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	7.7	7.9	7.0	5.4
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	2.5	2.5	2.9	3.1
Reaction Ratings**S05	0	comment	4.0	4.0	4.0	4.0

Client Sample ID			WM03-6.75	WM03-7.0	WM03-7.25	WM03-7.50
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24-Ma0013862	L24-Ma0013863	L24-Ma0013864	L24-Ma0013865
Date Sampled			Feb 26, 2024	Feb 26, 2024	Feb 26, 2024	Feb 26, 2024
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	4.9	6.4	5.2	5.6
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	2.8	3.7	3.1	2.9
Reaction Ratings* ^{S05}	0	comment	4.0	4.0	4.0	4.0

Client Sample ID			WM03-7.75	WM03-8.0	WM03-8.25	WM03-8.50
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24-Ma0013866	L24-Ma0013867	L24-Ma0013868	L24-Ma0013869
Date Sampled			Feb 26, 2024	Feb 26, 2024	Feb 26, 2024	Feb 26, 2024
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	5.0	4.7	6.6	6.6
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	2.9	3.4	3.2	3.2
Reaction Ratings* ^{S05}	0	comment	4.0	4.0	4.0	4.0

Client Sample ID			WM03-8.75	WM03-9.0	WM03-9.25	WM03-9.50
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24-Ma0013870	L24-Ma0013871	L24-Ma0013872	L24-Ma0013873
Date Sampled			Feb 26, 2024	Feb 26, 2024	Feb 26, 2024	Feb 26, 2024
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	6.7	6.2	5.5	5.5
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	3.2	3.2	2.9	3.0
Reaction Ratings* ^{S05}	0	comment	4.0	4.0	4.0	4.0

Client Sample ID			WM03-9.75	WM03-10.0	Trip Blank
Sample Matrix			Soil	Soil	Soil
Eurofins Sample No.			L24-Ma0013874	L24-Ma0013875	L24-Ma0013882
Date Sampled			Feb 26, 2024	Feb 26, 2024	Feb 29, 2024
Test/Reference	LOR	Unit			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					
TRH C6-C9	20	mg/kg	-	-	< 20
BTEX					
Benzene	0.1	mg/kg	-	-	< 0.1
Toluene	0.1	mg/kg	-	-	< 0.1
Ethylbenzene	0.1	mg/kg	-	-	< 0.1
m&p-Xylenes	0.2	mg/kg	-	-	< 0.2
o-Xylene	0.1	mg/kg	-	-	< 0.1
Xylenes - Total*	0.3	mg/kg	-	-	< 0.3
BTEX					
4-Bromofluorobenzene (surr.)	1	%	-	-	79
Naphthalene^{N02}					
Naphthalene ^{N02}	0.5	mg/kg	-	-	< 0.5

Client Sample ID			WM03-9.75	WM03-10.0	Trip Blank
Sample Matrix			Soil	Soil	Soil
Eurofins Sample No.			L24- Ma0013874	L24- Ma0013875	L24- Ma0013882
Date Sampled			Feb 26, 2024	Feb 26, 2024	Feb 29, 2024
Test/Reference	LOR	Unit			
Acid Sulfate Soils Field pH Test					
pH-F (Field pH test)*	0.1	pH Units	6.4	5.6	-
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	3.0	3.2	-
Reaction Ratings* ^{S05}	0	comment	4.0	4.0	-
Total Recoverable Hydrocarbons					
TRH C6-C10	20	mg/kg	-	-	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	-	-	< 20

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Welshpool	Mar 08, 2024	14 Days
BTEX - Method: LTM-ORG-2010 TRH C6-C40	Welshpool	Mar 08, 2024	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Welshpool	Mar 08, 2024	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Welshpool	Mar 08, 2024	14 Days
NEPM 2013 Metals : Metals M12 - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Welshpool	Mar 08, 2024	28 Days
OCOP in Soil - Method: ARL003 - OCOP and PCB in Soil	Welshpool	Mar 09, 2024	14 Days
Ammonia-N - Method: ARL304 - Ammonia in Soil and Sediment by Discrete Analyser	Welshpool	Mar 08, 2024	7 Days
Chromium (VI) - Method: ARL051 - Hexavalent Chromium in Soil	Welshpool	Mar 08, 2024	28 Days
Filterable Reactive Phosphorus - Method: ARL120 - Filterable Reactive Phosphorus in Soil	Welshpool	Mar 08, 2024	7 Day
Nitrate-N - Method: ARL314 - NOx in Soil and Sediment by Discrete Analyser	Welshpool	Mar 08, 2024	7 Days
Nitrite-N - Method: ARL312 - Nitrite in Soil and Sediment by Discrete Analyser	Welshpool	Mar 08, 2024	7 Days
Phosphorus - Method: ARL401/403 - Metals in Soil and Sediment by ICPOES/MS	Welshpool	Mar 08, 2024	7 Days
Acid Sulfate Soils Field pH Test - Method: LTM-GEN-7060 Determination of field pH (pHF) and field pH peroxide (pHFOX) tests	Welshpool	Mar 06, 2024	7 Days
NOx-N - Method: ARL314 - NOx in Soil and Sediment by Discrete Analyser	Welshpool	Mar 08, 2024	7 Days
Total Kjeldahl Nitrogen - Method: ARL118 - Total Phosphorus and TKN in Soil and Biosolids	Welshpool	Mar 08, 2024	7 Days
Total Nitrogen - Method: ARL No. 330 - Persulfate Method for Simultaneous Determination of TN & TP	Welshpool	Mar 06, 2024	7 Days
Naphthalene - Method: LTM-ORG-2010 TRH C6-C40	Welshpool	Mar 08, 2024	14 Days
Total Recoverable Hydrocarbons - Method: LTM-ORG-2010 TRH C6-C40	Welshpool	Mar 07, 2024	14 Days
% Moisture - Method: ARL135 Moisture in Solids	Welshpool	Mar 06, 2024	14 Days

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Company Name: Stantec Australia Pty Ltd (WA)
Address: 6F 226, Adelaide Terrace
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WA 6000

Project Name: BEENUP WIND FARM

Order No.:
Report #: 1075587
Phone: 0458 839 200
Fax:

Received: Mar 5, 2024 10:56 AM
Due: Mar 12, 2024
Priority: 5 Day
Contact Name: Brenton Petracca

Eurofins Analytical Services Manager : Elden Garrett

Sample Detail						Ammonia-N	CANCELLED	Chromium (VI)	Chromium (VI)	Filterable Reactive Phosphorus	HOLD	Nitrate-N	Nitrite-N	Phosphorus	Acid Sulfate Soils Field pH Test	Moisture Set	BTEXN and Volatile TRH	Eurofins Suite B6A	Asbestos in Soils (ASC NEPM 2013)	OCOP in Soil	OCOP in Water	Total Nitrogen	Eurofins Suite B19E
Perth Laboratory - NATA # 2377 Site # 2370						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
External Laboratory																							
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID																		
1	WM01-0.0	Feb 26, 2024		Soil	L24-Ma0013729	X		X	X		X	X	X		X		X		X		X		
2	WM01-0.5	Feb 26, 2024		Soil	L24-Ma0013730	X		X	X		X	X	X		X		X		X		X		
3	WM01-1.0	Feb 26, 2024		Soil	L24-Ma0013731	X		X	X		X	X	X		X		X		X		X		
4	WM01-1.5	Feb 26, 2024		Soil	L24-Ma0013732	X		X	X		X	X	X		X		X		X		X		
5	WM02-0.0	Feb 28, 2024		Soil	L24-Ma0013733	X		X	X		X	X	X		X		X		X		X		
6	WM02-0.5	Feb 28, 2024		Soil	L24-Ma0013734	X		X	X		X	X	X		X		X		X		X		
7	WM02-1.0	Feb 28, 2024		Soil	L24-Ma0013735	X		X	X		X	X	X		X		X		X		X		
8	WM03-0.0	Feb 29, 2024		Soil	L24-Ma0013737	X		X	X		X	X	X		X		X		X		X		
9	WM03-0.5	Feb 29, 2024		Soil	L24-Ma0013738	X		X	X		X	X	X		X		X		X		X		
10	WM01-0.0	Feb 26, 2024		Soil	L24-Ma0013741														X				
11	WM01-0.5	Feb 26, 2024		Soil	L24-Ma0013742														X				
12	WM01-1.0	Feb 26, 2024		Soil	L24-Ma0013743														X				
13	WM01-1.5	Feb 26, 2024		Soil	L24-Ma0013744														X				
14	WM02-0.0	Feb 28, 2024		Soil	L24-Ma0013745														X				



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Received: Mar 5, 2024 10:56 AM
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Project Name: BEENUP WIND FARM

Eurofins Analytical Services Manager : Elden Garrett

Sample Detail					Ammonia-N	CANCELLED	Chromium (VI)	Chromium (VI)	Filterable Reactive Phosphorus	HOLD	Nitrate-N	Nitrite-N	Phosphorus	Acid Sulfate Soils Field pH Test	Moisture Set	BTEXN and Volatile TRH	Eurofins Suite B6A	Asbestos in Soils (ASC NEPM 2013)	OCOP in Soil	OCOP in Water	Total Nitrogen	Eurofins Suite B19E
Perth Laboratory - NATA # 2377 Site # 2370					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
External Laboratory																						
15	WM02-0.5	Feb 28, 2024		Soil	L24-Ma0013746													X				
16	WM02-1.0	Feb 28, 2024		Soil	L24-Ma0013747													X				
17	WM02-1.5	Feb 28, 2024		Soil	L24-Ma0013748													X				
18	WM03-0.0	Feb 29, 2024		Soil	L24-Ma0013749													X				
19	WM03-0.5	Feb 29, 2024		Soil	L24-Ma0013750													X				
20	WM03-1.0	Feb 29, 2024		Soil	L24-Ma0013751													X				
21	WM03-1.5	Feb 29, 2024		Soil	L24-Ma0013752													X				
22	WM01-0.0	Feb 26, 2024		Soil	L24-Ma0013753									X								
23	WM01-0.25	Feb 26, 2024		Soil	L24-Ma0013754									X								
24	WM01-0.5	Feb 26, 2024		Soil	L24-Ma0013755									X								
25	WM01-0.75	Feb 26, 2024		Soil	L24-Ma0013756									X								
26	WM01-1.0	Feb 26, 2024		Soil	L24-Ma0013757									X								
27	WM01-1.25	Feb 26, 2024		Soil	L24-Ma0013758									X								
28	WM01-1.5	Feb 26, 2024		Soil	L24-Ma0013759									X								
29	WM01-1.75	Feb 26, 2024		Soil	L24-Ma0013760									X								



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Eurofins Analytical Services Manager : Elden Garrett

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Perth Laboratory - NATA # 2377 Site # 2370					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
External Laboratory																							
30	WM01-2.0	Feb 26, 2024		Soil	L24-Ma0013761									X									
31	WM01-2.25	Feb 26, 2024		Soil	L24-Ma0013762									X									
32	WM01-2.5	Feb 26, 2024		Soil	L24-Ma0013763									X									
33	WM01-2.75	Feb 26, 2024		Soil	L24-Ma0013764									X									
34	WM01-3.0	Feb 26, 2024		Soil	L24-Ma0013765									X									
35	WM01-3.25	Feb 26, 2024		Soil	L24-Ma0013766									X									
36	WM01-3.50	Feb 26, 2024		Soil	L24-Ma0013767									X									
37	WM01-3.75	Feb 26, 2024		Soil	L24-Ma0013768									X									
38	WM01-4.0	Feb 26, 2024		Soil	L24-Ma0013769									X									
39	WM01-4.25	Feb 26, 2024		Soil	L24-Ma0013770									X									
40	WM01-4.50	Feb 26, 2024		Soil	L24-Ma0013771									X									
41	WM01-4.75	Feb 26, 2024		Soil	L24-Ma0013772									X									
42	WM01-5.0	Feb 26, 2024		Soil	L24-Ma0013773									X									
43	WM01-5.25	Feb 26, 2024		Soil	L24-Ma0013774									X									
44	WM01-5.50	Feb 26, 2024		Soil	L24-Ma0013775									X									



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Eurofins Analytical Services Manager : Eiden Garrett

Sample Detail					Ammonia-N	CANCELLED	Chromium (VI)	Chromium (VI)	Filterable Reactive Phosphorus	HOLD	Nitrate-N	Nitrite-N	Phosphorus	Acid Sulfate Soils Field pH Test	Moisture Set	BTEXN and Volatile TRH	Eurofins Suite B6A	Asbestos in Soils (ASC NEPM 2013)	OCOP in Soil	OCOP in Water	Total Nitrogen	Eurofins Suite B19E
Perth Laboratory - NATA # 2377 Site # 2370					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
External Laboratory																						
45	WM01-5.75	Feb 26, 2024		Soil	L24-Ma0013776									X								
46	WM01-6.0	Feb 26, 2024		Soil	L24-Ma0013777									X								
47	WM01-6.25	Feb 26, 2024		Soil	L24-Ma0013778									X								
48	WM01-6.50	Feb 26, 2024		Soil	L24-Ma0013779									X								
49	WM01-6.75	Feb 26, 2024		Soil	L24-Ma0013780									X								
50	WM01-7.0	Feb 26, 2024		Soil	L24-Ma0013781									X								
51	WM01-7.25	Feb 26, 2024		Soil	L24-Ma0013782									X								
52	WM01-7.50	Feb 26, 2024		Soil	L24-Ma0013783									X								
53	WM01-7.75	Feb 26, 2024		Soil	L24-Ma0013784									X								
54	WM01-8.0	Feb 26, 2024		Soil	L24-Ma0013785									X								
55	WM01-8.25	Feb 26, 2024		Soil	L24-Ma0013786									X								
56	WM01-8.50	Feb 26, 2024		Soil	L24-Ma0013787									X								
57	WM01-8.75	Feb 26, 2024		Soil	L24-Ma0013788									X								
58	WM01-9.0	Feb 26, 2024		Soil	L24-Ma0013789									X								
59	WM01-9.25	Feb 26, 2024		Soil	L24-Ma0013790									X								



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Perth Laboratory - NATA # 2377 Site # 2370					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
External Laboratory																						
60	WM01-9.50	Feb 26, 2024		Soil	L24-Ma0013791									X								
61	WM01-9.75	Feb 26, 2024		Soil	L24-Ma0013792									X								
62	WM01-10.0	Feb 26, 2024		Soil	L24-Ma0013793									X								
63	WM02-0.0	Feb 26, 2024		Soil	L24-Ma0013794									X								
64	WM02-0.25	Feb 26, 2024		Soil	L24-Ma0013795									X								
65	WM02-0.5	Feb 26, 2024		Soil	L24-Ma0013796									X								
66	WM02-0.75	Feb 26, 2024		Soil	L24-Ma0013797									X								
67	WM02-1.0	Feb 26, 2024		Soil	L24-Ma0013798									X								
68	WM02-1.25	Feb 26, 2024		Soil	L24-Ma0013799									X								
69	WM02-1.5	Feb 26, 2024		Soil	L24-Ma0013800									X								
70	WM02-1.75	Feb 26, 2024		Soil	L24-Ma0013801									X								
71	WM02-2.0	Feb 26, 2024		Soil	L24-Ma0013802									X								
72	WM02-2.25	Feb 26, 2024		Soil	L24-Ma0013803									X								
73	WM02-2.5	Feb 26, 2024		Soil	L24-Ma0013804									X								
74	WM02-2.75	Feb 26, 2024		Soil	L24-Ma0013805									X								



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Perth Laboratory - NATA # 2377 Site # 2370					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
External Laboratory																						
75	WM02-3.0	Feb 26, 2024		Soil	L24-Ma0013806									X								
76	WM02-3.25	Feb 26, 2024		Soil	L24-Ma0013807									X								
77	WM02-3.50	Feb 26, 2024		Soil	L24-Ma0013808									X								
78	WM02-3.75	Feb 26, 2024		Soil	L24-Ma0013809									X								
79	WM02-4.0	Feb 26, 2024		Soil	L24-Ma0013810									X								
80	WM02-4.25	Feb 26, 2024		Soil	L24-Ma0013811									X								
81	WM02-4.50	Feb 26, 2024		Soil	L24-Ma0013812									X								
82	WM02-4.75	Feb 26, 2024		Soil	L24-Ma0013813									X								
83	WM02-5.0	Feb 26, 2024		Soil	L24-Ma0013814									X								
84	WM02-5.25	Feb 26, 2024		Soil	L24-Ma0013815									X								
85	WM02-5.50	Feb 26, 2024		Soil	L24-Ma0013816									X								
86	WM02-5.75	Feb 26, 2024		Soil	L24-Ma0013817									X								
87	WM02-6.0	Feb 26, 2024		Soil	L24-Ma0013818									X								
88	WM02-6.25	Feb 26, 2024		Soil	L24-Ma0013819									X								
89	WM02-6.50	Feb 26, 2024		Soil	L24-Ma0013820									X								



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Order No.:
Report #: 1075587
Phone: 0458 839 200
Fax:

Received: Mar 5, 2024 10:56 AM
Due: Mar 12, 2024
Priority: 5 Day
Contact Name: Brenton Petracca

Project Name: BEENUP WIND FARM

Eurofins Analytical Services Manager : Elden Garrett

Sample Detail					Ammonia-N	CANCELLED	Chromium (VI)	Chromium (VI)	Filterable Reactive Phosphorus	HOLD	Nitrate-N	Nitrite-N	Phosphorus	Acid Sulfate Soils Field pH Test	Moisture Set	BTEXN and Volatile TRH	Eurofins Suite B6A	Asbestos in Soils (ASC NEPM 2013)	OCOP in Soil	OCOP in Water	Total Nitrogen	Eurofins Suite B19E
Perth Laboratory - NATA # 2377 Site # 2370					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
External Laboratory																						
90	WM02-6.75	Feb 26, 2024		Soil	L24-Ma0013821									X								
91	WM02-7.0	Feb 26, 2024		Soil	L24-Ma0013822									X								
92	WM02-7.25	Feb 26, 2024		Soil	L24-Ma0013823									X								
93	WM02-7.50	Feb 26, 2024		Soil	L24-Ma0013824									X								
94	WM02-7.75	Feb 26, 2024		Soil	L24-Ma0013825									X								
95	WM02-8.0	Feb 26, 2024		Soil	L24-Ma0013826									X								
96	WM02-8.25	Feb 26, 2024		Soil	L24-Ma0013827									X								
97	WM02-8.50	Feb 26, 2024		Soil	L24-Ma0013828									X								
98	WM02-8.75	Feb 26, 2024		Soil	L24-Ma0013829									X								
99	WM02-9.0	Feb 26, 2024		Soil	L24-Ma0013830									X								
100	WM02-9.25	Feb 26, 2024		Soil	L24-Ma0013831									X								
101	WM02-9.50	Feb 26, 2024		Soil	L24-Ma0013832									X								
102	WM02-9.75	Feb 26, 2024		Soil	L24-Ma0013833									X								
103	WM02-10.0	Feb 26, 2024		Soil	L24-Ma0013834									X								
104	WM03-0.0	Feb 26, 2024		Soil	L24-Ma0013835									X								



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Perth Laboratory - NATA # 2377 Site # 2370					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
External Laboratory																						
105	WM03-0.25	Feb 26, 2024		Soil	L24-Ma0013836									X								
106	WM03-0.5	Feb 26, 2024		Soil	L24-Ma0013837									X								
107	WM03-0.75	Feb 26, 2024		Soil	L24-Ma0013838									X								
108	WM03-1.0	Feb 26, 2024		Soil	L24-Ma0013839									X								
109	WM03-1.25	Feb 26, 2024		Soil	L24-Ma0013840									X								
110	WM03-2.0	Feb 26, 2024		Soil	L24-Ma0013843									X								
111	WM03-2.25	Feb 26, 2024		Soil	L24-Ma0013844									X								
112	WM03-2.5	Feb 26, 2024		Soil	L24-Ma0013845									X								
113	WM03-2.75	Feb 26, 2024		Soil	L24-Ma0013846									X								
114	WM03-3.0	Feb 26, 2024		Soil	L24-Ma0013847									X								
115	WM03-3.25	Feb 26, 2024		Soil	L24-Ma0013848									X								
116	WM03-3.50	Feb 26, 2024		Soil	L24-Ma0013849									X								
117	WM03-3.75	Feb 26, 2024		Soil	L24-Ma0013850									X								
118	WM03-4.0	Feb 26, 2024		Soil	L24-Ma0013851									X								
119	WM03-4.25	Feb 26, 2024		Soil	L24-Ma0013852									X								



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Eurofins Analytical Services Manager : Elden Garrett

Sample Detail					Ammonia-N	CANCELLED	Chromium (VI)	Chromium (VI)	Filterable Reactive Phosphorus	HOLD	Nitrate-N	Nitrite-N	Phosphorus	Acid Sulfate Soils Field pH Test	Moisture Set	BTEXN and Volatile TRH	Eurofins Suite B6A	Asbestos in Soils (ASC NEPM 2013)	OCOP in Soil	OCOP in Water	Total Nitrogen	Eurofins Suite B19E
Perth Laboratory - NATA # 2377 Site # 2370					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
External Laboratory																						
120	WM03-4.50	Feb 26, 2024		Soil	L24-Ma0013853									X								
121	WM03-4.75	Feb 26, 2024		Soil	L24-Ma0013854									X								
122	WM03-5.0	Feb 26, 2024		Soil	L24-Ma0013855									X								
123	WM03-5.25	Feb 26, 2024		Soil	L24-Ma0013856									X								
124	WM03-5.50	Feb 26, 2024		Soil	L24-Ma0013857									X								
125	WM03-5.75	Feb 26, 2024		Soil	L24-Ma0013858									X								
126	WM03-6.0	Feb 26, 2024		Soil	L24-Ma0013859									X								
127	WM03-6.25	Feb 26, 2024		Soil	L24-Ma0013860									X								
128	WM03-6.50	Feb 26, 2024		Soil	L24-Ma0013861									X								
129	WM03-6.75	Feb 26, 2024		Soil	L24-Ma0013862									X								
130	WM03-7.0	Feb 26, 2024		Soil	L24-Ma0013863									X								
131	WM03-7.25	Feb 26, 2024		Soil	L24-Ma0013864									X								
132	WM03-7.50	Feb 26, 2024		Soil	L24-Ma0013865									X								
133	WM03-7.75	Feb 26, 2024		Soil	L24-Ma0013866									X								
134	WM03-8.0	Feb 26, 2024		Soil	L24-Ma0013867									X								



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Eurofins Analytical Services Manager : Eiden Garrett

Sample Detail					Ammonia-N	CANCELLED	Chromium (VI)	Chromium (VI)	Filterable Reactive Phosphorus	HOLD	Nitrate-N	Nitrite-N	Phosphorus	Acid Sulfate Soils Field pH Test	Moisture Set	BTEXN and Volatile TRH	Eurofins Suite B6A	Asbestos in Soils (ASC NEPM 2013)	OCOP in Soil	OCOP in Water	Total Nitrogen	Eurofins Suite B19E
Perth Laboratory - NATA # 2377 Site # 2370					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
External Laboratory																						
135	WM03-8.25	Feb 26, 2024		Soil	L24-Ma0013868									X								
136	WM03-8.50	Feb 26, 2024		Soil	L24-Ma0013869									X								
137	WM03-8.75	Feb 26, 2024		Soil	L24-Ma0013870									X								
138	WM03-9.0	Feb 26, 2024		Soil	L24-Ma0013871									X								
139	WM03-9.25	Feb 26, 2024		Soil	L24-Ma0013872									X								
140	WM03-9.50	Feb 26, 2024		Soil	L24-Ma0013873									X								
141	WM03-9.75	Feb 26, 2024		Soil	L24-Ma0013874									X								
142	WM03-10.0	Feb 26, 2024		Soil	L24-Ma0013875									X								
143	WM01-QC1	Feb 26, 2024		Water	L24-Ma0013876		X									X			X		X	
144	WM02-QC1	Feb 28, 2024		Water	L24-Ma0013877		X									X			X		X	
145	WM03-QC1	Feb 29, 2024		Water	L24-Ma0013878		X									X			X		X	
146	WM02-QC2	Feb 29, 2024		Soil	L24-Ma0013879		X															
147	WM03-QC3	Feb 29, 2024		Soil	L24-Ma0013880		X															
148	Sample 1	Feb 29, 2024		Water	L24-Ma0013881					X												
149	Trip Blank	Feb 29, 2024		Soil	L24-Ma0013882										X							
					9	2	3	9	9	1	9	9	9	121	9	1	12	12	9	3	9	3



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Perth Laboratory - NATA # 2377 Site # 2370	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
External Laboratory																		
Test Counts	9	2	3	9	9	1	9	9	9	121	9	1	12	12	9	3	9	3

Internal Quality Control Review and Glossary

General

- Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follow guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013. They are included in this QC report where applicable. Additional QC data may be available on request.
- Unless otherwise stated, all soil/sediment/solid results are reported on a dry weight basis.
- Unless otherwise stated, all biota/food results are reported on a wet weight basis on the edible portion.
- For CEC results where the sample's origin is unknown or environmentally contaminated, the results should be used advisedly.
- Actual LORs are matrix dependent. Quoted LORs may be raised where sample extracts are diluted due to interferences.
- Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
- SVOC analysis on waters is performed on homogenised, unfiltered samples unless noted otherwise.
- Samples were analysed on an 'as received' basis.
- Information identified in this report with **blue** colour indicates data provided by customers that may have an impact on the results.
- This report replaces any interim results previously issued.

Holding Times

Please refer to the 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours before sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and despite any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling; therefore, compliance with these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether, the holding time is seven days; however, for all other VOCs, such as BTEX or C6-10 TRH, the holding time is 14 days.

Units

mg/kg: milligrams per kilogram	mg/L: milligrams per litre	ppm: parts per million
µg/L: micrograms per litre	ppb: parts per billion	%: Percentage
org/100 mL: Organisms per 100 millilitres	NTU: Nephelometric Turbidity Units	MPN/100 mL: Most Probable Number of organisms per 100 millilitres
CFU: Colony forming unit	Colour: Pt-Co Units	

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples, these are performed on laboratory-certified clean sands and in the case of water samples, these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria.
TBTO	Tributyltin oxide (<i>bis</i> -tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 6.0
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should only be used as a guide and may be different when site-specific Sampling Analysis and Quality Plan (SAQP) have been implemented.

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is ≤30%; however, the following acceptance guidelines are equally applicable:

Results <10 times the LOR:	No Limit
Results between 10-20 times the LOR:	RPD must lie between 0-50%
Results >20 times the LOR:	RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range, not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%, VOC recoveries 70 – 130%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

QC Data General Comments

- Where a result is reported as less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
- Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown are not data from your samples.
- pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
- Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery, the term "INT" appears against that analyte.
- For Matrix Spikes and LCS results, a dash "-" in the report means that the specific analyte was not added to the QC sample.
- Duplicate RPDs are calculated from raw analytical data; thus, it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Method Blank						
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	mg/kg	< 20		20	Pass	
TRH C10-C14	mg/kg	< 20		20	Pass	
TRH C15-C28	mg/kg	< 50		50	Pass	
TRH C29-C36	mg/kg	< 50		50	Pass	
Method Blank						
BTEX						
Benzene	mg/kg	< 0.1		0.1	Pass	
Toluene	mg/kg	< 0.1		0.1	Pass	
Ethylbenzene	mg/kg	< 0.1		0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2		0.2	Pass	
o-Xylene	mg/kg	< 0.1		0.1	Pass	
Xylenes - Total*	mg/kg	< 0.3		0.3	Pass	
Method Blank						
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene	mg/kg	< 0.5		0.5	Pass	
TRH C6-C10	mg/kg	< 20		20	Pass	
Method Blank						
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	mg/kg	< 50		50	Pass	
TRH >C16-C34	mg/kg	< 100		100	Pass	
TRH >C34-C40	mg/kg	< 100		100	Pass	
Method Blank						
OCOP in Soil						
Aldrin	mg/kg	< 0.01		0.01	Pass	
alpha-BHC (HCH)	mg/kg	< 0.01		0.01	Pass	
beta-BHC (HCH)	mg/kg	< 0.01		0.01	Pass	
delta-BHC (HCH)	mg/kg	< 0.01		0.01	Pass	
Bifenthrin	mg/kg	< 0.2		0.2	Pass	
Bromophos Ethyl	mg/kg	< 0.05		0.05	Pass	
Chlordane	mg/kg	< 0.01		0.01	Pass	
Chlorpyrifos	mg/kg	< 0.02		0.02	Pass	
Dieldrin	mg/kg	< 0.01		0.01	Pass	
p,p-DDD	mg/kg	< 0.01		0.01	Pass	
p,p-DDE	mg/kg	< 0.01		0.01	Pass	
p,p-DDT	mg/kg	< 0.01		0.01	Pass	
o,p-DDT	mg/kg	< 0.01		0.01	Pass	
Endosulfan I	mg/kg	< 0.01		0.01	Pass	
Endosulfan II	mg/kg	< 0.01		0.01	Pass	
Endosulfan Sulfate	mg/kg	< 0.01		0.01	Pass	
Endrin	mg/kg	< 0.01		0.01	Pass	
Heptachlor	mg/kg	< 0.01		0.01	Pass	
Heptachlor Epoxide	mg/kg	< 0.01		0.01	Pass	
Hexachlorobenzene (HCB)	mg/kg	< 0.01		0.01	Pass	
Lindane	mg/kg	< 0.01		0.01	Pass	
Methoxychlor	mg/kg	< 0.2		0.2	Pass	
Oxychlordane	mg/kg	< 0.01		0.01	Pass	
Diazinon	mg/kg	< 0.2		0.2	Pass	
Ethion	mg/kg	< 0.05		0.05	Pass	
Fenitrothion	mg/kg	< 0.1		0.1	Pass	
Malathion	mg/kg	< 0.1		0.1	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Trifluralin	mg/kg	< 0.2			0.2	Pass	
Method Blank							
Ammonia-N	mg/kg	< 10			10	Pass	
Chromium (VI)	mg/kg	< 1			1	Pass	
Filterable Reactive Phosphorus	mg/kg	< 1			1	Pass	
Nitrate-N	mg/kg	< 1			1	Pass	
Nitrite-N	mg/kg	< 1			1	Pass	
NOx-N	mg/kg	< 1			1	Pass	
Total Kjeldahl Nitrogen	mg/kg	< 10			10	Pass	
Phosphorus	mg/kg	< 1			1	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Beryllium	mg/kg	< 2			2	Pass	
Boron	mg/kg	< 10			10	Pass	
Cadmium	mg/kg	< 0.1			0.1	Pass	
Cobalt	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 1			1	Pass	
Lead	mg/kg	< 1			1	Pass	
Manganese	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.02			0.02	Pass	
Nickel	mg/kg	< 1			1	Pass	
Selenium	mg/kg	< 2			2	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	105			70-130	Pass	
TRH C10-C14	%	97			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	100			70-130	Pass	
Toluene	%	108			70-130	Pass	
Ethylbenzene	%	104			70-130	Pass	
m&p-Xylenes	%	106			70-130	Pass	
o-Xylene	%	101			70-130	Pass	
Xylenes - Total*	%	104			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	105			70-130	Pass	
TRH C6-C10	%	107			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	%	110			70-130	Pass	
LCS - % Recovery							
OCOP in Soil							
Aldrin	%	85			60-120	Pass	
Dieldrin	%	107			60-120	Pass	
p,p-DDT	%	117			60-120	Pass	
Endrin	%	86			60-120	Pass	
Heptachlor	%	83			60-120	Pass	
Lindane	%	99			60-120	Pass	
LCS - % Recovery							
Phosphorus	%	105			80-120	Pass	
LCS - % Recovery							

Test		Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Heavy Metals								
Arsenic		%	114			80-120	Pass	
Beryllium		%	88			80-120	Pass	
Boron		%	87			80-120	Pass	
Cadmium		%	92			80-120	Pass	
Cobalt		%	90			80-120	Pass	
Copper		%	94			80-120	Pass	
Lead		%	89			80-120	Pass	
Manganese		%	88			80-120	Pass	
Mercury		%	94			80-120	Pass	
Nickel		%	89			80-120	Pass	
Selenium		%	96			80-120	Pass	
Zinc		%	88			80-120	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1				
TRH C6-C9	L24-Ma0017035	NCP	%	107		70-130	Pass	
TRH C10-C14	L24-Ma0012765	NCP	%	114		70-130	Pass	
Spike - % Recovery								
BTEX				Result 1				
Benzene	L24-Ma0017035	NCP	%	102		70-130	Pass	
Toluene	L24-Ma0017035	NCP	%	99		70-130	Pass	
Ethylbenzene	L24-Ma0017035	NCP	%	107		70-130	Pass	
m&p-Xylenes	L24-Ma0017035	NCP	%	103		70-130	Pass	
o-Xylene	L24-Ma0017035	NCP	%	109		70-130	Pass	
Xylenes - Total*	L24-Ma0017035	NCP	%	105		70-130	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1				
Naphthalene	L24-Ma0017035	NCP	%	104		70-130	Pass	
TRH C6-C10	L24-Ma0017035	NCP	%	102		70-130	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1				
TRH >C10-C16	L24-Ma0012765	NCP	%	108		70-130	Pass	
Spike - % Recovery								
Heavy Metals				Result 1				
Beryllium	L24-Ma0013735	CP	%	85		75-125	Pass	
Boron	L24-Ma0013735	CP	%	79		75-125	Pass	
Cadmium	L24-Ma0013735	CP	%	89		75-125	Pass	
Cobalt	L24-Ma0013735	CP	%	90		75-125	Pass	
Copper	L24-Ma0013735	CP	%	89		75-125	Pass	
Lead	L24-Ma0013735	CP	%	90		75-125	Pass	
Manganese	L24-Ma0013735	CP	%	89		75-125	Pass	
Mercury	L24-Ma0013735	CP	%	91		75-125	Pass	
Nickel	L24-Ma0013735	CP	%	88		75-125	Pass	
Zinc	L24-Ma0013735	CP	%	89		75-125	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Duplicate								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD		
TRH C6-C9	L24-Ma0017034	NCP	mg/kg	< 20	< 20	<1	30%	Pass

Duplicate								
BTEX				Result 1	Result 2	RPD		
Benzene	L24-Ma0017034	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Toluene	L24-Ma0017034	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Ethylbenzene	L24-Ma0017034	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
m&p-Xylenes	L24-Ma0017034	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
o-Xylene	L24-Ma0017034	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Xylenes - Total*	L24-Ma0017034	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	L24-Ma0017034	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
TRH C6-C10	L24-Ma0017034	NCP	mg/kg	< 20	< 20	<1	30%	Pass
Duplicate								
OCOP in Soil				Result 1	Result 2	RPD		
Aldrin	L24-Ma0013729	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
alpha-BHC (HCH)	L24-Ma0013729	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
beta-BHC (HCH)	L24-Ma0013729	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
delta-BHC (HCH)	L24-Ma0013729	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Bifenthrin	L24-Ma0013729	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Bromophos Ethyl	L24-Ma0013729	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Chlordane	L24-Ma0013729	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Chlorpyrifos	L24-Ma0013729	CP	mg/kg	< 0.02	< 0.02	<1	30%	Pass
Dieldrin	L24-Ma0013729	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
p,p-DDD	L24-Ma0013729	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
p,p-DDE	L24-Ma0013729	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
p,p-DDT	L24-Ma0013729	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
o,p-DDT	L24-Ma0013729	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Endosulfan I	L24-Ma0013729	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Endosulfan II	L24-Ma0013729	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Endosulfan Sulfate	L24-Ma0013729	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Endrin	L24-Ma0013729	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Heptachlor	L24-Ma0013729	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Heptachlor Epoxide	L24-Ma0013729	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Hexachlorobenzene (HCB)	L24-Ma0013729	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Lindane	L24-Ma0013729	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Methoxychlor	L24-Ma0013729	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Oxychlordane	L24-Ma0013729	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Diazinon	L24-Ma0013729	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ethion	L24-Ma0013729	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Fenitrothion	L24-Ma0013729	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Malathion	L24-Ma0013729	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Trifluralin	L24-Ma0013729	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Duplicate								
Total Kjeldahl Nitrogen				Result 1	Result 2	RPD		
Total Kjeldahl Nitrogen	L24-Ma0013729	CP	mg/kg	370	430	14	20%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Selenium	L24-Ma0015257	NCP	mg/kg	< 2	< 2	<1	30%	Pass
Duplicate								
Sample Properties				Result 1	Result 2	RPD		
% Moisture	L24-Ma0013733	CP	%	< 1	< 1	<1	30%	Pass
Duplicate								
Phosphorus				Result 1	Result 2	RPD		
Phosphorus	L24-Ma0013734	CP	mg/kg	45	43	4.6	30%	Pass

Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	L24-Ma0013734	CP	mg/kg	< 2	< 2	<1	30%	Pass
Beryllium	L24-Ma0013734	CP	mg/kg	< 2	< 2	<1	30%	Pass
Boron	L24-Ma0013734	CP	mg/kg	< 10	< 10	<1	30%	Pass
Cadmium	L24-Ma0013734	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Cobalt	L24-Ma0013734	CP	mg/kg	< 5	< 5	<1	30%	Pass
Copper	L24-Ma0013734	CP	mg/kg	< 1	< 1	<1	30%	Pass
Lead	L24-Ma0013734	CP	mg/kg	< 1	< 1	<1	30%	Pass
Manganese	L24-Ma0013734	CP	mg/kg	< 5	< 5	<1	30%	Pass
Nickel	L24-Ma0013734	CP	mg/kg	< 1	< 1	<1	30%	Pass
Zinc	L24-Ma0013734	CP	mg/kg	< 5	< 5	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD		
TRH C10-C14	L24-Ma0013737	CP	mg/kg	< 20	< 20	<1	30%	Pass
TRH C15-C28	L24-Ma0013737	CP	mg/kg	180	220	19	30%	Pass
TRH C29-C36	L24-Ma0013737	CP	mg/kg	190	200	7.9	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
TRH >C10-C16	L24-Ma0013737	CP	mg/kg	< 50	< 50	<1	30%	Pass
TRH >C16-C34	L24-Ma0013737	CP	mg/kg	310	350	12	30%	Pass
TRH >C34-C40	L24-Ma0013737	CP	mg/kg	100	120	16	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
Ammonia-N	L24-Ma0013738	CP	mg/kg	43	44	<1	20%	Pass
Filterable Reactive Phosphorus	L24-Ma0013738	CP	mg/kg	< 1	< 1	<1	20%	Pass
Nitrate-N	L24-Ma0013738	CP	mg/kg	3.1	3.4	8.2	20%	Pass
Nitrite-N	L24-Ma0013738	CP	mg/kg	3.1	3.4	8.2	20%	Pass
Duplicate								
Acid Sulfate Soils Field pH Test				Result 1	Result 2	RPD		
pH-F (Field pH test)*	L24-Ma0013753	CP	pH Units	5.2	5.1	pass	20%	Pass
Reaction Ratings*	L24-Ma0013753	CP	comment	2.0	2.0	pass	30%	Pass
Duplicate								
Acid Sulfate Soils Field pH Test				Result 1	Result 2	RPD		
pH-F (Field pH test)*	L24-Ma0013763	CP	pH Units	5.9	5.8	pass	20%	Pass
Reaction Ratings*	L24-Ma0013763	CP	comment	2.0	2.0	pass	30%	Pass
Duplicate								
Acid Sulfate Soils Field pH Test				Result 1	Result 2	RPD		
pH-F (Field pH test)*	L24-Ma0013773	CP	pH Units	6.3	6.3	pass	20%	Pass
Reaction Ratings*	L24-Ma0013773	CP	comment	2.0	2.0	pass	30%	Pass
Duplicate								
Acid Sulfate Soils Field pH Test				Result 1	Result 2	RPD		
pH-F (Field pH test)*	L24-Ma0013783	CP	pH Units	6.3	6.2	pass	20%	Pass
Reaction Ratings*	L24-Ma0013783	CP	comment	4.0	4.0	pass	30%	Pass
Duplicate								
Acid Sulfate Soils Field pH Test				Result 1	Result 2	RPD		
pH-F (Field pH test)*	L24-Ma0013793	CP	pH Units	5.4	5.4	pass	20%	Pass
Reaction Ratings*	L24-Ma0013793	CP	comment	4.0	4.0	pass	30%	Pass
Duplicate								
Acid Sulfate Soils Field pH Test				Result 1	Result 2	RPD		
pH-F (Field pH test)*	L24-Ma0013803	CP	pH Units	7.2	7.0	pass	20%	Pass
Reaction Ratings*	L24-Ma0013803	CP	comment	2.0	2.0	pass	30%	Pass
Duplicate								
Acid Sulfate Soils Field pH Test				Result 1	Result 2	RPD		
pH-F (Field pH test)*	L24-Ma0013813	CP	pH Units	5.8	5.8	pass	20%	Pass
Reaction Ratings*	L24-Ma0013813	CP	comment	4.0	4.0	pass	30%	Pass

Duplicate									
Acid Sulfate Soils Field pH Test				Result 1	Result 2	RPD			
pH-F (Field pH test)*	L24-Ma0013823	CP	pH Units	4.5	4.4	pass	20%	Pass	
Reaction Ratings*	L24-Ma0013823	CP	comment	4.0	4.0	pass	30%	Pass	
Duplicate									
Acid Sulfate Soils Field pH Test				Result 1	Result 2	RPD			
pH-F (Field pH test)*	L24-Ma0013833	CP	pH Units	5.2	5.0	pass	20%	Pass	
Reaction Ratings*	L24-Ma0013833	CP	comment	4.0	4.0	pass	30%	Pass	
Duplicate									
Acid Sulfate Soils Field pH Test				Result 1	Result 2	RPD			
pH-F (Field pH test)*	L24-Ma0013843	CP	pH Units	5.2	5.2	pass	20%	Pass	
Reaction Ratings*	L24-Ma0013843	CP	comment	2.0	2.0	pass	30%	Pass	
Duplicate									
Acid Sulfate Soils Field pH Test				Result 1	Result 2	RPD			
pH-F (Field pH test)*	L24-Ma0013855	CP	pH Units	7.2	7.1	pass	20%	Pass	
Reaction Ratings*	L24-Ma0013855	CP	comment	4.0	4.0	pass	30%	Pass	
Duplicate									
Acid Sulfate Soils Field pH Test				Result 1	Result 2	RPD			
pH-F (Field pH test)*	L24-Ma0013865	CP	pH Units	5.6	5.6	pass	20%	Pass	
Reaction Ratings*	L24-Ma0013865	CP	comment	4.0	4.0	pass	30%	Pass	
Duplicate									
Acid Sulfate Soils Field pH Test				Result 1	Result 2	RPD			
pH-F (Field pH test)*	L24-Ma0013875	CP	pH Units	5.6	5.9	pass	20%	Pass	
Reaction Ratings*	L24-Ma0013875	CP	comment	4.0	4.0	pass	30%	Pass	

Stantec Australia Pty Limited
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 Perth
 WA 6000



NATA Accredited
 Accreditation Number 2377
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 NATA is a signatory to the ILAC Mutual Recognition
 Arrangement for the mutual recognition of the
 equivalence of testing, medical testing, calibration,
 inspection, proficiency testing scheme providers and
 reference materials producers reports and certificates.

Attention: **Brenton Petracca**

Report **1080155-S**
 Project name **BEENUP WIND FARM**
 Received Date **Mar 19, 2024**

Client Sample ID			TP01 - 0.0	TP01 - 0.25	TP01 - 0.75	TP01 - 1.0
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049669	L24- Ma0049670	L24- Ma0049672	L24- Ma0049673
Date Sampled			Mar 14, 2024	Mar 14, 2024	Mar 14, 2024	Mar 14, 2024
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	-	-	< 20
TRH C10-C14	20	mg/kg	67	-	-	< 20
TRH C15-C28	50	mg/kg	870	-	-	< 50
TRH C29-C36	50	mg/kg	1000	-	-	< 50
TRH C10-C36 (Total)	50	mg/kg	1937	-	-	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	-	-	< 0.1
Toluene	0.1	mg/kg	< 0.1	-	-	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	-	-	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	-	-	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	-	-	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	-	-	< 0.3
BTEX						
4-Bromofluorobenzene (surr.)	1	%	103	-	-	112
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	-	-	< 0.5
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	150	-	-	< 50
TRH C6-C10	20	mg/kg	< 20	-	-	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	-	-	< 20
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	150	-	-	< 50
TRH >C16-C34	100	mg/kg	1600	-	-	< 100
TRH >C34-C40	100	mg/kg	380	-	-	< 100
TRH >C10-C40 (total)*	100	mg/kg	2130	-	-	< 100
OCOP in Soil						
Aldrin	0.01	mg/kg	< 0.01	-	-	< 0.01
alpha-BHC (HCH)	0.01	mg/kg	< 0.01	-	-	< 0.01
beta-BHC (HCH)	0.01	mg/kg	< 0.01	-	-	< 0.01
delta-BHC (HCH)	0.01	mg/kg	< 0.01	-	-	< 0.01
Bifenthrin	0.2	mg/kg	< 0.2	-	-	< 0.2
Bromophos Ethyl	0.05	mg/kg	< 0.05	-	-	< 0.05
Chlordane	0.01	mg/kg	< 0.01	-	-	< 0.01
Chlorpyrifos	0.02	mg/kg	< 0.02	-	-	< 0.02
Dieldrin	0.01	mg/kg	< 0.01	-	-	< 0.01
p,p-DDD	0.01	mg/kg	< 0.01	-	-	< 0.01

Client Sample ID			TP01 - 0.0	TP01 - 0.25	TP01 - 0.75	TP01 - 1.0
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049669	L24- Ma0049670	L24- Ma0049672	L24- Ma0049673
Date Sampled			Mar 14, 2024	Mar 14, 2024	Mar 14, 2024	Mar 14, 2024
Test/Reference	LOR	Unit				
OCOP in Soil						
p,p-DDE	0.01	mg/kg	< 0.01	-	-	< 0.01
p,p-DDT	0.01	mg/kg	< 0.01	-	-	< 0.01
o,p-DDT	0.01	mg/kg	< 0.01	-	-	< 0.01
Endosulfan I	0.01	mg/kg	< 0.01	-	-	< 0.01
Endosulfan II	0.01	mg/kg	< 0.01	-	-	< 0.01
Endosulfan Sulfate	0.01	mg/kg	< 0.01	-	-	< 0.01
Endrin	0.01	mg/kg	< 0.01	-	-	< 0.01
Heptachlor	0.01	mg/kg	< 0.01	-	-	< 0.01
Heptachlor Epoxide	0.01	mg/kg	< 0.01	-	-	< 0.01
Hexachlorobenzene (HCB)	0.01	mg/kg	< 0.01	-	-	< 0.01
Lindane	0.01	mg/kg	< 0.01	-	-	< 0.01
Methoxychlor	0.2	mg/kg	< 0.2	-	-	< 0.2
Oxychlorane	0.01	mg/kg	< 0.01	-	-	< 0.01
Diazinon	0.2	mg/kg	< 0.2	-	-	< 0.2
Ethion	0.05	mg/kg	< 0.05	-	-	< 0.05
Fenitrothion	0.1	mg/kg	< 0.1	-	-	< 0.1
Malathion	0.1	mg/kg	< 0.1	-	-	< 0.1
Trifluralin	0.2	mg/kg	< 0.2	-	-	< 0.2
Ammonia-N						
Ammonia-N	10	mg/kg	50	-	-	35
Chromium (VI)						
Chromium (VI)	1	mg/kg	< 1	-	-	< 1
Filterable Reactive Phosphorus						
Filterable Reactive Phosphorus	1	mg/kg	3.6	-	-	< 1
Nitrate-N						
Nitrate-N	1	mg/kg	< 1	-	-	< 1
Nitrite-N						
Nitrite-N	1	mg/kg	< 1	-	-	< 1
NOx-N						
NOx-N	1	mg/kg	< 1	-	-	< 1
Total Kjeldahl Nitrogen						
Total Kjeldahl Nitrogen	10	mg/kg	3200	-	-	200
Total Nitrogen						
Total Nitrogen	10	mg/kg	3200	-	-	200
Phosphorus						
Phosphorus	1	mg/kg	34	-	-	1.7
Heavy Metals						
Arsenic	2	mg/kg	< 2	-	-	< 2
Beryllium	2	mg/kg	< 2	-	-	< 2
Boron	10	mg/kg	< 10	-	-	< 10
Cadmium	0.1	mg/kg	< 0.1	-	-	< 0.1
Cobalt	5	mg/kg	< 5	-	-	< 5
Copper	1	mg/kg	2.4	-	-	< 1
Lead	1	mg/kg	1.3	-	-	< 1
Manganese	5	mg/kg	< 5	-	-	< 5
Mercury	0.02	mg/kg	< 0.02	-	-	< 0.02
Nickel	1	mg/kg	< 1	-	-	< 1
Selenium	2	mg/kg	< 2	-	-	< 2
Zinc	5	mg/kg	< 5	-	-	< 5
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	4.6	4.6	4.8	4.8
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	3.1	3.2	3.7	3.8
Reaction Ratings**S05	0	comment	2.0	2.0	2.0	2.0
Sample Properties						
% Moisture	1	%	2.2	-	-	1.4

Client Sample ID			TP01 - 1.25	TP01 - 1.50	TP01 - 1.75	TP01 - 2.0
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24-Ma0049674	L24-Ma0049675	L24-Ma0049676	L24-Ma0049677
Date Sampled			Mar 14, 2024	Mar 14, 2024	Mar 14, 2024	Mar 14, 2024
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	4.6	4.5	4.7	4.7
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	3.8	3.8	3.6	3.5
Reaction Ratings* ^{S05}	0	comment	2.0	2.0	2.0	2.0

Client Sample ID			TP02 - 0.0	TP02 - 0.25	TP02 - 0.50	TP02 - 0.75
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24-Ma0049678	L24-Ma0049679	L24-Ma0049680	L24-Ma0049681
Date Sampled			Mar 14, 2024	Mar 14, 2024	Mar 14, 2024	Mar 14, 2024
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	-	-	-
TRH C10-C14	20	mg/kg	< 20	-	-	-
TRH C15-C28	50	mg/kg	< 50	-	-	-
TRH C29-C36	50	mg/kg	76	-	-	-
TRH C10-C36 (Total)	50	mg/kg	76	-	-	-
BTEX						
Benzene	0.1	mg/kg	< 0.1	-	-	-
Toluene	0.1	mg/kg	< 0.1	-	-	-
Ethylbenzene	0.1	mg/kg	< 0.1	-	-	-
m&p-Xylenes	0.2	mg/kg	< 0.2	-	-	-
o-Xylene	0.1	mg/kg	< 0.1	-	-	-
Xylenes - Total*	0.3	mg/kg	< 0.3	-	-	-
BTEX						
4-Bromofluorobenzene (surr.)	1	%	98	-	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	-	-	-
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	-	-	-
TRH C6-C10	20	mg/kg	< 20	-	-	-
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	-	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	-	-	-
TRH >C16-C34	100	mg/kg	< 100	-	-	-
TRH >C34-C40	100	mg/kg	< 100	-	-	-
TRH >C10-C40 (total)*	100	mg/kg	< 100	-	-	-
OCOP in Soil						
Aldrin	0.01	mg/kg	< 0.01	-	-	-
alpha-BHC (HCH)	0.01	mg/kg	< 0.01	-	-	-
beta-BHC (HCH)	0.01	mg/kg	< 0.01	-	-	-
delta-BHC (HCH)	0.01	mg/kg	< 0.01	-	-	-
Bifenthrin	0.2	mg/kg	< 0.2	-	-	-
Bromophos Ethyl	0.05	mg/kg	< 0.05	-	-	-
Chlordane	0.01	mg/kg	< 0.01	-	-	-
Chlorpyrifos	0.02	mg/kg	< 0.02	-	-	-
Dieldrin	0.01	mg/kg	< 0.01	-	-	-
p,p-DDD	0.01	mg/kg	< 0.01	-	-	-
p,p-DDE	0.01	mg/kg	< 0.01	-	-	-

Client Sample ID			TP02 - 0.0	TP02 - 0.25	TP02 - 0.50	TP02 - 0.75
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049678	L24- Ma0049679	L24- Ma0049680	L24- Ma0049681
Date Sampled			Mar 14, 2024	Mar 14, 2024	Mar 14, 2024	Mar 14, 2024
Test/Reference	LOR	Unit				
OCOP in Soil						
p.p-DDT	0.01	mg/kg	< 0.01	-	-	-
o.p-DDT	0.01	mg/kg	< 0.01	-	-	-
Endosulfan I	0.01	mg/kg	< 0.01	-	-	-
Endosulfan II	0.01	mg/kg	< 0.01	-	-	-
Endosulfan Sulfate	0.01	mg/kg	< 0.01	-	-	-
Endrin	0.01	mg/kg	< 0.01	-	-	-
Heptachlor	0.01	mg/kg	< 0.01	-	-	-
Heptachlor Epoxide	0.01	mg/kg	< 0.01	-	-	-
Hexachlorobenzene (HCB)	0.01	mg/kg	< 0.01	-	-	-
Lindane	0.01	mg/kg	< 0.01	-	-	-
Methoxychlor	0.2	mg/kg	< 0.2	-	-	-
Oxychlorodane	0.01	mg/kg	< 0.01	-	-	-
Diazinon	0.2	mg/kg	< 0.2	-	-	-
Ethion	0.05	mg/kg	< 0.05	-	-	-
Fenitrothion	0.1	mg/kg	< 0.1	-	-	-
Malathion	0.1	mg/kg	< 0.1	-	-	-
Trifluralin	0.2	mg/kg	< 0.2	-	-	-
Ammonia-N						
Ammonia-N	10	mg/kg	41	-	-	-
Chromium (VI)						
Chromium (VI)	1	mg/kg	< 1	-	-	-
Filterable Reactive Phosphorus						
Filterable Reactive Phosphorus	1	mg/kg	6.5	-	-	-
Nitrate-N						
Nitrate-N	1	mg/kg	4.8	-	-	-
Nitrite-N						
Nitrite-N	1	mg/kg	< 1	-	-	-
NOx-N						
NOx-N	1	mg/kg	5.0	-	-	-
Total Kjeldahl Nitrogen						
Total Kjeldahl Nitrogen	10	mg/kg	1700	-	-	-
Total Nitrogen						
Total Nitrogen	10	mg/kg	1700	-	-	-
Phosphorus						
Phosphorus	1	mg/kg	32	-	-	-
Heavy Metals						
Arsenic	2	mg/kg	< 2	-	-	-
Beryllium	2	mg/kg	< 2	-	-	-
Boron	10	mg/kg	< 10	-	-	-
Cadmium	0.1	mg/kg	< 0.1	-	-	-
Cobalt	5	mg/kg	< 5	-	-	-
Copper	1	mg/kg	< 1	-	-	-
Lead	1	mg/kg	1.2	-	-	-
Manganese	5	mg/kg	< 5	-	-	-
Mercury	0.02	mg/kg	< 0.02	-	-	-
Nickel	1	mg/kg	< 1	-	-	-
Selenium	2	mg/kg	< 2	-	-	-
Zinc	5	mg/kg	< 5	-	-	-
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	4.8	4.8	4.8	4.8
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	3.4	3.9	3.9	3.9
Reaction Ratings**S05	0	comment	2.0	2.0	2.0	2.0
Sample Properties						
% Moisture	1	%	1.7	-	-	-

Client Sample ID			TP02 - 0.0	TP02 - 0.25	TP02 - 0.50	TP02 - 0.75
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049678	L24- Ma0049679	L24- Ma0049680	L24- Ma0049681
Date Sampled			Mar 14, 2024	Mar 14, 2024	Mar 14, 2024	Mar 14, 2024
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluoropentanoic acid (PFPeA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorohexanoic acid (PFHxA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluoroheptanoic acid (PFHpA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorooctanoic acid (PFOA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorononanoic acid (PFNA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorodecanoic acid (PFDA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluoroundecanoic acid (PFUnDA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorododecanoic acid (PFDoDA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorotridecanoic acid (PFTTrDA) ^{N15}	5	ug/kg	< 5	-	-	-
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	5	ug/kg	< 5	-	-	-
13C4-PFBA (surr.)	1	%	62	-	-	-
13C5-PFPeA (surr.)	1	%	102	-	-	-
13C5-PFHxA (surr.)	1	%	113	-	-	-
13C4-PFHpA (surr.)	1	%	108	-	-	-
13C8-PFOA (surr.)	1	%	150	-	-	-
13C5-PFNA (surr.)	1	%	143	-	-	-
13C6-PFDA (surr.)	1	%	125	-	-	-
13C2-PFUnDA (surr.)	1	%	125	-	-	-
13C2-PFDoDA (surr.)	1	%	150	-	-	-
13C2-PFTeDA (surr.)	1	%	147	-	-	-
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	5	ug/kg	< 5	-	-	-
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	5	ug/kg	< 5	-	-	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	5	ug/kg	< 5	-	-	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	5	ug/kg	< 5	-	-	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	5	ug/kg	< 5	-	-	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	10	ug/kg	< 10	-	-	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	10	ug/kg	< 10	-	-	-
13C8-FOSA (surr.)	1	%	108	-	-	-
D3-N-MeFOSA (surr.)	1	%	136	-	-	-
D5-N-EtFOSA (surr.)	1	%	158	-	-	-
D7-N-MeFOSE (surr.)	1	%	110	-	-	-
D9-N-EtFOSE (surr.)	1	%	119	-	-	-
D5-N-EtFOSAA (surr.)	1	%	137	-	-	-
D3-N-MeFOSAA (surr.)	1	%	127	-	-	-
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	5	ug/kg	< 5	-	-	-
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	10	ug/kg	< 10	-	-	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	5	ug/kg	< 5	-	-	-
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	5	ug/kg	< 5	-	-	-
13C2-4:2 FTSA (surr.)	1	%	112	-	-	-
13C2-6:2 FTSA (surr.)	1	%	140	-	-	-

Client Sample ID			TP02 - 0.0	TP02 - 0.25	TP02 - 0.50	TP02 - 0.75
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24-Ma0049678	L24-Ma0049679	L24-Ma0049680	L24-Ma0049681
Date Sampled			Mar 14, 2024	Mar 14, 2024	Mar 14, 2024	Mar 14, 2024
Test/Reference	LOR	Unit				
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)						
13C2-8:2 FTSA (surr.)	1	%	198	-	-	-
13C2-10:2 FTSA (surr.)	1	%	INT	-	-	-
Perfluoroalkyl sulfonic acids (PFASs)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorononanesulfonic acid (PFNS) ^{*N15}	5	ug	< 5	-	-	-
Perfluoropropanesulfonic acid (PFPrS) ^{*N15}	5	ug/kg	< 5	-	-	-
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	5	ug/kg	< 5	-	-	-
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	5	ug/kg	< 5	-	-	-
Perfluorooctanesulfonic acid (PFOS) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorodecanesulfonic acid (PFDS) ^{N15}	5	ug/kg	< 5	-	-	-
13C3-PFBS (surr.)	1	%	104	-	-	-
18O2-PFHxS (surr.)	1	%	128	-	-	-
13C8-PFOS (surr.)	1	%	136	-	-	-
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	< 5	-	-	-
Sum of PFASs (n=30)*	50	ug/kg	< 50	-	-	-
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5	-	-	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5	-	-	-
Sum of WA DWER PFAS (n=10)*	10	ug/kg	< 10	-	-	-

Client Sample ID			TP02 - 1.0	TP03 - 0.0	TP03 - 0.25	TP03 - 1.0
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24-Ma0049682	L24-Ma0049683	L24-Ma0049684	L24-Ma0049687
Date Sampled			Mar 14, 2024	Not Provided ¹²	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	-	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	-	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	-	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	-	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	-	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	-	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	-	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	-	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	-	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	-	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	-	< 0.3
BTEX						
4-Bromofluorobenzene (surr.)	1	%	66	114	-	103
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	-	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	-	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	-	< 20

Client Sample ID			TP02 - 1.0	TP03 - 0.0	TP03 - 0.25	TP03 - 1.0
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049682	L24- Ma0049683	L24- Ma0049684	L24- Ma0049687
Date Sampled			Mar 14, 2024	Not Provided ¹²	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	< 50	-	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	-	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	-	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	-	< 100
OCOP in Soil						
Aldrin	0.01	mg/kg	< 0.01	< 0.01	-	< 0.01
alpha-BHC (HCH)	0.01	mg/kg	< 0.01	< 0.01	-	< 0.01
beta-BHC (HCH)	0.01	mg/kg	< 0.01	< 0.01	-	< 0.01
delta-BHC (HCH)	0.01	mg/kg	< 0.01	< 0.01	-	< 0.01
Bifenthrin	0.2	mg/kg	< 0.2	< 0.2	-	< 0.2
Bromophos Ethyl	0.05	mg/kg	< 0.05	< 0.05	-	< 0.05
Chlordane	0.01	mg/kg	< 0.01	< 0.01	-	< 0.01
Chlorpyrifos	0.02	mg/kg	< 0.02	< 0.02	-	< 0.02
Dieldrin	0.01	mg/kg	< 0.01	< 0.01	-	< 0.01
p,p-DDD	0.01	mg/kg	< 0.01	< 0.01	-	< 0.01
p,p-DDE	0.01	mg/kg	< 0.01	< 0.01	-	< 0.01
p,p-DDT	0.01	mg/kg	< 0.01	< 0.01	-	< 0.01
o,p-DDT	0.01	mg/kg	< 0.01	< 0.01	-	< 0.01
Endosulfan I	0.01	mg/kg	< 0.01	< 0.01	-	< 0.01
Endosulfan II	0.01	mg/kg	< 0.01	< 0.01	-	< 0.01
Endosulfan Sulfate	0.01	mg/kg	< 0.01	< 0.01	-	< 0.01
Endrin	0.01	mg/kg	< 0.01	< 0.01	-	< 0.01
Heptachlor	0.01	mg/kg	< 0.01	< 0.01	-	< 0.01
Heptachlor Epoxide	0.01	mg/kg	< 0.01	< 0.01	-	< 0.01
Hexachlorobenzene (HCB)	0.01	mg/kg	< 0.01	< 0.01	-	< 0.01
Lindane	0.01	mg/kg	< 0.01	< 0.01	-	< 0.01
Methoxychlor	0.2	mg/kg	< 0.2	< 0.2	-	< 0.2
Oxychlordane	0.01	mg/kg	< 0.01	< 0.01	-	< 0.01
Diazinon	0.2	mg/kg	< 0.2	< 0.2	-	< 0.2
Ethion	0.05	mg/kg	< 0.05	< 0.05	-	< 0.05
Fenitrothion	0.1	mg/kg	< 0.1	< 0.1	-	< 0.1
Malathion	0.1	mg/kg	< 0.1	< 0.1	-	< 0.1
Trifluralin	0.2	mg/kg	< 0.2	< 0.2	-	< 0.2
Ammonia-N						
Ammonia-N	10	mg/kg	38	41	-	35
Chromium (VI)						
Chromium (VI)	1	mg/kg	< 1	< 1	-	< 1
Filterable Reactive Phosphorus						
Filterable Reactive Phosphorus	1	mg/kg	< 1	15	-	< 1
Nitrate-N						
Nitrate-N	1	mg/kg	2.9	2.3	-	< 1
Nitrite-N						
Nitrite-N	1	mg/kg	< 1	< 1	-	< 1
NOx-N						
NOx-N	1	mg/kg	3.0	2.4	-	< 1
Total Kjeldahl Nitrogen						
Total Kjeldahl Nitrogen	10	mg/kg	620	1100	-	180
Total Nitrogen						
Total Nitrogen	10	mg/kg	620	1100	-	180
Phosphorus						
Phosphorus	1	mg/kg	8.5	1300	-	5.1
Heavy Metals						
Arsenic	2	mg/kg	< 2	2.4	-	< 2
Beryllium	2	mg/kg	< 2	< 2	-	< 2
Boron	10	mg/kg	< 10	< 10	-	< 10
Cadmium	0.1	mg/kg	< 0.1	0.8	-	< 0.1
Cobalt	5	mg/kg	< 5	< 5	-	< 5

Client Sample ID			TP02 - 1.0	TP03 - 0.0	TP03 - 0.25	TP03 - 1.0
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049682	L24- Ma0049683	L24- Ma0049684	L24- Ma0049687
Date Sampled			Mar 14, 2024	Not Provided¹²	Not Provided¹²	Not Provided¹²
Test/Reference	LOR	Unit				
Heavy Metals						
Copper	1	mg/kg	< 1	12	-	< 1
Lead	1	mg/kg	1.7	4.2	-	< 1
Manganese	5	mg/kg	< 5	14	-	< 5
Mercury	0.02	mg/kg	< 0.02	0.03	-	< 0.02
Nickel	1	mg/kg	< 1	< 1	-	< 1
Selenium	2	mg/kg	< 2	< 2	-	< 2
Zinc	5	mg/kg	< 5	15	-	< 5
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	4.8	6.4	6.5	5.8
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	3.9	5.1	5.1	3.5
Reaction Ratings* ^{S05}	0	comment	2.0	2.0	2.0	2.0
Sample Properties						
% Moisture	1	%	9.2	1.1	-	1.1

Client Sample ID			TP04 - 0.0	TP04 - 0.50	TP04 - 1.0	TP04 - 1.25
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049688	L24- Ma0049689	L24- Ma0049690	L24- Ma0049691
Date Sampled			Not Provided¹²	Not Provided¹²	Not Provided¹²	Not Provided¹²
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	-	< 20	-
TRH C10-C14	20	mg/kg	< 20	-	< 20	-
TRH C15-C28	50	mg/kg	280	-	< 50	-
TRH C29-C36	50	mg/kg	380	-	< 50	-
TRH C10-C36 (Total)	50	mg/kg	660	-	< 50	-
BTEX						
Benzene	0.1	mg/kg	< 0.1	-	< 0.1	-
Toluene	0.1	mg/kg	< 0.1	-	< 0.1	-
Ethylbenzene	0.1	mg/kg	< 0.1	-	< 0.1	-
m&p-Xylenes	0.2	mg/kg	< 0.2	-	< 0.2	-
o-Xylene	0.1	mg/kg	< 0.1	-	< 0.1	-
Xylenes - Total*	0.3	mg/kg	< 0.3	-	< 0.3	-
BTEX						
4-Bromofluorobenzene (surr.)	1	%	105	-	122	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	-	< 0.5	-
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	-	< 50	-
TRH C6-C10	20	mg/kg	< 20	-	< 20	-
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	-	< 20	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	-	< 50	-
TRH >C16-C34	100	mg/kg	550	-	< 100	-
TRH >C34-C40	100	mg/kg	160	-	< 100	-
TRH >C10-C40 (total)*	100	mg/kg	710	-	< 100	-

Client Sample ID			TP04 - 0.0	TP04 - 0.50	TP04 - 1.0	TP04 - 1.25
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049688	L24- Ma0049689	L24- Ma0049690	L24- Ma0049691
Date Sampled			Not Provided ¹²	Not Provided ¹²	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit				
OCOP in Soil						
Aldrin	0.01	mg/kg	< 0.01	-	< 0.01	-
alpha-BHC (HCH)	0.01	mg/kg	< 0.01	-	< 0.01	-
beta-BHC (HCH)	0.01	mg/kg	< 0.01	-	< 0.01	-
delta-BHC (HCH)	0.01	mg/kg	< 0.01	-	< 0.01	-
Bifenthrin	0.2	mg/kg	< 0.2	-	< 0.2	-
Bromophos Ethyl	0.05	mg/kg	< 0.05	-	< 0.05	-
Chlordane	0.01	mg/kg	< 0.01	-	< 0.01	-
Chlorpyrifos	0.02	mg/kg	< 0.02	-	< 0.02	-
Dieldrin	0.01	mg/kg	< 0.01	-	< 0.01	-
p,p-DDD	0.01	mg/kg	< 0.01	-	< 0.01	-
p,p-DDE	0.01	mg/kg	< 0.01	-	< 0.01	-
p,p-DDT	0.01	mg/kg	< 0.01	-	< 0.01	-
o,p-DDT	0.01	mg/kg	< 0.01	-	< 0.01	-
Endosulfan I	0.01	mg/kg	< 0.01	-	< 0.01	-
Endosulfan II	0.01	mg/kg	< 0.01	-	< 0.01	-
Endosulfan Sulfate	0.01	mg/kg	< 0.01	-	< 0.01	-
Endrin	0.01	mg/kg	< 0.01	-	< 0.01	-
Heptachlor	0.01	mg/kg	< 0.01	-	< 0.01	-
Heptachlor Epoxide	0.01	mg/kg	< 0.01	-	< 0.01	-
Hexachlorobenzene (HCB)	0.01	mg/kg	< 0.01	-	< 0.01	-
Lindane	0.01	mg/kg	< 0.01	-	< 0.01	-
Methoxychlor	0.2	mg/kg	< 0.2	-	< 0.2	-
Oxychlordane	0.01	mg/kg	< 0.01	-	< 0.01	-
Diazinon	0.2	mg/kg	< 0.2	-	< 0.2	-
Ethion	0.05	mg/kg	< 0.05	-	< 0.05	-
Fenitrothion	0.1	mg/kg	< 0.1	-	< 0.1	-
Malathion	0.1	mg/kg	< 0.1	-	< 0.1	-
Trifluralin	0.2	mg/kg	< 0.2	-	< 0.2	-
Ammonia-N						
Ammonia-N	10	mg/kg	49	-	35	-
Chromium (VI)						
Chromium (VI)	1	mg/kg	< 1	-	< 1	-
Filterable Reactive Phosphorus						
Filterable Reactive Phosphorus	1	mg/kg	1.7	-	< 1	-
Nitrate-N						
Nitrate-N	1	mg/kg	3.3	-	< 1	-
Nitrite-N						
Nitrite-N	1	mg/kg	< 1	-	< 1	-
NOx-N						
NOx-N	1	mg/kg	3.9	-	< 1	-
Total Kjeldahl Nitrogen						
Total Kjeldahl Nitrogen	10	mg/kg	3000	-	80	-
Total Nitrogen						
Total Nitrogen	10	mg/kg	3000	-	80	-
Phosphorus						
Phosphorus	1	mg/kg	170	-	2.8	-
Heavy Metals						
Arsenic						
Arsenic	2	mg/kg	< 2	-	< 2	-
Beryllium						
Beryllium	2	mg/kg	< 2	-	< 2	-
Boron						
Boron	10	mg/kg	< 10	-	< 10	-
Cadmium						
Cadmium	0.1	mg/kg	0.1	-	< 0.1	-
Cobalt						
Cobalt	5	mg/kg	< 5	-	< 5	-
Copper						
Copper	1	mg/kg	7.8	-	< 1	-
Lead						
Lead	1	mg/kg	2.4	-	< 1	-
Manganese						
Manganese	5	mg/kg	27	-	< 5	-
Mercury						
Mercury	0.02	mg/kg	< 0.02	-	< 0.02	-
Nickel						
Nickel	1	mg/kg	< 1	-	< 1	-

Client Sample ID			TP04 - 0.0	TP04 - 0.50	TP04 - 1.0	TP04 - 1.25
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24-Ma0049688	L24-Ma0049689	L24-Ma0049690	L24-Ma0049691
Date Sampled			Not Provided ¹²	Not Provided ¹²	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit				
Heavy Metals						
Selenium	2	mg/kg	< 2	-	< 2	-
Zinc	5	mg/kg	32	-	< 5	-
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	5.4	6.1	6.1	6.1
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	3.2	3.9	4.2	4.6
Reaction Ratings* ^{S05}	0	comment	2.0	2.0	2.0	2.0
Sample Properties						
% Moisture	1	%	1.6	-	< 1	-
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluoropentanoic acid (PFPeA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorohexanoic acid (PFHxA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluoroheptanoic acid (PFHpA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorooctanoic acid (PFOA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorononanoic acid (PFNA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorodecanoic acid (PFDA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluoroundecanoic acid (PFUnDA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorododecanoic acid (PFDoDA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorotridecanoic acid (PFTTrDA) ^{N15}	5	ug/kg	< 5	-	-	-
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	5	ug/kg	< 5	-	-	-
13C4-PFBA (surr.)	1	%	51	-	-	-
13C5-PFPeA (surr.)	1	%	95	-	-	-
13C5-PFHxA (surr.)	1	%	101	-	-	-
13C4-PFHpA (surr.)	1	%	95	-	-	-
13C8-PFOA (surr.)	1	%	120	-	-	-
13C5-PFNA (surr.)	1	%	104	-	-	-
13C6-PFDA (surr.)	1	%	102	-	-	-
13C2-PFUnDA (surr.)	1	%	47	-	-	-
13C2-PFDoDA (surr.)	1	%	66	-	-	-
13C2-PFTeDA (surr.)	1	%	80	-	-	-
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	5	ug/kg	< 5	-	-	-
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	5	ug/kg	< 5	-	-	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	5	ug/kg	< 5	-	-	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	5	ug/kg	< 5	-	-	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	5	ug/kg	< 5	-	-	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	10	ug/kg	< 10	-	-	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	10	ug/kg	< 10	-	-	-
13C8-FOSA (surr.)	1	%	63	-	-	-
D3-N-MeFOSA (surr.)	1	%	93	-	-	-
D5-N-EtFOSA (surr.)	1	%	113	-	-	-
D7-N-MeFOSE (surr.)	1	%	97	-	-	-
D9-N-EtFOSE (surr.)	1	%	100	-	-	-
D5-N-EtFOSAA (surr.)	1	%	72	-	-	-
D3-N-MeFOSAA (surr.)	1	%	76	-	-	-

Client Sample ID			TP04 - 0.0	TP04 - 0.50	TP04 - 1.0	TP04 - 1.25
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049688	L24- Ma0049689	L24- Ma0049690	L24- Ma0049691
Date Sampled			Not Provided ¹²	Not Provided ¹²	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit				
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	5	ug/kg	< 5	-	-	-
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	10	ug/kg	< 10	-	-	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	5	ug/kg	< 5	-	-	-
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	5	ug/kg	< 5	-	-	-
13C2-4:2 FTSA (surr.)	1	%	105	-	-	-
13C2-6:2 FTSA (surr.)	1	%	86	-	-	-
13C2-8:2 FTSA (surr.)	1	%	122	-	-	-
13C2-10:2 FTSA (surr.)	1	%	67	-	-	-
Perfluoroalkyl sulfonic acids (PFASs)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorononanesulfonic acid (PFNS) ^{*N15}	5	ug	< 5	-	-	-
Perfluoropropanesulfonic acid (PFPrS) ^{*N15}	5	ug/kg	< 5	-	-	-
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	5	ug/kg	< 5	-	-	-
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	5	ug/kg	< 5	-	-	-
Perfluorooctanesulfonic acid (PFOS) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorodecanesulfonic acid (PFDS) ^{N15}	5	ug/kg	< 5	-	-	-
13C3-PFBS (surr.)	1	%	103	-	-	-
18O2-PFHxS (surr.)	1	%	110	-	-	-
13C8-PFOS (surr.)	1	%	111	-	-	-
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	< 5	-	-	-
Sum of PFASs (n=30)*	50	ug/kg	< 50	-	-	-
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5	-	-	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5	-	-	-
Sum of WA DWER PFAS (n=10)*	10	ug/kg	< 10	-	-	-

Client Sample ID			TP04 - 1.75	TP05 - 0.0	TP05 - 0.25	TP05 - 0.50
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049692	L24- Ma0049693	L24- Ma0049694	L24- Ma0049695
Date Sampled			Not Provided ¹²	Mar 13, 2024	Mar 13, 2024	Mar 13, 2024
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	< 20	-	-
TRH C10-C14	20	mg/kg	-	< 20	-	-
TRH C15-C28	50	mg/kg	-	< 50	-	-
TRH C29-C36	50	mg/kg	-	< 50	-	-
TRH C10-C36 (Total)	50	mg/kg	-	< 50	-	-
BTEX						
Benzene	0.1	mg/kg	-	< 0.1	-	-
Toluene	0.1	mg/kg	-	< 0.1	-	-
Ethylbenzene	0.1	mg/kg	-	< 0.1	-	-
m&p-Xylenes	0.2	mg/kg	-	< 0.2	-	-
o-Xylene	0.1	mg/kg	-	< 0.1	-	-
Xylenes - Total*	0.3	mg/kg	-	< 0.3	-	-

Client Sample ID			TP04 - 1.75	TP05 - 0.0	TP05 - 0.25	TP05 - 0.50
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049692	L24- Ma0049693	L24- Ma0049694	L24- Ma0049695
Date Sampled			Not Provided ¹²	Mar 13, 2024	Mar 13, 2024	Mar 13, 2024
Test/Reference	LOR	Unit				
BTEX						
4-Bromofluorobenzene (surr.)	1	%	-	111	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	-	< 0.5	-	-
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	-	< 50	-	-
TRH C6-C10	20	mg/kg	-	< 20	-	-
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	-	< 20	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	-	< 50	-	-
TRH >C16-C34	100	mg/kg	-	< 100	-	-
TRH >C34-C40	100	mg/kg	-	< 100	-	-
TRH >C10-C40 (total)*	100	mg/kg	-	< 100	-	-
OCOP in Soil						
Aldrin	0.01	mg/kg	-	< 0.01	-	-
alpha-BHC (HCH)	0.01	mg/kg	-	< 0.01	-	-
beta-BHC (HCH)	0.01	mg/kg	-	< 0.01	-	-
delta-BHC (HCH)	0.01	mg/kg	-	< 0.01	-	-
Bifenthrin	0.2	mg/kg	-	< 0.2	-	-
Bromophos Ethyl	0.05	mg/kg	-	< 0.05	-	-
Chlordane	0.01	mg/kg	-	< 0.01	-	-
Chlorpyrifos	0.02	mg/kg	-	< 0.02	-	-
Dieldrin	0.01	mg/kg	-	< 0.01	-	-
p,p-DDD	0.01	mg/kg	-	< 0.01	-	-
p,p-DDE	0.01	mg/kg	-	< 0.01	-	-
p,p-DDT	0.01	mg/kg	-	< 0.01	-	-
o,p-DDT	0.01	mg/kg	-	< 0.01	-	-
Endosulfan I	0.01	mg/kg	-	< 0.01	-	-
Endosulfan II	0.01	mg/kg	-	< 0.01	-	-
Endosulfan Sulfate	0.01	mg/kg	-	< 0.01	-	-
Endrin	0.01	mg/kg	-	< 0.01	-	-
Heptachlor	0.01	mg/kg	-	< 0.01	-	-
Heptachlor Epoxide	0.01	mg/kg	-	< 0.01	-	-
Hexachlorobenzene (HCB)	0.01	mg/kg	-	< 0.01	-	-
Lindane	0.01	mg/kg	-	< 0.01	-	-
Methoxychlor	0.2	mg/kg	-	< 0.2	-	-
Oxychlordane	0.01	mg/kg	-	< 0.01	-	-
Diazinon	0.2	mg/kg	-	< 0.2	-	-
Ethion	0.05	mg/kg	-	< 0.05	-	-
Fenitrothion	0.1	mg/kg	-	< 0.1	-	-
Malathion	0.1	mg/kg	-	< 0.1	-	-
Trifluralin	0.2	mg/kg	-	< 0.2	-	-
Ammonia-N						
Ammonia-N	10	mg/kg	-	36	-	-
Chromium (VI)						
Chromium (VI)	1	mg/kg	-	< 1	-	-
Filterable Reactive Phosphorus						
Filterable Reactive Phosphorus	1	mg/kg	-	< 1	-	-
Nitrate-N						
Nitrate-N	1	mg/kg	-	4.7	-	-
Nitrite-N						
Nitrite-N	1	mg/kg	-	< 1	-	-
NOx-N						
NOx-N	1	mg/kg	-	4.9	-	-
Total Kjeldahl Nitrogen						
Total Kjeldahl Nitrogen	10	mg/kg	-	540	-	-

Client Sample ID			TP04 - 1.75	TP05 - 0.0	TP05 - 0.25	TP05 - 0.50
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049692	L24- Ma0049693	L24- Ma0049694	L24- Ma0049695
Date Sampled			Not Provided ¹²	Mar 13, 2024	Mar 13, 2024	Mar 13, 2024
Test/Reference	LOR	Unit				
Total Nitrogen						
Total Nitrogen	10	mg/kg	-	540	-	-
Phosphorus						
Phosphorus	1	mg/kg	-	45	-	-
Heavy Metals						
Arsenic	2	mg/kg	-	2.4	-	-
Beryllium	2	mg/kg	-	< 2	-	-
Boron	10	mg/kg	-	< 10	-	-
Cadmium	0.1	mg/kg	-	< 0.1	-	-
Cobalt	5	mg/kg	-	< 5	-	-
Copper	1	mg/kg	-	1.6	-	-
Lead	1	mg/kg	-	1.2	-	-
Manganese	5	mg/kg	-	< 5	-	-
Mercury	0.02	mg/kg	-	< 0.02	-	-
Nickel	1	mg/kg	-	< 1	-	-
Selenium	2	mg/kg	-	< 2	-	-
Zinc	5	mg/kg	-	< 5	-	-
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	5.7	5.6	6.0	6.0
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	3.9	2.7	3.1	3.9
Reaction Ratings* ^{S05}	0	comment	2.0	3.0	2.0	2.0
Sample Properties						
% Moisture	1	%	-	1.5	-	-

Client Sample ID			TP06 - 0.0	TP06 - 0.25	TP06 - 0.50	TP07 - 0.0
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049696	L24- Ma0049697	L24- Ma0049698	L24- Ma0049699
Date Sampled			Mar 13, 2024	Mar 13, 2024	Mar 13, 2024	Mar 14, 2024
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	-	-	< 20
TRH C10-C14	20	mg/kg	< 20	-	-	< 20
TRH C15-C28	50	mg/kg	< 50	-	-	< 50
TRH C29-C36	50	mg/kg	98	-	-	< 50
TRH C10-C36 (Total)	50	mg/kg	98	-	-	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	-	-	< 0.1
Toluene	0.1	mg/kg	< 0.1	-	-	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	-	-	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	-	-	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	-	-	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	-	-	< 0.3
BTEX						
4-Bromofluorobenzene (surr.)	1	%	104	-	-	64
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	-	-	< 0.5
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	-	-	< 50
TRH C6-C10	20	mg/kg	< 20	-	-	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	-	-	< 20

Client Sample ID			TP06 - 0.0	TP06 - 0.25	TP06 - 0.50	TP07 - 0.0
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049696	L24- Ma0049697	L24- Ma0049698	L24- Ma0049699
Date Sampled			Mar 13, 2024	Mar 13, 2024	Mar 13, 2024	Mar 14, 2024
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	-	-	< 50
TRH >C16-C34	100	mg/kg	120	-	-	< 100
TRH >C34-C40	100	mg/kg	< 100	-	-	< 100
TRH >C10-C40 (total)*	100	mg/kg	120	-	-	< 100
OCOP in Soil						
Aldrin	0.01	mg/kg	< 0.01	-	-	< 0.01
alpha-BHC (HCH)	0.01	mg/kg	< 0.01	-	-	< 0.01
beta-BHC (HCH)	0.01	mg/kg	< 0.01	-	-	< 0.01
delta-BHC (HCH)	0.01	mg/kg	< 0.01	-	-	< 0.01
Bifenthrin	0.2	mg/kg	< 0.2	-	-	< 0.2
Bromophos Ethyl	0.05	mg/kg	< 0.05	-	-	< 0.05
Chlordane	0.01	mg/kg	< 0.01	-	-	< 0.01
Chlorpyrifos	0.02	mg/kg	< 0.02	-	-	< 0.02
Dieldrin	0.01	mg/kg	< 0.01	-	-	< 0.01
p,p-DDD	0.01	mg/kg	< 0.01	-	-	< 0.01
p,p-DDE	0.01	mg/kg	< 0.01	-	-	< 0.01
p,p-DDT	0.01	mg/kg	< 0.01	-	-	< 0.01
o,p-DDT	0.01	mg/kg	< 0.01	-	-	< 0.01
Endosulfan I	0.01	mg/kg	< 0.01	-	-	< 0.01
Endosulfan II	0.01	mg/kg	< 0.01	-	-	< 0.01
Endosulfan Sulfate	0.01	mg/kg	< 0.01	-	-	< 0.01
Endrin	0.01	mg/kg	< 0.01	-	-	< 0.01
Heptachlor	0.01	mg/kg	< 0.01	-	-	< 0.01
Heptachlor Epoxide	0.01	mg/kg	< 0.01	-	-	< 0.01
Hexachlorobenzene (HCB)	0.01	mg/kg	< 0.01	-	-	< 0.01
Lindane	0.01	mg/kg	< 0.01	-	-	< 0.01
Methoxychlor	0.2	mg/kg	< 0.2	-	-	< 0.2
Oxychlordane	0.01	mg/kg	< 0.01	-	-	< 0.01
Diazinon	0.2	mg/kg	< 0.2	-	-	< 0.2
Ethion	0.05	mg/kg	< 0.05	-	-	< 0.05
Fenitrothion	0.1	mg/kg	< 0.1	-	-	< 0.1
Malathion	0.1	mg/kg	< 0.1	-	-	< 0.1
Trifluralin	0.2	mg/kg	< 0.2	-	-	< 0.2
Ammonia-N						
Ammonia-N	10	mg/kg	46	-	-	37
Chromium (VI)						
Chromium (VI)	1	mg/kg	< 1	-	-	< 1
Filterable Reactive Phosphorus						
Filterable Reactive Phosphorus	1	mg/kg	2.1	-	-	3.3
Nitrate-N						
Nitrate-N	1	mg/kg	< 1	-	-	< 1
Nitrite-N						
Nitrite-N	1	mg/kg	< 1	-	-	< 1
NOx-N						
NOx-N	1	mg/kg	< 1	-	-	< 1
Total Kjeldahl Nitrogen						
Total Kjeldahl Nitrogen	10	mg/kg	2500	-	-	2200
Total Nitrogen						
Total Nitrogen	10	mg/kg	2500	-	-	2200
Phosphorus						
Phosphorus	1	mg/kg	29	-	-	36
Heavy Metals						
Arsenic	2	mg/kg	< 2	-	-	< 2
Beryllium	2	mg/kg	< 2	-	-	< 2
Boron	10	mg/kg	< 10	-	-	< 10
Cadmium	0.1	mg/kg	< 0.1	-	-	< 0.1
Cobalt	5	mg/kg	< 5	-	-	< 5

Client Sample ID			TP06 - 0.0	TP06 - 0.25	TP06 - 0.50	TP07 - 0.0
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24-Ma0049696	L24-Ma0049697	L24-Ma0049698	L24-Ma0049699
Date Sampled			Mar 13, 2024	Mar 13, 2024	Mar 13, 2024	Mar 14, 2024
Test/Reference	LOR	Unit				
Heavy Metals						
Copper	1	mg/kg	< 1	-	-	1.7
Lead	1	mg/kg	< 1	-	-	< 1
Manganese	5	mg/kg	< 5	-	-	< 5
Mercury	0.02	mg/kg	< 0.02	-	-	< 0.02
Nickel	1	mg/kg	< 1	-	-	< 1
Selenium	2	mg/kg	< 2	-	-	< 2
Zinc	5	mg/kg	< 5	-	-	< 5
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	5.0	4.9	4.9	6.0
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	3.9	4.1	4.4	5.0
Reaction Ratings* ^{S05}	0	comment	2.0	2.0	2.0	2.0
Sample Properties						
% Moisture	1	%	3.2	-	-	5.5
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluoropentanoic acid (PFPeA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorohexanoic acid (PFHxA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluoroheptanoic acid (PFHpA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorooctanoic acid (PFOA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorononanoic acid (PFNA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorodecanoic acid (PFDA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluoroundecanoic acid (PFUnDA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorododecanoic acid (PFDoDA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorotridecanoic acid (PFTeDA) ^{N15}	5	ug/kg	< 5	-	-	-
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	5	ug/kg	< 5	-	-	-
13C4-PFBA (surr.)	1	%	81	-	-	-
13C5-PFPeA (surr.)	1	%	67	-	-	-
13C5-PFHxA (surr.)	1	%	75	-	-	-
13C4-PFHpA (surr.)	1	%	69	-	-	-
13C8-PFOA (surr.)	1	%	90	-	-	-
13C5-PFNA (surr.)	1	%	106	-	-	-
13C6-PFDA (surr.)	1	%	78	-	-	-
13C2-PFUnDA (surr.)	1	%	83	-	-	-
13C2-PFDoDA (surr.)	1	%	114	-	-	-
13C2-PFTeDA (surr.)	1	%	103	-	-	-
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	5	ug/kg	< 5	-	-	-
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	5	ug/kg	< 5	-	-	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	5	ug/kg	< 5	-	-	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	5	ug/kg	< 5	-	-	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	5	ug/kg	< 5	-	-	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	10	ug/kg	< 10	-	-	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	10	ug/kg	< 10	-	-	-
13C8-FOSA (surr.)	1	%	86	-	-	-
D3-N-MeFOSA (surr.)	1	%	109	-	-	-

Client Sample ID			TP06 - 0.0	TP06 - 0.25	TP06 - 0.50	TP07 - 0.0
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049696	L24- Ma0049697	L24- Ma0049698	L24- Ma0049699
Date Sampled			Mar 13, 2024	Mar 13, 2024	Mar 13, 2024	Mar 14, 2024
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances						
D5-N-EtFOSA (surr.)	1	%	120	-	-	-
D7-N-MeFOSE (surr.)	1	%	83	-	-	-
D9-N-EtFOSE (surr.)	1	%	89	-	-	-
D5-N-EtFOSAA (surr.)	1	%	90	-	-	-
D3-N-MeFOSAA (surr.)	1	%	82	-	-	-
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	5	ug/kg	< 5	-	-	-
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	10	ug/kg	< 10	-	-	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	5	ug/kg	< 5	-	-	-
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	5	ug/kg	< 5	-	-	-
13C2-4:2 FTSA (surr.)	1	%	91	-	-	-
13C2-6:2 FTSA (surr.)	1	%	104	-	-	-
13C2-8:2 FTSA (surr.)	1	%	118	-	-	-
13C2-10:2 FTSA (surr.)	1	%	156	-	-	-
Perfluoroalkyl sulfonic acids (PFASs)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorononanesulfonic acid (PFNS) ^{*N15}	5	ug	< 5	-	-	-
Perfluoropropanesulfonic acid (PFPrS) ^{*N15}	5	ug/kg	< 5	-	-	-
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	5	ug/kg	< 5	-	-	-
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	5	ug/kg	< 5	-	-	-
Perfluorooctanesulfonic acid (PFOS) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorodecanesulfonic acid (PFDS) ^{N15}	5	ug/kg	< 5	-	-	-
13C3-PFBS (surr.)	1	%	74	-	-	-
18O2-PFHxS (surr.)	1	%	84	-	-	-
13C8-PFOS (surr.)	1	%	84	-	-	-
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	< 5	-	-	-
Sum of PFASs (n=30)*	50	ug/kg	< 50	-	-	-
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5	-	-	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5	-	-	-
Sum of WA DWER PFAS (n=10)*	10	ug/kg	< 10	-	-	-

Client Sample ID			TP07 - 0.25	TP07 - 0.50	TP07 - 0.75	TP07 - 1.0
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049700	L24- Ma0049701	L24- Ma0049702	L24- Ma0049703
Date Sampled			Mar 14, 2024	Mar 14, 2024	Mar 14, 2024	Mar 14, 2024
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	-	-	< 20
TRH C10-C14	20	mg/kg	-	-	-	< 20
TRH C15-C28	50	mg/kg	-	-	-	< 50
TRH C29-C36	50	mg/kg	-	-	-	< 50
TRH C10-C36 (Total)	50	mg/kg	-	-	-	< 50

Client Sample ID			TP07 - 0.25	TP07 - 0.50	TP07 - 0.75	TP07 - 1.0
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049700	L24- Ma0049701	L24- Ma0049702	L24- Ma0049703
Date Sampled			Mar 14, 2024	Mar 14, 2024	Mar 14, 2024	Mar 14, 2024
Test/Reference	LOR	Unit				
BTEX						
Benzene	0.1	mg/kg	-	-	-	< 0.1
Toluene	0.1	mg/kg	-	-	-	< 0.1
Ethylbenzene	0.1	mg/kg	-	-	-	< 0.1
m&p-Xylenes	0.2	mg/kg	-	-	-	< 0.2
o-Xylene	0.1	mg/kg	-	-	-	< 0.1
Xylenes - Total*	0.3	mg/kg	-	-	-	< 0.3
BTEX						
4-Bromofluorobenzene (surr.)	1	%	-	-	-	114
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	-	-	-	< 0.5
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	-	-	-	< 50
TRH C6-C10	20	mg/kg	-	-	-	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	-	-	-	< 20
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	-	-	-	< 50
TRH >C16-C34	100	mg/kg	-	-	-	< 100
TRH >C34-C40	100	mg/kg	-	-	-	< 100
TRH >C10-C40 (total)*	100	mg/kg	-	-	-	< 100
OCOP in Soil						
Aldrin	0.01	mg/kg	-	-	-	< 0.01
alpha-BHC (HCH)	0.01	mg/kg	-	-	-	< 0.01
beta-BHC (HCH)	0.01	mg/kg	-	-	-	< 0.01
delta-BHC (HCH)	0.01	mg/kg	-	-	-	< 0.01
Bifenthrin	0.2	mg/kg	-	-	-	< 0.2
Bromophos Ethyl	0.05	mg/kg	-	-	-	< 0.05
Chlordane	0.01	mg/kg	-	-	-	< 0.01
Chlorpyrifos	0.02	mg/kg	-	-	-	< 0.02
Dieldrin	0.01	mg/kg	-	-	-	< 0.01
p,p-DDD	0.01	mg/kg	-	-	-	< 0.01
p,p-DDE	0.01	mg/kg	-	-	-	< 0.01
p,p-DDT	0.01	mg/kg	-	-	-	< 0.01
o,p-DDT	0.01	mg/kg	-	-	-	< 0.01
Endosulfan I	0.01	mg/kg	-	-	-	< 0.01
Endosulfan II	0.01	mg/kg	-	-	-	< 0.01
Endosulfan Sulfate	0.01	mg/kg	-	-	-	< 0.01
Endrin	0.01	mg/kg	-	-	-	< 0.01
Heptachlor	0.01	mg/kg	-	-	-	< 0.01
Heptachlor Epoxide	0.01	mg/kg	-	-	-	< 0.01
Hexachlorobenzene (HCB)	0.01	mg/kg	-	-	-	< 0.01
Lindane	0.01	mg/kg	-	-	-	< 0.01
Methoxychlor	0.2	mg/kg	-	-	-	< 0.2
Oxychlorane	0.01	mg/kg	-	-	-	< 0.01
Diazinon	0.2	mg/kg	-	-	-	< 0.2
Ethion	0.05	mg/kg	-	-	-	< 0.05
Fenitrothion	0.1	mg/kg	-	-	-	< 0.1
Malathion	0.1	mg/kg	-	-	-	< 0.1
Trifluralin	0.2	mg/kg	-	-	-	< 0.2

Client Sample ID			TP07 - 0.25	TP07 - 0.50	TP07 - 0.75	TP07 - 1.0
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049700	L24- Ma0049701	L24- Ma0049702	L24- Ma0049703
Date Sampled			Mar 14, 2024	Mar 14, 2024	Mar 14, 2024	Mar 14, 2024
Test/Reference	LOR	Unit				
Ammonia-N	10	mg/kg	-	-	-	37
Chromium (VI)	1	mg/kg	-	-	-	< 1
Filterable Reactive Phosphorus	1	mg/kg	-	-	-	< 1
Nitrate-N	1	mg/kg	-	-	-	1.4
Nitrite-N	1	mg/kg	-	-	-	< 1
NOx-N	1	mg/kg	-	-	-	1.5
Total Kjeldahl Nitrogen	10	mg/kg	-	-	-	88
Total Nitrogen	10	mg/kg	-	-	-	90
Phosphorus	1	mg/kg	-	-	-	2.7
Heavy Metals						
Arsenic	2	mg/kg	-	-	-	< 2
Beryllium	2	mg/kg	-	-	-	< 2
Boron	10	mg/kg	-	-	-	< 10
Cadmium	0.1	mg/kg	-	-	-	< 0.1
Cobalt	5	mg/kg	-	-	-	< 5
Copper	1	mg/kg	-	-	-	< 1
Lead	1	mg/kg	-	-	-	< 1
Manganese	5	mg/kg	-	-	-	< 5
Mercury	0.02	mg/kg	-	-	-	< 0.02
Nickel	1	mg/kg	-	-	-	< 1
Selenium	2	mg/kg	-	-	-	< 2
Zinc	5	mg/kg	-	-	-	< 5
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	6.0	6.2	6.3	6.7
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	5.1	5.2	5.4	5.7
Reaction Ratings* ^{S05}	0	comment	2.0	2.0	2.0	2.0
Sample Properties						
% Moisture	1	%	-	-	-	7.9

Client Sample ID			TP07 - 1.25	TP07 - 1.50	TP08 - 0.0	TP08 - 0.25
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049704	L24- Ma0049705	L24- Ma0049706	L24- Ma0049707
Date Sampled			Mar 14, 2024	Mar 14, 2024	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	-	< 20	-
TRH C10-C14	20	mg/kg	-	-	< 20	-
TRH C15-C28	50	mg/kg	-	-	59	-
TRH C29-C36	50	mg/kg	-	-	70	-
TRH C10-C36 (Total)	50	mg/kg	-	-	129	-
BTEX						
Benzene	0.1	mg/kg	-	-	< 0.1	-
Toluene	0.1	mg/kg	-	-	< 0.1	-
Ethylbenzene	0.1	mg/kg	-	-	< 0.1	-
m&p-Xylenes	0.2	mg/kg	-	-	< 0.2	-
o-Xylene	0.1	mg/kg	-	-	< 0.1	-
Xylenes - Total*	0.3	mg/kg	-	-	< 0.3	-

Client Sample ID			TP07 - 1.25	TP07 - 1.50	TP08 - 0.0	TP08 - 0.25
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049704	L24- Ma0049705	L24- Ma0049706	L24- Ma0049707
Date Sampled			Mar 14, 2024	Mar 14, 2024	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit				
BTEX						
4-Bromofluorobenzene (surr.)	1	%	-	-	92	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	-	-	< 0.5	-
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	-	-	< 50	-
TRH C6-C10	20	mg/kg	-	-	< 20	-
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	-	-	< 20	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	-	-	< 50	-
TRH >C16-C34	100	mg/kg	-	-	110	-
TRH >C34-C40	100	mg/kg	-	-	< 100	-
TRH >C10-C40 (total)*	100	mg/kg	-	-	110	-
OCOP in Soil						
Aldrin	0.01	mg/kg	-	-	< 0.01	-
alpha-BHC (HCH)	0.01	mg/kg	-	-	< 0.01	-
beta-BHC (HCH)	0.01	mg/kg	-	-	< 0.01	-
delta-BHC (HCH)	0.01	mg/kg	-	-	< 0.01	-
Bifenthrin	0.2	mg/kg	-	-	< 0.2	-
Bromophos Ethyl	0.05	mg/kg	-	-	< 0.05	-
Chlordane	0.01	mg/kg	-	-	< 0.01	-
Chlorpyrifos	0.02	mg/kg	-	-	< 0.02	-
Dieldrin	0.01	mg/kg	-	-	< 0.01	-
p,p-DDD	0.01	mg/kg	-	-	< 0.01	-
p,p-DDE	0.01	mg/kg	-	-	< 0.01	-
p,p-DDT	0.01	mg/kg	-	-	< 0.01	-
o,p-DDT	0.01	mg/kg	-	-	< 0.01	-
Endosulfan I	0.01	mg/kg	-	-	< 0.01	-
Endosulfan II	0.01	mg/kg	-	-	< 0.01	-
Endosulfan Sulfate	0.01	mg/kg	-	-	< 0.01	-
Endrin	0.01	mg/kg	-	-	< 0.01	-
Heptachlor	0.01	mg/kg	-	-	< 0.01	-
Heptachlor Epoxide	0.01	mg/kg	-	-	< 0.01	-
Hexachlorobenzene (HCB)	0.01	mg/kg	-	-	< 0.01	-
Lindane	0.01	mg/kg	-	-	< 0.01	-
Methoxychlor	0.2	mg/kg	-	-	< 0.2	-
Oxychlordane	0.01	mg/kg	-	-	< 0.01	-
Diazinon	0.2	mg/kg	-	-	< 0.2	-
Ethion	0.05	mg/kg	-	-	< 0.05	-
Fenitrothion	0.1	mg/kg	-	-	< 0.1	-
Malathion	0.1	mg/kg	-	-	< 0.1	-
Trifluralin	0.2	mg/kg	-	-	< 0.2	-
Ammonia-N						
Ammonia-N	10	mg/kg	-	-	50	-
Chromium (VI)						
Chromium (VI)	1	mg/kg	-	-	< 1	-
Filterable Reactive Phosphorus						
Filterable Reactive Phosphorus	1	mg/kg	-	-	1.2	-
Nitrate-N						
Nitrate-N	1	mg/kg	-	-	1.8	-
Nitrite-N						
Nitrite-N	1	mg/kg	-	-	< 1	-
NOx-N						
NOx-N	1	mg/kg	-	-	2.2	-
Total Kjeldahl Nitrogen						
Total Kjeldahl Nitrogen	10	mg/kg	-	-	910	-

Client Sample ID			TP07 - 1.25	TP07 - 1.50	TP08 - 0.0	TP08 - 0.25
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049704	L24- Ma0049705	L24- Ma0049706	L24- Ma0049707
Date Sampled			Mar 14, 2024	Mar 14, 2024	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit				
Total Nitrogen	10	mg/kg	-	-	910	-
Phosphorus	1	mg/kg	-	-	41	-
Heavy Metals						
Arsenic	2	mg/kg	-	-	< 2	-
Beryllium	2	mg/kg	-	-	< 2	-
Boron	10	mg/kg	-	-	< 10	-
Cadmium	0.1	mg/kg	-	-	< 0.1	-
Cobalt	5	mg/kg	-	-	< 5	-
Copper	1	mg/kg	-	-	< 1	-
Lead	1	mg/kg	-	-	1.1	-
Manganese	5	mg/kg	-	-	< 5	-
Mercury	0.02	mg/kg	-	-	< 0.02	-
Nickel	1	mg/kg	-	-	< 1	-
Selenium	2	mg/kg	-	-	< 2	-
Zinc	5	mg/kg	-	-	< 5	-
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	6.7	6.0	5.0	5.3
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	5.6	2.2	3.8	4.6
Reaction Ratings* ^{S05}	0	comment	2.0	2.0	2.0	2.0
Sample Properties						
% Moisture	1	%	-	-	7.3	-
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	5	ug/kg	-	-	< 5	-
Perfluoropentanoic acid (PFPeA) ^{N11}	5	ug/kg	-	-	< 5	-
Perfluorohexanoic acid (PFHxA) ^{N11}	5	ug/kg	-	-	< 5	-
Perfluoroheptanoic acid (PFHpA) ^{N11}	5	ug/kg	-	-	< 5	-
Perfluorooctanoic acid (PFOA) ^{N11}	5	ug/kg	-	-	< 5	-
Perfluorononanoic acid (PFNA) ^{N11}	5	ug/kg	-	-	< 5	-
Perfluorodecanoic acid (PFDA) ^{N11}	5	ug/kg	-	-	< 5	-
Perfluoroundecanoic acid (PFUnDA) ^{N11}	5	ug/kg	-	-	< 5	-
Perfluorododecanoic acid (PFDoDA) ^{N11}	5	ug/kg	-	-	< 5	-
Perfluorotridecanoic acid (PFTeDA) ^{N15}	5	ug/kg	-	-	< 5	-
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	5	ug/kg	-	-	< 5	-
13C4-PFBA (surr.)	1	%	-	-	55	-
13C5-PFPeA (surr.)	1	%	-	-	97	-
13C5-PFHxA (surr.)	1	%	-	-	92	-
13C4-PFHpA (surr.)	1	%	-	-	104	-
13C8-PFOA (surr.)	1	%	-	-	131	-
13C5-PFNA (surr.)	1	%	-	-	117	-
13C6-PFDA (surr.)	1	%	-	-	115	-
13C2-PFUnDA (surr.)	1	%	-	-	115	-
13C2-PFDoDA (surr.)	1	%	-	-	142	-
13C2-PFTeDA (surr.)	1	%	-	-	115	-

Client Sample ID			TP07 - 1.25	TP07 - 1.50	TP08 - 0.0	TP08 - 0.25
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24-Ma0049704	L24-Ma0049705	L24-Ma0049706	L24-Ma0049707
Date Sampled			Mar 14, 2024	Mar 14, 2024	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	5	ug/kg	-	-	< 5	-
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	5	ug/kg	-	-	< 5	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	5	ug/kg	-	-	< 5	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	5	ug/kg	-	-	< 5	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	5	ug/kg	-	-	< 5	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	10	ug/kg	-	-	< 10	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	10	ug/kg	-	-	< 10	-
13C8-FOSA (surr.)	1	%	-	-	104	-
D3-N-MeFOSA (surr.)	1	%	-	-	124	-
D5-N-EtFOSA (surr.)	1	%	-	-	141	-
D7-N-MeFOSE (surr.)	1	%	-	-	104	-
D9-N-EtFOSE (surr.)	1	%	-	-	104	-
D5-N-EtFOSAA (surr.)	1	%	-	-	125	-
D3-N-MeFOSAA (surr.)	1	%	-	-	125	-
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	5	ug/kg	-	-	< 5	-
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	10	ug/kg	-	-	< 10	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	5	ug/kg	-	-	< 5	-
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	5	ug/kg	-	-	< 5	-
13C2-4:2 FTSA (surr.)	1	%	-	-	83	-
13C2-6:2 FTSA (surr.)	1	%	-	-	91	-
13C2-8:2 FTSA (surr.)	1	%	-	-	187	-
13C2-10:2 FTSA (surr.)	1	%	-	-	INT	-
Perfluoroalkyl sulfonic acids (PFASs)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	5	ug/kg	-	-	< 5	-
Perfluorononanesulfonic acid (PFNS) ^{*N15}	5	ug	-	-	< 5	-
Perfluoropropanesulfonic acid (PFPrS) ^{*N15}	5	ug/kg	-	-	< 5	-
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	5	ug/kg	-	-	< 5	-
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	5	ug/kg	-	-	< 5	-
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	5	ug/kg	-	-	< 5	-
Perfluorooctanesulfonic acid (PFOS) ^{N11}	5	ug/kg	-	-	< 5	-
Perfluorodecanesulfonic acid (PFDS) ^{N15}	5	ug/kg	-	-	< 5	-
13C3-PFBS (surr.)	1	%	-	-	95	-
18O2-PFHxS (surr.)	1	%	-	-	119	-
13C8-PFOS (surr.)	1	%	-	-	120	-
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	-	-	< 5	-
Sum of PFASs (n=30)*	50	ug/kg	-	-	< 50	-
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	-	-	< 5	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	-	-	< 5	-
Sum of WA DWER PFAS (n=10)*	10	ug/kg	-	-	< 10	-

Client Sample ID			TP08 - 0.50	TP08 - 0.75	TP08 - 1.0	TP08 - 1.25
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049708	L24- Ma0049709	L24- Ma0049710	L24- Ma0049711
Date Sampled			Not Provided ¹²	Not Provided ¹²	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	-	G02 < 40	-
TRH C10-C14	20	mg/kg	-	-	< 20	-
TRH C15-C28	50	mg/kg	-	-	< 50	-
TRH C29-C36	50	mg/kg	-	-	< 50	-
TRH C10-C36 (Total)	50	mg/kg	-	-	< 50	-
BTEX						
Benzene	0.1	mg/kg	-	-	G02 < 0.1	-
Toluene	0.1	mg/kg	-	-	G02 < 0.1	-
Ethylbenzene	0.1	mg/kg	-	-	G02 < 0.1	-
m&p-Xylenes	0.2	mg/kg	-	-	G02 < 0.2	-
o-Xylene	0.1	mg/kg	-	-	G02 < 0.1	-
Xylenes - Total*	0.3	mg/kg	-	-	G02 < 0.3	-
BTEX						
4-Bromofluorobenzene (surr.)	1	%	-	-	96	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	-	-	G02 < 1	-
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	-	-	< 50	-
TRH C6-C10	20	mg/kg	-	-	G02 < 40	-
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	-	-	< 40	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	-	-	< 50	-
TRH >C16-C34	100	mg/kg	-	-	< 100	-
TRH >C34-C40	100	mg/kg	-	-	< 100	-
TRH >C10-C40 (total)*	100	mg/kg	-	-	< 100	-
OCOP in Soil						
Aldrin	0.01	mg/kg	-	-	< 0.01	-
alpha-BHC (HCH)	0.01	mg/kg	-	-	< 0.01	-
beta-BHC (HCH)	0.01	mg/kg	-	-	< 0.01	-
delta-BHC (HCH)	0.01	mg/kg	-	-	< 0.01	-
Bifenthrin	0.2	mg/kg	-	-	< 0.2	-
Bromophos Ethyl	0.05	mg/kg	-	-	< 0.05	-
Chlordane	0.01	mg/kg	-	-	< 0.01	-
Chlorpyrifos	0.02	mg/kg	-	-	< 0.02	-
Dieldrin	0.01	mg/kg	-	-	< 0.01	-
p,p-DDD	0.01	mg/kg	-	-	< 0.01	-
p,p-DDE	0.01	mg/kg	-	-	< 0.01	-
p,p-DDT	0.01	mg/kg	-	-	< 0.01	-
o,p-DDT	0.01	mg/kg	-	-	< 0.01	-
Endosulfan I	0.01	mg/kg	-	-	< 0.01	-
Endosulfan II	0.01	mg/kg	-	-	< 0.01	-
Endosulfan Sulfate	0.01	mg/kg	-	-	< 0.01	-
Endrin	0.01	mg/kg	-	-	< 0.01	-
Heptachlor	0.01	mg/kg	-	-	< 0.01	-
Heptachlor Epoxide	0.01	mg/kg	-	-	< 0.01	-
Hexachlorobenzene (HCB)	0.01	mg/kg	-	-	< 0.01	-
Lindane	0.01	mg/kg	-	-	< 0.01	-
Methoxychlor	0.2	mg/kg	-	-	< 0.2	-
Oxychlordane	0.01	mg/kg	-	-	< 0.01	-

Client Sample ID			TP08 - 0.50	TP08 - 0.75	TP08 - 1.0	TP08 - 1.25
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049708	L24- Ma0049709	L24- Ma0049710	L24- Ma0049711
Date Sampled			Not Provided ¹²	Not Provided ¹²	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit				
OCOP in Soil						
Diazinon	0.2	mg/kg	-	-	< 0.2	-
Ethion	0.05	mg/kg	-	-	< 0.05	-
Fenitrothion	0.1	mg/kg	-	-	< 0.1	-
Malathion	0.1	mg/kg	-	-	< 0.1	-
Trifluralin	0.2	mg/kg	-	-	< 0.2	-
Ammonia-N						
Ammonia-N	10	mg/kg	-	-	42	-
Chromium (VI)						
Chromium (VI)	1	mg/kg	-	-	< 1	-
Filterable Reactive Phosphorus						
Filterable Reactive Phosphorus	1	mg/kg	-	-	< 1	-
Nitrate-N						
Nitrate-N	1	mg/kg	-	-	< 1	-
Nitrite-N						
Nitrite-N	1	mg/kg	-	-	< 1	-
NOx-N						
NOx-N	1	mg/kg	-	-	< 1	-
Total Kjeldahl Nitrogen						
Total Kjeldahl Nitrogen	10	mg/kg	-	-	260	-
Total Nitrogen						
Total Nitrogen	10	mg/kg	-	-	260	-
Phosphorus						
Phosphorus	1	mg/kg	-	-	6.1	-
Heavy Metals						
Arsenic						
Arsenic	2	mg/kg	-	-	< 2	-
Beryllium						
Beryllium	2	mg/kg	-	-	< 2	-
Boron						
Boron	10	mg/kg	-	-	< 10	-
Cadmium						
Cadmium	0.1	mg/kg	-	-	< 0.1	-
Cobalt						
Cobalt	5	mg/kg	-	-	< 5	-
Copper						
Copper	1	mg/kg	-	-	< 1	-
Lead						
Lead	1	mg/kg	-	-	< 1	-
Manganese						
Manganese	5	mg/kg	-	-	< 5	-
Mercury						
Mercury	0.02	mg/kg	-	-	< 0.02	-
Nickel						
Nickel	1	mg/kg	-	-	< 1	-
Selenium						
Selenium	2	mg/kg	-	-	< 2	-
Zinc						
Zinc	5	mg/kg	-	-	< 5	-
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	5.2	5.3	6.1	6.3
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	4.3	4.4	4.6	4.8
Reaction Ratings* ^{S05}	0	comment	2.0	2.0	2.0	2.0
Sample Properties						
% Moisture	1	%	-	-	14	-

Client Sample ID			TP08 - 1.50	TP08 - 1.75	TP08 - 2.0	TP09 - 0.0
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049712	L24- Ma0049713	L24- Ma0049714	L24- Ma0049715
Date Sampled			Not Provided ¹²	Not Provided ¹²	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	-	-	< 20
TRH C10-C14	20	mg/kg	-	-	-	< 20
TRH C15-C28	50	mg/kg	-	-	-	< 50
TRH C29-C36	50	mg/kg	-	-	-	< 50
TRH C10-C36 (Total)	50	mg/kg	-	-	-	< 50

Client Sample ID			TP08 - 1.50	TP08 - 1.75	TP08 - 2.0	TP09 - 0.0
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049712	L24- Ma0049713	L24- Ma0049714	L24- Ma0049715
Date Sampled			Not Provided ¹²	Not Provided ¹²	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit				
BTEX						
Benzene	0.1	mg/kg	-	-	-	< 0.1
Toluene	0.1	mg/kg	-	-	-	< 0.1
Ethylbenzene	0.1	mg/kg	-	-	-	< 0.1
m&p-Xylenes	0.2	mg/kg	-	-	-	< 0.2
o-Xylene	0.1	mg/kg	-	-	-	< 0.1
Xylenes - Total*	0.3	mg/kg	-	-	-	< 0.3
BTEX						
4-Bromofluorobenzene (surr.)	1	%	-	-	-	88
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	-	-	-	< 0.5
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	-	-	-	< 50
TRH C6-C10	20	mg/kg	-	-	-	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	-	-	-	< 20
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	-	-	-	< 50
TRH >C16-C34	100	mg/kg	-	-	-	< 100
TRH >C34-C40	100	mg/kg	-	-	-	< 100
TRH >C10-C40 (total)*	100	mg/kg	-	-	-	< 100
OCOP in Soil						
Aldrin	0.01	mg/kg	-	-	-	< 0.01
alpha-BHC (HCH)	0.01	mg/kg	-	-	-	< 0.01
beta-BHC (HCH)	0.01	mg/kg	-	-	-	< 0.01
delta-BHC (HCH)	0.01	mg/kg	-	-	-	< 0.01
Bifenthrin	0.2	mg/kg	-	-	-	< 0.2
Bromophos Ethyl	0.05	mg/kg	-	-	-	< 0.05
Chlordane	0.01	mg/kg	-	-	-	< 0.01
Chlorpyrifos	0.02	mg/kg	-	-	-	< 0.02
Dieldrin	0.01	mg/kg	-	-	-	< 0.01
p,p-DDD	0.01	mg/kg	-	-	-	< 0.01
p,p-DDE	0.01	mg/kg	-	-	-	< 0.01
p,p-DDT	0.01	mg/kg	-	-	-	< 0.01
o,p-DDT	0.01	mg/kg	-	-	-	< 0.01
Endosulfan I	0.01	mg/kg	-	-	-	< 0.01
Endosulfan II	0.01	mg/kg	-	-	-	< 0.01
Endosulfan Sulfate	0.01	mg/kg	-	-	-	< 0.01
Endrin	0.01	mg/kg	-	-	-	< 0.01
Heptachlor	0.01	mg/kg	-	-	-	< 0.01
Heptachlor Epoxide	0.01	mg/kg	-	-	-	< 0.01
Hexachlorobenzene (HCB)	0.01	mg/kg	-	-	-	< 0.01
Lindane	0.01	mg/kg	-	-	-	< 0.01
Methoxychlor	0.2	mg/kg	-	-	-	< 0.2
Oxychlordane	0.01	mg/kg	-	-	-	< 0.01
Diazinon	0.2	mg/kg	-	-	-	< 0.2
Ethion	0.05	mg/kg	-	-	-	< 0.05
Fenitrothion	0.1	mg/kg	-	-	-	< 0.1
Malathion	0.1	mg/kg	-	-	-	< 0.1
Trifluralin	0.2	mg/kg	-	-	-	< 0.2

Client Sample ID			TP08 - 1.50	TP08 - 1.75	TP08 - 2.0	TP09 - 0.0
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049712	L24- Ma0049713	L24- Ma0049714	L24- Ma0049715
Date Sampled			Not Provided ¹²	Not Provided ¹²	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit				
Ammonia-N	10	mg/kg	-	-	-	46
Chromium (VI)	1	mg/kg	-	-	-	< 1
Filterable Reactive Phosphorus	1	mg/kg	-	-	-	9.5
Nitrate-N	1	mg/kg	-	-	-	7.0
Nitrite-N	1	mg/kg	-	-	-	< 1
NOx-N	1	mg/kg	-	-	-	7.1
Total Kjeldahl Nitrogen	10	mg/kg	-	-	-	2700
Total Nitrogen	10	mg/kg	-	-	-	2700
Phosphorus	1	mg/kg	-	-	-	74
Heavy Metals						
Arsenic	2	mg/kg	-	-	-	< 2
Beryllium	2	mg/kg	-	-	-	< 2
Boron	10	mg/kg	-	-	-	< 10
Cadmium	0.1	mg/kg	-	-	-	< 0.1
Cobalt	5	mg/kg	-	-	-	< 5
Copper	1	mg/kg	-	-	-	1.9
Lead	1	mg/kg	-	-	-	< 1
Manganese	5	mg/kg	-	-	-	< 5
Mercury	0.02	mg/kg	-	-	-	< 0.02
Nickel	1	mg/kg	-	-	-	< 1
Selenium	2	mg/kg	-	-	-	< 2
Zinc	5	mg/kg	-	-	-	< 5
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	5.2	5.9	5.0	5.1
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	4.4	4.4	2.8	4.2
Reaction Ratings* ^{S05}	0	comment	2.0	2.0	2.0	2.0
Sample Properties						
% Moisture	1	%	-	-	-	2.2

Client Sample ID			TP09 - 0.25	TP09 - 1.0	TP09 - 1.50	TP10 - 0.0
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049716	L24- Ma0049717	L24- Ma0049718	L24- Ma0049719
Date Sampled			Not Provided ¹²	Not Provided ¹²	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	< 20	-	< 20
TRH C10-C14	20	mg/kg	-	< 20	-	< 20
TRH C15-C28	50	mg/kg	-	< 50	-	55
TRH C29-C36	50	mg/kg	-	< 50	-	88
TRH C10-C36 (Total)	50	mg/kg	-	< 50	-	143
BTEX						
Benzene	0.1	mg/kg	-	< 0.1	-	< 0.1
Toluene	0.1	mg/kg	-	< 0.1	-	< 0.1
Ethylbenzene	0.1	mg/kg	-	< 0.1	-	< 0.1
m&p-Xylenes	0.2	mg/kg	-	< 0.2	-	< 0.2
o-Xylene	0.1	mg/kg	-	< 0.1	-	< 0.1
Xylenes - Total*	0.3	mg/kg	-	< 0.3	-	< 0.3

Client Sample ID			TP09 - 0.25	TP09 - 1.0	TP09 - 1.50	TP10 - 0.0
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049716	L24- Ma0049717	L24- Ma0049718	L24- Ma0049719
Date Sampled			Not Provided ¹²	Not Provided ¹²	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit				
BTEX						
4-Bromofluorobenzene (surr.)	1	%	-	76	-	100
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	-	< 0.5	-	< 0.5
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	-	< 50	-	< 50
TRH C6-C10	20	mg/kg	-	< 20	-	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	-	< 20	-	< 20
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	-	< 50	-	< 50
TRH >C16-C34	100	mg/kg	-	< 100	-	120
TRH >C34-C40	100	mg/kg	-	< 100	-	< 100
TRH >C10-C40 (total)*	100	mg/kg	-	< 100	-	120
OCOP in Soil						
Aldrin	0.01	mg/kg	-	< 0.01	-	< 0.01
alpha-BHC (HCH)	0.01	mg/kg	-	< 0.01	-	< 0.01
beta-BHC (HCH)	0.01	mg/kg	-	< 0.01	-	< 0.01
delta-BHC (HCH)	0.01	mg/kg	-	< 0.01	-	< 0.01
Bifenthrin	0.2	mg/kg	-	< 0.2	-	< 0.2
Bromophos Ethyl	0.05	mg/kg	-	< 0.05	-	< 0.05
Chlordane	0.01	mg/kg	-	< 0.01	-	< 0.01
Chlorpyrifos	0.02	mg/kg	-	< 0.02	-	< 0.02
Dieldrin	0.01	mg/kg	-	< 0.01	-	< 0.01
p,p-DDD	0.01	mg/kg	-	< 0.01	-	< 0.01
p,p-DDE	0.01	mg/kg	-	< 0.01	-	< 0.01
p,p-DDT	0.01	mg/kg	-	< 0.01	-	< 0.01
o,p-DDT	0.01	mg/kg	-	< 0.01	-	< 0.01
Endosulfan I	0.01	mg/kg	-	< 0.01	-	< 0.01
Endosulfan II	0.01	mg/kg	-	< 0.01	-	< 0.01
Endosulfan Sulfate	0.01	mg/kg	-	< 0.01	-	< 0.01
Endrin	0.01	mg/kg	-	< 0.01	-	< 0.01
Heptachlor	0.01	mg/kg	-	< 0.01	-	< 0.01
Heptachlor Epoxide	0.01	mg/kg	-	< 0.01	-	< 0.01
Hexachlorobenzene (HCB)	0.01	mg/kg	-	< 0.01	-	< 0.01
Lindane	0.01	mg/kg	-	< 0.01	-	< 0.01
Methoxychlor	0.2	mg/kg	-	< 0.2	-	< 0.2
Oxychlordane	0.01	mg/kg	-	< 0.01	-	< 0.01
Diazinon	0.2	mg/kg	-	< 0.2	-	< 0.2
Ethion	0.05	mg/kg	-	< 0.05	-	< 0.05
Fenitrothion	0.1	mg/kg	-	< 0.1	-	< 0.1
Malathion	0.1	mg/kg	-	< 0.1	-	< 0.1
Trifluralin	0.2	mg/kg	-	< 0.2	-	< 0.2
Ammonia-N						
Ammonia-N	10	mg/kg	-	41	-	44
Chromium (VI)						
Chromium (VI)	1	mg/kg	-	< 1	-	< 1
Filterable Reactive Phosphorus						
Filterable Reactive Phosphorus	1	mg/kg	-	< 1	-	5.1
Nitrate-N						
Nitrate-N	1	mg/kg	-	2.8	-	< 1
Nitrite-N						
Nitrite-N	1	mg/kg	-	< 1	-	< 1
NOx-N						
NOx-N	1	mg/kg	-	3.0	-	1.5
Total Kjeldahl Nitrogen						
Total Kjeldahl Nitrogen	10	mg/kg	-	230	-	3100

Client Sample ID			TP09 - 0.25	TP09 - 1.0	TP09 - 1.50	TP10 - 0.0
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049716	L24- Ma0049717	L24- Ma0049718	L24- Ma0049719
Date Sampled			Not Provided ¹²	Not Provided ¹²	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit				
Total Nitrogen	10	mg/kg	-	230	-	3100
Phosphorus	1	mg/kg	-	4.4	-	42
Heavy Metals						
Arsenic	2	mg/kg	-	< 2	-	< 2
Beryllium	2	mg/kg	-	< 2	-	< 2
Boron	10	mg/kg	-	< 10	-	< 10
Cadmium	0.1	mg/kg	-	< 0.1	-	< 0.1
Cobalt	5	mg/kg	-	< 5	-	< 5
Copper	1	mg/kg	-	< 1	-	3.1
Lead	1	mg/kg	-	< 1	-	< 1
Manganese	5	mg/kg	-	< 5	-	< 5
Mercury	0.02	mg/kg	-	< 0.02	-	< 0.02
Nickel	1	mg/kg	-	2.6	-	< 1
Selenium	2	mg/kg	-	< 2	-	< 2
Zinc	5	mg/kg	-	< 5	-	< 5
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	5.1	5.6	6.0	6.0
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	4.4	4.9	5.2	4.0
Reaction Ratings* ^{S05}	0	comment	2.0	2.0	2.0	2.0
Sample Properties						
% Moisture	1	%	-	13	-	1.7
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	5	ug/kg	-	-	-	< 5
Perfluoropentanoic acid (PFPeA) ^{N11}	5	ug/kg	-	-	-	< 5
Perfluorohexanoic acid (PFHxA) ^{N11}	5	ug/kg	-	-	-	< 5
Perfluoroheptanoic acid (PFHpA) ^{N11}	5	ug/kg	-	-	-	< 5
Perfluorooctanoic acid (PFOA) ^{N11}	5	ug/kg	-	-	-	< 5
Perfluorononanoic acid (PFNA) ^{N11}	5	ug/kg	-	-	-	< 5
Perfluorodecanoic acid (PFDA) ^{N11}	5	ug/kg	-	-	-	< 5
Perfluoroundecanoic acid (PFUnDA) ^{N11}	5	ug/kg	-	-	-	< 5
Perfluorododecanoic acid (PFDoDA) ^{N11}	5	ug/kg	-	-	-	< 5
Perfluorotridecanoic acid (PFTeDA) ^{N15}	5	ug/kg	-	-	-	< 5
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	5	ug/kg	-	-	-	< 5
13C4-PFBA (surr.)	1	%	-	-	-	69
13C5-PFPeA (surr.)	1	%	-	-	-	101
13C5-PFHxA (surr.)	1	%	-	-	-	94
13C4-PFHpA (surr.)	1	%	-	-	-	99
13C8-PFOA (surr.)	1	%	-	-	-	125
13C5-PFNA (surr.)	1	%	-	-	-	130
13C6-PFDA (surr.)	1	%	-	-	-	118
13C2-PFUnDA (surr.)	1	%	-	-	-	122
13C2-PFDoDA (surr.)	1	%	-	-	-	149
13C2-PFTeDA (surr.)	1	%	-	-	-	138

Client Sample ID			TP09 - 0.25	TP09 - 1.0	TP09 - 1.50	TP10 - 0.0
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049716	L24- Ma0049717	L24- Ma0049718	L24- Ma0049719
Date Sampled			Not Provided ¹²	Not Provided ¹²	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	5	ug/kg	-	-	-	< 5
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	5	ug/kg	-	-	-	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	5	ug/kg	-	-	-	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	5	ug/kg	-	-	-	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	5	ug/kg	-	-	-	< 5
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	10	ug/kg	-	-	-	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	10	ug/kg	-	-	-	< 10
13C8-FOSA (surr.)	1	%	-	-	-	100
D3-N-MeFOSA (surr.)	1	%	-	-	-	124
D5-N-EtFOSA (surr.)	1	%	-	-	-	143
D7-N-MeFOSE (surr.)	1	%	-	-	-	100
D9-N-EtFOSE (surr.)	1	%	-	-	-	111
D5-N-EtFOSAA (surr.)	1	%	-	-	-	122
D3-N-MeFOSAA (surr.)	1	%	-	-	-	111
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)						
1H,1H,2H,2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	5	ug/kg	-	-	-	< 5
1H,1H,2H,2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	10	ug/kg	-	-	-	< 10
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	5	ug/kg	-	-	-	< 5
1H,1H,2H,2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	5	ug/kg	-	-	-	< 5
13C2-4:2 FTSA (surr.)	1	%	-	-	-	98
13C2-6:2 FTSA (surr.)	1	%	-	-	-	122
13C2-8:2 FTSA (surr.)	1	%	-	-	-	152
13C2-10:2 FTSA (surr.)	1	%	-	-	-	INT
Perfluoroalkyl sulfonic acids (PFASs)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	5	ug/kg	-	-	-	< 5
Perfluorononanesulfonic acid (PFNS) ^{*N15}	5	ug	-	-	-	< 5
Perfluoropropanesulfonic acid (PFPrS) ^{*N15}	5	ug/kg	-	-	-	< 5
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	5	ug/kg	-	-	-	< 5
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	5	ug/kg	-	-	-	< 5
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	5	ug/kg	-	-	-	< 5
Perfluorooctanesulfonic acid (PFOS) ^{N11}	5	ug/kg	-	-	-	< 5
Perfluorodecanesulfonic acid (PFDS) ^{N15}	5	ug/kg	-	-	-	< 5
13C3-PFBS (surr.)	1	%	-	-	-	99
18O2-PFHxS (surr.)	1	%	-	-	-	106
13C8-PFOS (surr.)	1	%	-	-	-	129
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	-	-	-	< 5
Sum of PFASs (n=30)*	50	ug/kg	-	-	-	< 50
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	-	-	-	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	-	-	-	< 5
Sum of WA DWER PFAS (n=10)*	10	ug/kg	-	-	-	< 10

Client Sample ID			TP10 - 1.0	TP11 - 0.0	TP11 - 0.25	TP11 - 0.50
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049723	L24- Ma0049724	L24- Ma0049725	L24- Ma0049726
Date Sampled			Not Provided ¹²	Mar 14, 2024	Mar 14, 2024	Mar 14, 2024
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	-	-
TRH C10-C14	20	mg/kg	< 20	< 20	-	-
TRH C15-C28	50	mg/kg	< 50	< 50	-	-
TRH C29-C36	50	mg/kg	< 50	66	-	-
TRH C10-C36 (Total)	50	mg/kg	< 50	66	-	-
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	-	-
Toluene	0.1	mg/kg	< 0.1	< 0.1	-	-
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	-	-
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	-	-
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	-	-
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	-	-
BTEX						
4-Bromofluorobenzene (surr.)	1	%	97	96	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	-	-
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	-	-
TRH C6-C10	20	mg/kg	< 20	< 20	-	-
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	< 50	-	-
TRH >C16-C34	100	mg/kg	< 100	< 100	-	-
TRH >C34-C40	100	mg/kg	< 100	< 100	-	-
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	-	-
OCOP in Soil						
Aldrin	0.01	mg/kg	< 0.01	< 0.01	-	-
alpha-BHC (HCH)	0.01	mg/kg	< 0.01	< 0.01	-	-
beta-BHC (HCH)	0.01	mg/kg	< 0.01	< 0.01	-	-
delta-BHC (HCH)	0.01	mg/kg	< 0.01	< 0.01	-	-
Bifenthrin	0.2	mg/kg	< 0.2	< 0.2	-	-
Bromophos Ethyl	0.05	mg/kg	< 0.05	< 0.05	-	-
Chlordane	0.01	mg/kg	< 0.01	< 0.01	-	-
Chlorpyrifos	0.02	mg/kg	< 0.02	< 0.02	-	-
Dieldrin	0.01	mg/kg	< 0.01	< 0.01	-	-
p,p-DDD	0.01	mg/kg	< 0.01	< 0.01	-	-
p,p-DDE	0.01	mg/kg	< 0.01	< 0.01	-	-
p,p-DDT	0.01	mg/kg	< 0.01	< 0.01	-	-
o,p-DDT	0.01	mg/kg	< 0.01	< 0.01	-	-
Endosulfan I	0.01	mg/kg	< 0.01	< 0.01	-	-
Endosulfan II	0.01	mg/kg	< 0.01	< 0.01	-	-
Endosulfan Sulfate	0.01	mg/kg	< 0.01	< 0.01	-	-
Endrin	0.01	mg/kg	< 0.01	< 0.01	-	-
Heptachlor	0.01	mg/kg	< 0.01	< 0.01	-	-
Heptachlor Epoxide	0.01	mg/kg	< 0.01	< 0.01	-	-
Hexachlorobenzene (HCB)	0.01	mg/kg	< 0.01	< 0.01	-	-
Lindane	0.01	mg/kg	< 0.01	< 0.01	-	-
Methoxychlor	0.2	mg/kg	< 0.2	< 0.2	-	-
Oxychlorane	0.01	mg/kg	< 0.01	< 0.01	-	-

Client Sample ID			TP10 - 1.0	TP11 - 0.0	TP11 - 0.25	TP11 - 0.50
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049723	L24- Ma0049724	L24- Ma0049725	L24- Ma0049726
Date Sampled			Not Provided ¹²	Mar 14, 2024	Mar 14, 2024	Mar 14, 2024
Test/Reference	LOR	Unit				
OCOP in Soil						
Diazinon	0.2	mg/kg	< 0.2	< 0.2	-	-
Ethion	0.05	mg/kg	< 0.05	< 0.05	-	-
Fenitrothion	0.1	mg/kg	< 0.1	< 0.1	-	-
Malathion	0.1	mg/kg	< 0.1	< 0.1	-	-
Trifluralin	0.2	mg/kg	< 0.2	< 0.2	-	-
Ammonia-N						
Ammonia-N	10	mg/kg	36	43	-	-
Chromium (VI)						
Chromium (VI)	1	mg/kg	< 1	< 1	-	-
Filterable Reactive Phosphorus						
Filterable Reactive Phosphorus	1	mg/kg	< 1	< 1	-	-
Nitrate-N						
Nitrate-N	1	mg/kg	< 1	11	-	-
Nitrite-N						
Nitrite-N	1	mg/kg	< 1	< 1	-	-
NOx-N						
NOx-N	1	mg/kg	< 1	11	-	-
Total Kjeldahl Nitrogen						
Total Kjeldahl Nitrogen	10	mg/kg	140	1700	-	-
Total Nitrogen						
Total Nitrogen	10	mg/kg	140	1700	-	-
Phosphorus						
Phosphorus	1	mg/kg	2.0	70	-	-
Heavy Metals						
Arsenic						
Arsenic	2	mg/kg	< 2	< 2	-	-
Beryllium						
Beryllium	2	mg/kg	< 2	< 2	-	-
Boron						
Boron	10	mg/kg	< 10	< 10	-	-
Cadmium						
Cadmium	0.1	mg/kg	< 0.1	< 0.1	-	-
Cobalt						
Cobalt	5	mg/kg	< 5	< 5	-	-
Copper						
Copper	1	mg/kg	< 1	< 1	-	-
Lead						
Lead	1	mg/kg	< 1	< 1	-	-
Manganese						
Manganese	5	mg/kg	< 5	< 5	-	-
Mercury						
Mercury	0.02	mg/kg	< 0.02	< 0.02	-	-
Nickel						
Nickel	1	mg/kg	< 1	< 1	-	-
Selenium						
Selenium	2	mg/kg	< 2	< 2	-	-
Zinc						
Zinc	5	mg/kg	< 5	< 5	-	-
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	6.1	5.9	6.1	6.0
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	4.1	3.8	4.0	3.7
Reaction Ratings* ^{S05}	0	comment	2.0	2.0	2.0	2.0
Sample Properties						
% Moisture	1	%	4.5	14	-	-

Client Sample ID			TP11 - 0.75	TP11 - 1.0	TP11 - 1.25	TP11 - 1.50
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049727	L24- Ma0049728	L24- Ma0049729	L24- Ma0049730
Date Sampled			Mar 14, 2024	Mar 14, 2024	Mar 14, 2024	Mar 14, 2024
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	< 20	-	-
TRH C10-C14	20	mg/kg	-	< 20	-	-
TRH C15-C28	50	mg/kg	-	< 50	-	-
TRH C29-C36	50	mg/kg	-	< 50	-	-
TRH C10-C36 (Total)	50	mg/kg	-	< 50	-	-

Client Sample ID			TP11 - 0.75	TP11 - 1.0	TP11 - 1.25	TP11 - 1.50
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049727	L24- Ma0049728	L24- Ma0049729	L24- Ma0049730
Date Sampled			Mar 14, 2024	Mar 14, 2024	Mar 14, 2024	Mar 14, 2024
Test/Reference	LOR	Unit				
BTEX						
Benzene	0.1	mg/kg	-	< 0.1	-	-
Toluene	0.1	mg/kg	-	< 0.1	-	-
Ethylbenzene	0.1	mg/kg	-	< 0.1	-	-
m&p-Xylenes	0.2	mg/kg	-	< 0.2	-	-
o-Xylene	0.1	mg/kg	-	< 0.1	-	-
Xylenes - Total*	0.3	mg/kg	-	< 0.3	-	-
BTEX						
4-Bromofluorobenzene (surr.)	1	%	-	107	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	-	< 0.5	-	-
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	-	< 50	-	-
TRH C6-C10	20	mg/kg	-	< 20	-	-
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	-	< 20	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	-	< 50	-	-
TRH >C16-C34	100	mg/kg	-	< 100	-	-
TRH >C34-C40	100	mg/kg	-	< 100	-	-
TRH >C10-C40 (total)*	100	mg/kg	-	< 100	-	-
OCOP in Soil						
Aldrin	0.01	mg/kg	-	< 0.01	-	-
alpha-BHC (HCH)	0.01	mg/kg	-	< 0.01	-	-
beta-BHC (HCH)	0.01	mg/kg	-	< 0.01	-	-
delta-BHC (HCH)	0.01	mg/kg	-	< 0.01	-	-
Bifenthrin	0.2	mg/kg	-	< 0.2	-	-
Bromophos Ethyl	0.05	mg/kg	-	< 0.05	-	-
Chlordane	0.01	mg/kg	-	< 0.01	-	-
Chlorpyrifos	0.02	mg/kg	-	< 0.02	-	-
Dieldrin	0.01	mg/kg	-	< 0.01	-	-
p,p-DDD	0.01	mg/kg	-	< 0.01	-	-
p,p-DDE	0.01	mg/kg	-	< 0.01	-	-
p,p-DDT	0.01	mg/kg	-	< 0.01	-	-
o,p-DDT	0.01	mg/kg	-	< 0.01	-	-
Endosulfan I	0.01	mg/kg	-	< 0.01	-	-
Endosulfan II	0.01	mg/kg	-	< 0.01	-	-
Endosulfan Sulfate	0.01	mg/kg	-	< 0.01	-	-
Endrin	0.01	mg/kg	-	< 0.01	-	-
Heptachlor	0.01	mg/kg	-	< 0.01	-	-
Heptachlor Epoxide	0.01	mg/kg	-	< 0.01	-	-
Hexachlorobenzene (HCB)	0.01	mg/kg	-	< 0.01	-	-
Lindane	0.01	mg/kg	-	< 0.01	-	-
Methoxychlor	0.2	mg/kg	-	< 0.2	-	-
Oxychlordane	0.01	mg/kg	-	< 0.01	-	-
Diazinon	0.2	mg/kg	-	< 0.2	-	-
Ethion	0.05	mg/kg	-	< 0.05	-	-
Fenitrothion	0.1	mg/kg	-	< 0.1	-	-
Malathion	0.1	mg/kg	-	< 0.1	-	-
Trifluralin	0.2	mg/kg	-	< 0.2	-	-

Client Sample ID			TP11 - 0.75	TP11 - 1.0	TP11 - 1.25	TP11 - 1.50
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049727	L24- Ma0049728	L24- Ma0049729	L24- Ma0049730
Date Sampled			Mar 14, 2024	Mar 14, 2024	Mar 14, 2024	Mar 14, 2024
Test/Reference	LOR	Unit				
Ammonia-N	10	mg/kg	-	39	-	-
Chromium (VI)	1	mg/kg	-	< 1	-	-
Filterable Reactive Phosphorus	1	mg/kg	-	< 1	-	-
Nitrate-N	1	mg/kg	-	1.8	-	-
Nitrite-N	1	mg/kg	-	< 1	-	-
NOx-N	1	mg/kg	-	1.9	-	-
Total Kjeldahl Nitrogen	10	mg/kg	-	210	-	-
Total Nitrogen	10	mg/kg	-	210	-	-
Phosphorus	1	mg/kg	-	9.6	-	-
Heavy Metals						
Arsenic	2	mg/kg	-	< 2	-	-
Beryllium	2	mg/kg	-	< 2	-	-
Boron	10	mg/kg	-	< 10	-	-
Cadmium	0.1	mg/kg	-	< 0.1	-	-
Cobalt	5	mg/kg	-	< 5	-	-
Copper	1	mg/kg	-	< 1	-	-
Lead	1	mg/kg	-	< 1	-	-
Manganese	5	mg/kg	-	< 5	-	-
Mercury	0.02	mg/kg	-	< 0.02	-	-
Nickel	1	mg/kg	-	< 1	-	-
Selenium	2	mg/kg	-	< 2	-	-
Zinc	5	mg/kg	-	< 5	-	-
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	6.5	6.6	6.2	6.3
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	5.1	5.2	4.3	4.3
Reaction Ratings* ^{S05}	0	comment	2.0	2.0	2.0	2.0
Sample Properties						
% Moisture	1	%	-	11	-	-

Client Sample ID			TP11 - 1.75	TP11 - 2.0	TP12 - 0.0	TP13 - 0.0
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049731	L24- Ma0049732	L24- Ma0049733	L24- Ma0049734
Date Sampled			Mar 14, 2024	Mar 14, 2024	Mar 13, 2024	Mar 13, 2024
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	-	< 20	< 20
TRH C10-C14	20	mg/kg	-	-	< 20	< 20
TRH C15-C28	50	mg/kg	-	-	< 50	68
TRH C29-C36	50	mg/kg	-	-	< 50	120
TRH C10-C36 (Total)	50	mg/kg	-	-	< 50	188
BTEX						
Benzene	0.1	mg/kg	-	-	< 0.1	< 0.1
Toluene	0.1	mg/kg	-	-	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	-	-	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	-	-	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	-	-	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	-	-	< 0.3	< 0.3

Client Sample ID			TP11 - 1.75	TP11 - 2.0	TP12 - 0.0	TP13 - 0.0
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049731	L24- Ma0049732	L24- Ma0049733	L24- Ma0049734
Date Sampled			Mar 14, 2024	Mar 14, 2024	Mar 13, 2024	Mar 13, 2024
Test/Reference	LOR	Unit				
BTEX						
4-Bromofluorobenzene (surr.)	1	%	-	-	98	123
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	-	-	< 0.5	< 0.5
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	-	-	< 50	< 50
TRH C6-C10	20	mg/kg	-	-	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	-	-	< 20	< 20
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	-	-	< 50	< 50
TRH >C16-C34	100	mg/kg	-	-	< 100	150
TRH >C34-C40	100	mg/kg	-	-	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	-	-	< 100	150
OCOP in Soil						
Aldrin	0.01	mg/kg	-	-	< 0.01	< 0.01
alpha-BHC (HCH)	0.01	mg/kg	-	-	< 0.01	< 0.01
beta-BHC (HCH)	0.01	mg/kg	-	-	< 0.01	< 0.01
delta-BHC (HCH)	0.01	mg/kg	-	-	< 0.01	< 0.01
Bifenthrin	0.2	mg/kg	-	-	< 0.2	< 0.2
Bromophos Ethyl	0.05	mg/kg	-	-	< 0.05	< 0.05
Chlordane	0.01	mg/kg	-	-	< 0.01	< 0.01
Chlorpyrifos	0.02	mg/kg	-	-	< 0.02	< 0.02
Dieldrin	0.01	mg/kg	-	-	< 0.01	< 0.01
p,p-DDD	0.01	mg/kg	-	-	< 0.01	< 0.01
p,p-DDE	0.01	mg/kg	-	-	< 0.01	< 0.01
p,p-DDT	0.01	mg/kg	-	-	< 0.01	< 0.01
o,p-DDT	0.01	mg/kg	-	-	< 0.01	< 0.01
Endosulfan I	0.01	mg/kg	-	-	< 0.01	< 0.01
Endosulfan II	0.01	mg/kg	-	-	< 0.01	< 0.01
Endosulfan Sulfate	0.01	mg/kg	-	-	< 0.01	< 0.01
Endrin	0.01	mg/kg	-	-	< 0.01	< 0.01
Heptachlor	0.01	mg/kg	-	-	< 0.01	< 0.01
Heptachlor Epoxide	0.01	mg/kg	-	-	< 0.01	< 0.01
Hexachlorobenzene (HCB)	0.01	mg/kg	-	-	< 0.01	< 0.01
Lindane	0.01	mg/kg	-	-	< 0.01	< 0.01
Methoxychlor	0.2	mg/kg	-	-	< 0.2	< 0.2
Oxychlordane	0.01	mg/kg	-	-	< 0.01	< 0.01
Diazinon	0.2	mg/kg	-	-	< 0.2	< 0.2
Ethion	0.05	mg/kg	-	-	< 0.05	< 0.05
Fenitrothion	0.1	mg/kg	-	-	< 0.1	< 0.1
Malathion	0.1	mg/kg	-	-	< 0.1	< 0.1
Trifluralin	0.2	mg/kg	-	-	< 0.2	< 0.2
Ammonia-N						
Ammonia-N	10	mg/kg	-	-	44	46
Chromium (VI)						
Chromium (VI)	1	mg/kg	-	-	< 1	< 1
Filterable Reactive Phosphorus						
Filterable Reactive Phosphorus	1	mg/kg	-	-	< 1	8.2
Nitrate-N						
Nitrate-N	1	mg/kg	-	-	< 1	4.2
Nitrite-N						
Nitrite-N	1	mg/kg	-	-	< 1	< 1
NOx-N						
NOx-N	1	mg/kg	-	-	< 1	4.3
Total Kjeldahl Nitrogen						
Total Kjeldahl Nitrogen	10	mg/kg	-	-	2900	3700

Client Sample ID			TP11 - 1.75	TP11 - 2.0	TP12 - 0.0	TP13 - 0.0
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049731	L24- Ma0049732	L24- Ma0049733	L24- Ma0049734
Date Sampled			Mar 14, 2024	Mar 14, 2024	Mar 13, 2024	Mar 13, 2024
Test/Reference	LOR	Unit				
Total Nitrogen	10	mg/kg	-	-	2900	3700
Phosphorus	1	mg/kg	-	-	100	100
Heavy Metals						
Arsenic	2	mg/kg	-	-	< 2	< 2
Beryllium	2	mg/kg	-	-	< 2	< 2
Boron	10	mg/kg	-	-	< 10	< 10
Cadmium	0.1	mg/kg	-	-	< 0.1	< 0.1
Cobalt	5	mg/kg	-	-	< 5	< 5
Copper	1	mg/kg	-	-	2.1	2.4
Lead	1	mg/kg	-	-	< 1	< 1
Manganese	5	mg/kg	-	-	< 5	< 5
Mercury	0.02	mg/kg	-	-	< 0.02	< 0.02
Nickel	1	mg/kg	-	-	< 1	1.4
Selenium	2	mg/kg	-	-	< 2	< 2
Zinc	5	mg/kg	-	-	< 5	6.0
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	5.9	5.3	6.0	5.9
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	3.1	3.4	4.1	5.0
Reaction Ratings* ^{S05}	0	comment	2.0	4.0	2.0	2.0
Sample Properties						
% Moisture	1	%	-	-	1.0	5.4
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	5	ug/kg	-	-	< 5	-
Perfluoropentanoic acid (PFPeA) ^{N11}	5	ug/kg	-	-	< 5	-
Perfluorohexanoic acid (PFHxA) ^{N11}	5	ug/kg	-	-	< 5	-
Perfluoroheptanoic acid (PFHpA) ^{N11}	5	ug/kg	-	-	< 5	-
Perfluorooctanoic acid (PFOA) ^{N11}	5	ug/kg	-	-	< 5	-
Perfluorononanoic acid (PFNA) ^{N11}	5	ug/kg	-	-	< 5	-
Perfluorodecanoic acid (PFDA) ^{N11}	5	ug/kg	-	-	< 5	-
Perfluoroundecanoic acid (PFUnDA) ^{N11}	5	ug/kg	-	-	< 5	-
Perfluorododecanoic acid (PFDoDA) ^{N11}	5	ug/kg	-	-	< 5	-
Perfluorotridecanoic acid (PFTeDA) ^{N15}	5	ug/kg	-	-	< 5	-
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	5	ug/kg	-	-	< 5	-
13C4-PFBA (surr.)	1	%	-	-	89	-
13C5-PFPeA (surr.)	1	%	-	-	87	-
13C5-PFHxA (surr.)	1	%	-	-	86	-
13C4-PFHpA (surr.)	1	%	-	-	84	-
13C8-PFOA (surr.)	1	%	-	-	122	-
13C5-PFNA (surr.)	1	%	-	-	120	-
13C6-PFDA (surr.)	1	%	-	-	105	-
13C2-PFUnDA (surr.)	1	%	-	-	102	-
13C2-PFDoDA (surr.)	1	%	-	-	129	-
13C2-PFTeDA (surr.)	1	%	-	-	119	-

Client Sample ID			TP11 - 1.75	TP11 - 2.0	TP12 - 0.0	TP13 - 0.0
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24-Ma0049731	L24-Ma0049732	L24-Ma0049733	L24-Ma0049734
Date Sampled			Mar 14, 2024	Mar 14, 2024	Mar 13, 2024	Mar 13, 2024
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	5	ug/kg	-	-	< 5	-
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	5	ug/kg	-	-	< 5	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	5	ug/kg	-	-	< 5	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	5	ug/kg	-	-	< 5	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	5	ug/kg	-	-	< 5	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	10	ug/kg	-	-	< 10	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	10	ug/kg	-	-	< 10	-
13C8-FOSA (surr.)	1	%	-	-	93	-
D3-N-MeFOSA (surr.)	1	%	-	-	124	-
D5-N-EtFOSA (surr.)	1	%	-	-	137	-
D7-N-MeFOSE (surr.)	1	%	-	-	98	-
D9-N-EtFOSE (surr.)	1	%	-	-	103	-
D5-N-EtFOSAA (surr.)	1	%	-	-	92	-
D3-N-MeFOSAA (surr.)	1	%	-	-	100	-
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	5	ug/kg	-	-	< 5	-
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	10	ug/kg	-	-	< 10	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	5	ug/kg	-	-	< 5	-
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	5	ug/kg	-	-	< 5	-
13C2-4:2 FTSA (surr.)	1	%	-	-	95	-
13C2-6:2 FTSA (surr.)	1	%	-	-	111	-
13C2-8:2 FTSA (surr.)	1	%	-	-	124	-
13C2-10:2 FTSA (surr.)	1	%	-	-	179	-
Perfluoroalkyl sulfonic acids (PFASs)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	5	ug/kg	-	-	< 5	-
Perfluorononanesulfonic acid (PFNS) ^{*N15}	5	ug	-	-	< 5	-
Perfluoropropanesulfonic acid (PFPrS) ^{*N15}	5	ug/kg	-	-	< 5	-
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	5	ug/kg	-	-	< 5	-
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	5	ug/kg	-	-	< 5	-
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	5	ug/kg	-	-	< 5	-
Perfluorooctanesulfonic acid (PFOS) ^{N11}	5	ug/kg	-	-	< 5	-
Perfluorodecanesulfonic acid (PFDS) ^{N15}	5	ug/kg	-	-	< 5	-
13C3-PFBS (surr.)	1	%	-	-	118	-
18O2-PFHxS (surr.)	1	%	-	-	102	-
13C8-PFOS (surr.)	1	%	-	-	111	-
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	-	-	< 5	-
Sum of PFASs (n=30)*	50	ug/kg	-	-	< 50	-
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	-	-	< 5	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	-	-	< 5	-
Sum of WA DWER PFAS (n=10)*	10	ug/kg	-	-	< 10	-

Client Sample ID			TP13 - 0.25	TP13 - 0.50	TP13 - 0.75	TP13 - 1.0
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049735	L24- Ma0049736	L24- Ma0049737	L24- Ma0049738
Date Sampled			Mar 13, 2024	Mar 13, 2024	Mar 13, 2024	Mar 13, 2024
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	-	-	< 20
TRH C10-C14	20	mg/kg	-	-	-	< 20
TRH C15-C28	50	mg/kg	-	-	-	< 50
TRH C29-C36	50	mg/kg	-	-	-	< 50
TRH C10-C36 (Total)	50	mg/kg	-	-	-	< 50
BTEX						
Benzene	0.1	mg/kg	-	-	-	< 0.1
Toluene	0.1	mg/kg	-	-	-	< 0.1
Ethylbenzene	0.1	mg/kg	-	-	-	< 0.1
m&p-Xylenes	0.2	mg/kg	-	-	-	< 0.2
o-Xylene	0.1	mg/kg	-	-	-	< 0.1
Xylenes - Total*	0.3	mg/kg	-	-	-	< 0.3
BTEX						
4-Bromofluorobenzene (surr.)	1	%	-	-	-	96
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	-	-	-	< 0.5
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	-	-	-	< 50
TRH C6-C10	20	mg/kg	-	-	-	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	-	-	-	< 20
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	-	-	-	< 50
TRH >C16-C34	100	mg/kg	-	-	-	< 100
TRH >C34-C40	100	mg/kg	-	-	-	< 100
TRH >C10-C40 (total)*	100	mg/kg	-	-	-	< 100
OCOP in Soil						
Aldrin	0.01	mg/kg	-	-	-	< 0.01
alpha-BHC (HCH)	0.01	mg/kg	-	-	-	< 0.01
beta-BHC (HCH)	0.01	mg/kg	-	-	-	< 0.01
delta-BHC (HCH)	0.01	mg/kg	-	-	-	< 0.01
Bifenthrin	0.2	mg/kg	-	-	-	< 0.2
Bromophos Ethyl	0.05	mg/kg	-	-	-	< 0.05
Chlordane	0.01	mg/kg	-	-	-	< 0.01
Chlorpyrifos	0.02	mg/kg	-	-	-	< 0.02
Dieldrin	0.01	mg/kg	-	-	-	< 0.01
p,p-DDD	0.01	mg/kg	-	-	-	< 0.01
p,p-DDE	0.01	mg/kg	-	-	-	< 0.01
p,p-DDT	0.01	mg/kg	-	-	-	< 0.01
o,p-DDT	0.01	mg/kg	-	-	-	< 0.01
Endosulfan I	0.01	mg/kg	-	-	-	< 0.01
Endosulfan II	0.01	mg/kg	-	-	-	< 0.01
Endosulfan Sulfate	0.01	mg/kg	-	-	-	< 0.01
Endrin	0.01	mg/kg	-	-	-	< 0.01
Heptachlor	0.01	mg/kg	-	-	-	< 0.01
Heptachlor Epoxide	0.01	mg/kg	-	-	-	< 0.01
Hexachlorobenzene (HCB)	0.01	mg/kg	-	-	-	< 0.01
Lindane	0.01	mg/kg	-	-	-	< 0.01
Methoxychlor	0.2	mg/kg	-	-	-	< 0.2
Oxychlorane	0.01	mg/kg	-	-	-	< 0.01

Client Sample ID			TP13 - 0.25	TP13 - 0.50	TP13 - 0.75	TP13 - 1.0
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049735	L24- Ma0049736	L24- Ma0049737	L24- Ma0049738
Date Sampled			Mar 13, 2024	Mar 13, 2024	Mar 13, 2024	Mar 13, 2024
Test/Reference	LOR	Unit				
OCOP in Soil						
Diazinon	0.2	mg/kg	-	-	-	< 0.2
Ethion	0.05	mg/kg	-	-	-	< 0.05
Fenitrothion	0.1	mg/kg	-	-	-	< 0.1
Malathion	0.1	mg/kg	-	-	-	< 0.1
Trifluralin	0.2	mg/kg	-	-	-	< 0.2
Ammonia-N						
Ammonia-N	10	mg/kg	-	-	-	37
Chromium (VI)						
Chromium (VI)	1	mg/kg	-	-	-	< 1
Filterable Reactive Phosphorus						
Filterable Reactive Phosphorus	1	mg/kg	-	-	-	< 1
Nitrate-N						
Nitrate-N	1	mg/kg	-	-	-	1.6
Nitrite-N						
Nitrite-N	1	mg/kg	-	-	-	< 1
NOx-N						
NOx-N	1	mg/kg	-	-	-	1.7
Total Kjeldahl Nitrogen						
Total Kjeldahl Nitrogen	10	mg/kg	-	-	-	160
Total Nitrogen						
Total Nitrogen	10	mg/kg	-	-	-	160
Phosphorus						
Phosphorus	1	mg/kg	-	-	-	2.5
Heavy Metals						
Arsenic						
Arsenic	2	mg/kg	-	-	-	< 2
Beryllium						
Beryllium	2	mg/kg	-	-	-	< 2
Boron						
Boron	10	mg/kg	-	-	-	< 10
Cadmium						
Cadmium	0.1	mg/kg	-	-	-	< 0.1
Cobalt						
Cobalt	5	mg/kg	-	-	-	< 5
Copper						
Copper	1	mg/kg	-	-	-	< 1
Lead						
Lead	1	mg/kg	-	-	-	< 1
Manganese						
Manganese	5	mg/kg	-	-	-	< 5
Mercury						
Mercury	0.02	mg/kg	-	-	-	< 0.02
Nickel						
Nickel	1	mg/kg	-	-	-	< 1
Selenium						
Selenium	2	mg/kg	-	-	-	< 2
Zinc						
Zinc	5	mg/kg	-	-	-	< 5
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	4.7	4.6	4.7	4.7
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	4.0	4.3	4.2	4.2
Reaction Ratings**S05	0	comment	2.0	2.0	2.0	2.0
Sample Properties						
% Moisture	1	%	-	-	-	6.7

Client Sample ID			TP13 - 1.25	TP13 - 1.50	TP13 - 1.75	TP13 - 2.0
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049739	L24- Ma0049740	L24- Ma0049741	L24- Ma0049742
Date Sampled			Mar 13, 2024	Mar 13, 2024	Mar 13, 2024	Mar 13, 2024
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	4.7	4.7	4.8	4.8
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	4.1	4.2	3.9	3.6
Reaction Ratings**S05	0	comment	2.0	2.0	2.0	2.0

Client Sample ID			TP14 - 0.0	TP14 - 0.25	TP15 - 0.0	TP15 - 0.25
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049743	L24- Ma0049744	L24- Ma0049745	L24- Ma0049746
Date Sampled			Mar 13, 2024	Mar 13, 2024	Mar 13, 2024	Mar 13, 2024
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	-	< 20	-
TRH C10-C14	20	mg/kg	< 20	-	< 20	-
TRH C15-C28	50	mg/kg	61	-	< 50	-
TRH C29-C36	50	mg/kg	78	-	< 50	-
TRH C10-C36 (Total)	50	mg/kg	139	-	< 50	-
BTEX						
Benzene	0.1	mg/kg	< 0.1	-	< 0.1	-
Toluene	0.1	mg/kg	< 0.1	-	< 0.1	-
Ethylbenzene	0.1	mg/kg	< 0.1	-	< 0.1	-
m&p-Xylenes	0.2	mg/kg	< 0.2	-	< 0.2	-
o-Xylene	0.1	mg/kg	< 0.1	-	< 0.1	-
Xylenes - Total*	0.3	mg/kg	< 0.3	-	< 0.3	-
BTEX						
4-Bromofluorobenzene (surr.)	1	%	96	-	92	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	-	< 0.5	-
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	-	< 50	-
TRH C6-C10	20	mg/kg	< 20	-	< 20	-
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	-	< 20	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	-	< 50	-
TRH >C16-C34	100	mg/kg	110	-	< 100	-
TRH >C34-C40	100	mg/kg	< 100	-	< 100	-
TRH >C10-C40 (total)*	100	mg/kg	110	-	< 100	-
OCOP in Soil						
Aldrin	0.01	mg/kg	< 0.01	-	< 0.01	-
alpha-BHC (HCH)	0.01	mg/kg	< 0.01	-	< 0.01	-
beta-BHC (HCH)	0.01	mg/kg	< 0.01	-	< 0.01	-
delta-BHC (HCH)	0.01	mg/kg	< 0.01	-	< 0.01	-
Bifenthrin	0.2	mg/kg	< 0.2	-	< 0.2	-
Bromophos Ethyl	0.05	mg/kg	< 0.05	-	< 0.05	-
Chlordane	0.01	mg/kg	< 0.01	-	< 0.01	-
Chlorpyrifos	0.02	mg/kg	< 0.02	-	< 0.02	-
Dieldrin	0.01	mg/kg	< 0.01	-	< 0.01	-
p,p-DDD	0.01	mg/kg	< 0.01	-	< 0.01	-
p,p-DDE	0.01	mg/kg	< 0.01	-	< 0.01	-
p,p-DDT	0.01	mg/kg	< 0.01	-	< 0.01	-
o,p-DDT	0.01	mg/kg	< 0.01	-	< 0.01	-
Endosulfan I	0.01	mg/kg	< 0.01	-	< 0.01	-
Endosulfan II	0.01	mg/kg	< 0.01	-	< 0.01	-
Endosulfan Sulfate	0.01	mg/kg	< 0.01	-	< 0.01	-
Endrin	0.01	mg/kg	< 0.01	-	< 0.01	-
Heptachlor	0.01	mg/kg	< 0.01	-	< 0.01	-
Heptachlor Epoxide	0.01	mg/kg	< 0.01	-	< 0.01	-
Hexachlorobenzene (HCB)	0.01	mg/kg	< 0.01	-	< 0.01	-
Lindane	0.01	mg/kg	< 0.01	-	< 0.01	-
Methoxychlor	0.2	mg/kg	< 0.2	-	< 0.2	-
Oxychlordane	0.01	mg/kg	< 0.01	-	< 0.01	-

Client Sample ID			TP14 - 0.0	TP14 - 0.25	TP15 - 0.0	TP15 - 0.25
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049743	L24- Ma0049744	L24- Ma0049745	L24- Ma0049746
Date Sampled			Mar 13, 2024	Mar 13, 2024	Mar 13, 2024	Mar 13, 2024
Test/Reference	LOR	Unit				
OCOP in Soil						
Diazinon	0.2	mg/kg	< 0.2	-	< 0.2	-
Ethion	0.05	mg/kg	< 0.05	-	< 0.05	-
Fenitrothion	0.1	mg/kg	< 0.1	-	< 0.1	-
Malathion	0.1	mg/kg	< 0.1	-	< 0.1	-
Trifluralin	0.2	mg/kg	< 0.2	-	< 0.2	-
Ammonia-N						
Ammonia-N	10	mg/kg	40	-	47	-
Chromium (VI)						
Chromium (VI)	1	mg/kg	< 1	-	< 1	-
Filterable Reactive Phosphorus						
Filterable Reactive Phosphorus	1	mg/kg	2.2	-	< 1	-
Nitrate-N						
Nitrate-N	1	mg/kg	< 1	-	< 1	-
Nitrite-N						
Nitrite-N	1	mg/kg	< 1	-	< 1	-
NOx-N						
NOx-N	1	mg/kg	1.0	-	1.1	-
Total Kjeldahl Nitrogen						
Total Kjeldahl Nitrogen	10	mg/kg	1300	-	2100	-
Total Nitrogen						
Total Nitrogen	10	mg/kg	1300	-	2100	-
Phosphorus						
Phosphorus	1	mg/kg	140	-	80	-
Heavy Metals						
Arsenic						
Arsenic	2	mg/kg	< 2	-	< 2	-
Beryllium						
Beryllium	2	mg/kg	< 2	-	< 2	-
Boron						
Boron	10	mg/kg	< 10	-	< 10	-
Cadmium						
Cadmium	0.1	mg/kg	< 0.1	-	< 0.1	-
Cobalt						
Cobalt	5	mg/kg	< 5	-	< 5	-
Copper						
Copper	1	mg/kg	1.2	-	< 1	-
Lead						
Lead	1	mg/kg	2.0	-	< 1	-
Manganese						
Manganese	5	mg/kg	< 5	-	< 5	-
Mercury						
Mercury	0.02	mg/kg	< 0.02	-	< 0.02	-
Nickel						
Nickel	1	mg/kg	< 1	-	< 1	-
Selenium						
Selenium	2	mg/kg	< 2	-	< 2	-
Zinc						
Zinc	5	mg/kg	< 5	-	< 5	-
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	5.5	5.8	5.3	5.6
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	3.5	3.7	3.5	4.1
Reaction Ratings**S05	0	comment	2.0	2.0	2.0	2.0
Sample Properties						
% Moisture	1	%	1.0	-	2.0	-
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluoropentanoic acid (PFPeA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorohexanoic acid (PFHxA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluoroheptanoic acid (PFHpA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorooctanoic acid (PFOA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorononanoic acid (PFNA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorodecanoic acid (PFDA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluoroundecanoic acid (PFUnDA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorododecanoic acid (PFDoDA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorotridecanoic acid (PFTTrDA) ^{N15}	5	ug/kg	< 5	-	-	-
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	5	ug/kg	< 5	-	-	-
13C4-PFBA (surr.)	1	%	84	-	-	-
13C5-PFPeA (surr.)	1	%	111	-	-	-

Client Sample ID			TP14 - 0.0	TP14 - 0.25	TP15 - 0.0	TP15 - 0.25
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049743	L24- Ma0049744	L24- Ma0049745	L24- Ma0049746
Date Sampled			Mar 13, 2024	Mar 13, 2024	Mar 13, 2024	Mar 13, 2024
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
13C5-PFHxA (surr.)	1	%	109	-	-	-
13C4-PFHpA (surr.)	1	%	165	-	-	-
13C8-PFOA (surr.)	1	%	105	-	-	-
13C5-PFNA (surr.)	1	%	89	-	-	-
13C6-PFDA (surr.)	1	%	120	-	-	-
13C2-PFUnDA (surr.)	1	%	160	-	-	-
13C2-PFDoDA (surr.)	1	%	115	-	-	-
13C2-PFTeDA (surr.)	1	%	103	-	-	-
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	5	ug/kg	< 5	-	-	-
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	5	ug/kg	< 5	-	-	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	5	ug/kg	< 5	-	-	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	5	ug/kg	< 5	-	-	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	5	ug/kg	< 5	-	-	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	10	ug/kg	< 10	-	-	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	10	ug/kg	< 10	-	-	-
13C8-FOSA (surr.)	1	%	123	-	-	-
D3-N-MeFOSA (surr.)	1	%	182	-	-	-
D5-N-EtFOSA (surr.)	1	%	INT	-	-	-
D7-N-MeFOSE (surr.)	1	%	171	-	-	-
D9-N-EtFOSE (surr.)	1	%	139	-	-	-
D5-N-EtFOSAA (surr.)	1	%	92	-	-	-
D3-N-MeFOSAA (surr.)	1	%	99	-	-	-
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	5	ug/kg	< 5	-	-	-
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	10	ug/kg	< 10	-	-	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	5	ug/kg	< 5	-	-	-
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	5	ug/kg	< 5	-	-	-
13C2-4:2 FTSA (surr.)	1	%	113	-	-	-
13C2-6:2 FTSA (surr.)	1	%	81	-	-	-
13C2-8:2 FTSA (surr.)	1	%	93	-	-	-
13C2-10:2 FTSA (surr.)	1	%	114	-	-	-
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorononanesulfonic acid (PFNS) ^{*N15}	5	ug	< 5	-	-	-
Perfluoropropanesulfonic acid (PFPrS) ^{*N15}	5	ug/kg	< 5	-	-	-
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	5	ug/kg	< 5	-	-	-
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	5	ug/kg	< 5	-	-	-
Perfluorooctanesulfonic acid (PFOS) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorodecanesulfonic acid (PFDS) ^{N15}	5	ug/kg	< 5	-	-	-
13C3-PFBS (surr.)	1	%	149	-	-	-
18O2-PFHxS (surr.)	1	%	87	-	-	-
13C8-PFOS (surr.)	1	%	111	-	-	-

Client Sample ID			TP14 - 0.0	TP14 - 0.25	TP15 - 0.0	TP15 - 0.25
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049743	L24- Ma0049744	L24- Ma0049745	L24- Ma0049746
Date Sampled			Mar 13, 2024	Mar 13, 2024	Mar 13, 2024	Mar 13, 2024
Test/Reference	LOR	Unit				
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	< 5	-	-	-
Sum of PFASs (n=30)*	50	ug/kg	< 50	-	-	-
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5	-	-	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5	-	-	-
Sum of WA DWER PFAS (n=10)*	10	ug/kg	< 10	-	-	-

Client Sample ID			TP15 - 0.50	TP15 - 0.75	TP15 - 1.0	TP16 - 0.0
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049747	L24- Ma0049748	L24- Ma0049749	L24- Ma0049750
Date Sampled			Mar 13, 2024	Mar 13, 2024	Mar 13, 2024	Mar 13, 2024
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	-	< 20	< 20
TRH C10-C14	20	mg/kg	-	-	< 20	< 20
TRH C15-C28	50	mg/kg	-	-	< 50	< 50
TRH C29-C36	50	mg/kg	-	-	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	-	-	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	-	-	< 0.1	< 0.1
Toluene	0.1	mg/kg	-	-	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	-	-	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	-	-	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	-	-	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	-	-	< 0.3	< 0.3
BTEX						
4-Bromofluorobenzene (surr.)	1	%	-	-	89	100
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	-	-	< 0.5	< 0.5
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	-	-	< 50	< 50
TRH C6-C10	20	mg/kg	-	-	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	-	-	< 20	< 20
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	-	-	< 50	< 50
TRH >C16-C34	100	mg/kg	-	-	< 100	< 100
TRH >C34-C40	100	mg/kg	-	-	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	-	-	< 100	< 100
OCOP in Soil						
Aldrin	0.01	mg/kg	-	-	< 0.01	< 0.01
alpha-BHC (HCH)	0.01	mg/kg	-	-	< 0.01	< 0.01
beta-BHC (HCH)	0.01	mg/kg	-	-	< 0.01	< 0.01
delta-BHC (HCH)	0.01	mg/kg	-	-	< 0.01	< 0.01
Bifenthrin	0.2	mg/kg	-	-	< 0.2	< 0.2
Bromophos Ethyl	0.05	mg/kg	-	-	< 0.05	< 0.05
Chlordane	0.01	mg/kg	-	-	< 0.01	< 0.01
Chlorpyrifos	0.02	mg/kg	-	-	< 0.02	< 0.02
Dieldrin	0.01	mg/kg	-	-	< 0.01	< 0.01

Client Sample ID			TP15 - 0.50	TP15 - 0.75	TP15 - 1.0	TP16 - 0.0
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049747	L24- Ma0049748	L24- Ma0049749	L24- Ma0049750
Date Sampled			Mar 13, 2024	Mar 13, 2024	Mar 13, 2024	Mar 13, 2024
Test/Reference	LOR	Unit				
OCOP in Soil						
p,p-DDD	0.01	mg/kg	-	-	< 0.01	< 0.01
p,p-DDE	0.01	mg/kg	-	-	< 0.01	< 0.01
p,p-DDT	0.01	mg/kg	-	-	< 0.01	< 0.01
o,p-DDT	0.01	mg/kg	-	-	< 0.01	< 0.01
Endosulfan I	0.01	mg/kg	-	-	< 0.01	< 0.01
Endosulfan II	0.01	mg/kg	-	-	< 0.01	< 0.01
Endosulfan Sulfate	0.01	mg/kg	-	-	< 0.01	< 0.01
Endrin	0.01	mg/kg	-	-	< 0.01	< 0.01
Heptachlor	0.01	mg/kg	-	-	< 0.01	< 0.01
Heptachlor Epoxide	0.01	mg/kg	-	-	< 0.01	< 0.01
Hexachlorobenzene (HCB)	0.01	mg/kg	-	-	< 0.01	< 0.01
Lindane	0.01	mg/kg	-	-	< 0.01	< 0.01
Methoxychlor	0.2	mg/kg	-	-	< 0.2	< 0.2
Oxychlorane	0.01	mg/kg	-	-	< 0.01	< 0.01
Diazinon	0.2	mg/kg	-	-	< 0.2	< 0.2
Ethion	0.05	mg/kg	-	-	< 0.05	< 0.05
Fenitrothion	0.1	mg/kg	-	-	< 0.1	< 0.1
Malathion	0.1	mg/kg	-	-	< 0.1	< 0.1
Trifluralin	0.2	mg/kg	-	-	< 0.2	< 0.2
Ammonia-N						
Ammonia-N	10	mg/kg	-	-	42	44
Chromium (VI)						
Chromium (VI)	1	mg/kg	-	-	< 1	< 1
Filterable Reactive Phosphorus						
Filterable Reactive Phosphorus	1	mg/kg	-	-	< 1	< 1
Nitrate-N						
Nitrate-N	1	mg/kg	-	-	< 1	2.7
Nitrite-N						
Nitrite-N	1	mg/kg	-	-	< 1	< 1
NOx-N						
NOx-N	1	mg/kg	-	-	< 1	3.5
Total Kjeldahl Nitrogen						
Total Kjeldahl Nitrogen	10	mg/kg	-	-	160	1300
Total Nitrogen						
Total Nitrogen	10	mg/kg	-	-	160	1300
Phosphorus						
Phosphorus	1	mg/kg	-	-	14	160
Heavy Metals						
Arsenic	2	mg/kg	-	-	< 2	< 2
Beryllium	2	mg/kg	-	-	< 2	< 2
Boron	10	mg/kg	-	-	< 10	< 10
Cadmium	0.1	mg/kg	-	-	< 0.1	< 0.1
Cobalt	5	mg/kg	-	-	< 5	< 5
Copper	1	mg/kg	-	-	< 1	1.8
Lead	1	mg/kg	-	-	< 1	< 1
Manganese	5	mg/kg	-	-	< 5	15
Mercury	0.02	mg/kg	-	-	< 0.02	< 0.02
Nickel	1	mg/kg	-	-	< 1	< 1
Selenium	2	mg/kg	-	-	< 2	< 2
Zinc	5	mg/kg	-	-	< 5	< 5
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	5.7	5.9	6.2	5.8
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	4.8	5.0	5.1	3.0
Reaction Ratings**S05	0	comment	2.0	2.0	2.0	2.0
Sample Properties						
% Moisture	1	%	-	-	9.0	1.2

Client Sample ID			TP15 - 0.50	TP15 - 0.75	TP15 - 1.0	TP16 - 0.0
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049747	L24- Ma0049748	L24- Ma0049749	L24- Ma0049750
Date Sampled			Mar 13, 2024	Mar 13, 2024	Mar 13, 2024	Mar 13, 2024
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	5	ug/kg	-	-	-	< 5
Perfluoropentanoic acid (PFPeA) ^{N11}	5	ug/kg	-	-	-	< 5
Perfluorohexanoic acid (PFHxA) ^{N11}	5	ug/kg	-	-	-	< 5
Perfluoroheptanoic acid (PFHpA) ^{N11}	5	ug/kg	-	-	-	< 5
Perfluorooctanoic acid (PFOA) ^{N11}	5	ug/kg	-	-	-	< 5
Perfluorononanoic acid (PFNA) ^{N11}	5	ug/kg	-	-	-	< 5
Perfluorodecanoic acid (PFDA) ^{N11}	5	ug/kg	-	-	-	< 5
Perfluoroundecanoic acid (PFUnDA) ^{N11}	5	ug/kg	-	-	-	< 5
Perfluorododecanoic acid (PFDoDA) ^{N11}	5	ug/kg	-	-	-	< 5
Perfluorotridecanoic acid (PFTrDA) ^{N15}	5	ug/kg	-	-	-	< 5
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	5	ug/kg	-	-	-	< 5
13C4-PFBA (surr.)	1	%	-	-	-	46
13C5-PFPeA (surr.)	1	%	-	-	-	80
13C5-PFHxA (surr.)	1	%	-	-	-	72
13C4-PFHpA (surr.)	1	%	-	-	-	75
13C8-PFOA (surr.)	1	%	-	-	-	92
13C5-PFNA (surr.)	1	%	-	-	-	85
13C6-PFDA (surr.)	1	%	-	-	-	86
13C2-PFUnDA (surr.)	1	%	-	-	-	83
13C2-PFDoDA (surr.)	1	%	-	-	-	100
13C2-PFTeDA (surr.)	1	%	-	-	-	89
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	5	ug/kg	-	-	-	< 5
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	5	ug/kg	-	-	-	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	5	ug/kg	-	-	-	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	5	ug/kg	-	-	-	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	5	ug/kg	-	-	-	< 5
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	10	ug/kg	-	-	-	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	10	ug/kg	-	-	-	< 10
13C8-FOSA (surr.)	1	%	-	-	-	74
D3-N-MeFOSA (surr.)	1	%	-	-	-	93
D5-N-EtFOSA (surr.)	1	%	-	-	-	105
D7-N-MeFOSE (surr.)	1	%	-	-	-	74
D9-N-EtFOSE (surr.)	1	%	-	-	-	76
D5-N-EtFOSAA (surr.)	1	%	-	-	-	82
D3-N-MeFOSAA (surr.)	1	%	-	-	-	79
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	5	ug/kg	-	-	-	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	10	ug/kg	-	-	-	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	5	ug/kg	-	-	-	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	5	ug/kg	-	-	-	< 5
13C2-4:2 FTSA (surr.)	1	%	-	-	-	72
13C2-6:2 FTSA (surr.)	1	%	-	-	-	92

Client Sample ID			TP15 - 0.50	TP15 - 0.75	TP15 - 1.0	TP16 - 0.0
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049747	L24- Ma0049748	L24- Ma0049749	L24- Ma0049750
Date Sampled			Mar 13, 2024	Mar 13, 2024	Mar 13, 2024	Mar 13, 2024
Test/Reference	LOR	Unit				
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)						
13C2-8:2 FTSA (surr.)	1	%	-	-	-	136
13C2-10:2 FTSA (surr.)	1	%	-	-	-	157
Perfluoroalkyl sulfonic acids (PFASs)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	5	ug/kg	-	-	-	< 5
Perfluorononanesulfonic acid (PFNS) ^{*N15}	5	ug	-	-	-	< 5
Perfluoropropanesulfonic acid (PFPrS) ^{*N15}	5	ug/kg	-	-	-	< 5
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	5	ug/kg	-	-	-	< 5
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	5	ug/kg	-	-	-	< 5
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	5	ug/kg	-	-	-	< 5
Perfluorooctanesulfonic acid (PFOS) ^{N11}	5	ug/kg	-	-	-	< 5
Perfluorodecanesulfonic acid (PFDS) ^{N15}	5	ug/kg	-	-	-	< 5
13C3-PFBS (surr.)	1	%	-	-	-	70
18O2-PFHxS (surr.)	1	%	-	-	-	86
13C8-PFOS (surr.)	1	%	-	-	-	90
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	-	-	-	< 5
Sum of PFASs (n=30)*	50	ug/kg	-	-	-	< 50
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	-	-	-	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	-	-	-	< 5
Sum of WA DWER PFAS (n=10)*	10	ug/kg	-	-	-	< 10

Client Sample ID			TP17 - 0.0	TP17 - 0.25	TP17 - 0.50	TP18 - 0.0
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049751	L24- Ma0049752	L24- Ma0049753	L24- Ma0049754
Date Sampled			Mar 13, 2024	Mar 13, 2024	Mar 13, 2024	Mar 14, 2024
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	-	-	< 20
TRH C10-C14	20	mg/kg	< 20	-	-	< 20
TRH C15-C28	50	mg/kg	< 50	-	-	< 50
TRH C29-C36	50	mg/kg	< 50	-	-	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	-	-	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	-	-	< 0.1
Toluene	0.1	mg/kg	< 0.1	-	-	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	-	-	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	-	-	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	-	-	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	-	-	< 0.3
BTEX						
4-Bromofluorobenzene (surr.)	1	%	108	-	-	90
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	-	-	< 0.5
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	-	-	< 50
TRH C6-C10	20	mg/kg	< 20	-	-	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	-	-	< 20

Client Sample ID			TP17 - 0.0	TP17 - 0.25	TP17 - 0.50	TP18 - 0.0
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049751	L24- Ma0049752	L24- Ma0049753	L24- Ma0049754
Date Sampled			Mar 13, 2024	Mar 13, 2024	Mar 13, 2024	Mar 14, 2024
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	-	-	< 50
TRH >C16-C34	100	mg/kg	< 100	-	-	< 100
TRH >C34-C40	100	mg/kg	< 100	-	-	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	-	-	< 100
OCOP in Soil						
Aldrin	0.01	mg/kg	< 0.01	-	-	< 0.01
alpha-BHC (HCH)	0.01	mg/kg	< 0.01	-	-	< 0.01
beta-BHC (HCH)	0.01	mg/kg	< 0.01	-	-	< 0.01
delta-BHC (HCH)	0.01	mg/kg	< 0.01	-	-	< 0.01
Bifenthrin	0.2	mg/kg	< 0.2	-	-	< 0.2
Bromophos Ethyl	0.05	mg/kg	< 0.05	-	-	< 0.05
Chlordane	0.01	mg/kg	< 0.01	-	-	< 0.01
Chlorpyrifos	0.02	mg/kg	< 0.02	-	-	< 0.02
Dieldrin	0.01	mg/kg	< 0.01	-	-	< 0.01
p,p-DDD	0.01	mg/kg	< 0.01	-	-	< 0.01
p,p-DDE	0.01	mg/kg	< 0.01	-	-	< 0.01
p,p-DDT	0.01	mg/kg	< 0.01	-	-	< 0.01
o,p-DDT	0.01	mg/kg	< 0.01	-	-	< 0.01
Endosulfan I	0.01	mg/kg	< 0.01	-	-	< 0.01
Endosulfan II	0.01	mg/kg	< 0.01	-	-	< 0.01
Endosulfan Sulfate	0.01	mg/kg	< 0.01	-	-	< 0.01
Endrin	0.01	mg/kg	< 0.01	-	-	< 0.01
Heptachlor	0.01	mg/kg	< 0.01	-	-	< 0.01
Heptachlor Epoxide	0.01	mg/kg	< 0.01	-	-	< 0.01
Hexachlorobenzene (HCB)	0.01	mg/kg	< 0.01	-	-	< 0.01
Lindane	0.01	mg/kg	< 0.01	-	-	< 0.01
Methoxychlor	0.2	mg/kg	< 0.2	-	-	< 0.2
Oxychlordane	0.01	mg/kg	< 0.01	-	-	< 0.01
Diazinon	0.2	mg/kg	< 0.2	-	-	< 0.2
Ethion	0.05	mg/kg	< 0.05	-	-	< 0.05
Fenitrothion	0.1	mg/kg	< 0.1	-	-	< 0.1
Malathion	0.1	mg/kg	< 0.1	-	-	< 0.1
Trifluralin	0.2	mg/kg	< 0.2	-	-	< 0.2
Ammonia-N						
Ammonia-N	10	mg/kg	40	-	-	38
Chromium (VI)						
Chromium (VI)	1	mg/kg	< 1	-	-	< 1
Filterable Reactive Phosphorus						
Filterable Reactive Phosphorus	1	mg/kg	< 1	-	-	< 1
Nitrate-N						
Nitrate-N	1	mg/kg	3.4	-	-	3.8
Nitrite-N						
Nitrite-N	1	mg/kg	< 1	-	-	< 1
NOx-N						
NOx-N	1	mg/kg	3.7	-	-	4.8
Total Kjeldahl Nitrogen						
Total Kjeldahl Nitrogen	10	mg/kg	1600	-	-	980
Total Nitrogen						
Total Nitrogen	10	mg/kg	1600	-	-	980
Phosphorus						
Phosphorus	1	mg/kg	48	-	-	36
Heavy Metals						
Arsenic	2	mg/kg	< 2	-	-	< 2
Beryllium	2	mg/kg	< 2	-	-	< 2
Boron	10	mg/kg	< 10	-	-	< 10
Cadmium	0.1	mg/kg	< 0.1	-	-	< 0.1
Cobalt	5	mg/kg	< 5	-	-	< 5

Client Sample ID			TP17 - 0.0	TP17 - 0.25	TP17 - 0.50	TP18 - 0.0
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24-Ma0049751	L24-Ma0049752	L24-Ma0049753	L24-Ma0049754
Date Sampled			Mar 13, 2024	Mar 13, 2024	Mar 13, 2024	Mar 14, 2024
Test/Reference	LOR	Unit				
Heavy Metals						
Copper	1	mg/kg	1.2	-	-	< 1
Lead	1	mg/kg	< 1	-	-	1.2
Manganese	5	mg/kg	< 5	-	-	6.3
Mercury	0.02	mg/kg	< 0.02	-	-	< 0.02
Nickel	1	mg/kg	< 1	-	-	< 1
Selenium	2	mg/kg	< 2	-	-	< 2
Zinc	5	mg/kg	< 5	-	-	< 5
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	5.3	5.3	5.3	5.9
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	2.8	3.1	3.1	3.8
Reaction Ratings* ^{S05}	0	comment	2.0	2.0	2.0	2.0
Sample Properties						
% Moisture	1	%	< 1	-	-	4.4
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	5	ug/kg	-	-	-	< 5
Perfluoropentanoic acid (PFPeA) ^{N11}	5	ug/kg	-	-	-	< 5
Perfluorohexanoic acid (PFHxA) ^{N11}	5	ug/kg	-	-	-	< 5
Perfluoroheptanoic acid (PFHpA) ^{N11}	5	ug/kg	-	-	-	< 5
Perfluorooctanoic acid (PFOA) ^{N11}	5	ug/kg	-	-	-	< 5
Perfluorononanoic acid (PFNA) ^{N11}	5	ug/kg	-	-	-	< 5
Perfluorodecanoic acid (PFDA) ^{N11}	5	ug/kg	-	-	-	< 5
Perfluoroundecanoic acid (PFUnDA) ^{N11}	5	ug/kg	-	-	-	< 5
Perfluorododecanoic acid (PFDoDA) ^{N11}	5	ug/kg	-	-	-	< 5
Perfluorotridecanoic acid (PFTeDA) ^{N15}	5	ug/kg	-	-	-	< 5
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	5	ug/kg	-	-	-	< 5
13C4-PFBA (surr.)	1	%	-	-	-	17
13C5-PFPeA (surr.)	1	%	-	-	-	12
13C5-PFHxA (surr.)	1	%	-	-	-	19
13C4-PFHpA (surr.)	1	%	-	-	-	17
13C8-PFOA (surr.)	1	%	-	-	-	18
13C5-PFNA (surr.)	1	%	-	-	-	13
13C6-PFDA (surr.)	1	%	-	-	-	19
13C2-PFUnDA (surr.)	1	%	-	-	-	17
13C2-PFDoDA (surr.)	1	%	-	-	-	19
13C2-PFTeDA (surr.)	1	%	-	-	-	19
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	5	ug/kg	-	-	-	< 5
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	5	ug/kg	-	-	-	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	5	ug/kg	-	-	-	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	5	ug/kg	-	-	-	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	5	ug/kg	-	-	-	< 5
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	10	ug/kg	-	-	-	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	10	ug/kg	-	-	-	< 10
13C8-FOSA (surr.)	1	%	-	-	-	18
D3-N-MeFOSA (surr.)	1	%	-	-	-	20

Client Sample ID			TP17 - 0.0	TP17 - 0.25	TP17 - 0.50	TP18 - 0.0
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049751	L24- Ma0049752	L24- Ma0049753	L24- Ma0049754
Date Sampled			Mar 13, 2024	Mar 13, 2024	Mar 13, 2024	Mar 14, 2024
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances						
D5-N-EtFOSA (surr.)	1	%	-	-	-	25
D7-N-MeFOSE (surr.)	1	%	-	-	-	19
D9-N-EtFOSE (surr.)	1	%	-	-	-	20
D5-N-EtFOSAA (surr.)	1	%	-	-	-	17
D3-N-MeFOSAA (surr.)	1	%	-	-	-	18
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	5	ug/kg	-	-	-	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	10	ug/kg	-	-	-	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	5	ug/kg	-	-	-	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	5	ug/kg	-	-	-	< 5
13C2-4:2 FTSA (surr.)	1	%	-	-	-	13
13C2-6:2 FTSA (surr.)	1	%	-	-	-	15
13C2-8:2 FTSA (surr.)	1	%	-	-	-	19
13C2-10:2 FTSA (surr.)	1	%	-	-	-	17
Perfluoroalkyl sulfonic acids (PFASs)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	5	ug/kg	-	-	-	< 5
Perfluorononanesulfonic acid (PFNS) ^{*N15}	5	ug	-	-	-	< 5
Perfluoropropanesulfonic acid (PFPrS) ^{*N15}	5	ug/kg	-	-	-	< 5
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	5	ug/kg	-	-	-	< 5
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	5	ug/kg	-	-	-	< 5
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	5	ug/kg	-	-	-	< 5
Perfluorooctanesulfonic acid (PFOS) ^{N11}	5	ug/kg	-	-	-	< 5
Perfluorodecanesulfonic acid (PFDS) ^{N15}	5	ug/kg	-	-	-	< 5
13C3-PFBS (surr.)	1	%	-	-	-	17
18O2-PFHxS (surr.)	1	%	-	-	-	16
13C8-PFOS (surr.)	1	%	-	-	-	12
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	-	-	-	< 5
Sum of PFASs (n=30)*	50	ug/kg	-	-	-	< 50
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	-	-	-	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	-	-	-	< 5
Sum of WA DWER PFAS (n=10)*	10	ug/kg	-	-	-	< 10

Client Sample ID			TP19 - 0.0	TP19 - 0.25	TP19 - 0.50	TP01 - QC2
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049755	L24- Ma0049756	L24- Ma0049757	L24- Ma0049763
Date Sampled			Mar 14, 2024	Mar 14, 2024	Mar 14, 2024	Mar 14, 2024
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	-	-	< 20
TRH C10-C14	20	mg/kg	< 20	-	-	< 20
TRH C15-C28	50	mg/kg	< 50	-	-	< 50
TRH C29-C36	50	mg/kg	< 50	-	-	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	-	-	< 50

Client Sample ID			TP19 - 0.0	TP19 - 0.25	TP19 - 0.50	TP01 - QC2
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049755	L24- Ma0049756	L24- Ma0049757	L24- Ma0049763
Date Sampled			Mar 14, 2024	Mar 14, 2024	Mar 14, 2024	Mar 14, 2024
Test/Reference	LOR	Unit				
BTEX						
Benzene	0.1	mg/kg	< 0.1	-	-	< 0.1
Toluene	0.1	mg/kg	< 0.1	-	-	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	-	-	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	-	-	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	-	-	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	-	-	< 0.3
BTEX						
4-Bromofluorobenzene (surr.)	1	%	97	-	-	91
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	-	-	< 0.5
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	-	-	< 50
TRH C6-C10	20	mg/kg	< 20	-	-	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	-	-	< 20
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	-	-	< 50
TRH >C16-C34	100	mg/kg	< 100	-	-	< 100
TRH >C34-C40	100	mg/kg	< 100	-	-	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	-	-	< 100
OCOP in Soil						
Aldrin	0.01	mg/kg	< 0.01	-	-	< 0.01
alpha-BHC (HCH)	0.01	mg/kg	< 0.01	-	-	< 0.01
beta-BHC (HCH)	0.01	mg/kg	< 0.01	-	-	< 0.01
delta-BHC (HCH)	0.01	mg/kg	< 0.01	-	-	< 0.01
Bifenthrin	0.2	mg/kg	< 0.2	-	-	< 0.2
Bromophos Ethyl	0.05	mg/kg	< 0.05	-	-	< 0.05
Chlordane	0.01	mg/kg	< 0.01	-	-	< 0.01
Chlorpyrifos	0.02	mg/kg	< 0.02	-	-	< 0.02
Dieldrin	0.01	mg/kg	< 0.01	-	-	< 0.01
p,p-DDD	0.01	mg/kg	< 0.01	-	-	< 0.01
p,p-DDE	0.01	mg/kg	< 0.01	-	-	< 0.01
p,p-DDT	0.01	mg/kg	< 0.01	-	-	< 0.01
o,p-DDT	0.01	mg/kg	< 0.01	-	-	< 0.01
Endosulfan I	0.01	mg/kg	< 0.01	-	-	< 0.01
Endosulfan II	0.01	mg/kg	< 0.01	-	-	< 0.01
Endosulfan Sulfate	0.01	mg/kg	< 0.01	-	-	< 0.01
Endrin	0.01	mg/kg	< 0.01	-	-	< 0.01
Heptachlor	0.01	mg/kg	< 0.01	-	-	< 0.01
Heptachlor Epoxide	0.01	mg/kg	< 0.01	-	-	< 0.01
Hexachlorobenzene (HCB)	0.01	mg/kg	< 0.01	-	-	< 0.01
Lindane	0.01	mg/kg	< 0.01	-	-	< 0.01
Methoxychlor	0.2	mg/kg	< 0.2	-	-	< 0.2
Oxychlordane	0.01	mg/kg	< 0.01	-	-	< 0.01
Diazinon	0.2	mg/kg	< 0.2	-	-	< 0.2
Ethion	0.05	mg/kg	< 0.05	-	-	< 0.05
Fenitrothion	0.1	mg/kg	< 0.1	-	-	< 0.1
Malathion	0.1	mg/kg	< 0.1	-	-	< 0.1
Trifluralin	0.2	mg/kg	< 0.2	-	-	< 0.2

Client Sample ID			TP19 - 0.0	TP19 - 0.25	TP19 - 0.50	TP01 - QC2
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049755	L24- Ma0049756	L24- Ma0049757	L24- Ma0049763
Date Sampled			Mar 14, 2024	Mar 14, 2024	Mar 14, 2024	Mar 14, 2024
Test/Reference	LOR	Unit				
Ammonia-N	10	mg/kg	46	-	-	43
Chromium (VI)	1	mg/kg	< 1	-	-	< 1
Filterable Reactive Phosphorus	1	mg/kg	< 1	-	-	< 1
Nitrate-N	1	mg/kg	2.5	-	-	< 1
Nitrite-N	1	mg/kg	< 1	-	-	< 1
NOx-N	1	mg/kg	2.9	-	-	< 1
Total Kjeldahl Nitrogen	10	mg/kg	3000	-	-	1600
Total Nitrogen	10	mg/kg	3000	-	-	1600
Phosphorus	1	mg/kg	15	-	-	14
Heavy Metals						
Arsenic	2	mg/kg	< 2	-	-	< 2
Beryllium	2	mg/kg	< 2	-	-	< 2
Boron	10	mg/kg	< 10	-	-	< 10
Cadmium	0.1	mg/kg	< 0.1	-	-	< 0.1
Cobalt	5	mg/kg	< 5	-	-	< 5
Copper	1	mg/kg	< 1	-	-	2.0
Lead	1	mg/kg	< 1	-	-	< 1
Manganese	5	mg/kg	< 5	-	-	< 5
Mercury	0.02	mg/kg	< 0.02	-	-	< 0.02
Nickel	1	mg/kg	< 1	-	-	< 1
Selenium	2	mg/kg	< 2	-	-	< 2
Zinc	5	mg/kg	< 5	-	-	< 5
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	6.5	5.2	5.2	-
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	5.0	4.3	4.7	-
Reaction Ratings* ^{S05}	0	comment	2.0	2.0	2.0	-
Sample Properties						
% Moisture	1	%	7.9	-	-	5.0

Client Sample ID			TP06 - QC2	TP11 - QC2	TP16 - QC2	TP20 - QC2
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049764	L24- Ma0049765	L24- Ma0049766	L24- Ma0049767
Date Sampled			Mar 13, 2024	Mar 14, 2024	Mar 13, 2024	Mar 13, 2024
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	76	< 50	< 50	56
TRH C29-C36	50	mg/kg	130	58	< 50	59
TRH C10-C36 (Total)	50	mg/kg	206	58	< 50	115
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3

Client Sample ID			TP06 - QC2	TP11 - QC2	TP16 - QC2	TP20 - QC2
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049764	L24- Ma0049765	L24- Ma0049766	L24- Ma0049767
Date Sampled			Mar 13, 2024	Mar 14, 2024	Mar 13, 2024	Mar 13, 2024
Test/Reference	LOR	Unit				
BTEX						
4-Bromofluorobenzene (surr.)	1	%	64	101	101	76
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20	< 20
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	180	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	180	< 100	< 100	< 100
OCOP in Soil						
Aldrin	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
alpha-BHC (HCH)	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
beta-BHC (HCH)	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
delta-BHC (HCH)	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Bifenthrin	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Bromophos Ethyl	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Chlordane	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Chlorpyrifos	0.02	mg/kg	< 0.02	< 0.02	< 0.02	< 0.02
Dieldrin	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
p,p-DDD	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
p,p-DDE	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
p,p-DDT	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
o,p-DDT	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Endosulfan I	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Endosulfan II	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Endosulfan Sulfate	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Endrin	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Heptachlor	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Heptachlor Epoxide	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Hexachlorobenzene (HCB)	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Lindane	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Methoxychlor	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Oxychlordane	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Diazinon	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethion	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Fenitrothion	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Malathion	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Trifluralin	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ammonia-N						
Ammonia-N	10	mg/kg	45	49	43	49
Chromium (VI)						
Chromium (VI)	1	mg/kg	< 1	< 1	< 1	< 1
Filterable Reactive Phosphorus						
Filterable Reactive Phosphorus	1	mg/kg	1.4	< 1	< 1	< 1
Nitrate-N						
Nitrate-N	1	mg/kg	< 1	14	< 1	1.3
Nitrite-N						
Nitrite-N	1	mg/kg	< 1	< 1	< 1	1.6
NOx-N						
NOx-N	1	mg/kg	1.8	15	1.2	2.9
Total Kjeldahl Nitrogen						
Total Kjeldahl Nitrogen	10	mg/kg	1800	1800	730	3300

Client Sample ID			TP06 - QC2	TP11 - QC2	TP16 - QC2	TP20 - QC2
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049764	L24- Ma0049765	L24- Ma0049766	L24- Ma0049767
Date Sampled			Mar 13, 2024	Mar 14, 2024	Mar 13, 2024	Mar 13, 2024
Test/Reference	LOR	Unit				
Total Nitrogen	10	mg/kg	1800	1800	730	3300
Phosphorus	1	mg/kg	29	120	110	120
Heavy Metals						
Arsenic	2	mg/kg	< 2	< 2	< 2	< 2
Beryllium	2	mg/kg	< 2	< 2	< 2	< 2
Boron	10	mg/kg	< 10	< 10	< 10	< 10
Cadmium	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Cobalt	5	mg/kg	< 5	< 5	< 5	< 5
Copper	1	mg/kg	< 1	1.4	1.3	1.2
Lead	1	mg/kg	< 1	< 1	< 1	< 1
Manganese	5	mg/kg	< 5	11	15	< 5
Mercury	0.02	mg/kg	< 0.02	< 0.02	< 0.02	< 0.02
Nickel	1	mg/kg	< 1	< 1	< 1	< 1
Selenium	2	mg/kg	< 2	< 2	< 2	< 2
Zinc	5	mg/kg	16	< 5	< 5	< 5
Sample Properties						
% Moisture	1	%	2.7	8.6	3.0	2.7
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	5	ug/kg	< 5	-	-	< 5
Perfluoropentanoic acid (PFPeA) ^{N11}	5	ug/kg	< 5	-	-	< 5
Perfluorohexanoic acid (PFHxA) ^{N11}	5	ug/kg	< 5	-	-	< 5
Perfluoroheptanoic acid (PFHpA) ^{N11}	5	ug/kg	< 5	-	-	< 5
Perfluorooctanoic acid (PFOA) ^{N11}	5	ug/kg	< 5	-	-	< 5
Perfluorononanoic acid (PFNA) ^{N11}	5	ug/kg	< 5	-	-	< 5
Perfluorodecanoic acid (PFDA) ^{N11}	5	ug/kg	< 5	-	-	< 5
Perfluoroundecanoic acid (PFUnDA) ^{N11}	5	ug/kg	< 5	-	-	< 5
Perfluorododecanoic acid (PFDoDA) ^{N11}	5	ug/kg	< 5	-	-	< 5
Perfluorotridecanoic acid (PFTeDA) ^{N15}	5	ug/kg	< 5	-	-	< 5
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	5	ug/kg	< 5	-	-	< 5
13C4-PFBA (surr.)	1	%	47	-	-	11
13C5-PFPeA (surr.)	1	%	93	-	-	11
13C5-PFHxA (surr.)	1	%	92	-	-	13
13C4-PFHpA (surr.)	1	%	100	-	-	12
13C8-PFOA (surr.)	1	%	119	-	-	13
13C5-PFNA (surr.)	1	%	112	-	-	10
13C6-PFDA (surr.)	1	%	110	-	-	INT
13C2-PFUnDA (surr.)	1	%	113	-	-	12
13C2-PFDoDA (surr.)	1	%	126	-	-	12
13C2-PFTeDA (surr.)	1	%	113	-	-	13
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	5	ug/kg	< 5	-	-	< 5
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	5	ug/kg	< 5	-	-	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	5	ug/kg	< 5	-	-	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	5	ug/kg	< 5	-	-	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	5	ug/kg	< 5	-	-	< 5

Client Sample ID			TP06 - QC2	TP11 - QC2	TP16 - QC2	TP20 - QC2
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049764	L24- Ma0049765	L24- Ma0049766	L24- Ma0049767
Date Sampled			Mar 13, 2024	Mar 14, 2024	Mar 13, 2024	Mar 13, 2024
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances						
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	10	ug/kg	< 10	-	-	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	10	ug/kg	< 10	-	-	< 10
13C8-FOSA (surr.)	1	%	92	-	-	12
D3-N-MeFOSA (surr.)	1	%	117	-	-	12
D5-N-EtFOSA (surr.)	1	%	129	-	-	16
D7-N-MeFOSE (surr.)	1	%	94	-	-	13
D9-N-EtFOSE (surr.)	1	%	98	-	-	13
D5-N-EtFOSAA (surr.)	1	%	117	-	-	14
D3-N-MeFOSAA (surr.)	1	%	129	-	-	12
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	5	ug/kg	< 5	-	-	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	10	ug/kg	< 10	-	-	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	5	ug/kg	< 5	-	-	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	5	ug/kg	< 5	-	-	< 5
13C2-4:2 FTSA (surr.)	1	%	106	-	-	INT
13C2-6:2 FTSA (surr.)	1	%	122	-	-	10
13C2-8:2 FTSA (surr.)	1	%	182	-	-	INT
13C2-10:2 FTSA (surr.)	1	%	INT	-	-	14
Perfluoroalkyl sulfonic acids (PFASs)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	5	ug/kg	< 5	-	-	< 5
Perfluorononanesulfonic acid (PFNS) ^{*N15}	5	ug	< 5	-	-	< 5
Perfluoropropanesulfonic acid (PFPrS) ^{*N15}	5	ug/kg	< 5	-	-	< 5
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	5	ug/kg	< 5	-	-	< 5
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	5	ug/kg	< 5	-	-	< 5
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	5	ug/kg	< 5	-	-	< 5
Perfluorooctanesulfonic acid (PFOS) ^{N11}	5	ug/kg	< 5	-	-	< 5
Perfluorodecanesulfonic acid (PFDS) ^{N15}	5	ug/kg	< 5	-	-	< 5
13C3-PFBS (surr.)	1	%	96	-	-	10
18O2-PFHxS (surr.)	1	%	115	-	-	INT
13C8-PFOS (surr.)	1	%	114	-	-	10
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	< 5	-	-	< 5
Sum of PFASs (n=30)*	50	ug/kg	< 50	-	-	< 50
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5	-	-	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5	-	-	< 5
Sum of WA DWER PFAS (n=10)*	10	ug/kg	< 10	-	-	< 10

Client Sample ID			TP01 - QC3	TP06 - QC3	TP11 - QC3	TP16 - QC3
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049768	L24- Ma0049769	L24- Ma0049770	L24- Ma0049771
Date Sampled			Mar 14, 2024	Mar 13, 2024	Mar 14, 2024	Mar 13, 2024
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	43	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	470	62	< 50	< 50
TRH C29-C36	50	mg/kg	610	110	50	< 50
TRH C10-C36 (Total)	50	mg/kg	1123	172	50	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
BTEX						
4-Bromofluorobenzene (surr.)	1	%	83	103	90	90
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	120	< 50	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20	< 20
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	120	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	880	140	< 100	< 100
TRH >C34-C40	100	mg/kg	280	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	1280	140	< 100	< 100
OCOP in Soil						
Aldrin	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
alpha-BHC (HCH)	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
beta-BHC (HCH)	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
delta-BHC (HCH)	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Bifenthrin	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Bromophos Ethyl	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Chlordane	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Chlorpyrifos	0.02	mg/kg	< 0.02	< 0.02	< 0.02	< 0.02
Dieldrin	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
p,p-DDD	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
p,p-DDE	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
p,p-DDT	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
o,p-DDT	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Endosulfan I	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Endosulfan II	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Endosulfan Sulfate	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Endrin	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Heptachlor	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Heptachlor Epoxide	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Hexachlorobenzene (HCB)	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Lindane	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Methoxychlor	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Oxychlorane	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01

Client Sample ID			TP01 - QC3	TP06 - QC3	TP11 - QC3	TP16 - QC3
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049768	L24- Ma0049769	L24- Ma0049770	L24- Ma0049771
Date Sampled			Mar 14, 2024	Mar 13, 2024	Mar 14, 2024	Mar 13, 2024
Test/Reference	LOR	Unit				
OCOP in Soil						
Diazinon	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethion	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Fenitrothion	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Malathion	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Trifluralin	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ammonia-N						
Ammonia-N	10	mg/kg	53	45	65	41
Chromium (VI)						
Chromium (VI)	1	mg/kg	< 1	< 1	< 1	< 1
Filterable Reactive Phosphorus						
Filterable Reactive Phosphorus	1	mg/kg	1.7	2.1	< 1	< 1
Nitrate-N						
Nitrate-N	1	mg/kg	< 1	< 1	37	6.3
Nitrite-N						
Nitrite-N	1	mg/kg	< 1	< 1	1.0	< 1
NOx-N						
NOx-N	1	mg/kg	< 1	< 1	38	7.0
Total Kjeldahl Nitrogen						
Total Kjeldahl Nitrogen	10	mg/kg	2600	2200	3300	730
Total Nitrogen						
Total Nitrogen	10	mg/kg	2600	2200	3300	740
Phosphorus						
Phosphorus	1	mg/kg	32	26	170	140
Heavy Metals						
Arsenic						
Arsenic	2	mg/kg	< 2	< 2	< 2	< 2
Beryllium						
Beryllium	2	mg/kg	< 2	< 2	< 2	< 2
Boron						
Boron	10	mg/kg	< 10	< 10	< 10	< 10
Cadmium						
Cadmium	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Cobalt						
Cobalt	5	mg/kg	< 5	< 5	< 5	< 5
Copper						
Copper	1	mg/kg	2.1	1.7	1.9	< 1
Lead						
Lead	1	mg/kg	1.2	< 1	< 1	< 1
Manganese						
Manganese	5	mg/kg	< 5	< 5	14	11
Mercury						
Mercury	0.02	mg/kg	< 0.02	< 0.02	< 0.02	< 0.02
Nickel						
Nickel	1	mg/kg	< 1	< 1	< 1	< 1
Selenium						
Selenium	2	mg/kg	< 2	< 2	< 2	< 2
Zinc						
Zinc	5	mg/kg	< 5	< 5	< 5	< 5
Sample Properties						
% Moisture	1	%	3.5	2.5	7.2	3.1

Client Sample ID			TP20 - QC3	QC4	QC4	TP05 - 0.75
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049772	L24- Ma0049773	L24- Ma0049774	L24- Ma0049927
Date Sampled			Mar 13, 2024	Not Provided ¹²	Not Provided ¹²	Mar 13, 2024
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	^{G02} < 40	< 20	< 20	-
TRH C10-C14	20	mg/kg	< 20	-	-	-
TRH C15-C28	50	mg/kg	< 50	-	-	-
TRH C29-C36	50	mg/kg	65	-	-	-
TRH C10-C36 (Total)	50	mg/kg	65	-	-	-
BTEX						
Benzene	0.1	mg/kg	^{G02} < 0.1	< 0.1	< 0.1	-
Toluene	0.1	mg/kg	^{G02} < 0.1	< 0.1	< 0.1	-
Ethylbenzene	0.1	mg/kg	^{G02} < 0.1	< 0.1	< 0.1	-
m&p-Xylenes	0.2	mg/kg	^{G02} < 0.2	< 0.2	< 0.2	-

Client Sample ID			TP20 - QC3	QC4	QC4	TP05 - 0.75
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049772	L24- Ma0049773	L24- Ma0049774	L24- Ma0049927
Date Sampled			Mar 13, 2024	Not Provided ¹²	Not Provided ¹²	Mar 13, 2024
Test/Reference	LOR	Unit				
BTEX						
o-Xylene	0.1	mg/kg	G02 < 0.1	< 0.1	< 0.1	-
Xylenes - Total*	0.3	mg/kg	G02 < 0.3	< 0.3	< 0.3	-
BTEX						
4-Bromofluorobenzene (surr.)	1	%	89	86	89	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	G02 < 1	-	-	-
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	-	-	-
TRH C6-C10	20	mg/kg	G02 < 40	-	-	-
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 40	-	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	-	-	-
TRH >C16-C34	100	mg/kg	< 100	-	-	-
TRH >C34-C40	100	mg/kg	< 100	-	-	-
TRH >C10-C40 (total)*	100	mg/kg	< 100	-	-	-
OCOP in Soil						
Aldrin	0.01	mg/kg	< 0.01	-	-	-
alpha-BHC (HCH)	0.01	mg/kg	< 0.01	-	-	-
beta-BHC (HCH)	0.01	mg/kg	< 0.01	-	-	-
delta-BHC (HCH)	0.01	mg/kg	< 0.01	-	-	-
Bifenthrin	0.2	mg/kg	< 0.2	-	-	-
Bromophos Ethyl	0.05	mg/kg	< 0.05	-	-	-
Chlordane	0.01	mg/kg	< 0.01	-	-	-
Chlorpyrifos	0.02	mg/kg	< 0.02	-	-	-
Dieldrin	0.01	mg/kg	< 0.01	-	-	-
p,p-DDD	0.01	mg/kg	< 0.01	-	-	-
p,p-DDE	0.01	mg/kg	< 0.01	-	-	-
p,p-DDT	0.01	mg/kg	< 0.01	-	-	-
o,p-DDT	0.01	mg/kg	< 0.01	-	-	-
Endosulfan I	0.01	mg/kg	< 0.01	-	-	-
Endosulfan II	0.01	mg/kg	< 0.01	-	-	-
Endosulfan Sulfate	0.01	mg/kg	< 0.01	-	-	-
Endrin	0.01	mg/kg	< 0.01	-	-	-
Heptachlor	0.01	mg/kg	< 0.01	-	-	-
Heptachlor Epoxide	0.01	mg/kg	< 0.01	-	-	-
Hexachlorobenzene (HCB)	0.01	mg/kg	< 0.01	-	-	-
Lindane	0.01	mg/kg	< 0.01	-	-	-
Methoxychlor	0.2	mg/kg	< 0.2	-	-	-
Oxychlordane	0.01	mg/kg	< 0.01	-	-	-
Diazinon	0.2	mg/kg	< 0.2	-	-	-
Ethion	0.05	mg/kg	< 0.05	-	-	-
Fenitrothion	0.1	mg/kg	< 0.1	-	-	-
Malathion	0.1	mg/kg	< 0.1	-	-	-
Trifluralin	0.2	mg/kg	< 0.2	-	-	-
Ammonia-N						
Ammonia-N	10	mg/kg	51	-	-	-
Chromium (VI)						
Chromium (VI)	1	mg/kg	< 1	-	-	-
Filterable Reactive Phosphorus						
Filterable Reactive Phosphorus	1	mg/kg	< 1	-	-	-
Nitrate-N						
Nitrate-N	1	mg/kg	1.1	-	-	-

Client Sample ID			TP20 - QC3	QC4	QC4	TP05 - 0.75
Sample Matrix			Solid	Solid	Solid	Solid
Eurofins Sample No.			L24- Ma0049772	L24- Ma0049773	L24- Ma0049774	L24- Ma0049927
Date Sampled			Mar 13, 2024	Not Provided ¹²	Not Provided ¹²	Mar 13, 2024
Test/Reference	LOR	Unit				
Nitrite-N	1	mg/kg	< 1	-	-	-
NOx-N	1	mg/kg	1.6	-	-	-
Total Kjeldahl Nitrogen	10	mg/kg	2700	-	-	-
Total Nitrogen	10	mg/kg	2700	-	-	-
Phosphorus	1	mg/kg	100	-	-	-
Naphthalene ^{N02}	0.5	mg/kg	-	< 0.5	< 0.5	-
Heavy Metals						
Arsenic	2	mg/kg	< 2	-	-	-
Beryllium	2	mg/kg	< 2	-	-	-
Boron	10	mg/kg	< 10	-	-	-
Cadmium	0.1	mg/kg	< 0.1	-	-	-
Cobalt	5	mg/kg	< 5	-	-	-
Copper	1	mg/kg	< 1	-	-	-
Lead	1	mg/kg	< 1	-	-	-
Manganese	5	mg/kg	< 5	-	-	-
Mercury	0.02	mg/kg	< 0.02	-	-	-
Nickel	1	mg/kg	< 1	-	-	-
Selenium	2	mg/kg	< 2	-	-	-
Zinc	5	mg/kg	< 5	-	-	-
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	-	-	-	6.2
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	-	-	-	4.2
Reaction Ratings* ^{S05}	0	comment	-	-	-	2.0
Sample Properties						
% Moisture	1	%	3.1	-	-	-
Total Recoverable Hydrocarbons						
TRH C6-C10	20	mg/kg	-	< 20	< 20	-
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	-	< 20	< 20	-

Client Sample ID			TP20 - 0.0
Sample Matrix			Solid
Eurofins Sample No.			L24- Ma0050128
Date Sampled			Mar 14, 2024
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons - 1999 NEPM Fractions			
TRH C6-C9	20	mg/kg	< 20
TRH C10-C14	20	mg/kg	< 20
TRH C15-C28	50	mg/kg	< 50
TRH C29-C36	50	mg/kg	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50
BTEX			
Benzene	0.1	mg/kg	< 0.1
Toluene	0.1	mg/kg	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2
o-Xylene	0.1	mg/kg	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3

Client Sample ID			TP20 - 0.0
Sample Matrix			Solid
Eurofins Sample No.			L24- Ma0050128
Date Sampled			Mar 14, 2024
Test/Reference	LOR	Unit	
BTEX			
4-Bromofluorobenzene (surr.)	1	%	93
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene ^{N02}	0.5	mg/kg	< 0.5
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50
TRH C6-C10	20	mg/kg	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
TRH >C10-C16	50	mg/kg	< 50
TRH >C16-C34	100	mg/kg	< 100
TRH >C34-C40	100	mg/kg	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100
OCOP in Soil			
Aldrin	0.01	mg/kg	< 0.01
alpha-BHC (HCH)	0.01	mg/kg	< 0.01
beta-BHC (HCH)	0.01	mg/kg	< 0.01
delta-BHC (HCH)	0.01	mg/kg	< 0.01
Bifenthrin	0.2	mg/kg	< 0.2
Bromophos Ethyl	0.05	mg/kg	< 0.05
Chlordane	0.01	mg/kg	< 0.01
Chlorpyrifos	0.02	mg/kg	< 0.02
Dieldrin	0.01	mg/kg	< 0.01
p,p-DDD	0.01	mg/kg	< 0.01
p,p-DDE	0.01	mg/kg	< 0.01
p,p-DDT	0.01	mg/kg	< 0.01
o,p-DDT	0.01	mg/kg	< 0.01
Endosulfan I	0.01	mg/kg	< 0.01
Endosulfan II	0.01	mg/kg	< 0.01
Endosulfan Sulfate	0.01	mg/kg	< 0.01
Endrin	0.01	mg/kg	< 0.01
Heptachlor	0.01	mg/kg	< 0.01
Heptachlor Epoxide	0.01	mg/kg	< 0.01
Hexachlorobenzene (HCB)	0.01	mg/kg	< 0.01
Lindane	0.01	mg/kg	< 0.01
Methoxychlor	0.2	mg/kg	< 0.2
Oxychlordane	0.01	mg/kg	< 0.01
Diazinon	0.2	mg/kg	< 0.2
Ethion	0.05	mg/kg	< 0.05
Fenitrothion	0.1	mg/kg	< 0.1
Malathion	0.1	mg/kg	< 0.1
Trifluralin	0.2	mg/kg	< 0.2
Ammonia-N			
Ammonia-N	10	mg/kg	50
Chromium (VI)			
Chromium (VI)	1	mg/kg	< 1
Filterable Reactive Phosphorus			
Filterable Reactive Phosphorus	1	mg/kg	< 1
Nitrate-N			
Nitrate-N	1	mg/kg	< 1
Nitrite-N			
Nitrite-N	1	mg/kg	< 1
NOx-N			
NOx-N	1	mg/kg	< 1
Total Kjeldahl Nitrogen			
Total Kjeldahl Nitrogen	10	mg/kg	2400

Client Sample ID			TP20 - 0.0
Sample Matrix			Solid
Eurofins Sample No.			L24- Ma0050128
Date Sampled			Mar 14, 2024
Test/Reference	LOR	Unit	
Total Nitrogen			
Total Nitrogen	10	mg/kg	2400
Phosphorus			
Phosphorus	1	mg/kg	120
Heavy Metals			
Arsenic	2	mg/kg	< 2
Beryllium	2	mg/kg	< 2
Boron	10	mg/kg	< 10
Cadmium	0.1	mg/kg	< 0.1
Cobalt	5	mg/kg	< 5
Copper	1	mg/kg	< 1
Lead	1	mg/kg	< 1
Manganese	5	mg/kg	< 5
Mercury	0.02	mg/kg	< 0.02
Nickel	1	mg/kg	< 1
Selenium	2	mg/kg	< 2
Zinc	5	mg/kg	< 5
Acid Sulfate Soils Field pH Test			
pH-F (Field pH test)*	0.1	pH Units	5.2
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	4.6
Reaction Ratings* ^{S05}	0	comment	2.0
Sample Properties			
% Moisture	1	%	2.6

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Welshpool	Mar 27, 2024	14 Days
BTEX - Method: LTM-ORG-2010 TRH C6-C40	Welshpool	Mar 27, 2024	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Welshpool	Mar 27, 2024	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Welshpool	Mar 27, 2024	14 Days
NEPM 2013 Metals : Metals M12 - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Welshpool	Mar 27, 2024	28 Days
OCOP in Soil - Method: ARL003 - OCOP and PCB in Soil	Welshpool	Mar 27, 2024	14 Days
Ammonia-N - Method: ARL304 - Ammonia in Soil and Sediment by Discrete Analyser	Welshpool	Mar 27, 2024	7 Days
Chromium (VI) - Method: ARL051 - Hexavalent Chromium in Soil	Welshpool	Mar 27, 2024	28 Days
Filterable Reactive Phosphorus - Method: ARL120 - Filterable Reactive Phosphorus in Soil	Welshpool	Mar 27, 2024	7 Day
Nitrate-N - Method: ARL314 - NOx in Soil and Sediment by Discrete Analyser	Welshpool	Mar 27, 2024	7 Days
Nitrite-N - Method: ARL312 - Nitrite in Soil and Sediment by Discrete Analyser	Welshpool	Mar 27, 2024	7 Days
Phosphorus - Method: ARL401/403 - Metals in Soil and Sediment by ICPOES/MS	Welshpool	Mar 27, 2024	7 Days
Acid Sulfate Soils Field pH Test - Method: LTM-GEN-7060 Determination of field pH (pHF) and field pH peroxide (pHFOX) tests	Welshpool	Mar 27, 2024	7 Days
NOx-N - Method: ARL314 - NOx in Soil and Sediment by Discrete Analyser	Welshpool	Mar 27, 2024	7 Days
Total Kjeldahl Nitrogen - Method: ARL118 - Total Phosphorus and TKN in Soil and Biosolids	Welshpool	Mar 27, 2024	7 Days
Total Nitrogen - Method: ARL No. 330 - Persulfate Method for Simultaneous Determination of TN & TP	Welshpool	Mar 27, 2024	7 Days
Naphthalene - Method: LTM-ORG-2010 TRH C6-C40	Welshpool	Mar 27, 2024	14 Days
Total Recoverable Hydrocarbons - Method: LTM-ORG-2010 TRH C6-C40	Welshpool	Mar 21, 2024	14 Days
% Moisture - Method: ARL135 Moisture in Solids	Welshpool	Mar 27, 2024	14 Days
Perfluoroalkyl carboxylic acids (PFCA)s - Method: Method ARL0510_ARL0511 PFAS in aqueous & solid samples by LC-MS/MS	Welshpool	Mar 25, 2024	28 Days
Perfluoroalkyl sulfonamido substances - Method: Method ARL0510_ARL0511 PFAS in aqueous & solid samples by LC-MS/MS	Welshpool	Mar 25, 2024	28 Days
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s - Method: Method ARL0510_ARL0511 PFAS in aqueous & solid samples by LC-MS/MS	Welshpool	Mar 25, 2024	28 Days
Perfluoroalkyl sulfonic acids (PFSAs) - Method: Method ARL0510_ARL0511 PFAS in aqueous & solid samples by LC-MS/MS	Welshpool	Mar 25, 2024	28 Days
PFASs Summations - Method: Method ARL0510_ARL0511 PFAS in aqueous & solid samples by LC-MS/MS	Welshpool	Mar 23, 2024	



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Company Name: Stantec Australia Pty Ltd (WA)
Address: 6F 226, Adelaide Terrace
Perth
WA 6000

Project Name: BEENUP WIND FARM

Order No.:
Report #: 1080155
Phone: 0458 839 200
Fax:

Received: Mar 19, 2024 1:06 PM
Due: Mar 26, 2024
Priority: 5 Day
Contact Name: Brenton Petracca

Eurofins Analytical Services Manager : Elden Garrett

Sample Detail						Ammonia-N	Asbestos in Soils (AS 4964-2004)	Chromium (VI)	Chromium (VI)	Filterable Reactive Phosphorus	Nitrate-N	Nitrite-N	Phosphorus	Acid Sulfate Soils Field pH Test	Moisture Set	BTEXN and Volatile TRH	Eurofins Suite B6A	Asbestos in Soils (ASC NIEPM 2013)	OCOP in Soil	OCOP in Water	Total Nitrogen	Eurofins Suite B19E	Per- and Polyfluoroalkyl Substances (PFASs)
Perth Laboratory - NATA # 2377 Site # 2370						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
External Laboratory																							
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID																		
1	TP01 - 0.0	Mar 14, 2024		Solid	L24-Ma0049669	X			X	X	X	X	X	X	X		X	X			X		
2	TP01 - 0.25	Mar 14, 2024		Solid	L24-Ma0049670								X										
3	TP01 - 0.50	Mar 14, 2024		Solid	L24-Ma0049671												X						
4	TP01 - 0.75	Mar 14, 2024		Solid	L24-Ma0049672								X										
5	TP01 - 1.0	Mar 14, 2024		Solid	L24-Ma0049673	X			X	X	X	X	X	X	X		X	X			X		
6	TP01 - 1.25	Mar 14, 2024		Solid	L24-Ma0049674								X										
7	TP01 - 1.50	Mar 14, 2024		Solid	L24-Ma0049675								X										
8	TP01 - 1.75	Mar 14, 2024		Solid	L24-Ma0049676								X										
9	TP01 - 2.0	Mar 14, 2024		Solid	L24-Ma0049677								X										
10	TP02 - 0.0	Mar 14, 2024		Solid	L24-Ma0049678	X			X	X	X	X	X	X	X		X	X			X		X
11	TP02 - 0.25	Mar 14, 2024		Solid	L24-Ma0049679								X										
12	TP02 - 0.50	Mar 14, 2024		Solid	L24-Ma0049680								X				X						
13	TP02 - 0.75	Mar 14, 2024		Solid	L24-Ma0049681								X										
14	TP02 - 1.0	Mar 14, 2024		Solid	L24-Ma0049682	X			X	X	X	X	X	X	X		X	X			X		



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Company Name: Stantec Australia Pty Ltd (WA)
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Order No.:
Report #: 1080155
Phone: 0458 839 200
Fax:

Received: Mar 19, 2024 1:06 PM
Due: Mar 26, 2024
Priority: 5 Day
Contact Name: Brenton Petracca

Project Name: BEENUP WIND FARM

Eurofins Analytical Services Manager : Elden Garrett

Sample Detail					Ammonia-N	Asbestos in Soils (AS 4964-2004)	Chromium (VI)	Chromium (VI)	Filterable Reactive Phosphorus	Nitrate-N	Nitrite-N	Phosphorus	Acid Sulfate Soils Field pH Test	Moisture Set	BTEXN and Volatile TRH	Eurofins Suite B6A	Asbestos in Soils (ASC NIEPM 2013)	OCOP in Soil	OCOP in Water	Total Nitrogen	Eurofins Suite B19E	Per- and Polyfluoroalkyl Substances (PFASs)
Perth Laboratory - NATA # 2377 Site # 2370					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
External Laboratory																						
15	TP03 - 0.0	Not Provided		Solid	L24-Ma0049683	X		X	X	X	X	X	X	X	X	X	X	X	X	X		
16	TP03 - 0.25	Not Provided		Solid	L24-Ma0049684							X										
17	TP03 - 0.50	Not Provided		Solid	L24-Ma0049685												X					
18	TP03 - 1.0	Not Provided		Solid	L24-Ma0049687	X		X	X	X	X	X	X	X	X	X	X	X	X	X		
19	TP04 - 0.0	Not Provided		Solid	L24-Ma0049688	X		X	X	X	X	X	X	X	X	X	X	X	X	X		X
20	TP04 - 0.50	Not Provided		Solid	L24-Ma0049689							X										
21	TP04 - 1.0	Not Provided		Solid	L24-Ma0049690	X	X	X	X	X	X	X	X	X	X	X		X		X		
22	TP04 - 1.25	Not Provided		Solid	L24-Ma0049691							X										
23	TP04 - 1.75	Not Provided		Solid	L24-Ma0049692							X										
24	TP05 - 0.0	Mar 13, 2024		Solid	L24-Ma0049693	X		X	X	X	X	X	X	X	X	X	X	X	X	X		
25	TP05 - 0.25	Mar 13, 2024		Solid	L24-Ma0049694							X										
26	TP05 - 0.50	Mar 13, 2024		Solid	L24-Ma0049695							X					X					
27	TP06 - 0.0	Mar 13, 2024		Solid	L24-Ma0049696	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X
28	TP06 - 0.25	Mar 13, 2024		Solid	L24-Ma0049697							X										
29	TP06 - 0.50	Mar 13, 2024		Solid	L24-Ma0049698							X					X					

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Project Name: BEENUP WIND FARM

Order No.:
Report #: 1080155
Phone: 0458 839 200
Fax:

Received: Mar 19, 2024 1:06 PM
Due: Mar 26, 2024
Priority: 5 Day
Contact Name: Brenton Petracca

Eurofins Analytical Services Manager : Elden Garrett

Sample Detail					Ammonia-N	Asbestos in Soils (AS 4964-2004)	Chromium (VI)	Chromium (VI)	Filterable Reactive Phosphorus	Nitrate-N	Nitrite-N	Phosphorus	Acid Sulfate Soils Field pH Test	Moisture Set	BTEXN and Volatile TRH	Eurofins Suite B6A	Asbestos in Soils (ASC NIEPM 2013)	OCOP in Soil	OCOP in Water	Total Nitrogen	Eurofins Suite B19E	Per- and Polyfluoroalkyl Substances (PFASs)
Perth Laboratory - NATA # 2377 Site # 2370					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
External Laboratory																						
30	TP07 - 0.0	Mar 14, 2024		Solid	L24-Ma0049699	X		X	X	X	X	X	X	X		X	X	X		X		
31	TP07 - 0.25	Mar 14, 2024		Solid	L24-Ma0049700							X										
32	TP07 - 0.50	Mar 14, 2024		Solid	L24-Ma0049701							X					X					
33	TP07 - 0.75	Mar 14, 2024		Solid	L24-Ma0049702							X										
34	TP07 - 1.0	Mar 14, 2024		Solid	L24-Ma0049703	X		X	X	X	X	X	X	X		X	X	X		X		
35	TP07 - 1.25	Mar 14, 2024		Solid	L24-Ma0049704							X										
36	TP07 - 1.50	Mar 14, 2024		Solid	L24-Ma0049705							X										
37	TP08 - 0.0	Not Provided		Solid	L24-Ma0049706	X		X	X	X	X	X	X	X		X	X	X		X		X
38	TP08 - 0.25	Not Provided		Solid	L24-Ma0049707							X										
39	TP08 - 0.50	Not Provided		Solid	L24-Ma0049708							X					X					
40	TP08 - 0.75	Not Provided		Solid	L24-Ma0049709							X										
41	TP08 - 1.0	Not Provided		Solid	L24-Ma0049710	X		X	X	X	X	X	X	X		X	X	X		X		
42	TP08 - 1.25	Not Provided		Solid	L24-Ma0049711							X										
43	TP08 - 1.50	Not Provided		Solid	L24-Ma0049712							X										
44	TP08 - 1.75	Not Provided		Solid	L24-Ma0049713							X										



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Company Name: Stantec Australia Pty Ltd (WA)
Address: 6F 226, Adelaide Terrace
Perth
WA 6000

Order No.:
Report #: 1080155
Phone: 0458 839 200
Fax:

Received: Mar 19, 2024 1:06 PM
Due: Mar 26, 2024
Priority: 5 Day
Contact Name: Brenton Petracca

Project Name: BEENUP WIND FARM

Eurofins Analytical Services Manager : Elden Garrett

Sample Detail				Ammonia-N	Asbestos in Soils (AS 4964-2004)	Chromium (VI)	Chromium (VI)	Filterable Reactive Phosphorus	Nitrate-N	Nitrite-N	Phosphorus	Acid Sulfate Soils Field pH Test	Moisture Set	BTEXN and Volatile TRH	Eurofins Suite B6A	Asbestos in Soils (ASC NIEPM 2013)	OCOP in Soil	OCOP in Water	Total Nitrogen	Eurofins Suite B19E	Per- and Polyfluoroalkyl Substances (PFASs)	
Perth Laboratory - NATA # 2377 Site # 2370				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
External Laboratory																						
45	TP08 - 2.0	Not Provided	Solid									X										
46	TP09 - 0.0	Not Provided	Solid	X	X		X	X	X	X	X	X	X		X		X		X			
47	TP09 - 0.25	Not Provided	Solid									X										
48	TP09 - 1.0	Not Provided	Solid	X	X		X	X	X	X	X	X	X		X		X		X			
49	TP09 - 1.50	Not Provided	Solid									X										
50	TP10 - 0.0	Not Provided	Solid	X	X		X	X	X	X	X	X	X		X		X		X			X
51	TP10 - 1.0	Not Provided	Solid	X	X		X	X	X	X	X	X	X		X		X		X			
52	TP11 - 0.0	Mar 14, 2024	Solid	X			X	X	X	X	X	X	X		X	X	X		X			
53	TP11 - 0.25	Mar 14, 2024	Solid									X										
54	TP11 - 0.50	Mar 14, 2024	Solid									X			X							
55	TP11 - 0.75	Mar 14, 2024	Solid									X										
56	TP11 - 1.0	Mar 14, 2024	Solid	X			X	X	X	X	X	X	X		X	X	X		X			
57	TP11 - 1.25	Mar 14, 2024	Solid									X										
58	TP11 - 1.50	Mar 14, 2024	Solid									X										
59	TP11 - 1.75	Mar 14, 2024	Solid									X										



ABN: 91 05 0159 898

ABN: 50 005 085 521

NZBN: 9429046024954

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Perth Laboratory - NATA # 2377 Site # 2370				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
External Laboratory																						
60	TP11 - 2.0	Mar 14, 2024	Solid									X										
61	TP12 - 0.0	Mar 13, 2024	Solid		X		X	X	X	X	X	X	X		X		X		X			X
62	TP13 - 0.0	Mar 13, 2024	Solid	X			X	X	X	X	X	X	X		X	X	X		X			
63	TP13 - 0.25	Mar 13, 2024	Solid									X										
64	TP13 - 0.50	Mar 13, 2024	Solid									X				X						
65	TP13 - 0.75	Mar 13, 2024	Solid									X										
66	TP13 - 1.0	Mar 13, 2024	Solid	X			X	X	X	X	X	X	X		X	X	X		X			
67	TP13 - 1.25	Mar 13, 2024	Solid									X										
68	TP13 - 1.50	Mar 13, 2024	Solid									X										
69	TP13 - 1.75	Mar 13, 2024	Solid									X										
70	TP13 - 2.0	Mar 13, 2024	Solid									X										
71	TP14 - 0.0	Mar 13, 2024	Solid	X			X	X	X	X	X	X	X		X	X	X		X			X
72	TP14 - 0.25	Mar 13, 2024	Solid									X										
73	TP15 - 0.0	Mar 13, 2024	Solid	X			X	X	X	X	X	X	X		X	X	X		X			
74	TP15 - 0.25	Mar 13, 2024	Solid									X										

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Perth Laboratory - NATA # 2377 Site # 2370					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
External Laboratory																						
75	TP15 - 0.50	Mar 13, 2024		Solid	L24-Ma0049747								X				X					
76	TP15 - 0.75	Mar 13, 2024		Solid	L24-Ma0049748								X									
77	TP15 - 1.0	Mar 13, 2024		Solid	L24-Ma0049749	X		X	X	X	X	X	X	X		X	X	X		X		
78	TP16 - 0.0	Mar 13, 2024		Solid	L24-Ma0049750	X	X	X	X	X	X	X	X	X		X	X	X		X		X
79	TP17 - 0.0	Mar 13, 2024		Solid	L24-Ma0049751	X		X	X	X	X	X	X	X		X	X	X		X		
80	TP17 - 0.25	Mar 13, 2024		Solid	L24-Ma0049752								X									
81	TP17 - 0.50	Mar 13, 2024		Solid	L24-Ma0049753								X				X					
82	TP18 - 0.0	Mar 14, 2024		Solid	L24-Ma0049754	X		X	X	X	X	X	X	X		X	X	X		X		X
83	TP19 - 0.0	Mar 14, 2024		Solid	L24-Ma0049755	X		X	X	X	X	X	X	X		X	X	X		X		
84	TP19 - 0.25	Mar 14, 2024		Solid	L24-Ma0049756								X									
85	TP19 - 0.50	Mar 14, 2024		Solid	L24-Ma0049757								X				X					
86	TP10 - QC1	Mar 12, 2024		Water	L24-Ma0049760			X								X		X		X	X	X
87	TP15 - QC1	Mar 13, 2024		Water	L24-Ma0049761			X								X		X		X	X	X
88	TP01 - QC1	Mar 14, 2024		Water	L24-Ma0049762			X								X		X		X	X	X
89	TP01 - QC2	Mar 14, 2024		Solid	L24-Ma0049763	X		X	X	X	X	X	X	X		X	X	X		X		



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Sample Detail					Ammonia-N	Asbestos in Soils (AS 4964-2004)	Chromium (VI)	Chromium (VI)	Filterable Reactive Phosphorus	Nitrate-N	Nitrite-N	Phosphorus	Acid Sulfate Soils Field pH Test	Moisture Set	BTEXN and Volatile TRH	Eurofins Suite B6A	Asbestos in Soils (ASC NIEPM 2013)	OCOP in Soil	OCOP in Water	Total Nitrogen	Eurofins Suite B19E	Per- and Polyfluoroalkyl Substances (PFASs)
Perth Laboratory - NATA # 2377 Site # 2370					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
External Laboratory																						
90	TP06 - QC2	Mar 13, 2024		Solid	L24-Ma0049764	X		X	X	X	X		X		X	X	X		X			X
91	TP11 - QC2	Mar 14, 2024		Solid	L24-Ma0049765	X		X	X	X	X		X		X	X	X		X			
92	TP16 - QC2	Mar 13, 2024		Solid	L24-Ma0049766	X	X	X	X	X	X		X		X		X		X			
93	TP20 - QC2	Mar 13, 2024		Solid	L24-Ma0049767	X	X	X	X	X	X		X		X		X		X			X
94	TP01 - QC3	Mar 14, 2024		Solid	L24-Ma0049768	X		X	X	X	X		X		X	X	X		X			
95	TP06 - QC3	Mar 13, 2024		Solid	L24-Ma0049769	X		X	X	X	X		X		X	X	X		X			
96	TP11 - QC3	Mar 14, 2024		Solid	L24-Ma0049770	X		X	X	X	X		X		X	X	X		X			
97	TP16 - QC3	Mar 13, 2024		Solid	L24-Ma0049771	X	X	X	X	X	X		X		X		X		X			
98	TP20 - QC3	Mar 13, 2024		Solid	L24-Ma0049772	X	X	X	X	X	X		X		X		X		X			
99	QC4	Not Provided		Solid	L24-Ma0049773										X							
100	QC4	Not Provided		Solid	L24-Ma0049774										X							
101	TP05 - 0.75	Mar 13, 2024		Solid	L24-Ma0049927							X										
102	TP20 - 0.0	Mar 14, 2024		Solid	L24-Ma0050128	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Test Counts					41	13	3	42	41	41	41	41	85	41	2	44	40	41	3	41	3	14

Internal Quality Control Review and Glossary

General

- Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follow guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013. They are included in this QC report where applicable. Additional QC data may be available on request.
- Unless otherwise stated, all soil/sediment/solid results are reported on a dry weight basis.
- Unless otherwise stated, all biota/food results are reported on a wet weight basis on the edible portion.
- For CEC results where the sample's origin is unknown or environmentally contaminated, the results should be used advisedly.
- Actual LORs are matrix dependent. Quoted LORs may be raised where sample extracts are diluted due to interferences.
- Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds where annotated.
- SVOC analysis on waters is performed on homogenised, unfiltered samples unless noted otherwise.
- Samples were analysed on an 'as received' basis.
- Information identified in this report with **blue** colour indicates data provided by customers that may have an impact on the results.
- This report replaces any interim results previously issued.

Holding Times

Please refer to the 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours before sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and despite any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the sampling date; therefore, compliance with these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether, the holding time is seven days; however, for all other VOCs, such as BTEX or C6-10 TRH, the holding time is 14 days.

Units

mg/kg: milligrams per kilogram	mg/L: milligrams per litre	ppm: parts per million
µg/L: micrograms per litre	ppb: parts per billion	%: Percentage
org/100 mL: Organisms per 100 millilitres	NTU: Nephelometric Turbidity Units	MPN/100 mL: Most Probable Number of organisms per 100 millilitres
CFU: Colony Forming Unit	Colour: Pt-Co Units (CU)	

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples, these are performed on laboratory-certified clean sands and in the case of water samples, these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria.
TBTO	Tributyltin oxide (<i>bis</i> -tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 6.0
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should only be used as a guide and may be different when site-specific Sampling Analysis and Quality Plan (SAQP) have been implemented.

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is ≤30%; however, the following acceptance guidelines are equally applicable:

Results <10 times the LOR:	No Limit
Results between 10-20 times the LOR:	RPD must lie between 0-50%
Results >20 times the LOR:	RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range, not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%, VOC recoveries 50 – 150%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

QC Data General Comments

- Where a result is reported as less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
- Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown are not data from your samples.
- pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
- Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery, the term "INT" appears against that analyte.
- For Matrix Spikes and LCS results, a dash "-" in the report means that the specific analyte was not added to the QC sample.
- Duplicate RPDs are calculated from raw analytical data; thus, it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total*	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
Method Blank							
Ammonia-N	mg/kg	< 10			10	Pass	
Filterable Reactive Phosphorus	mg/kg	< 1			1	Pass	
Nitrate-N	mg/kg	< 1			1	Pass	
Nitrite-N	mg/kg	< 1			1	Pass	
NOx-N	mg/kg	< 1			1	Pass	
Total Kjeldahl Nitrogen	mg/kg	< 10			10	Pass	
Method Blank							
OCOP in Soil							
Aldrin	mg/kg	< 0.01			0.01	Pass	
alpha-BHC (HCH)	mg/kg	< 0.01			0.01	Pass	
beta-BHC (HCH)	mg/kg	< 0.01			0.01	Pass	
delta-BHC (HCH)	mg/kg	< 0.01			0.01	Pass	
Bifenthrin	mg/kg	< 0.2			0.2	Pass	
Bromophos Ethyl	mg/kg	< 0.05			0.05	Pass	
Chlordane	mg/kg	< 0.01			0.01	Pass	
Chlorpyrifos	mg/kg	< 0.02			0.02	Pass	
Dieldrin	mg/kg	< 0.01			0.01	Pass	
p,p-DDD	mg/kg	< 0.01			0.01	Pass	
p,p-DDE	mg/kg	< 0.01			0.01	Pass	
p,p-DDT	mg/kg	< 0.01			0.01	Pass	
o,p-DDT	mg/kg	< 0.01			0.01	Pass	
Endosulfan I	mg/kg	< 0.01			0.01	Pass	
Endosulfan II	mg/kg	< 0.01			0.01	Pass	
Endosulfan Sulfate	mg/kg	< 0.01			0.01	Pass	
Endrin	mg/kg	< 0.01			0.01	Pass	
Heptachlor	mg/kg	< 0.01			0.01	Pass	
Heptachlor Epoxide	mg/kg	< 0.01			0.01	Pass	
Hexachlorobenzene (HCB)	mg/kg	< 0.01			0.01	Pass	
Lindane	mg/kg	< 0.01			0.01	Pass	
Methoxychlor	mg/kg	< 0.2			0.2	Pass	
Oxychlordane	mg/kg	< 0.01			0.01	Pass	
Diazinon	mg/kg	< 0.2			0.2	Pass	
Ethion	mg/kg	< 0.05			0.05	Pass	
Fenitrothion	mg/kg	< 0.1			0.1	Pass	
Malathion	mg/kg	< 0.1			0.1	Pass	
Trifluralin	mg/kg	< 0.2			0.2	Pass	
Method Blank							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Ammonia-N	mg/kg	< 10			10	Pass	
Filterable Reactive Phosphorus	mg/kg	< 1			1	Pass	
Nitrate-N	mg/kg	< 1			1	Pass	
Nitrite-N	mg/kg	< 1			1	Pass	
NOx-N	mg/kg	< 1			1	Pass	
Phosphorus	mg/kg	< 1			1	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ug/kg	< 5			5	Pass	
Perfluoropentanoic acid (PFPeA)	ug/kg	< 5			5	Pass	
Perfluorohexanoic acid (PFHxA)	ug/kg	< 5			5	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/kg	< 5			5	Pass	
Perfluorooctanoic acid (PFOA)	ug/kg	< 5			5	Pass	
Perfluorononanoic acid (PFNA)	ug/kg	< 5			5	Pass	
Perfluorodecanoic acid (PFDA)	ug/kg	< 5			5	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/kg	< 5			5	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/kg	< 5			5	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/kg	< 5			5	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/kg	< 5			5	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	ug/kg	< 5			5	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/kg	< 5			5	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/kg	< 5			5	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/kg	< 5			5	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/kg	< 5			5	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/kg	< 10			10	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/kg	< 10			10	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/kg	< 5			5	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/kg	< 10			10	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/kg	< 5			5	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/kg	< 5			5	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	ug/kg	< 5			5	Pass	
Perfluorononanesulfonic acid (PFNS)*	ug	< 5			5	Pass	
Perfluoropropanesulfonic acid (PFPrS)*	ug/kg	< 5			5	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/kg	< 5			5	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/kg	< 5			5	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/kg	< 5			5	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/kg	< 5			5	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/kg	< 5			5	Pass	
Method Blank							
OCOP in Soil							
Aldrin	mg/kg	< 0.01			0.01	Pass	
alpha-BHC (HCH)	mg/kg	< 0.01			0.01	Pass	
beta-BHC (HCH)	mg/kg	< 0.01			0.01	Pass	
delta-BHC (HCH)	mg/kg	< 0.01			0.01	Pass	
Bifenthrin	mg/kg	< 0.2			0.2	Pass	
Bromophos Ethyl	mg/kg	< 0.05			0.05	Pass	
Chlordane	mg/kg	< 0.01			0.01	Pass	
Chlorpyrifos	mg/kg	< 0.02			0.02	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Dieldrin	mg/kg	< 0.01			0.01	Pass	
p,p-DDD	mg/kg	< 0.01			0.01	Pass	
p,p-DDE	mg/kg	< 0.01			0.01	Pass	
p,p-DDT	mg/kg	< 0.01			0.01	Pass	
o,p-DDT	mg/kg	< 0.01			0.01	Pass	
Endosulfan I	mg/kg	< 0.01			0.01	Pass	
Endosulfan II	mg/kg	< 0.01			0.01	Pass	
Endosulfan Sulfate	mg/kg	< 0.01			0.01	Pass	
Endrin	mg/kg	< 0.01			0.01	Pass	
Heptachlor	mg/kg	< 0.01			0.01	Pass	
Heptachlor Epoxide	mg/kg	< 0.01			0.01	Pass	
Hexachlorobenzene (HCB)	mg/kg	< 0.01			0.01	Pass	
Lindane	mg/kg	< 0.01			0.01	Pass	
Methoxychlor	mg/kg	< 0.2			0.2	Pass	
Oxychlorthane	mg/kg	< 0.01			0.01	Pass	
Diazinon	mg/kg	< 0.2			0.2	Pass	
Ethion	mg/kg	< 0.05			0.05	Pass	
Fenitrothion	mg/kg	< 0.1			0.1	Pass	
Malathion	mg/kg	< 0.1			0.1	Pass	
Trifluralin	mg/kg	< 0.2			0.2	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Total Kjeldahl Nitrogen	mg/kg	< 10			10	Pass	
Method Blank							
Ammonia-N	mg/kg	< 10			10	Pass	
Filterable Reactive Phosphorus	mg/kg	< 1			1	Pass	
Nitrate-N	mg/kg	< 1			1	Pass	
Nitrite-N	mg/kg	< 1			1	Pass	
NOx-N	mg/kg	< 1			1	Pass	
Method Blank							
Phosphorus	mg/kg	< 1			1	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
Method Blank							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total*	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
Method Blank							
Phosphorus	mg/kg	< 1			1	Pass	
Method Blank							
Ammonia-N	mg/kg	< 10			10	Pass	
Filterable Reactive Phosphorus	mg/kg	< 1			1	Pass	
Nitrate-N	mg/kg	< 1			1	Pass	
Nitrite-N	mg/kg	< 1			1	Pass	
NOx-N	mg/kg	< 1			1	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Beryllium	mg/kg	< 2			2	Pass	
Boron	mg/kg	< 10			10	Pass	
Cadmium	mg/kg	< 0.1			0.1	Pass	
Cobalt	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 1			1	Pass	
Lead	mg/kg	< 1			1	Pass	
Manganese	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.02			0.02	Pass	
Nickel	mg/kg	< 1			1	Pass	
Selenium	mg/kg	< 2			2	Pass	
Zinc	mg/kg	< 5			5	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total*	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	mg/kg	< 50			50	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
OCOP in Soil							
Aldrin	mg/kg	< 0.01			0.01	Pass	
alpha-BHC (HCH)	mg/kg	< 0.01			0.01	Pass	
beta-BHC (HCH)	mg/kg	< 0.01			0.01	Pass	
delta-BHC (HCH)	mg/kg	< 0.01			0.01	Pass	
Bifenthrin	mg/kg	< 0.2			0.2	Pass	
Bromophos Ethyl	mg/kg	< 0.05			0.05	Pass	
Chlordane	mg/kg	< 0.01			0.01	Pass	
Chlorpyrifos	mg/kg	< 0.02			0.02	Pass	
Dieldrin	mg/kg	< 0.01			0.01	Pass	
p,p-DDD	mg/kg	< 0.01			0.01	Pass	
p,p-DDE	mg/kg	< 0.01			0.01	Pass	
p,p-DDT	mg/kg	< 0.01			0.01	Pass	
o,p-DDT	mg/kg	< 0.01			0.01	Pass	
Endosulfan I	mg/kg	< 0.01			0.01	Pass	
Endosulfan II	mg/kg	< 0.01			0.01	Pass	
Endosulfan Sulfate	mg/kg	< 0.01			0.01	Pass	
Endrin	mg/kg	< 0.01			0.01	Pass	
Heptachlor	mg/kg	< 0.01			0.01	Pass	
Heptachlor Epoxide	mg/kg	< 0.01			0.01	Pass	
Hexachlorobenzene (HCB)	mg/kg	< 0.01			0.01	Pass	
Lindane	mg/kg	< 0.01			0.01	Pass	
Methoxychlor	mg/kg	< 0.2			0.2	Pass	
Oxychlordane	mg/kg	< 0.01			0.01	Pass	
Diazinon	mg/kg	< 0.2			0.2	Pass	
Ethion	mg/kg	< 0.05			0.05	Pass	
Fenitrothion	mg/kg	< 0.1			0.1	Pass	
Malathion	mg/kg	< 0.1			0.1	Pass	
Trifluralin	mg/kg	< 0.2			0.2	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Beryllium	mg/kg	< 2			2	Pass	
Boron	mg/kg	< 10			10	Pass	
Cadmium	mg/kg	< 0.1			0.1	Pass	
Cobalt	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 1			1	Pass	
Lead	mg/kg	< 1			1	Pass	
Manganese	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.02			0.02	Pass	
Nickel	mg/kg	< 1			1	Pass	
Selenium	mg/kg	< 2			2	Pass	
Zinc	mg/kg	< 5			5	Pass	
Method Blank							
Ammonia-N	mg/kg	< 10			10	Pass	
Chromium (VI)	mg/kg	< 1			1	Pass	
Filterable Reactive Phosphorus	mg/kg	< 1			1	Pass	
Nitrate-N	mg/kg	< 1			1	Pass	
Nitrite-N	mg/kg	< 1			1	Pass	
NOx-N	mg/kg	< 1			1	Pass	
LCS - % Recovery							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	119			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	101			70-130	Pass	
Toluene	%	100			70-130	Pass	
Ethylbenzene	%	104			70-130	Pass	
m&p-Xylenes	%	107			70-130	Pass	
o-Xylene	%	100			70-130	Pass	
Xylenes - Total*	%	105			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	104			70-130	Pass	
TRH C6-C10	%	99			70-130	Pass	
LCS - % Recovery							
OCOP in Soil							
Aldrin	%	81			60-120	Pass	
Dieldrin	%	116			60-120	Pass	
p,p-DDT	%	96			60-120	Pass	
Endrin	%	90			60-120	Pass	
Heptachlor	%	88			60-120	Pass	
Lindane	%	88			60-120	Pass	
LCS - % Recovery							
Phosphorus	%	111			80-120	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	51			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	74			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	97			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	68			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	72			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	66			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	62			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	61			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	68			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	60			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	71			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	65			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	63			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	63			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	64			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	68			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	63			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	64			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	64			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	92			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	61			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	63			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSA)							

Test	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Perfluorobutanesulfonic acid (PFBS)	%	56		50-150	Pass	
Perfluorononanesulfonic acid (PFNS)*	%	63		50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	55		50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	63		50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	65		50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	63		50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	66		50-150	Pass	
LCS - % Recovery						
Phosphorus	%	114		80-120	Pass	
LCS - % Recovery						
OCOP in Soil						
Aldrin	%	82		60-120	Pass	
Dieldrin	%	97		60-120	Pass	
p,p-DDT	%	99		60-120	Pass	
Endrin	%	60		60-120	Pass	
Heptachlor	%	85		60-120	Pass	
Lindane	%	83		60-120	Pass	
LCS - % Recovery						
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C10-C14	%	94		70-130	Pass	
LCS - % Recovery						
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	%	95		70-130	Pass	
LCS - % Recovery						
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C10-C14	%	92		70-130	Pass	
LCS - % Recovery						
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	%	98		70-130	Pass	
LCS - % Recovery						
Phosphorus	%	117		80-120	Pass	
LCS - % Recovery						
Phosphorus	%	93		80-120	Pass	
LCS - % Recovery						
Phosphorus	%	120		80-120	Pass	
LCS - % Recovery						
Phosphorus	%	109		80-120	Pass	
LCS - % Recovery						
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	%	100		70-130	Pass	
LCS - % Recovery						
BTEX						
Benzene	%	98		70-130	Pass	
Toluene	%	99		70-130	Pass	
Ethylbenzene	%	102		70-130	Pass	
m&p-Xylenes	%	104		70-130	Pass	
o-Xylene	%	101		70-130	Pass	
Xylenes - Total*	%	103		70-130	Pass	
LCS - % Recovery						
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene	%	101		70-130	Pass	
TRH C6-C10	%	97		70-130	Pass	
LCS - % Recovery						
Phosphorus	%	89		80-120	Pass	
LCS - % Recovery						

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Phosphorus	%	110			80-120	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	98			80-120	Pass	
Beryllium	%	106			80-120	Pass	
Boron	%	99			80-120	Pass	
Cadmium	%	100			80-120	Pass	
Cobalt	%	100			80-120	Pass	
Copper	%	96			80-120	Pass	
Lead	%	100			80-120	Pass	
Manganese	%	99			80-120	Pass	
Mercury	%	100			80-120	Pass	
Nickel	%	100			80-120	Pass	
Selenium	%	99			80-120	Pass	
Zinc	%	100			80-120	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	119			70-130	Pass	
TRH C10-C14	%	95			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	100			70-130	Pass	
Toluene	%	102			70-130	Pass	
Ethylbenzene	%	101			70-130	Pass	
m&p-Xylenes	%	103			70-130	Pass	
o-Xylene	%	100			70-130	Pass	
Xylenes - Total*	%	102			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	101			70-130	Pass	
TRH C6-C10	%	108			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	%	97			70-130	Pass	
LCS - % Recovery							
OCOP in Soil							
Aldrin	%	98			60-120	Pass	
Dieldrin	%	112			60-120	Pass	
p,p-DDT	%	106			60-120	Pass	
Endrin	%	91			60-120	Pass	
Heptachlor	%	92			60-120	Pass	
Lindane	%	89			60-120	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	118			80-120	Pass	
Beryllium	%	97			80-120	Pass	
Boron	%	94			80-120	Pass	
Cadmium	%	98			80-120	Pass	
Cobalt	%	95			80-120	Pass	
Copper	%	91			80-120	Pass	
Lead	%	90			80-120	Pass	
Manganese	%	93			80-120	Pass	
Mercury	%	95			80-120	Pass	
Nickel	%	94			80-120	Pass	

Test			Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Selenium			%	97		80-120	Pass	
Zinc			%	92		80-120	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1				
TRH C10-C14	L24-Ma0049669	CP	%	106		70-130	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1				
TRH >C10-C16	L24-Ma0049669	CP	%	106		70-130	Pass	
Spike - % Recovery								
OCOP in Soil				Result 1				
Aldrin	L24-Ma0049669	CP	%	82		60-120	Pass	
Dieldrin	L24-Ma0049669	CP	%	96		60-120	Pass	
p.p-DDT	L24-Ma0049669	CP	%	86		60-120	Pass	
Endrin	L24-Ma0049669	CP	%	107		60-120	Pass	
Heptachlor	L24-Ma0049669	CP	%	90		60-120	Pass	
Lindane	L24-Ma0049669	CP	%	110		60-120	Pass	
Spike - % Recovery								
Heavy Metals				Result 1				
Arsenic	L24-Ma0049719	CP	%	96		75-125	Pass	
Beryllium	L24-Ma0049719	CP	%	96		75-125	Pass	
Boron	L24-Ma0049719	CP	%	88		75-125	Pass	
Cadmium	L24-Ma0049719	CP	%	97		75-125	Pass	
Cobalt	L24-Ma0049719	CP	%	97		75-125	Pass	
Copper	L24-Ma0049719	CP	%	96		75-125	Pass	
Lead	L24-Ma0049719	CP	%	100		75-125	Pass	
Manganese	L24-Ma0049719	CP	%	97		75-125	Pass	
Mercury	L24-Ma0049719	CP	%	98		75-125	Pass	
Nickel	L24-Ma0049719	CP	%	98		75-125	Pass	
Selenium	L24-Ma0049719	CP	%	97		75-125	Pass	
Zinc	L24-Ma0049719	CP	%	96		75-125	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1				
TRH C6-C9	L24-Ma0049734	CP	%	117		70-130	Pass	
Spike - % Recovery								
BTEX				Result 1				
Benzene	L24-Ma0049734	CP	%	97		70-130	Pass	
Toluene	L24-Ma0049734	CP	%	97		70-130	Pass	
Ethylbenzene	L24-Ma0049734	CP	%	98		70-130	Pass	
m&p-Xylenes	L24-Ma0049734	CP	%	101		70-130	Pass	
o-Xylene	L24-Ma0049734	CP	%	96		70-130	Pass	
Xylenes - Total*	L24-Ma0049734	CP	%	99		70-130	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1				
Naphthalene	L24-Ma0049734	CP	%	102		70-130	Pass	
TRH C6-C10	L24-Ma0049734	CP	%	91		70-130	Pass	
Spike - % Recovery								
OCOP in Soil				Result 1				
Aldrin	L24-Ma0049734	CP	%	90		60-120	Pass	
Dieldrin	L24-Ma0049734	CP	%	110		60-120	Pass	
p.p-DDT	L24-Ma0049734	CP	%	120		60-120	Pass	
Endrin	L24-Ma0049734	CP	%	103		60-120	Pass	
Heptachlor	L24-Ma0049734	CP	%	99		60-120	Pass	
Lindane	L24-Ma0049734	CP	%	112		60-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1				
Perfluorobutanoic acid (PFBA)	L24-Ma0049743	CP	%	54		50-150	Pass	
Perfluoropentanoic acid (PFPeA)	L24-Ma0049743	CP	%	54		50-150	Pass	
Perfluorohexanoic acid (PFHxA)	L24-Ma0049743	CP	%	59		50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	L24-Ma0049743	CP	%	60		50-150	Pass	
Perfluorooctanoic acid (PFOA)	L24-Ma0049743	CP	%	65		50-150	Pass	
Perfluorononanoic acid (PFNA)	L24-Ma0049743	CP	%	61		50-150	Pass	
Perfluorodecanoic acid (PFDA)	L24-Ma0049743	CP	%	67		50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	L24-Ma0049743	CP	%	64		50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	L24-Ma0049743	CP	%	72		50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	L24-Ma0049743	CP	%	59		50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	L24-Ma0049743	CP	%	69		50-150	Pass	
Spike - % Recovery								
Perfluoroalkyl sulfonamido substances				Result 1				
Perfluorooctane sulfonamide (FOSA)	L24-Ma0049743	CP	%	64		50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	L24-Ma0049743	CP	%	57		50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	L24-Ma0049743	CP	%	63		50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	L24-Ma0049743	CP	%	54		50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	L24-Ma0049743	CP	%	62		50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	L24-Ma0049743	CP	%	66		50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	L24-Ma0049743	CP	%	64		50-150	Pass	
Spike - % Recovery								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)				Result 1				
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	L24-Ma0049743	CP	%	67		50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	L24-Ma0049743	CP	%	64		50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	L24-Ma0049743	CP	%	61		50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	L24-Ma0049743	CP	%	55		50-150	Pass	
Spike - % Recovery								
Perfluoroalkyl sulfonic acids (PFSA)				Result 1				
Perfluorobutanesulfonic acid (PFBS)	L24-Ma0049743	CP	%	52		50-150	Pass	
Perfluorononanesulfonic acid (PFNS)*	L24-Ma0049743	CP	%	63		50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)*	L24-Ma0049743	CP	%	59		50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	L24-Ma0049743	CP	%	68		50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	L24-Ma0049743	CP	%	52		50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	L24-Ma0049743	CP	%	68		50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorooctanesulfonic acid (PFOS)	L24-Ma0049743	CP	%	63			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	L24-Ma0049743	CP	%	64			50-150	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	L24-Ma0049769	CP	%	87			75-125	Pass	
Beryllium	L24-Ma0049769	CP	%	98			75-125	Pass	
Boron	L24-Ma0049769	CP	%	84			75-125	Pass	
Cadmium	L24-Ma0049769	CP	%	91			75-125	Pass	
Cobalt	L24-Ma0049769	CP	%	90			75-125	Pass	
Copper	L24-Ma0049769	CP	%	87			75-125	Pass	
Lead	L24-Ma0049769	CP	%	91			75-125	Pass	
Manganese	L24-Ma0049769	CP	%	90			75-125	Pass	
Mercury	L24-Ma0049769	CP	%	92			75-125	Pass	
Nickel	L24-Ma0049769	CP	%	90			75-125	Pass	
Selenium	L24-Ma0049769	CP	%	86			75-125	Pass	
Zinc	L24-Ma0049769	CP	%	91			75-125	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	L24-Ma0050128	CP	%	120			70-130	Pass	
TRH C10-C14	L24-Ma0050128	CP	%	92			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	L24-Ma0050128	CP	%	99			70-130	Pass	
Toluene	L24-Ma0050128	CP	%	100			70-130	Pass	
Ethylbenzene	L24-Ma0050128	CP	%	101			70-130	Pass	
m&p-Xylenes	L24-Ma0050128	CP	%	101			70-130	Pass	
o-Xylene	L24-Ma0050128	CP	%	99			70-130	Pass	
Xylenes - Total*	L24-Ma0050128	CP	%	100			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	L24-Ma0050128	CP	%	99			70-130	Pass	
TRH C6-C10	L24-Ma0050128	CP	%	112			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	L24-Ma0050128	CP	%	92			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	L24-Ma0049669	CP	mg/kg	< 20	< 20	< 1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	L24-Ma0049669	CP	mg/kg	< 0.1	< 0.1	< 1	30%	Pass	
Toluene	L24-Ma0049669	CP	mg/kg	< 0.1	< 0.1	< 1	30%	Pass	
Ethylbenzene	L24-Ma0049669	CP	mg/kg	< 0.1	< 0.1	< 1	30%	Pass	
m&p-Xylenes	L24-Ma0049669	CP	mg/kg	< 0.2	< 0.2	< 1	30%	Pass	
o-Xylene	L24-Ma0049669	CP	mg/kg	< 0.1	< 0.1	< 1	30%	Pass	
Xylenes - Total*	L24-Ma0049669	CP	mg/kg	< 0.3	< 0.3	< 1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	L24-Ma0049669	CP	mg/kg	< 0.5	< 0.5	< 1	30%	Pass	
TRH C6-C10	L24-Ma0049669	CP	mg/kg	< 20	< 20	< 1	30%	Pass	

Duplicate				Result 1	Result 2	RPD		
Ammonia-N	L24-Ma0049669	CP	mg/kg	50	50	<1	20%	Pass
Filterable Reactive Phosphorus	L24-Ma0049669	CP	mg/kg	3.6	4.1	13	20%	Pass
Nitrate-N	L24-Ma0049669	CP	mg/kg	< 1	< 1	<1	20%	Pass
Nitrite-N	L24-Ma0049669	CP	mg/kg	< 1	< 1	<1	20%	Pass
NOx-N	L24-Ma0049669	CP	mg/kg	< 1	< 1	<1	20%	Pass
Duplicate				Result 1	Result 2	RPD		
Acid Sulfate Soils Field pH Test				Result 1	Result 2	RPD		
pH-F (Field pH test)*	L24-Ma0049669	CP	pH Units	4.6	4.3	pass	20%	Pass
Reaction Ratings*	L24-Ma0049669	CP	comment	2.0	2.0	pass	30%	Pass
Duplicate				Result 1	Result 2	RPD		
Acid Sulfate Soils Field pH Test				Result 1	Result 2	RPD		
pH-F (Field pH test)*	L24-Ma0049680	CP	pH Units	4.8	4.8	pass	20%	Pass
Reaction Ratings*	L24-Ma0049680	CP	comment	2.0	2.0	pass	30%	Pass
Duplicate				Result 1	Result 2	RPD		
Phosphorus	L24-Ma0049683	CP	mg/kg	1300	1300	1.1	30%	Pass
Duplicate				Result 1	Result 2	RPD		
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	L24-Ma0049683	CP	mg/kg	2.4	2.4	1.1	30%	Pass
Beryllium	L24-Ma0049683	CP	mg/kg	< 2	< 2	<1	30%	Pass
Boron	L24-Ma0049683	CP	mg/kg	< 10	< 10	<1	30%	Pass
Cadmium	L24-Ma0049683	CP	mg/kg	0.8	0.8	2.0	30%	Pass
Cobalt	L24-Ma0049683	CP	mg/kg	< 5	< 5	<1	30%	Pass
Copper	L24-Ma0049683	CP	mg/kg	12	12	5.7	30%	Pass
Lead	L24-Ma0049683	CP	mg/kg	4.2	4.4	4.6	30%	Pass
Manganese	L24-Ma0049683	CP	mg/kg	14	15	6.1	30%	Pass
Mercury	L24-Ma0049683	CP	mg/kg	0.03	0.03	1.7	30%	Pass
Nickel	L24-Ma0049683	CP	mg/kg	< 1	< 1	<1	30%	Pass
Selenium	L24-Ma0049683	CP	mg/kg	< 2	< 2	<1	30%	Pass
Zinc	L24-Ma0049683	CP	mg/kg	15	17	13	30%	Pass
Duplicate				Result 1	Result 2	RPD		
Acid Sulfate Soils Field pH Test				Result 1	Result 2	RPD		
pH-F (Field pH test)*	L24-Ma0049687	CP	pH Units	5.8	5.8	pass	20%	Pass
Reaction Ratings*	L24-Ma0049687	CP	comment	2.0	2.0	pass	30%	Pass
Duplicate				Result 1	Result 2	RPD		
Sample Properties				Result 1	Result 2	RPD		
% Moisture	L24-Ma0049690	CP	%	< 1	< 1	<1	30%	Pass
Duplicate				Result 1	Result 2	RPD		
Acid Sulfate Soils Field pH Test				Result 1	Result 2	RPD		
pH-F (Field pH test)*	L24-Ma0049694	CP	pH Units	6.0	6.0	pass	20%	Pass
Reaction Ratings*	L24-Ma0049694	CP	comment	2.0	2.0	pass	30%	Pass
Duplicate				Result 1	Result 2	RPD		
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD		
TRH C6-C9	L24-Ma0049696	CP	mg/kg	< 20	< 20	<1	30%	Pass
TRH C10-C14	L24-Ma0049696	CP	mg/kg	< 20	< 20	<1	30%	Pass
TRH C15-C28	L24-Ma0049696	CP	mg/kg	< 50	59	20	30%	Pass
TRH C29-C36	L24-Ma0049696	CP	mg/kg	98	120	16	30%	Pass
Duplicate				Result 1	Result 2	RPD		
BTEX				Result 1	Result 2	RPD		
Benzene	L24-Ma0049696	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Toluene	L24-Ma0049696	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Ethylbenzene	L24-Ma0049696	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
m&p-Xylenes	L24-Ma0049696	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
o-Xylene	L24-Ma0049696	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Xylenes - Total*	L24-Ma0049696	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass

Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	L24-Ma0049696	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
TRH C6-C10	L24-Ma0049696	CP	mg/kg	< 20	< 20	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
TRH >C10-C16	L24-Ma0049696	CP	mg/kg	< 50	< 50	<1	30%	Pass
TRH >C16-C34	L24-Ma0049696	CP	mg/kg	120	140	17	30%	Pass
TRH >C34-C40	L24-Ma0049696	CP	mg/kg	< 100	< 100	<1	30%	Pass
Duplicate								
OCOP in Soil				Result 1	Result 2	RPD		
Aldrin	L24-Ma0049696	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
alpha-BHC (HCH)	L24-Ma0049696	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
beta-BHC (HCH)	L24-Ma0049696	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
delta-BHC (HCH)	L24-Ma0049696	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Bifenthrin	L24-Ma0049696	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Bromophos Ethyl	L24-Ma0049696	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Chlordane	L24-Ma0049696	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Chlorpyrifos	L24-Ma0049696	CP	mg/kg	< 0.02	< 0.02	<1	30%	Pass
Dieldrin	L24-Ma0049696	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
p,p-DDD	L24-Ma0049696	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
p,p-DDE	L24-Ma0049696	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
p,p-DDT	L24-Ma0049696	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
o,p-DDT	L24-Ma0049696	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Endosulfan I	L24-Ma0049696	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Endosulfan II	L24-Ma0049696	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Endosulfan Sulfate	L24-Ma0049696	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Endrin	L24-Ma0049696	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Heptachlor	L24-Ma0049696	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Heptachlor Epoxide	L24-Ma0049696	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Hexachlorobenzene (HCB)	L24-Ma0049696	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Lindane	L24-Ma0049696	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Methoxychlor	L24-Ma0049696	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Oxychlordane	L24-Ma0049696	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Diazinon	L24-Ma0049696	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ethion	L24-Ma0049696	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Fenitrothion	L24-Ma0049696	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Malathion	L24-Ma0049696	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Trifluralin	L24-Ma0049696	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
Ammonia-N	L24-Ma0049696	CP	mg/kg	46	47	1.5	20%	Pass
Chromium (VI)	L24-Ma0049696	CP	mg/kg	< 1	< 1	<1	20%	Pass
Filterable Reactive Phosphorus	L24-Ma0049696	CP	mg/kg	2.1	2.1	2.3	20%	Pass
Nitrate-N	L24-Ma0049696	CP	mg/kg	< 1	< 1	<1	20%	Pass
Nitrite-N	L24-Ma0049696	CP	mg/kg	< 1	< 1	<1	20%	Pass
NOx-N	L24-Ma0049696	CP	mg/kg	< 1	< 1	<1	20%	Pass
Total Kjeldahl Nitrogen	L24-Ma0049696	CP	mg/kg	2500	2900	15	20%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	L24-Ma0049696	CP	mg/kg	< 2	< 2	<1	30%	Pass
Beryllium	L24-Ma0049696	CP	mg/kg	< 2	< 2	<1	30%	Pass
Boron	L24-Ma0049696	CP	mg/kg	< 10	< 10	<1	30%	Pass
Cadmium	L24-Ma0049696	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Cobalt	L24-Ma0049696	CP	mg/kg	< 5	< 5	<1	30%	Pass
Copper	L24-Ma0049696	CP	mg/kg	< 1	< 1	<1	30%	Pass

Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Lead	L24-Ma0049696	CP	mg/kg	< 1	< 1	<1	30%	Pass
Manganese	L24-Ma0049696	CP	mg/kg	< 5	< 5	<1	30%	Pass
Mercury	L24-Ma0049696	CP	mg/kg	< 0.02	< 0.02	<1	30%	Pass
Nickel	L24-Ma0049696	CP	mg/kg	< 1	< 1	<1	30%	Pass
Selenium	L24-Ma0049696	CP	mg/kg	< 2	< 2	<1	30%	Pass
Zinc	L24-Ma0049696	CP	mg/kg	< 5	< 5	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD		
TRH C6-C9	L24-Ma0049699	CP	mg/kg	< 20	< 20	<1	30%	Pass
TRH C10-C14	L24-Ma0049699	CP	mg/kg	< 20	< 20	<1	30%	Pass
TRH C15-C28	L24-Ma0049699	CP	mg/kg	< 50	< 50	<1	30%	Pass
TRH C29-C36	L24-Ma0049699	CP	mg/kg	< 50	< 50	<1	30%	Pass
Duplicate								
BTEX				Result 1	Result 2	RPD		
Benzene	L24-Ma0049699	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Toluene	L24-Ma0049699	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Ethylbenzene	L24-Ma0049699	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
m&p-Xylenes	L24-Ma0049699	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
o-Xylene	L24-Ma0049699	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Xylenes - Total*	L24-Ma0049699	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	L24-Ma0049699	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
TRH C6-C10	L24-Ma0049699	CP	mg/kg	< 20	< 20	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
TRH >C10-C16	L24-Ma0049699	CP	mg/kg	< 50	< 50	<1	30%	Pass
TRH >C16-C34	L24-Ma0049699	CP	mg/kg	< 100	< 100	<1	30%	Pass
TRH >C34-C40	L24-Ma0049699	CP	mg/kg	< 100	< 100	<1	30%	Pass
Duplicate								
OCOP in Soil				Result 1	Result 2	RPD		
Aldrin	L24-Ma0049699	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
alpha-BHC (HCH)	L24-Ma0049699	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
beta-BHC (HCH)	L24-Ma0049699	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
delta-BHC (HCH)	L24-Ma0049699	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Bifenthrin	L24-Ma0049699	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Bromophos Ethyl	L24-Ma0049699	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Chlordane	L24-Ma0049699	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Chlorpyrifos	L24-Ma0049699	CP	mg/kg	< 0.02	< 0.02	<1	30%	Pass
Dieldrin	L24-Ma0049699	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
p,p-DDD	L24-Ma0049699	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
p,p-DDE	L24-Ma0049699	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
p,p-DDT	L24-Ma0049699	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
o,p-DDT	L24-Ma0049699	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Endosulfan I	L24-Ma0049699	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Endosulfan II	L24-Ma0049699	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Endosulfan Sulfate	L24-Ma0049699	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Endrin	L24-Ma0049699	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Heptachlor	L24-Ma0049699	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Heptachlor Epoxide	L24-Ma0049699	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Hexachlorobenzene (HCB)	L24-Ma0049699	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Lindane	L24-Ma0049699	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Methoxychlor	L24-Ma0049699	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Oxychlordane	L24-Ma0049699	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass

Duplicate								
OCOP in Soil				Result 1	Result 2	RPD		
Diazinon	L24-Ma0049699	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ethion	L24-Ma0049699	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Fenitrothion	L24-Ma0049699	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Malathion	L24-Ma0049699	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Trifluralin	L24-Ma0049699	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Duplicate								
Acid Sulfate Soils Field pH Test				Result 1	Result 2	RPD		
pH-F (Field pH test)*	L24-Ma0049704	CP	pH Units	6.7	6.7	pass	20%	Pass
Reaction Ratings*	L24-Ma0049704	CP	comment	2.0	2.0	pass	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
Ammonia-N	L24-Ma0049710	CP	mg/kg	42	42	<1	20%	Pass
Filterable Reactive Phosphorus	L24-Ma0049710	CP	mg/kg	< 1	< 1	<1	20%	Pass
Nitrate-N	L24-Ma0049710	CP	mg/kg	< 1	< 1	<1	20%	Pass
Nitrite-N	L24-Ma0049710	CP	mg/kg	< 1	< 1	<1	20%	Pass
NOx-N	L24-Ma0049710	CP	mg/kg	< 1	< 1	<1	20%	Pass
Duplicate								
Acid Sulfate Soils Field pH Test				Result 1	Result 2	RPD		
pH-F (Field pH test)*	L24-Ma0049714	CP	pH Units	5.0	5.0	pass	20%	Pass
Reaction Ratings*	L24-Ma0049714	CP	comment	2.0	2.0	pass	30%	Pass
Duplicate								
Sample Properties				Result 1	Result 2	RPD		
% Moisture	L24-Ma0049724	CP	%	14	18	26	30%	Pass
Duplicate								
Acid Sulfate Soils Field pH Test				Result 1	Result 2	RPD		
pH-F (Field pH test)*	L24-Ma0049730	CP	pH Units	6.3	6.3	pass	20%	Pass
Reaction Ratings*	L24-Ma0049730	CP	comment	2.0	2.0	pass	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD		
TRH C6-C9	L24-Ma0049733	CP	mg/kg	< 20	< 20	<1	30%	Pass
Duplicate								
BTEX				Result 1	Result 2	RPD		
Benzene	L24-Ma0049733	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Toluene	L24-Ma0049733	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Ethylbenzene	L24-Ma0049733	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
m&p-Xylenes	L24-Ma0049733	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
o-Xylene	L24-Ma0049733	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Xylenes - Total*	L24-Ma0049733	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	L24-Ma0049733	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
TRH C6-C10	L24-Ma0049733	CP	mg/kg	< 20	< 20	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
Ammonia-N	L24-Ma0049733	CP	mg/kg	44	44	<1	20%	Pass
Chromium (VI)	L24-Ma0049733	CP	mg/kg	< 1	< 1	<1	20%	Pass
Filterable Reactive Phosphorus	L24-Ma0049733	CP	mg/kg	< 1	< 1	<1	20%	Pass
Nitrate-N	L24-Ma0049733	CP	mg/kg	< 1	< 1	<1	20%	Pass
Nitrite-N	L24-Ma0049733	CP	mg/kg	< 1	< 1	<1	20%	Pass
NOx-N	L24-Ma0049733	CP	mg/kg	< 1	< 1	<1	20%	Pass
Total Kjeldahl Nitrogen	L24-Ma0049733	CP	mg/kg	2900	2500	15	20%	Pass

Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	L24-Ma0049733	CP	mg/kg	< 2	< 2	<1	30%	Pass
Beryllium	L24-Ma0049733	CP	mg/kg	< 2	< 2	<1	30%	Pass
Boron	L24-Ma0049733	CP	mg/kg	< 10	< 10	<1	30%	Pass
Cadmium	L24-Ma0049733	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Cobalt	L24-Ma0049733	CP	mg/kg	< 5	< 5	<1	30%	Pass
Copper	L24-Ma0049733	CP	mg/kg	2.1	2.1	2.6	30%	Pass
Lead	L24-Ma0049733	CP	mg/kg	< 1	< 1	<1	30%	Pass
Manganese	L24-Ma0049733	CP	mg/kg	< 5	< 5	<1	30%	Pass
Mercury	L24-Ma0049733	CP	mg/kg	< 0.02	< 0.02	<1	30%	Pass
Nickel	L24-Ma0049733	CP	mg/kg	< 1	< 1	<1	30%	Pass
Selenium	L24-Ma0049733	CP	mg/kg	< 2	< 2	<1	30%	Pass
Zinc	L24-Ma0049733	CP	mg/kg	< 5	< 5	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD		
TRH C10-C14	L24-Ma0049734	CP	mg/kg	< 20	< 20	<1	30%	Pass
TRH C15-C28	L24-Ma0049734	CP	mg/kg	68	79	<1	30%	Pass
TRH C29-C36	L24-Ma0049734	CP	mg/kg	120	130	10	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
TRH >C10-C16	L24-Ma0049734	CP	mg/kg	< 50	< 50	<1	30%	Pass
TRH >C16-C34	L24-Ma0049734	CP	mg/kg	150	170	13	30%	Pass
TRH >C34-C40	L24-Ma0049734	CP	mg/kg	< 100	< 100	<1	30%	Pass
Duplicate								
Acid Sulfate Soils Field pH Test				Result 1	Result 2	RPD		
pH-F (Field pH test)*	L24-Ma0049741	CP	pH Units	4.8	4.8	pass	20%	Pass
Reaction Ratings*	L24-Ma0049741	CP	comment	2.0	2.0	pass	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
Ammonia-N	L24-Ma0049749	CP	mg/kg	42	37	12	20%	Pass
Filterable Reactive Phosphorus	L24-Ma0049749	CP	mg/kg	< 1	< 1	<1	20%	Pass
Nitrate-N	L24-Ma0049749	CP	mg/kg	< 1	< 1	<1	20%	Pass
Nitrite-N	L24-Ma0049749	CP	mg/kg	< 1	< 1	<1	20%	Pass
NOx-N	L24-Ma0049749	CP	mg/kg	< 1	< 1	<1	20%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD		
TRH C10-C14	L24-Ma0049751	CP	mg/kg	< 20	< 20	<1	30%	Pass
TRH C15-C28	L24-Ma0049751	CP	mg/kg	< 50	< 50	<1	30%	Pass
TRH C29-C36	L24-Ma0049751	CP	mg/kg	< 50	< 50	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
TRH >C10-C16	L24-Ma0049751	CP	mg/kg	< 50	< 50	<1	30%	Pass
TRH >C16-C34	L24-Ma0049751	CP	mg/kg	< 100	< 100	<1	30%	Pass
TRH >C34-C40	L24-Ma0049751	CP	mg/kg	< 100	< 100	<1	30%	Pass
Duplicate								
Acid Sulfate Soils Field pH Test				Result 1	Result 2	RPD		
pH-F (Field pH test)*	L24-Ma0049752	CP	pH Units	5.3	5.3	pass	20%	Pass
Reaction Ratings*	L24-Ma0049752	CP	comment	2.0	2.0	pass	30%	Pass
Duplicate								
Sample Properties				Result 1	Result 2	RPD		
% Moisture	L24-Ma0049754	CP	%	4.4	3.4	27	30%	Pass

Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD		
Perfluorobutanoic acid (PFBA)	L24-Ma0049754	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoropentanoic acid (PFPeA)	L24-Ma0049754	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorohexanoic acid (PFHxA)	L24-Ma0049754	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoroheptanoic acid (PFHpA)	L24-Ma0049754	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorooctanoic acid (PFOA)	L24-Ma0049754	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorononanoic acid (PFNA)	L24-Ma0049754	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorodecanoic acid (PFDA)	L24-Ma0049754	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	L24-Ma0049754	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	L24-Ma0049754	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorotridecanoic acid (PFTrDA)	L24-Ma0049754	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	L24-Ma0049754	CP	ug/kg	< 5	< 5	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	L24-Ma0049754	CP	ug/kg	< 5	< 5	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	L24-Ma0049754	CP	ug/kg	< 5	< 5	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	L24-Ma0049754	CP	ug/kg	< 5	< 5	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	L24-Ma0049754	CP	ug/kg	< 5	< 5	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	L24-Ma0049754	CP	ug/kg	< 5	< 5	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	L24-Ma0049754	CP	ug/kg	< 10	< 10	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	L24-Ma0049754	CP	ug/kg	< 10	< 10	<1	30%	Pass
Duplicate								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)				Result 1	Result 2	RPD		
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	L24-Ma0049754	CP	ug/kg	< 5	< 5	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	L24-Ma0049754	CP	ug/kg	< 10	< 10	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	L24-Ma0049754	CP	ug/kg	< 5	< 5	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	L24-Ma0049754	CP	ug/kg	< 5	< 5	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	L24-Ma0049754	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorononanesulfonic acid (PFNS)*	L24-Ma0049754	CP	ug	< 5	< 5	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)*	L24-Ma0049754	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	L24-Ma0049754	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	L24-Ma0049754	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	L24-Ma0049754	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	L24-Ma0049754	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	L24-Ma0049754	CP	ug/kg	< 5	< 5	<1	30%	Pass

Duplicate								
OCOP in Soil				Result 1	Result 2	RPD		
Aldrin	L24-Ma0049763	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
alpha-BHC (HCH)	L24-Ma0049763	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
beta-BHC (HCH)	L24-Ma0049763	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
delta-BHC (HCH)	L24-Ma0049763	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Bifenthrin	L24-Ma0049763	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Bromophos Ethyl	L24-Ma0049763	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Chlordane	L24-Ma0049763	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Chlorpyrifos	L24-Ma0049763	CP	mg/kg	< 0.02	< 0.02	<1	30%	Pass
Dieldrin	L24-Ma0049763	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
p,p-DDD	L24-Ma0049763	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
p,p-DDE	L24-Ma0049763	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
p,p-DDT	L24-Ma0049763	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
o,p-DDT	L24-Ma0049763	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Endosulfan I	L24-Ma0049763	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Endosulfan II	L24-Ma0049763	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Endosulfan Sulfate	L24-Ma0049763	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Endrin	L24-Ma0049763	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Heptachlor	L24-Ma0049763	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Heptachlor Epoxide	L24-Ma0049763	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Hexachlorobenzene (HCB)	L24-Ma0049763	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Lindane	L24-Ma0049763	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Methoxychlor	L24-Ma0049763	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Oxychlordane	L24-Ma0049763	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Diazinon	L24-Ma0049763	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ethion	L24-Ma0049763	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Fenitrothion	L24-Ma0049763	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Malathion	L24-Ma0049763	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Trifluralin	L24-Ma0049763	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	L24-Ma0049763	CP	mg/kg	< 2	< 2	<1	30%	Pass
Beryllium	L24-Ma0049763	CP	mg/kg	< 2	< 2	<1	30%	Pass
Boron	L24-Ma0049763	CP	mg/kg	< 10	< 10	<1	30%	Pass
Cadmium	L24-Ma0049763	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Cobalt	L24-Ma0049763	CP	mg/kg	< 5	< 5	<1	30%	Pass
Copper	L24-Ma0049763	CP	mg/kg	2.0	1.9	5.2	30%	Pass
Lead	L24-Ma0049763	CP	mg/kg	< 1	< 1	<1	30%	Pass
Manganese	L24-Ma0049763	CP	mg/kg	< 5	< 5	<1	30%	Pass
Mercury	L24-Ma0049763	CP	mg/kg	< 0.02	< 0.02	<1	30%	Pass
Nickel	L24-Ma0049763	CP	mg/kg	< 1	< 1	<1	30%	Pass
Selenium	L24-Ma0049763	CP	mg/kg	< 2	< 2	<1	30%	Pass
Zinc	L24-Ma0049763	CP	mg/kg	< 5	< 5	<1	30%	Pass
Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD		
Perfluorobutanoic acid (PFBA)	L24-Ma0049764	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoropentanoic acid (PFPeA)	L24-Ma0049764	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorohexanoic acid (PFHxA)	L24-Ma0049764	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoroheptanoic acid (PFHpA)	L24-Ma0049764	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorooctanoic acid (PFOA)	L24-Ma0049764	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorononanoic acid (PFNA)	L24-Ma0049764	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorodecanoic acid (PFDA)	L24-Ma0049764	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	L24-Ma0049764	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	L24-Ma0049764	CP	ug/kg	< 5	< 5	<1	30%	Pass

Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD		
Perfluorotridecanoic acid (PFTrDA)	L24-Ma0049764	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	L24-Ma0049764	CP	ug/kg	< 5	< 5	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	L24-Ma0049764	CP	ug/kg	< 5	< 5	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	L24-Ma0049764	CP	ug/kg	< 5	< 5	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	L24-Ma0049764	CP	ug/kg	< 5	< 5	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	L24-Ma0049764	CP	ug/kg	< 5	< 5	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	L24-Ma0049764	CP	ug/kg	< 5	< 5	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	L24-Ma0049764	CP	ug/kg	< 10	< 10	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	L24-Ma0049764	CP	ug/kg	< 10	< 10	<1	30%	Pass
Duplicate								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)				Result 1	Result 2	RPD		
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	L24-Ma0049764	CP	ug/kg	< 5	< 5	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	L24-Ma0049764	CP	ug/kg	< 10	< 10	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	L24-Ma0049764	CP	ug/kg	< 5	< 5	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	L24-Ma0049764	CP	ug/kg	< 5	< 5	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSA)				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	L24-Ma0049764	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorononanesulfonic acid (PFNS)*	L24-Ma0049764	CP	ug	< 5	< 5	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)*	L24-Ma0049764	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	L24-Ma0049764	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	L24-Ma0049764	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	L24-Ma0049764	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	L24-Ma0049764	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	L24-Ma0049764	CP	ug/kg	< 5	< 5	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD		
TRH C6-C9	L24-Ma0049770	CP	mg/kg	< 20	< 20	<1	30%	Pass
TRH C10-C14	L24-Ma0049770	CP	mg/kg	< 20	< 20	<1	30%	Pass
TRH C15-C28	L24-Ma0049770	CP	mg/kg	< 50	< 50	<1	30%	Pass
TRH C29-C36	L24-Ma0049770	CP	mg/kg	50	56	11	30%	Pass

Duplicate								
BTEX				Result 1	Result 2	RPD		
Benzene	L24-Ma0049770	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Toluene	L24-Ma0049770	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Ethylbenzene	L24-Ma0049770	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
m&p-Xylenes	L24-Ma0049770	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
o-Xylene	L24-Ma0049770	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Xylenes - Total*	L24-Ma0049770	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	L24-Ma0049770	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
TRH C6-C10	L24-Ma0049770	CP	mg/kg	< 20	< 20	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
TRH >C10-C16	L24-Ma0049770	CP	mg/kg	< 50	< 50	<1	30%	Pass
TRH >C16-C34	L24-Ma0049770	CP	mg/kg	< 100	< 100	<1	30%	Pass
TRH >C34-C40	L24-Ma0049770	CP	mg/kg	< 100	< 100	<1	30%	Pass
Duplicate								
OCOP in Soil				Result 1	Result 2	RPD		
Aldrin	L24-Ma0049770	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
alpha-BHC (HCH)	L24-Ma0049770	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
beta-BHC (HCH)	L24-Ma0049770	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
delta-BHC (HCH)	L24-Ma0049770	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Bifenthrin	L24-Ma0049770	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Bromophos Ethyl	L24-Ma0049770	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Chlordane	L24-Ma0049770	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Chlorpyrifos	L24-Ma0049770	CP	mg/kg	< 0.02	< 0.02	<1	30%	Pass
Dieldrin	L24-Ma0049770	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
p,p-DDD	L24-Ma0049770	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
p,p-DDE	L24-Ma0049770	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
p,p-DDT	L24-Ma0049770	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
o,p-DDT	L24-Ma0049770	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Endosulfan I	L24-Ma0049770	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Endosulfan II	L24-Ma0049770	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Endosulfan Sulfate	L24-Ma0049770	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Endrin	L24-Ma0049770	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Heptachlor	L24-Ma0049770	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Heptachlor Epoxide	L24-Ma0049770	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Hexachlorobenzene (HCB)	L24-Ma0049770	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Lindane	L24-Ma0049770	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Methoxychlor	L24-Ma0049770	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Oxychlordane	L24-Ma0049770	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
Diazinon	L24-Ma0049770	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ethion	L24-Ma0049770	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Fenitrothion	L24-Ma0049770	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Malathion	L24-Ma0049770	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Trifluralin	L24-Ma0049770	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
Chromium (VI)	L24-Ma0049770	CP	mg/kg	< 1	< 1	<1	20%	Pass
Total Kjeldahl Nitrogen	L24-Ma0049770	CP	mg/kg	3300	3400	3.2	20%	Pass

Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	L24-Ma0049770	CP	mg/kg	< 2	< 2	<1	30%	Pass
Beryllium	L24-Ma0049770	CP	mg/kg	< 2	< 2	<1	30%	Pass
Boron	L24-Ma0049770	CP	mg/kg	< 10	< 10	<1	30%	Pass
Cadmium	L24-Ma0049770	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Cobalt	L24-Ma0049770	CP	mg/kg	< 5	< 5	<1	30%	Pass
Copper	L24-Ma0049770	CP	mg/kg	1.9	2.1	11	30%	Pass
Lead	L24-Ma0049770	CP	mg/kg	< 1	< 1	<1	30%	Pass
Manganese	L24-Ma0049770	CP	mg/kg	14	16	9.9	30%	Pass
Mercury	L24-Ma0049770	CP	mg/kg	< 0.02	< 0.02	<1	30%	Pass
Nickel	L24-Ma0049770	CP	mg/kg	< 1	< 1	<1	30%	Pass
Selenium	L24-Ma0049770	CP	mg/kg	< 2	< 2	<1	30%	Pass
Zinc	L24-Ma0049770	CP	mg/kg	< 5	< 5	<1	30%	Pass
Duplicate								
Sample Properties				Result 1	Result 2	RPD		
% Moisture	L24-Ma0049772	CP	%	3.1	2.4	25	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD		
TRH C6-C9	L24-Ma0049774	CP	mg/kg	< 20	< 20	<1	30%	Pass
Duplicate								
BTEX				Result 1	Result 2	RPD		
Benzene	L24-Ma0049774	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Toluene	L24-Ma0049774	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Ethylbenzene	L24-Ma0049774	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
m&p-Xylenes	L24-Ma0049774	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
o-Xylene	L24-Ma0049774	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Xylenes - Total*	L24-Ma0049774	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	L24-Ma0049774	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
TRH C6-C10	L24-Ma0049774	CP	mg/kg	< 20	< 20	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
Ammonia-N	L24-Ma0050128	CP	mg/kg	50	50	1.0	20%	Pass
Filterable Reactive Phosphorus	L24-Ma0050128	CP	mg/kg	< 1	< 1	<1	20%	Pass
Nitrate-N	L24-Ma0050128	CP	mg/kg	< 1	< 1	<1	20%	Pass
Nitrite-N	L24-Ma0050128	CP	mg/kg	< 1	< 1	<1	20%	Pass
NOx-N	L24-Ma0050128	CP	mg/kg	< 1	< 1	<1	20%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	L24-Ma0050128	CP	mg/kg	< 2	< 2	<1	30%	Pass
Beryllium	L24-Ma0050128	CP	mg/kg	< 2	< 2	<1	30%	Pass
Boron	L24-Ma0050128	CP	mg/kg	< 10	< 10	<1	30%	Pass
Cadmium	L24-Ma0050128	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Cobalt	L24-Ma0050128	CP	mg/kg	< 5	< 5	<1	30%	Pass
Copper	L24-Ma0050128	CP	mg/kg	< 1	< 1	<1	30%	Pass
Lead	L24-Ma0050128	CP	mg/kg	< 1	< 1	<1	30%	Pass
Manganese	L24-Ma0050128	CP	mg/kg	< 5	< 5	<1	30%	Pass
Mercury	L24-Ma0050128	CP	mg/kg	< 0.02	< 0.02	<1	30%	Pass
Nickel	L24-Ma0050128	CP	mg/kg	< 1	< 1	<1	30%	Pass
Selenium	L24-Ma0050128	CP	mg/kg	< 2	< 2	<1	30%	Pass
Zinc	L24-Ma0050128	CP	mg/kg	< 5	< 5	<1	30%	Pass

Comments

NOTE: Acid sulphate sample bag not provided for Ma0049687, Ma0049690, Ma0049717, Ma0049719, Ma0049723, Ma0049733, Ma0049750, Ma0050218.

Glass jar has been used in place.

B14, B19E, and B6A added to Ma0049703 at client request

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	N/A
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
G02	The LORs have been raised as there was insufficient sample provided for analysis
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N11	Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds.
N15	Where the native PFAS compound does not have labelled analogue then the quantification is made using the Extracted Internal Standard Analyte with the closest retention time to the analyte and no recovery correction has been made (Internal Standard Quantitation).
S05	Field Screen uses the following fizz rating to classify the rate the samples reacted to the peroxide: 1.0; No reaction to slight. 2.0; Moderate reaction. 3.0; Strong reaction with persistent froth. 4.0; Extreme reaction.

Authorised by:

Elden Garrett	Analytical Services Manager
Douglas Todd	Senior Analyst-Metal
Douglas Todd	Senior Analyst-Sample Properties
Kim Rodgers	Senior Analyst-Sample Properties
Patrick Patfield	Senior Analyst-Organic
Patrick Patfield	Senior Analyst-Volatile
Paul Nottle	Senior Analyst-Organic
Paul Nottle	Senior Analyst-PFAS
Rhys Thomas	Senior Analyst-Asbestos
Sam Becker	Senior Analyst-Inorganic
Sean Sangster	Senior Analyst-Metal



Kim Rodgers
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request

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Stantec Australia Pty Limited
6F 226, Adelaide Terrace
Perth
WA 6000



NATA Accredited
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Arrangement for the mutual recognition of the
equivalence of testing, medical testing, calibration,
inspection, proficiency testing scheme providers and
reference materials producers reports and certificates.

Attention: **Edvinder Singh**

Report **1084676-S**
Project name **BEENYUP WIND FARM**
Received Date **Apr 03, 2024**

Client Sample ID			WM01 - 0.0	WM01 - 1.0	WM01 - 10.0	WM01 - 2.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24- Ap0011899	L24- Ap0011900	L24- Ap0011901	L24- Ap0011902
Date Sampled			Feb 26, 2024	Feb 26, 2024	Feb 26, 2024	Feb 26, 2024
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	5.4	5.2	5.2	5.3
Titrateable Actual Acidity (NLM-3.2)	2	mol H+/t	11	10	10	8.6
Titrateable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.018	0.017	0.016	0.014
SPOCAS Suite - WA (Excluding ANC)						
SPOCAS - Liming rate - ASSMAC (Excluding ANC)		kg CaCO ₃ /t	1.8	1.2	26	2.4
SPOCAS - Net Acidity - ASSMAC (Excluding ANC)		mol H+/t	23	16	340	32
SPOCAS - Net Acidity - ASSMAC (Excluding ANC)		% S	0.038	0.026	0.55	0.051
Potential Acidity - Titrateable Peroxide						
pH-OX	0.1	pH Units	3.0	3.4	2.4	3.7
Titrateable Peroxide Acidity (s-TPA)	0.02	% pyrite S	< 0.02	< 0.02	0.53	0.05
Titrateable Peroxide Acidity (a-TPA)	2	mol H+/t	< 2	< 2	330	32
Titrateable Sulfidic Acidity (a-TSA)	2	mol H+/t	< 2	< 2	320	23
Titrateable Sulfidic Acidity (s-TSA)	0.02	% pyrite S	< 0.02	< 0.02	0.52	0.04
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	< 0.005	< 0.005	0.014	0.006
Peroxide Extractable Sulfur	0.005	% S	0.019	0.009	0.54	0.043
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A	N/A
Potential Acidity (SPOS)						
Peroxide Oxidisable Sulfur (s-SPOS) (NLM 2.2)	0.005	% S	0.019	0.009	0.53	0.037
Peroxide Oxidisable Sulfur (a-SPOS) (NLM 2.2)	2	mol H+/t	12	5.6	330	23
Retained Acidity (S-NAS)						
Net Acid soluble sulfur (SNAS) NLM-4.1	0.005	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (s-SNAS) NLM-4.1 ^{S02}	0.005	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (a-SNAS) NLM-4.1	2	mol H+/t	N/A	N/A	N/A	N/A
HCl Extractable Sulfur Correction Factor	1	factor	2.0	2.0	2.0	2.0
Extractable Calcium						
Calcium - KCl Extractable	0.005	% Ca	0.030	0.010	< 0.005	< 0.005
Calcium - Peroxide	0.005	% Ca	0.033	0.012	0.007	< 0.005
Calcium - Acid Reacted	0.005	% Ca	< 0.005	< 0.005	0.007	< 0.005
Calcium - Acid Reacted (s-aCa)	0.005	% S	< 0.005	< 0.005	0.006	< 0.005
Calcium - Acid Reacted (a-aCa)	0.005	mol H+/t	< 0.005	< 0.005	3.4	< 0.005

Client Sample ID			WM01 - 0.0	WM01 - 1.0	WM01 - 10.0	WM01 - 2.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24- Ap0011899	L24- Ap0011900	L24- Ap0011901	L24- Ap0011902
Date Sampled			Feb 26, 2024	Feb 26, 2024	Feb 26, 2024	Feb 26, 2024
Test/Reference	LOR	Unit				
Extractable Magnesium						
Magnesium - KCl Extractable	0.005	% Mg	< 0.005	< 0.005	0.006	0.010
Magnesium - Peroxide	0.005	% Mg	< 0.005	< 0.005	0.009	0.011
Magnesium - Acid Reacted	0.005	% Mg	< 0.005	< 0.005	< 0.005	< 0.005
Magnesium - Acid Reacted (s-aCa)	0.005	% S	< 0.005	< 0.005	< 0.005	< 0.005
Magnesium - Acid Reacted (a-aCa)	0.005	mol H+/t	< 0.005	< 0.005	< 0.005	< 0.005
Acid Neutralising Capacity (ANCE)						
Acid Neutralising Capacity - (ANCE)	0.02	% CaCO ₃	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCE)	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCE)	10	mol H+/t	n/a	n/a	n/a	n/a
Acid Neutralising Capacity (ANCbt)						
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (Including ANC)						
SPOCAS - Net Acidity - ASSMAC (Acidity Units)	10	mol H+/t	23	16	340	32
SPOCAS - Net Acidity - ASSMAC (Sulfur Units)	0.02	% S	0.04	0.03	0.55	0.05
SPOCAS - Liming rate - ASSMAC	1	kg CaCO ₃ /t	1.8	1.2	26	2.4
Extraneous Material						
<2mm Fraction	0.005	g	68	54	15	83
>2mm Fraction	0.005	g	0.72	0.48	0.63	1.5
Analysed Material	0.1	%	99	99	96	98
Extraneous Material	0.1	%	1.1	0.9	3.9	1.7

Client Sample ID			WM01 - 3.0	WM01 - 4.0	WM01 - 5.0	WM01 - 6.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24- Ap0011903	L24- Ap0011904	L24- Ap0011905	L24- Ap0011906
Date Sampled			Feb 26, 2024	Feb 26, 2024	Feb 26, 2024	Feb 26, 2024
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	5.0	5.2	4.9	5.2
Titrateable Actual Acidity (NLM-3.2)	2	mol H+/t	8.5	6.8	17	6.2
Titrateable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.014	0.011	0.027	0.010
SPOCAS Suite - WA (Excluding ANC)						
SPOCAS - Liming rate - ASSMAC (Excluding ANC)		kg CaCO ₃ /t	1.0	4.6	10	10
SPOCAS - Net Acidity - ASSMAC (Excluding ANC)		mol H+/t	14	61	140	130
SPOCAS - Net Acidity - ASSMAC (Excluding ANC)		% S	0.022	0.098	0.22	0.22
Potential Acidity - Titrateable Peroxide						
pH-OX	0.1	pH Units	4.3	3.2	2.9	2.7
Titrateable Peroxide Acidity (s-TPA)	0.02	% pyrite S	0.03	0.11	0.27	0.25
Titrateable Peroxide Acidity (a-TPA)	2	mol H+/t	19	66	170	160
Titrateable Sulfidic Acidity (a-TSA)	2	mol H+/t	10	60	150	150
Titrateable Sulfidic Acidity (s-TSA)	0.02	% pyrite S	< 0.02	0.10	0.24	0.24
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	0.006	< 0.005	0.021	< 0.005
Peroxide Extractable Sulfur	0.005	% S	0.014	0.087	0.22	0.21
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A	N/A
Potential Acidity (SPOS)						
Peroxide Oxidisable Sulfur (s-SPOS) (NLM 2.2)	0.005	% S	0.008	0.087	0.20	0.21
Peroxide Oxidisable Sulfur (a-SPOS) (NLM 2.2)	2	mol H+/t	5.0	54	120	130

Client Sample ID			WM01 - 3.0	WM01 - 4.0	WM01 - 5.0	WM01 - 6.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24- Ap0011903	L24- Ap0011904	L24- Ap0011905	L24- Ap0011906
Date Sampled			Feb 26, 2024	Feb 26, 2024	Feb 26, 2024	Feb 26, 2024
Test/Reference	LOR	Unit				
Retained Acidity (S-NAS)						
Net Acid soluble sulfur (SNAS) NLM-4.1	0.005	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (s-SNAS) NLM-4.1 ^{S02}	0.005	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (a-SNAS) NLM-4.1	2	mol H+/t	N/A	N/A	N/A	N/A
HCl Extractable Sulfur Correction Factor	1	factor	2.0	2.0	2.0	2.0
Extractable Calcium						
Calcium - KCl Extractable	0.005	% Ca	< 0.005	< 0.005	< 0.005	< 0.005
Calcium - Peroxide	0.005	% Ca	< 0.005	< 0.005	< 0.005	< 0.005
Calcium - Acid Reacted	0.005	% Ca	< 0.005	< 0.005	< 0.005	< 0.005
Calcium - Acid Reacted (s-aCa)	0.005	% S	< 0.005	< 0.005	< 0.005	< 0.005
Calcium - Acid Reacted (a-aCa)	0.005	mol H+/t	< 0.005	< 0.005	< 0.005	< 0.005
Extractable Magnesium						
Magnesium - KCl Extractable	0.005	% Mg	0.018	0.010	0.010	0.008
Magnesium - Peroxide	0.005	% Mg	0.018	0.011	0.012	0.009
Magnesium - Acid Reacted	0.005	% Mg	< 0.005	< 0.005	< 0.005	< 0.005
Magnesium - Acid Reacted (s-aCa)	0.005	% S	< 0.005	< 0.005	< 0.005	< 0.005
Magnesium - Acid Reacted (a-aCa)	0.005	mol H+/t	< 0.005	< 0.005	< 0.005	< 0.005
Acid Neutralising Capacity (ANCE)						
Acid Neutralising Capacity - (ANCE)	0.02	% CaCO ₃	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCE)	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCE)	10	mol H+/t	n/a	n/a	n/a	n/a
Acid Neutralising Capacity (ANCbt)						
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (Including ANC)						
SPOCAS - Net Acidity - ASSMAC (Acidity Units)	10	mol H+/t	14	61	140	130
SPOCAS - Net Acidity - ASSMAC (Sulfur Units)	0.02	% S	0.02	0.10	0.22	0.22
SPOCAS - Liming rate - ASSMAC	1	kg CaCO ₃ /t	1.0	4.6	10	10
Extraneous Material						
<2mm Fraction	0.005	g	69	73	22	61
>2mm Fraction	0.005	g	6.5	4.3	< 0.005	3.9
Analysed Material	0.1	%	91	94	100	94
Extraneous Material	0.1	%	8.6	5.6	< 0.1	6.0

Client Sample ID			WM01 - 7.0	WM01 - 8.0	WM01 - 9.0	WM02 - 0.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24- Ap0011907	L24- Ap0011908	L24- Ap0011909	L24- Ap0011910
Date Sampled			Feb 26, 2024	Feb 26, 2024	Feb 26, 2024	Feb 28, 2024
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	5.2	5.1	5.0	7.3
Titrateable Actual Acidity (NLM-3.2)	2	mol H+/t	6.6	9.8	20	< 2
Titrateable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.011	0.016	0.033	< 0.003
SPOCAS Suite - WA (Excluding ANC)						
SPOCAS - Liming rate - ASSMAC (Excluding ANC)		kg CaCO ₃ /t	7.7	7.0	8.3	< 1
SPOCAS - Net Acidity - ASSMAC (Excluding ANC)		mol H+/t	100	94	110	< 10
SPOCAS - Net Acidity - ASSMAC (Excluding ANC)		% S	0.17	0.15	0.18	< 0.02

Client Sample ID			WM01 - 7.0	WM01 - 8.0	WM01 - 9.0	WM02 - 0.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24- Ap0011907	L24- Ap0011908	L24- Ap0011909	L24- Ap0011910
Date Sampled			Feb 26, 2024	Feb 26, 2024	Feb 26, 2024	Feb 28, 2024
Test/Reference	LOR	Unit				
Potential Acidity - Titratable Peroxide						
pH-OX	0.1	pH Units	2.9	3.2	3.2	3.4
Titratable Peroxide Acidity (s-TPA)	0.02	% pyrite S	0.20	0.18	0.29	< 0.02
Titratable Peroxide Acidity (a-TPA)	2	mol H+/t	130	110	180	< 2
Titratable Sulfidic Acidity (a-TSA)	2	mol H+/t	120	100	160	< 2
Titratable Sulfidic Acidity (s-TSA)	0.02	% pyrite S	0.19	0.16	0.26	< 0.02
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	< 0.005	< 0.005	< 0.005	0.007
Peroxide Extractable Sulfur	0.005	% S	0.15	0.13	0.14	0.032
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A	N/A
Potential Acidity (SPOS)						
Peroxide Oxidisable Sulfur (s-SPOS) (NLM 2.2)	0.005	% S	0.15	0.13	0.14	0.025
Peroxide Oxidisable Sulfur (a-SPOS) (NLM 2.2)	2	mol H+/t	97	84	90	16
Retained Acidity (S-NAS)						
Net Acid soluble sulfur (SNAS) NLM-4.1	0.005	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (s-SNAS) NLM-4.1 ^{S02}	0.005	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (a-SNAS) NLM-4.1	2	mol H+/t	N/A	N/A	N/A	N/A
HCl Extractable Sulfur Correction Factor	1	factor	2.0	2.0	2.0	2.0
Extractable Calcium						
Calcium - KCl Extractable	0.005	% Ca	< 0.005	< 0.005	0.010	0.12
Calcium - Peroxide	0.005	% Ca	< 0.005	< 0.005	0.011	0.14
Calcium - Acid Reacted	0.005	% Ca	< 0.005	< 0.005	< 0.005	0.018
Calcium - Acid Reacted (s-aCa)	0.005	% S	< 0.005	< 0.005	< 0.005	0.014
Calcium - Acid Reacted (a-aCa)	0.005	mol H+/t	< 0.005	< 0.005	< 0.005	8.9
Extractable Magnesium						
Magnesium - KCl Extractable	0.005	% Mg	0.009	0.012	0.029	0.008
Magnesium - Peroxide	0.005	% Mg	0.011	0.014	0.031	0.009
Magnesium - Acid Reacted	0.005	% Mg	< 0.005	< 0.005	< 0.005	< 0.005
Magnesium - Acid Reacted (s-aCa)	0.005	% S	< 0.005	< 0.005	< 0.005	< 0.005
Magnesium - Acid Reacted (a-aCa)	0.005	mol H+/t	< 0.005	< 0.005	< 0.005	< 0.005
Acid Neutralising Capacity (ANCE)						
Acid Neutralising Capacity - (ANCE)	0.02	% CaCO ₃	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCE)	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCE)	10	mol H+/t	n/a	n/a	n/a	n/a
Acid Neutralising Capacity (ANCbt)						
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (Including ANC)						
SPOCAS - Net Acidity - ASSMAC (Acidity Units)	10	mol H+/t	100	94	110	< 10
SPOCAS - Net Acidity - ASSMAC (Sulfur Units)	0.02	% S	0.17	0.15	0.18	< 0.02
SPOCAS - Liming rate - ASSMAC	1	kg CaCO ₃ /t	7.7	7.0	8.3	< 1
Extraneous Material						
<2mm Fraction	0.005	g	48	25	26	76
>2mm Fraction	0.005	g	< 0.005	< 0.005	< 0.005	5.9
Analysed Material	0.1	%	100	100	100	93
Extraneous Material	0.1	%	< 0.1	< 0.1	< 0.1	7.2

Client Sample ID			WM02 - 1.0	WM02 - 10.0	WM02 - 2.0	WM02 - 2.75
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24- Ap0011911	L24- Ap0011912	L24- Ap0011913	L24- Ap0011914
Date Sampled			Feb 28, 2024	Feb 28, 2024	Feb 28, 2024	Feb 28, 2024
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	5.3	4.6	6.1	5.1
Titrateable Actual Acidity (NLM-3.2)	2	mol H+/t	7.0	76	5.8	6.5
Titrateable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.011	0.12	0.009	0.010
SPOCAS Suite - WA (Excluding ANC)						
SPOCAS - Liming rate - ASSMAC (Excluding ANC)		kg CaCO ₃ /t	1.0	67	1.0	5.1
SPOCAS - Net Acidity - ASSMAC (Excluding ANC)		mol H+/t	13	900	13	0.11
SPOCAS - Net Acidity - ASSMAC (Excluding ANC)		% S	0.021	1.4	0.022	68
Potential Acidity - Titrateable Peroxide						
pH-OX	0.1	pH Units	4.2	2.2	6.3	2.8
Titrateable Peroxide Acidity (s-TPA)	0.02	% pyrite S	0.03	1.4	< 0.02	0.15
Titrateable Peroxide Acidity (a-TPA)	2	mol H+/t	18	900	7.0	94
Titrateable Sulfidic Acidity (a-TSA)	2	mol H+/t	11	820	< 2	87
Titrateable Sulfidic Acidity (s-TSA)	0.02	% pyrite S	< 0.02	1.3	< 0.02	0.14
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	0.008	0.093	0.024	0.017
Peroxide Extractable Sulfur	0.005	% S	0.018	1.4	0.037	0.12
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A	N/A
Potential Acidity (SPOS)						
Peroxide Oxidisable Sulfur (s-SPOS) (NLM 2.2)	0.005	% S	0.010	1.3	0.012	0.099
Peroxide Oxidisable Sulfur (a-SPOS) (NLM 2.2)	2	mol H+/t	6.3	820	7.7	62
Retained Acidity (S-NAS)						
Net Acid soluble sulfur (SNAS) NLM-4.1	0.005	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (s-SNAS) NLM-4.1 ^{S02}	0.005	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (a-SNAS) NLM-4.1	2	mol H+/t	N/A	N/A	N/A	N/A
HCl Extractable Sulfur Correction Factor	1	factor	2.0	2.0	2.0	2.0
Extractable Calcium						
Calcium - KCl Extractable	0.005	% Ca	0.007	0.027	0.007	0.016
Calcium - Peroxide	0.005	% Ca	0.008	0.11	0.008	0.019
Calcium - Acid Reacted	0.005	% Ca	< 0.005	0.083	< 0.005	< 0.005
Calcium - Acid Reacted (s-aCa)	0.005	% S	< 0.005	0.066	< 0.005	< 0.005
Calcium - Acid Reacted (a-aCa)	0.005	mol H+/t	< 0.005	41	< 0.005	< 0.005
Extractable Magnesium						
Magnesium - KCl Extractable	0.005	% Mg	< 0.005	0.026	< 0.005	< 0.005
Magnesium - Peroxide	0.005	% Mg	< 0.005	0.033	< 0.005	< 0.005
Magnesium - Acid Reacted	0.005	% Mg	< 0.005	0.007	< 0.005	< 0.005
Magnesium - Acid Reacted (s-aCa)	0.005	% S	< 0.005	0.009	< 0.005	< 0.005
Magnesium - Acid Reacted (a-aCa)	0.005	mol H+/t	< 0.005	5.5	< 0.005	< 0.005
Acid Neutralising Capacity (ANCE)						
Acid Neutralising Capacity - (ANCE)	0.02	% CaCO ₃	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCE)	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCE)	10	mol H+/t	n/a	n/a	n/a	n/a
Acid Neutralising Capacity (ANCbt)						
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (Including ANC)						
SPOCAS - Net Acidity - ASSMAC (Acidity Units)	10	mol H+/t	13	900	13	68
SPOCAS - Net Acidity - ASSMAC (Sulfur Units)	0.02	% S	0.02	1.4	0.02	0.11
SPOCAS - Liming rate - ASSMAC	1	kg CaCO ₃ /t	< 1	67	1.0	5.1

Client Sample ID			WM02 - 1.0	WM02 - 10.0	WM02 - 2.0	WM02 - 2.75
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24- Ap0011911	L24- Ap0011912	L24- Ap0011913	L24- Ap0011914
Date Sampled			Feb 28, 2024	Feb 28, 2024	Feb 28, 2024	Feb 28, 2024
Test/Reference	LOR	Unit				
Extraneous Material						
<2mm Fraction	0.005	g	15	10	22	67
>2mm Fraction	0.005	g	< 0.005	< 0.005	1.8	< 0.005
Analysed Material	0.1	%	100	100	92	100
Extraneous Material	0.1	%	< 0.1	< 0.1	7.5	< 0.1

Client Sample ID			WM02 - 3.0	WM02 - 4.0	WM02 - 5.0	WM02 - 6.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24- Ap0011915	L24- Ap0011916	L24- Ap0011917	L24- Ap0011918
Date Sampled			Feb 28, 2024	Feb 28, 2024	Feb 28, 2024	Feb 28, 2024
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	5.0	5.2	4.7	4.9
Titrateable Actual Acidity (NLM-3.2)	2	mol H+/t	12	13	33	19
Titrateable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.019	0.021	0.054	0.030
SPOCAS Suite - WA (Excluding ANC)						
SPOCAS - Liming rate - ASSMAC (Excluding ANC)		kg CaCO3/t	6.5	14	33	28
SPOCAS - Net Acidity - ASSMAC (Excluding ANC)		mol H+/t	87	180	440	370
SPOCAS - Net Acidity - ASSMAC (Excluding ANC)		% S	0.14	0.29	0.70	0.60
Potential Acidity - Titrateable Peroxide						
pH-OX	0.1	pH Units	2.9	2.6	2.3	2.2
Titrateable Peroxide Acidity (s-TPA)	0.02	% pyrite S	0.20	0.39	0.81	0.64
Titrateable Peroxide Acidity (a-TPA)	2	mol H+/t	120	240	510	400
Titrateable Sulfidic Acidity (a-TSA)	2	mol H+/t	110	230	470	380
Titrateable Sulfidic Acidity (s-TSA)	0.02	% pyrite S	0.18	0.37	0.76	0.61
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	0.007	0.006	0.030	0.019
Peroxide Extractable Sulfur	0.005	% S	0.13	0.28	0.68	0.59
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A	N/A
Potential Acidity (SPOS)						
Peroxide Oxidisable Sulfur (s-SPOS) (NLM 2.2)	0.005	% S	0.12	0.27	0.65	0.57
Peroxide Oxidisable Sulfur (a-SPOS) (NLM 2.2)	2	mol H+/t	75	170	410	360
Retained Acidity (S-NAS)						
Net Acid soluble sulfur (SNAS) NLM-4.1	0.005	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (s-SNAS) NLM-4.1 ^{S02}	0.005	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (a-SNAS) NLM-4.1	2	mol H+/t	N/A	N/A	N/A	N/A
HCl Extractable Sulfur Correction Factor	1	factor	2.0	2.0	2.0	2.0
Extractable Calcium						
Calcium - KCl Extractable	0.005	% Ca	0.006	0.018	0.006	0.012
Calcium - Peroxide	0.005	% Ca	0.008	0.020	0.007	0.013
Calcium - Acid Reacted	0.005	% Ca	< 0.005	< 0.005	< 0.005	< 0.005
Calcium - Acid Reacted (s-aCa)	0.005	% S	< 0.005	< 0.005	< 0.005	< 0.005
Calcium - Acid Reacted (a-aCa)	0.005	mol H+/t	< 0.005	< 0.005	< 0.005	< 0.005

Client Sample ID			WM02 - 3.0	WM02 - 4.0	WM02 - 5.0	WM02 - 6.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24- Ap0011915	L24- Ap0011916	L24- Ap0011917	L24- Ap0011918
Date Sampled			Feb 28, 2024	Feb 28, 2024	Feb 28, 2024	Feb 28, 2024
Test/Reference	LOR	Unit				
Extractable Magnesium						
Magnesium - KCl Extractable	0.005	% Mg	< 0.005	0.005	< 0.005	< 0.005
Magnesium - Peroxide	0.005	% Mg	< 0.005	0.006	0.005	< 0.005
Magnesium - Acid Reacted	0.005	% Mg	< 0.005	< 0.005	0.005	< 0.005
Magnesium - Acid Reacted (s-aCa)	0.005	% S	< 0.005	< 0.005	0.007	< 0.005
Magnesium - Acid Reacted (a-aCa)	0.005	mol H+/t	< 0.005	< 0.005	4.4	< 0.005
Acid Neutralising Capacity (ANCE)						
Acid Neutralising Capacity - (ANCE)	0.02	% CaCO ₃	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCE)	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCE)	10	mol H+/t	n/a	n/a	n/a	n/a
Acid Neutralising Capacity (ANCbt)						
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (Including ANC)						
SPOCAS - Net Acidity - ASSMAC (Acidity Units)	10	mol H+/t	87	180	440	370
SPOCAS - Net Acidity - ASSMAC (Sulfur Units)	0.02	% S	0.14	0.29	0.70	0.60
SPOCAS - Liming rate - ASSMAC	1	kg CaCO ₃ /t	6.5	14	33	28
Extraneous Material						
<2mm Fraction	0.005	g	16	28	22	11
>2mm Fraction	0.005	g	< 0.005	< 0.005	< 0.005	< 0.005
Analysed Material	0.1	%	100	100	100	100
Extraneous Material	0.1	%	< 0.1	< 0.1	< 0.1	< 0.1

Client Sample ID			WM02 - 7.0	WM02 - 8.0	WM02 - 9.0	WM03 - 0.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24- Ap0011919	L24- Ap0011920	L24- Ap0011921	L24- Ap0011922
Date Sampled			Feb 28, 2024	Feb 28, 2024	Feb 28, 2024	Feb 29, 2024
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	5.0	4.6	4.4	5.2
Titrateable Actual Acidity (NLM-3.2)	2	mol H+/t	11	26	110	30
Titrateable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.017	0.041	0.18	0.048
SPOCAS Suite - WA (Excluding ANC)						
SPOCAS - Liming rate - ASSMAC (Excluding ANC)		kg CaCO ₃ /t	13	23	98	6.3
SPOCAS - Net Acidity - ASSMAC (Excluding ANC)		mol H+/t	180	300	1300	84
SPOCAS - Net Acidity - ASSMAC (Excluding ANC)		% S	0.29	0.48	2.1	0.13
Potential Acidity - Titrateable Peroxide						
pH-OX	0.1	pH Units	2.4	2.1	1.9	2.5
Titrateable Peroxide Acidity (s-TPA)	0.02	% pyrite S	0.32	0.54	2.2	1.2
Titrateable Peroxide Acidity (a-TPA)	2	mol H+/t	200	340	1400	720
Titrateable Sulfidic Acidity (a-TSA)	2	mol H+/t	190	310	1300	690
Titrateable Sulfidic Acidity (s-TSA)	0.02	% pyrite S	0.30	0.50	2.0	1.1
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	0.011	0.031	0.13	0.006
Peroxide Extractable Sulfur	0.005	% S	0.28	0.47	2.0	0.092
HCl Extractable Sulfur	0.005	% S	N/A	N/A	0.14	N/A
Potential Acidity (SPOS)						
Peroxide Oxidisable Sulfur (s-SPOS) (NLM 2.2)	0.005	% S	0.27	0.44	1.9	0.086
Peroxide Oxidisable Sulfur (a-SPOS) (NLM 2.2)	2	mol H+/t	170	270	1200	54

Client Sample ID			WM02 - 7.0	WM02 - 8.0	WM02 - 9.0	WM03 - 0.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24- Ap0011919	L24- Ap0011920	L24- Ap0011921	L24- Ap0011922
Date Sampled			Feb 28, 2024	Feb 28, 2024	Feb 28, 2024	Feb 29, 2024
Test/Reference	LOR	Unit				
Retained Acidity (S-NAS)						
Net Acid soluble sulfur (SNAS) NLM-4.1	0.005	% S	N/A	N/A	0.023	N/A
Net Acid soluble sulfur (s-SNAS) NLM-4.1 ^{S02}	0.005	% S	N/A	N/A	0.017	N/A
Net Acid soluble sulfur (a-SNAS) NLM-4.1	2	mol H+/t	N/A	N/A	11	N/A
HCl Extractable Sulfur Correction Factor	1	factor	2.0	2.0	2.0	2.0
Extractable Calcium						
Calcium - KCl Extractable	0.005	% Ca	0.011	0.007	0.021	0.19
Calcium - Peroxide	0.005	% Ca	0.012	0.008	0.030	0.21
Calcium - Acid Reacted	0.005	% Ca	< 0.005	< 0.005	0.009	0.027
Calcium - Acid Reacted (s-aCa)	0.005	% S	< 0.005	< 0.005	0.007	0.021
Calcium - Acid Reacted (a-aCa)	0.005	mol H+/t	< 0.005	< 0.005	4.5	13
Extractable Magnesium						
Magnesium - KCl Extractable	0.005	% Mg	< 0.005	0.007	0.030	0.021
Magnesium - Peroxide	0.005	% Mg	< 0.005	0.008	0.033	0.023
Magnesium - Acid Reacted	0.005	% Mg	< 0.005	< 0.005	< 0.005	< 0.005
Magnesium - Acid Reacted (s-aCa)	0.005	% S	< 0.005	< 0.005	< 0.005	< 0.005
Magnesium - Acid Reacted (a-aCa)	0.005	mol H+/t	< 0.005	< 0.005	< 0.005	< 0.005
Acid Neutralising Capacity (ANCE)						
Acid Neutralising Capacity - (ANCE)	0.02	% CaCO3	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCE)	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCE)	10	mol H+/t	n/a	n/a	n/a	n/a
Acid Neutralising Capacity (ANCbt)						
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (Including ANC)						
SPOCAS - Net Acidity - ASSMAC (Acidity Units)	10	mol H+/t	180	300	1300	84
SPOCAS - Net Acidity - ASSMAC (Sulfur Units)	0.02	% S	0.29	0.48	2.1	0.13
SPOCAS - Liming rate - ASSMAC	1	kg CaCO3/t	13	23	98	6.3
Extraneous Material						
<2mm Fraction	0.005	g	12	13	15	110
>2mm Fraction	0.005	g	< 0.005	< 0.005	< 0.005	2.0
Analysed Material	0.1	%	100	100	100	98
Extraneous Material	0.1	%	< 0.1	< 0.1	< 0.1	1.7

Client Sample ID			WM03 - 0.25	WM03 - 1.0	WM03 - 10.0	WM03 - 3.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24- Ap0011923	L24- Ap0011924	L24- Ap0011925	L24- Ap0011926
Date Sampled			Feb 29, 2024	Feb 29, 2024	Feb 29, 2024	Feb 29, 2024
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	5.1	5.7	4.7	5.8
Titrateable Actual Acidity (NLM-3.2)	2	mol H+/t	31	16	37	11
Titrateable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.050	0.026	0.060	0.018
SPOCAS Suite - WA (Excluding ANC)						
SPOCAS - Liming rate - ASSMAC (Excluding ANC)		kg CaCO3/t	9.6	1.8	26	3.0
SPOCAS - Net Acidity - ASSMAC (Excluding ANC)		mol H+/t	130	24	350	40
SPOCAS - Net Acidity - ASSMAC (Excluding ANC)		% S	0.20	0.039	0.56	0.064

Client Sample ID			WM03 - 0.25	WM03 - 1.0	WM03 - 10.0	WM03 - 3.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24- Ap0011923	L24- Ap0011924	L24- Ap0011925	L24- Ap0011926
Date Sampled			Feb 29, 2024	Feb 29, 2024	Feb 29, 2024	Feb 29, 2024
Test/Reference	LOR	Unit				
Potential Acidity - Titratable Peroxide						
pH-OX	0.1	pH Units	3.7	4.8	2.7	4.1
Titrateable Peroxide Acidity (s-TPA)	0.02	% pyrite S	0.32	0.06	0.69	0.09
Titrateable Peroxide Acidity (a-TPA)	2	mol H+/t	200	35	430	55
Titrateable Sulfidic Acidity (a-TSA)	2	mol H+/t	170	18	390	44
Titrateable Sulfidic Acidity (s-TSA)	0.02	% pyrite S	0.27	0.03	0.63	0.07
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	0.016	0.071	0.021	0.024
Peroxide Extractable Sulfur	0.005	% S	0.17	0.083	0.52	0.070
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A	N/A
Potential Acidity (SPOS)						
Peroxide Oxidisable Sulfur (s-SPOS) (NLM 2.2)	0.005	% S	0.15	0.012	0.50	0.046
Peroxide Oxidisable Sulfur (a-SPOS) (NLM 2.2)	2	mol H+/t	96	7.7	310	29
Retained Acidity (S-NAS)						
Net Acid soluble sulfur (SNAS) NLM-4.1	0.005	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (s-SNAS) NLM-4.1 ^{S02}	0.005	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (a-SNAS) NLM-4.1	2	mol H+/t	N/A	N/A	N/A	N/A
HCl Extractable Sulfur Correction Factor	1	factor	2.0	2.0	2.0	2.0
Extractable Calcium						
Calcium - KCl Extractable	0.005	% Ca	0.072	0.012	0.007	< 0.005
Calcium - Peroxide	0.005	% Ca	0.076	0.014	0.009	< 0.005
Calcium - Acid Reacted	0.005	% Ca	< 0.005	< 0.005	< 0.005	< 0.005
Calcium - Acid Reacted (s-aCa)	0.005	% S	< 0.005	< 0.005	< 0.005	< 0.005
Calcium - Acid Reacted (a-aCa)	0.005	mol H+/t	< 0.005	< 0.005	< 0.005	< 0.005
Extractable Magnesium						
Magnesium - KCl Extractable	0.005	% Mg	0.011	< 0.005	< 0.005	< 0.005
Magnesium - Peroxide	0.005	% Mg	0.012	< 0.005	0.005	< 0.005
Magnesium - Acid Reacted	0.005	% Mg	< 0.005	< 0.005	0.005	< 0.005
Magnesium - Acid Reacted (s-aCa)	0.005	% S	< 0.005	< 0.005	0.007	< 0.005
Magnesium - Acid Reacted (a-aCa)	0.005	mol H+/t	< 0.005	< 0.005	4.2	< 0.005
Acid Neutralising Capacity (ANCE)						
Acid Neutralising Capacity - (ANCE)	0.02	% CaCO ₃	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCE)	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCE)	10	mol H+/t	n/a	n/a	n/a	n/a
Acid Neutralising Capacity (ANCbt)						
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (Including ANC)						
SPOCAS - Net Acidity - ASSMAC (Acidity Units)	10	mol H+/t	130	24	350	40
SPOCAS - Net Acidity - ASSMAC (Sulfur Units)	0.02	% S	0.20	0.04	0.56	0.06
SPOCAS - Liming rate - ASSMAC	1	kg CaCO ₃ /t	9.6	1.8	26	3.0
Extraneous Material						
<2mm Fraction	0.005	g	10	36	33	31
>2mm Fraction	0.005	g	< 0.005	12	< 0.005	2.0
Analysed Material	0.1	%	100	75	100	94
Extraneous Material	0.1	%	< 0.1	25	< 0.1	6.1

Client Sample ID			WM03 - 3.50	WM03 - 5.0	WM03 - 6.0	WM03 - 7.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24- Ap0011927	L24- Ap0011928	L24- Ap0011929	L24- Ap0011930
Date Sampled			Feb 29, 2024	Feb 29, 2024	Feb 29, 2024	Feb 29, 2024
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	4.7	5.6	5.0	4.7
Titrateable Actual Acidity (NLM-3.2)	2	mol H+/t	20	8.9	9.8	100
Titrateable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.033	0.014	0.016	0.16
SPOCAS Suite - WA (Excluding ANC)						
SPOCAS - Liming rate - ASSMAC (Excluding ANC)		kg CaCO ₃ /t	12	6.0	9.2	48
SPOCAS - Net Acidity - ASSMAC (Excluding ANC)		mol H+/t	160	80	120	640
SPOCAS - Net Acidity - ASSMAC (Excluding ANC)		% S	0.26	0.13	0.20	1.0
Potential Acidity - Titrateable Peroxide						
pH-OX	0.1	pH Units	2.7	3.8	2.6	3.0
Titrateable Peroxide Acidity (s-TPA)	0.02	% pyrite S	0.33	0.16	0.24	1.4
Titrateable Peroxide Acidity (a-TPA)	2	mol H+/t	210	100	150	860
Titrateable Sulfidic Acidity (a-TSA)	2	mol H+/t	190	92	140	760
Titrateable Sulfidic Acidity (s-TSA)	0.02	% pyrite S	0.30	0.15	0.22	1.2
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	0.007	0.011	0.008	0.037
Peroxide Extractable Sulfur	0.005	% S	0.24	0.13	0.19	0.90
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A	N/A
Potential Acidity (SPOS)						
Peroxide Oxidisable Sulfur (s-SPOS) (NLM 2.2)	0.005	% S	0.23	0.11	0.18	0.86
Peroxide Oxidisable Sulfur (a-SPOS) (NLM 2.2)	2	mol H+/t	140	71	110	540
Retained Acidity (S-NAS)						
Net Acid soluble sulfur (SNAS) NLM-4.1	0.005	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (s-SNAS) NLM-4.1 ^{S02}	0.005	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (a-SNAS) NLM-4.1	2	mol H+/t	N/A	N/A	N/A	N/A
HCl Extractable Sulfur Correction Factor	1	factor	2.0	2.0	2.0	2.0
Extractable Calcium						
Calcium - KCl Extractable	0.005	% Ca	0.007	0.016	0.010	0.013
Calcium - Peroxide	0.005	% Ca	0.008	0.018	0.011	0.014
Calcium - Acid Reacted	0.005	% Ca	< 0.005	< 0.005	< 0.005	< 0.005
Calcium - Acid Reacted (s-aCa)	0.005	% S	< 0.005	< 0.005	< 0.005	< 0.005
Calcium - Acid Reacted (a-aCa)	0.005	mol H+/t	< 0.005	< 0.005	< 0.005	< 0.005
Extractable Magnesium						
Magnesium - KCl Extractable	0.005	% Mg	< 0.005	< 0.005	< 0.005	0.009
Magnesium - Peroxide	0.005	% Mg	< 0.005	< 0.005	< 0.005	0.009
Magnesium - Acid Reacted	0.005	% Mg	< 0.005	< 0.005	< 0.005	< 0.005
Magnesium - Acid Reacted (s-aCa)	0.005	% S	< 0.005	< 0.005	< 0.005	< 0.005
Magnesium - Acid Reacted (a-aCa)	0.005	mol H+/t	< 0.005	< 0.005	< 0.005	< 0.005
Acid Neutralising Capacity (ANCE)						
Acid Neutralising Capacity - (ANCE)	0.02	% CaCO ₃	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCE)	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCE)	10	mol H+/t	n/a	n/a	n/a	n/a
Acid Neutralising Capacity (ANCbt)						
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (Including ANC)						
SPOCAS - Net Acidity - ASSMAC (Acidity Units)	10	mol H+/t	160	80	120	640
SPOCAS - Net Acidity - ASSMAC (Sulfur Units)	0.02	% S	0.26	0.13	0.20	1.0
SPOCAS - Liming rate - ASSMAC	1	kg CaCO ₃ /t	12	6.0	9.2	48

Client Sample ID			WM03 - 3.50	WM03 - 5.0	WM03 - 6.0	WM03 - 7.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24- Ap0011927	L24- Ap0011928	L24- Ap0011929	L24- Ap0011930
Date Sampled			Feb 29, 2024	Feb 29, 2024	Feb 29, 2024	Feb 29, 2024
Test/Reference	LOR	Unit				
Extraneous Material						
<2mm Fraction	0.005	g	71	12	15	38
>2mm Fraction	0.005	g	< 0.005	< 0.005	< 0.005	< 0.005
Analysed Material	0.1	%	100	100	100	100
Extraneous Material	0.1	%	< 0.1	< 0.1	< 0.1	< 0.1

Client Sample ID			WM03 - 8.0	WM03 - 9.0	WM03 - 4.0
Sample Matrix			Soil	Soil	Soil
Eurofins Sample No.			L24- Ap0011931	L24- Ap0011932	L24- Ap0011933
Date Sampled			Feb 29, 2024	Feb 29, 2024	Feb 29, 2024
Test/Reference	LOR	Unit			
Actual Acidity (NLM-3.2)					
pH-KCL (NLM-3.1)	0.1	pH Units	4.5	4.7	4.7
Titrateable Actual Acidity (NLM-3.2)	2	mol H+/t	89	35	26
Titrateable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.14	0.055	0.041
SPOCAS Suite - WA (Excluding ANC)					
SPOCAS - Liming rate - ASSMAC (Excluding ANC)		kg CaCO ₃ /t	42	23	18
SPOCAS - Net Acidity - ASSMAC (Excluding ANC)		mol H+/t	560	310	240
SPOCAS - Net Acidity - ASSMAC (Excluding ANC)		% S	0.90	0.50	0.39
Potential Acidity - Titrateable Peroxide					
pH-OX	0.1	pH Units	2.6	2.7	2.6
Titrateable Peroxide Acidity (s-TPA)	0.02	% pyrite S	1.1	0.61	0.45
Titrateable Peroxide Acidity (a-TPA)	2	mol H+/t	680	380	280
Titrateable Sulfidic Acidity (a-TSA)	2	mol H+/t	590	350	260
Titrateable Sulfidic Acidity (s-TSA)	0.02	% pyrite S	0.95	0.55	0.41
Extractable Sulfur					
Sulfur - KCl Extractable	0.005	% S	0.073	0.028	0.017
Peroxide Extractable Sulfur	0.005	% S	0.83	0.47	0.37
HCl Extractable Sulfur	0.005	% S	0.071	N/A	N/A
Potential Acidity (SPOS)					
Peroxide Oxidisable Sulfur (s-SPOS) (NLM 2.2)	0.005	% S	0.76	0.44	0.35
Peroxide Oxidisable Sulfur (a-SPOS) (NLM 2.2)	2	mol H+/t	470	280	220
Retained Acidity (S-NAS)					
Net Acid soluble sulfur (SNAS) NLM-4.1	0.005	% S	< 0.005	N/A	N/A
Net Acid soluble sulfur (s-SNAS) NLM-4.1 ^{S02}	0.005	% S	< 0.005	N/A	N/A
Net Acid soluble sulfur (a-SNAS) NLM-4.1	2	mol H+/t	< 2	N/A	N/A
HCl Extractable Sulfur Correction Factor	1	factor	2.0	2.0	2.0
Extractable Calcium					
Calcium - KCl Extractable	0.005	% Ca	< 0.005	0.007	0.006
Calcium - Peroxide	0.005	% Ca	0.006	0.008	0.008
Calcium - Acid Reacted	0.005	% Ca	0.006	< 0.005	< 0.005
Calcium - Acid Reacted (s-aCa)	0.005	% S	< 0.005	< 0.005	< 0.005
Calcium - Acid Reacted (a-aCa)	0.005	mol H+/t	2.9	< 0.005	< 0.005

Client Sample ID			WM03 - 8.0	WM03 - 9.0	WM03 - 4.0
Sample Matrix			Soil	Soil	Soil
Eurofins Sample No.			L24- Ap0011931	L24- Ap0011932	L24- Ap0011933
Date Sampled			Feb 29, 2024	Feb 29, 2024	Feb 29, 2024
Test/Reference	LOR	Unit			
Extractable Magnesium					
Magnesium - KCl Extractable	0.005	% Mg	0.005	< 0.005	< 0.005
Magnesium - Peroxide	0.005	% Mg	0.005	< 0.005	< 0.005
Magnesium - Acid Reacted	0.005	% Mg	< 0.005	< 0.005	< 0.005
Magnesium - Acid Reacted (s-aCa)	0.005	% S	< 0.005	< 0.005	< 0.005
Magnesium - Acid Reacted (a-aCa)	0.005	mol H+/t	< 0.005	< 0.005	< 0.005
Acid Neutralising Capacity (ANCE)					
Acid Neutralising Capacity - (ANCE)	0.02	% CaCO ₃	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCE)	0.02	% S	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCE)	10	mol H+/t	n/a	n/a	n/a
Acid Neutralising Capacity (ANCbt)					
ANC Fineness Factor		factor	1.5	1.5	1.5
Net Acidity (Including ANC)					
SPOCAS - Net Acidity - ASSMAC (Acidity Units)	10	mol H+/t	560	310	240
SPOCAS - Net Acidity - ASSMAC (Sulfur Units)	0.02	% S	0.90	0.50	0.39
SPOCAS - Liming rate - ASSMAC	1	kg CaCO ₃ /t	42	23	18
Extraneous Material					
<2mm Fraction	0.005	g	55	40	16
>2mm Fraction	0.005	g	< 0.005	< 0.005	< 0.005
Analysed Material	0.1	%	100	100	100
Extraneous Material	0.1	%	< 0.1	< 0.1	< 0.1

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
SPOCAS Suite - WA (Excluding ANC)			
SPOCAS Suite - WA (Excluding ANC)	Brisbane	Apr 10, 2024	6 Week
- Method: LTM-GEN-7050			
Extraneous Material	Brisbane	Apr 10, 2024	6 Week
- Method: LTM-GEN-7050/7070			



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Company Name: Stantec Australia Pty Ltd (WA)
Address: 6F 226, Adelaide Terrace
Perth
WA 6000

Project Name: BEENYUP WIND FARM

Order No.:
Report #: 1084676
Phone: 0458 839 200
Fax:

Received: Apr 3, 2024 5:46 PM
Due: Apr 11, 2024
Priority: 5 Day
Contact Name: Edvinder Singh

Eurofins Analytical Services Manager : Elden Garrett

Sample Detail

SPOCAS Suite - WA (Excluding ANC)

Moisture Set

Brisbane Laboratory - NATA # 1261 Site # 20794

External Laboratory

No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID		
1	WM01 - 0.0	Feb 26, 2024		Soil	L24-Ap0011899	X	X
2	WM01 - 1.0	Feb 26, 2024		Soil	L24-Ap0011900	X	X
3	WM01 - 10.0	Feb 26, 2024		Soil	L24-Ap0011901	X	X
4	WM01 - 2.0	Feb 26, 2024		Soil	L24-Ap0011902	X	X
5	WM01 - 3.0	Feb 26, 2024		Soil	L24-Ap0011903	X	X
6	WM01 - 4.0	Feb 26, 2024		Soil	L24-Ap0011904	X	X
7	WM01 - 5.0	Feb 26, 2024		Soil	L24-Ap0011905	X	X
8	WM01 - 6.0	Feb 26, 2024		Soil	L24-Ap0011906	X	X
9	WM01 - 7.0	Feb 26, 2024		Soil	L24-Ap0011907	X	X
10	WM01 - 8.0	Feb 26, 2024		Soil	L24-Ap0011908	X	X
11	WM01 - 9.0	Feb 26, 2024		Soil	L24-Ap0011909	X	X
12	WM02 - 0.0	Feb 28, 2024		Soil	L24-Ap0011910	X	X
13	WM02 - 1.0	Feb 28, 2024		Soil	L24-Ap0011911	X	X
14	WM02 - 10.0	Feb 28, 2024		Soil	L24-Ap0011912	X	X



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Company Name: Stantec Australia Pty Ltd (WA)
Address: 6F 226, Adelaide Terrace
Perth
WA 6000

Project Name: BEENYUP WIND FARM

Order No.:
Report #: 1084676
Phone: 0458 839 200
Fax:

Received: Apr 3, 2024 5:46 PM
Due: Apr 11, 2024
Priority: 5 Day
Contact Name: Edvinder Singh

Eurofins Analytical Services Manager : Elden Garrett

Sample Detail						SPOCAS Suite - WA (Excluding ANC)	Moisture Set
Brisbane Laboratory - NATA # 1261 Site # 20794						X	X
15	WM02 - 2.0	Feb 28, 2024		Soil	L24-Ap0011913	X	X
16	WM02 - 2.75	Feb 28, 2024		Soil	L24-Ap0011914	X	X
17	WM02 - 3.0	Feb 28, 2024		Soil	L24-Ap0011915	X	X
18	WM02 - 4.0	Feb 28, 2024		Soil	L24-Ap0011916	X	X
19	WM02 - 5.0	Feb 28, 2024		Soil	L24-Ap0011917	X	X
20	WM02 - 6.0	Feb 28, 2024		Soil	L24-Ap0011918	X	X
21	WM02 - 7.0	Feb 28, 2024		Soil	L24-Ap0011919	X	X
22	WM02 - 8.0	Feb 28, 2024		Soil	L24-Ap0011920	X	X
23	WM02 - 9.0	Feb 28, 2024		Soil	L24-Ap0011921	X	X
24	WM03 - 0.0	Feb 29, 2024		Soil	L24-Ap0011922	X	X
25	WM03 - 0.25	Feb 29, 2024		Soil	L24-Ap0011923	X	X
26	WM03 - 1.0	Feb 29, 2024		Soil	L24-Ap0011924	X	X
27	WM03 - 10.0	Feb 29, 2024		Soil	L24-Ap0011925	X	X
28	WM03 - 3.0	Feb 29, 2024		Soil	L24-Ap0011926	X	X
29	WM03 - 3.50	Feb 29, 2024		Soil	L24-Ap0011927	X	X
30	WM03 - 5.0	Feb 29, 2024		Soil	L24-Ap0011928	X	X



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Company Name:	Stantec Australia Pty Ltd (WA)	Order No.:		Received:	Apr 3, 2024 5:46 PM
Address:	6F 226, Adelaide Terrace Perth WA 6000	Report #:	1084676	Due:	Apr 11, 2024
Project Name:	BEENYUP WIND FARM	Phone:	0458 839 200	Priority:	5 Day
		Fax:		Contact Name:	Edvinder Singh
Eurofins Analytical Services Manager : Elden Garrett					

Sample Detail					SPOCAS Suite - WA (Excluding ANC)	Moisture Set
Brisbane Laboratory - NATA # 1261 Site # 20794					X	X
31	WM03 - 6.0	Feb 29, 2024		Soil	L24-Ap0011929	X X
32	WM03 - 7.0	Feb 29, 2024		Soil	L24-Ap0011930	X X
33	WM03 - 8.0	Feb 29, 2024		Soil	L24-Ap0011931	X X
34	WM03 - 9.0	Feb 29, 2024		Soil	L24-Ap0011932	X X
35	WM03 - 4.0	Feb 29, 2024		Soil	L24-Ap0011933	X X
Test Counts					35	35

Internal Quality Control Review and Glossary

General

- Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follow guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013. They are included in this QC report where applicable. Additional QC data may be available on request.
- Unless otherwise stated, all soil/sediment/solid results are reported on a dry weight basis.
- Unless otherwise stated, all biota/food results are reported on a wet weight basis on the edible portion.
- For CEC results where the sample's origin is unknown or environmentally contaminated, the results should be used advisedly.
- Actual LORs are matrix dependent. Quoted LORs may be raised where sample extracts are diluted due to interferences.
- Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds where annotated.
- SVOC analysis on waters is performed on homogenised, unfiltered samples unless noted otherwise.
- Samples were analysed on an 'as received' basis.
- Information identified in this report with **blue** colour indicates data provided by customers that may have an impact on the results.
- This report replaces any interim results previously issued.

Holding Times

Please refer to the 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours before sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and despite any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the sampling date; therefore, compliance with these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether, the holding time is seven days; however, for all other VOCs, such as BTEX or C6-10 TRH, the holding time is 14 days.

Units

mg/kg: milligrams per kilogram	mg/L: milligrams per litre	ppm: parts per million
µg/L: micrograms per litre	ppb: parts per billion	%: Percentage
org/100 mL: Organisms per 100 millilitres	NTU: Nephelometric Turbidity Units	MPN/100 mL: Most Probable Number of organisms per 100 millilitres
CFU: Colony Forming Unit	Colour: Pt-Co Units (CU)	

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples, these are performed on laboratory-certified clean sands and in the case of water samples, these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria.
TBTO	Tributyltin oxide (<i>bis</i> -tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 6.0
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should only be used as a guide and may be different when site-specific Sampling Analysis and Quality Plan (SAQP) have been implemented.

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is ≤30%; however, the following acceptance guidelines are equally applicable:

Results <10 times the LOR:	No Limit
Results between 10-20 times the LOR:	RPD must lie between 0-50%
Results >20 times the LOR:	RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range, not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%, VOC recoveries 50 – 150%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

QC Data General Comments

- Where a result is reported as less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
- Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown are not data from your samples.
- pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
- Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery, the term "INT" appears against that analyte.
- For Matrix Spikes and LCS results, a dash "-" in the report means that the specific analyte was not added to the QC sample.
- Duplicate RPDs are calculated from raw analytical data; thus, it is possible to have two sets of data.

Quality Control Results

Test				Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
LCS - % Recovery										
Actual Acidity (NLM-3.2)										
pH-KCL (NLM-3.1)				%	99			80-120	Pass	
Titratable Actual Acidity (NLM-3.2)				%	95			80-120	Pass	
LCS - % Recovery										
Extractable Sulfur										
HCl Extractable Sulfur				%	108			80-120	Pass	
LCS - % Recovery										
Actual Acidity (NLM-3.2)										
pH-KCL (NLM-3.1)				%	99			80-120	Pass	
Titratable Actual Acidity (NLM-3.2)				%	95			80-120	Pass	
LCS - % Recovery										
Extractable Sulfur										
HCl Extractable Sulfur				%	108			80-120	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1				Acceptance Limits	Pass Limits	Qualifying Code
Duplicate										
Actual Acidity (NLM-3.2)										
pH-KCL (NLM-3.1)				pH Units	5.0	5.1	2.1	20%	Pass	
Titratable Actual Acidity (NLM-3.2)				mol H+/t	8.5	7.0	19	20%	Pass	
Titratable Actual Acidity (NLM-3.2)				% pyrite S	0.014	0.011	19	30%	Pass	
Duplicate										
Potential Acidity - Titratable Peroxide										
pH-OX				pH Units	4.3	4.3	<1	20%	Pass	
Titratable Peroxide Acidity (s-TPA)				% pyrite S	0.03	0.03	<1	30%	Pass	
Titratable Peroxide Acidity (a-TPA)				mol H+/t	19	19	<1	20%	Pass	
Duplicate										
Extractable Sulfur										
Sulfur - KCl Extractable				% S	0.006	0.005	14	30%	Pass	
Peroxide Extractable Sulfur				% S	0.014	0.013	7.7	20%	Pass	
Duplicate										
Potential Acidity (SPOS)										
Peroxide Oxidisable Sulfur (s-SPOS) (NLM 2.2)				% S	0.008	0.008	3.6	30%	Pass	
Peroxide Oxidisable Sulfur (a-SPOS) (NLM 2.2)				mol H+/t	5.0	4.9	3.6	30%	Pass	
Duplicate										
Extractable Calcium										
Calcium - KCl Extractable				% Ca	< 0.005	< 0.005	<1	30%	Pass	
Calcium - Peroxide				% Ca	< 0.005	< 0.005	<1	20%	Pass	
Calcium - Acid Reacted				% Ca	< 0.005	< 0.005	<1	30%	Pass	
Calcium - Acid Reacted (s-aCa)				% S	< 0.005	< 0.005	<1	30%	Pass	
Calcium - Acid Reacted (a-aCa)				mol H+/t	< 0.005	< 0.005	<1	30%	Pass	
Duplicate										
Extractable Magnesium										
Magnesium - KCl Extractable				% Mg	0.018	0.018	<1	30%	Pass	
Magnesium - Peroxide				% Mg	0.018	0.018	2.8	20%	Pass	
Magnesium - Acid Reacted				% Mg	< 0.005	< 0.005	<1	30%	Pass	
Magnesium - Acid Reacted (s-aCa)				% S	< 0.005	< 0.005	<1	30%	Pass	
Magnesium - Acid Reacted (a-aCa)				mol H+/t	< 0.005	< 0.005	<1	30%	Pass	
Duplicate										
Acid Neutralising Capacity (ANCbt)										
ANC Fineness Factor				factor	1.5	1.5	<1	30%	Pass	

Duplicate								
Actual Acidity (NLM-3.2)				Result 1	Result 2	RPD		
pH-KCL (NLM-3.1)	L24-Ap0011913	CP	pH Units	6.1	6.1	<1	20%	Pass
Titrateable Actual Acidity (NLM-3.2)	L24-Ap0011913	CP	mol H+/t	5.8	5.8	<1	20%	Pass
Titrateable Actual Acidity (NLM-3.2)	L24-Ap0011913	CP	% pyrite S	0.009	0.009	<1	30%	Pass
Duplicate								
Potential Acidity - Titrateable Peroxide				Result 1	Result 2	RPD		
pH-OX	L24-Ap0011913	CP	pH Units	6.3	6.3	<1	20%	Pass
Titrateable Peroxide Acidity (s-TPA)	L24-Ap0011913	CP	% pyrite S	< 0.02	< 0.02	<1	30%	Pass
Titrateable Peroxide Acidity (a-TPA)	L24-Ap0011913	CP	mol H+/t	7.0	6.8	<1	20%	Pass
Duplicate								
Extractable Sulfur				Result 1	Result 2	RPD		
Sulfur - KCl Extractable	L24-Ap0011913	CP	% S	0.024	0.025	2.0	30%	Pass
Peroxide Extractable Sulfur	L24-Ap0011913	CP	% S	0.037	0.036	2.8	20%	Pass
Duplicate								
Potential Acidity (SPOS)				Result 1	Result 2	RPD		
Peroxide Oxidisable Sulfur (s-SPOS) (NLM 2.2)	L24-Ap0011913	CP	% S	0.012	0.011	13	30%	Pass
Peroxide Oxidisable Sulfur (a-SPOS) (NLM 2.2)	L24-Ap0011913	CP	mol H+/t	7.7	6.8	13	30%	Pass
Duplicate								
Extractable Calcium				Result 1	Result 2	RPD		
Calcium - KCl Extractable	L24-Ap0011913	CP	% Ca	0.007	0.007	3.7	30%	Pass
Calcium - Peroxide	L24-Ap0011913	CP	% Ca	0.008	0.008	2.0	20%	Pass
Calcium - Acid Reacted	L24-Ap0011913	CP	% Ca	< 0.005	< 0.005	<1	30%	Pass
Calcium - Acid Reacted (s-aCa)	L24-Ap0011913	CP	% S	< 0.005	< 0.005	<1	30%	Pass
Calcium - Acid Reacted (a-aCa)	L24-Ap0011913	CP	mol H+/t	< 0.005	< 0.005	<1	30%	Pass
Duplicate								
Extractable Magnesium				Result 1	Result 2	RPD		
Magnesium - KCl Extractable	L24-Ap0011913	CP	% Mg	< 0.005	< 0.005	<1	30%	Pass
Magnesium - Peroxide	L24-Ap0011913	CP	% Mg	< 0.005	< 0.005	<1	20%	Pass
Magnesium - Acid Reacted	L24-Ap0011913	CP	% Mg	< 0.005	< 0.005	<1	30%	Pass
Magnesium - Acid Reacted (s-aCa)	L24-Ap0011913	CP	% S	< 0.005	< 0.005	<1	30%	Pass
Magnesium - Acid Reacted (a-aCa)	L24-Ap0011913	CP	mol H+/t	< 0.005	< 0.005	<1	30%	Pass
Duplicate								
Acid Neutralising Capacity (ANCbt)				Result 1	Result 2	RPD		
ANC Fineness Factor	L24-Ap0011913	CP	factor	1.5	1.5	<1	30%	Pass
Duplicate								
Actual Acidity (NLM-3.2)				Result 1	Result 2	RPD		
pH-KCL (NLM-3.1)	L24-Ap0011924	CP	pH Units	5.7	5.7	<1	20%	Pass
Titrateable Actual Acidity (NLM-3.2)	L24-Ap0011924	CP	mol H+/t	16	15	10	20%	Pass
Titrateable Actual Acidity (NLM-3.2)	L24-Ap0011924	CP	% pyrite S	0.026	0.024	10	30%	Pass
Duplicate								
Potential Acidity - Titrateable Peroxide				Result 1	Result 2	RPD		
pH-OX	L24-Ap0011924	CP	pH Units	4.8	4.8	1.2	20%	Pass
Titrateable Peroxide Acidity (s-TPA)	L24-Ap0011924	CP	% pyrite S	0.06	0.05	4.2	30%	Pass
Titrateable Peroxide Acidity (a-TPA)	L24-Ap0011924	CP	mol H+/t	35	33	4.2	20%	Pass
Duplicate								
Extractable Sulfur				Result 1	Result 2	RPD		
Sulfur - KCl Extractable	L24-Ap0011924	CP	% S	0.071	0.070	<1	30%	Pass
Peroxide Extractable Sulfur	L24-Ap0011924	CP	% S	0.083	0.082	1.8	20%	Pass
Duplicate								
Potential Acidity (SPOS)				Result 1	Result 2	RPD		
Peroxide Oxidisable Sulfur (s-SPOS) (NLM 2.2)	L24-Ap0011924	CP	% S	0.012	0.012	6.8	30%	Pass
Peroxide Oxidisable Sulfur (a-SPOS) (NLM 2.2)	L24-Ap0011924	CP	mol H+/t	7.7	7.2	6.8	30%	Pass

Duplicate								
Extractable Calcium				Result 1	Result 2	RPD		
Calcium - KCl Extractable	L24-Ap0011924	CP	% Ca	0.012	0.012	1.8	30%	Pass
Calcium - Peroxide	L24-Ap0011924	CP	% Ca	0.014	0.013	5.9	20%	Pass
Calcium - Acid Reacted	L24-Ap0011924	CP	% Ca	< 0.005	< 0.005	<1	30%	Pass
Calcium - Acid Reacted (s-aCa)	L24-Ap0011924	CP	% S	< 0.005	< 0.005	<1	30%	Pass
Calcium - Acid Reacted (a-aCa)	L24-Ap0011924	CP	mol H+/t	< 0.005	< 0.005	<1	30%	Pass
Duplicate								
Extractable Magnesium				Result 1	Result 2	RPD		
Magnesium - KCl Extractable	L24-Ap0011924	CP	% Mg	< 0.005	< 0.005	<1	30%	Pass
Magnesium - Peroxide	L24-Ap0011924	CP	% Mg	< 0.005	< 0.005	<1	20%	Pass
Magnesium - Acid Reacted	L24-Ap0011924	CP	% Mg	< 0.005	< 0.005	<1	30%	Pass
Magnesium - Acid Reacted (s-aCa)	L24-Ap0011924	CP	% S	< 0.005	< 0.005	<1	30%	Pass
Magnesium - Acid Reacted (a-aCa)	L24-Ap0011924	CP	mol H+/t	< 0.005	< 0.005	<1	30%	Pass
Duplicate								
Acid Neutralising Capacity (ANCbt)				Result 1	Result 2	RPD		
ANC Fineness Factor	L24-Ap0011924	CP	factor	1.5	1.5	<1	30%	Pass
Duplicate								
Actual Acidity (NLM-3.2)				Result 1	Result 2	RPD		
pH-KCL (NLM-3.1)	L24-Ap0011933	CP	pH Units	4.7	4.7	<1	20%	Pass
Titrateable Actual Acidity (NLM-3.2)	L24-Ap0011933	CP	mol H+/t	26	25	<1	20%	Pass
Titrateable Actual Acidity (NLM-3.2)	L24-Ap0011933	CP	% pyrite S	0.041	0.041	<1	30%	Pass
Duplicate								
Potential Acidity - Titrateable Peroxide				Result 1	Result 2	RPD		
pH-OX	L24-Ap0011933	CP	pH Units	2.6	2.6	<1	20%	Pass
Titrateable Peroxide Acidity (s-TPA)	L24-Ap0011933	CP	% pyrite S	0.45	0.45	<1	30%	Pass
Titrateable Peroxide Acidity (a-TPA)	L24-Ap0011933	CP	mol H+/t	280	280	<1	20%	Pass
Duplicate								
Extractable Sulfur				Result 1	Result 2	RPD		
Sulfur - KCl Extractable	L24-Ap0011933	CP	% S	0.017	0.017	1.4	30%	Pass
Peroxide Extractable Sulfur	L24-Ap0011933	CP	% S	0.37	0.38	2.5	20%	Pass
Duplicate								
Potential Acidity (SPOS)				Result 1	Result 2	RPD		
Peroxide Oxidisable Sulfur (s-SPOS) (NLM 2.2)	L24-Ap0011933	CP	% S	0.35	0.36	2.7	30%	Pass
Peroxide Oxidisable Sulfur (a-SPOS) (NLM 2.2)	L24-Ap0011933	CP	mol H+/t	220	230	2.7	30%	Pass
Duplicate								
Extractable Calcium				Result 1	Result 2	RPD		
Calcium - KCl Extractable	L24-Ap0011933	CP	% Ca	0.006	0.006	<1	30%	Pass
Calcium - Peroxide	L24-Ap0011933	CP	% Ca	0.008	0.009	17	20%	Pass
Calcium - Acid Reacted	L24-Ap0011933	CP	% Ca	< 0.005	< 0.005	<1	30%	Pass
Calcium - Acid Reacted (s-aCa)	L24-Ap0011933	CP	% S	< 0.005	< 0.005	<1	30%	Pass
Calcium - Acid Reacted (a-aCa)	L24-Ap0011933	CP	mol H+/t	< 0.005	< 0.005	<1	30%	Pass
Duplicate								
Extractable Magnesium				Result 1	Result 2	RPD		
Magnesium - KCl Extractable	L24-Ap0011933	CP	% Mg	< 0.005	< 0.005	<1	30%	Pass
Magnesium - Peroxide	L24-Ap0011933	CP	% Mg	< 0.005	< 0.005	<1	20%	Pass
Magnesium - Acid Reacted	L24-Ap0011933	CP	% Mg	< 0.005	< 0.005	<1	30%	Pass
Magnesium - Acid Reacted (s-aCa)	L24-Ap0011933	CP	% S	< 0.005	< 0.005	<1	30%	Pass
Magnesium - Acid Reacted (a-aCa)	L24-Ap0011933	CP	mol H+/t	< 0.005	< 0.005	<1	30%	Pass
Duplicate								
Acid Neutralising Capacity (ANCbt)				Result 1	Result 2	RPD		
ANC Fineness Factor	L24-Ap0011933	CP	factor	1.5	1.5	<1	30%	Pass

Comments
Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	N/A
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
S02	Retained Acidity is Reported when the pHKCl is less than pH 4.5

Authorised by:

Elden Garrett	Analytical Services Manager
Jonathon Angell	Senior Analyst-SPOCAS



Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

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reference materials producers reports and certificates.

Attention: **Edvinder Singh**

Report **1084649-S**
Project name **BEENYUP WIND FARM**
Received Date **Apr 03, 2024**

Client Sample ID			TP01 - 0.0	TP01 - 1.0	TP01 - 2.0	TP02 - 0.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24- Ap0011751	L24- Ap0011752	L24- Ap0011753	L24- Ap0011754
Date Sampled			Mar 14, 2024	Mar 14, 2024	Mar 14, 2024	Mar 14, 2024
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	4.6	5.1	4.7	5.0
Titrateable Actual Acidity (NLM-3.2)	2	mol H+/t	47	8.9	38	21
Titrateable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.075	0.014	0.060	0.034
SPOCAS Suite - WA (Excluding ANC)						
SPOCAS - Liming rate - ASSMAC (Excluding ANC)		kg CaCO ₃ /t	4.6	< 1	4.5	2.7
SPOCAS - Net Acidity - ASSMAC (Excluding ANC)		mol H+/t	61	< 10	61	36
SPOCAS - Net Acidity - ASSMAC (Excluding ANC)		% S	0.098	< 0.02	0.097	0.058
Potential Acidity - Titrateable Peroxide						
pH-OX	0.1	pH Units	2.9	3.5	2.6	2.7
Titrateable Peroxide Acidity (s-TPA)	0.02	% pyrite S	0.13	< 0.02	0.10	0.03
Titrateable Peroxide Acidity (a-TPA)	2	mol H+/t	84	4.8	63	16
Titrateable Sulfidic Acidity (a-TSA)	2	mol H+/t	37	< 2	25	< 2
Titrateable Sulfidic Acidity (s-TSA)	0.02	% pyrite S	0.06	< 0.02	0.04	< 0.02
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	0.008	< 0.005	< 0.005	< 0.005
Peroxide Extractable Sulfur	0.005	% S	0.031	< 0.005	0.037	0.024
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A	N/A
Potential Acidity (SPOS)						
Peroxide Oxidisable Sulfur (s-SPOS) (NLM 2.2)	0.005	% S	0.024	< 0.005	0.037	0.024
Peroxide Oxidisable Sulfur (a-SPOS) (NLM 2.2)	2	mol H+/t	15	< 2	23	15
Retained Acidity (S-NAS)						
Net Acid soluble sulfur (SNAS) NLM-4.1	0.005	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (s-SNAS) NLM-4.1 ^{S02}	0.005	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (a-SNAS) NLM-4.1	2	mol H+/t	N/A	N/A	N/A	N/A
HCl Extractable Sulfur Correction Factor	1	factor	2.0	2.0	2.0	2.0
Extractable Calcium						
Calcium - KCl Extractable	0.005	% Ca	0.021	< 0.005	0.008	0.041
Calcium - Peroxide	0.005	% Ca	0.027	< 0.005	0.011	0.050
Calcium - Acid Reacted	0.005	% Ca	0.006	< 0.005	< 0.005	0.009
Calcium - Acid Reacted (s-aCa)	0.005	% S	< 0.005	< 0.005	< 0.005	0.007
Calcium - Acid Reacted (a-aCa)	0.005	mol H+/t	2.8	< 0.005	< 0.005	4.4

Client Sample ID			TP01 - 0.0	TP01 - 1.0	TP01 - 2.0	TP02 - 0.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24- Ap0011751	L24- Ap0011752	L24- Ap0011753	L24- Ap0011754
Date Sampled			Mar 14, 2024	Mar 14, 2024	Mar 14, 2024	Mar 14, 2024
Test/Reference	LOR	Unit				
Extractable Magnesium						
Magnesium - KCl Extractable	0.005	% Mg	0.010	< 0.005	0.005	< 0.005
Magnesium - Peroxide	0.005	% Mg	0.011	< 0.005	0.006	< 0.005
Magnesium - Acid Reacted	0.005	% Mg	< 0.005	< 0.005	< 0.005	< 0.005
Magnesium - Acid Reacted (s-aCa)	0.005	% S	< 0.005	< 0.005	< 0.005	< 0.005
Magnesium - Acid Reacted (a-aCa)	0.005	mol H+/t	< 0.005	< 0.005	< 0.005	< 0.005
Acid Neutralising Capacity (ANCE)						
Acid Neutralising Capacity - (ANCE)	0.02	% CaCO ₃	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCE)	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCE)	10	mol H+/t	n/a	n/a	n/a	n/a
Acid Neutralising Capacity (ANCbt)						
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (Including ANC)						
SPOCAS - Net Acidity - ASSMAC (Acidity Units)	10	mol H+/t	61	< 10	61	36
SPOCAS - Net Acidity - ASSMAC (Sulfur Units)	0.02	% S	0.10	< 0.02	0.10	0.06
SPOCAS - Liming rate - ASSMAC	1	kg CaCO ₃ /t	4.6	< 1	4.5	2.7
Extraneous Material						
<2mm Fraction	0.005	g	91	200	160	170
>2mm Fraction	0.005	g	9.6	0.66	2.2	0.44
Analysed Material	0.1	%	91	100	99	100
Extraneous Material	0.1	%	9.5	0.3	1.3	0.3

Client Sample ID			TP02 - 0.75	TP02 - 1.0	TP03 - 0.0	TP03 - 1.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24- Ap0011755	L24- Ap0011756	L24- Ap0011757	L24- Ap0011758
Date Sampled			Mar 14, 2024	Mar 14, 2024	Mar 12, 2024	Mar 12, 2024
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	5.1	4.8	6.9	5.6
Titrateable Actual Acidity (NLM-3.2)	2	mol H+/t	22	48	< 2	3.2
Titrateable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.034	0.076	< 0.003	0.005
SPOCAS Suite - WA (Excluding ANC)						
SPOCAS - Liming rate - ASSMAC (Excluding ANC)		kg CaCO ₃ /t	2.0	4.2	< 1	< 1
SPOCAS - Net Acidity - ASSMAC (Excluding ANC)		mol H+/t	27	56	< 10	< 10
SPOCAS - Net Acidity - ASSMAC (Excluding ANC)		% S	0.043	0.089	< 0.02	< 0.02
Potential Acidity - Titrateable Peroxide						
pH-OX	0.1	pH Units	3.7	4.2	6.5	4.6
Titrateable Peroxide Acidity (s-TPA)	0.02	% pyrite S	0.03	0.14	< 0.02	< 0.02
Titrateable Peroxide Acidity (a-TPA)	2	mol H+/t	20	85	< 2	< 2
Titrateable Sulfidic Acidity (a-TSA)	2	mol H+/t	< 2	38	< 2	< 2
Titrateable Sulfidic Acidity (s-TSA)	0.02	% pyrite S	< 0.02	0.06	< 0.02	< 0.02
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	< 0.005	< 0.005	0.005	< 0.005
Peroxide Extractable Sulfur	0.005	% S	0.009	0.013	0.024	< 0.005
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A	N/A
Potential Acidity (SPOS)						
Peroxide Oxidisable Sulfur (s-SPOS) (NLM 2.2)	0.005	% S	0.009	0.013	0.018	< 0.005
Peroxide Oxidisable Sulfur (a-SPOS) (NLM 2.2)	2	mol H+/t	5.5	8.0	12	< 2

Client Sample ID			TP02 - 0.75	TP02 - 1.0	TP03 - 0.0	TP03 - 1.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24- Ap0011755	L24- Ap0011756	L24- Ap0011757	L24- Ap0011758
Date Sampled			Mar 14, 2024	Mar 14, 2024	Mar 12, 2024	Mar 12, 2024
Test/Reference	LOR	Unit				
Retained Acidity (S-NAS)						
Net Acid soluble sulfur (SNAS) NLM-4.1	0.005	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (s-SNAS) NLM-4.1 ^{S02}	0.005	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (a-SNAS) NLM-4.1	2	mol H+/t	N/A	N/A	N/A	N/A
HCl Extractable Sulfur Correction Factor	1	factor	2.0	2.0	2.0	2.0
Extractable Calcium						
Calcium - KCl Extractable	0.005	% Ca	0.005	< 0.005	0.13	0.017
Calcium - Peroxide	0.005	% Ca	0.007	0.006	0.13	0.020
Calcium - Acid Reacted	0.005	% Ca	< 0.005	0.006	0.006	< 0.005
Calcium - Acid Reacted (s-aCa)	0.005	% S	< 0.005	< 0.005	< 0.005	< 0.005
Calcium - Acid Reacted (a-aCa)	0.005	mol H+/t	< 0.005	3.1	2.9	< 0.005
Extractable Magnesium						
Magnesium - KCl Extractable	0.005	% Mg	< 0.005	< 0.005	0.009	< 0.005
Magnesium - Peroxide	0.005	% Mg	< 0.005	< 0.005	0.006	< 0.005
Magnesium - Acid Reacted	0.005	% Mg	< 0.005	< 0.005	< 0.005	< 0.005
Magnesium - Acid Reacted (s-aCa)	0.005	% S	< 0.005	< 0.005	< 0.005	< 0.005
Magnesium - Acid Reacted (a-aCa)	0.005	mol H+/t	< 0.005	< 0.005	< 0.005	< 0.005
Acid Neutralising Capacity (ANCE)						
Acid Neutralising Capacity - (ANCE)	0.02	% CaCO3	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCE)	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCE)	10	mol H+/t	n/a	n/a	n/a	n/a
Acid Neutralising Capacity (ANCbt)						
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (Including ANC)						
SPOCAS - Net Acidity - ASSMAC (Acidity Units)	10	mol H+/t	27	56	< 10	< 10
SPOCAS - Net Acidity - ASSMAC (Sulfur Units)	0.02	% S	0.04	0.09	< 0.02	< 0.02
SPOCAS - Liming rate - ASSMAC	1	kg CaCO3/t	2.0	4.2	< 1	< 1
Extraneous Material						
<2mm Fraction	0.005	g	150	240	150	150
>2mm Fraction	0.005	g	< 0.005	0.47	86	< 0.005
Analysed Material	0.1	%	100	100	64	100
Extraneous Material	0.1	%	< 0.1	0.2	36	< 0.1

Client Sample ID			TP04 - 0.0	TP05 - 0.0	TP06 - 0.0	TP06 - 0.50
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24- Ap0011759	L24- Ap0011760	L24- Ap0011761	L24- Ap0011762
Date Sampled			Mar 12, 2024	Mar 13, 2024	Mar 13, 2024	Mar 13, 2024
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	5.2	5.3	4.8	5.6
Titrateable Actual Acidity (NLM-3.2)	2	mol H+/t	18	14	36	3.6
Titrateable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.028	0.022	0.058	0.006
SPOCAS Suite - WA (Excluding ANC)						
SPOCAS - Liming rate - ASSMAC (Excluding ANC)		kg CaCO3/t	2.7	3.6	5.0	< 1
SPOCAS - Net Acidity - ASSMAC (Excluding ANC)		mol H+/t	37	48	67	< 10
SPOCAS - Net Acidity - ASSMAC (Excluding ANC)		% S	0.059	0.076	0.11	< 0.02

Client Sample ID			TP04 - 0.0	TP05 - 0.0	TP06 - 0.0	TP06 - 0.50
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24- Ap0011759	L24- Ap0011760	L24- Ap0011761	L24- Ap0011762
Date Sampled			Mar 12, 2024	Mar 13, 2024	Mar 13, 2024	Mar 13, 2024
Test/Reference	LOR	Unit				
Potential Acidity - Titratable Peroxide						
pH-OX	0.1	pH Units	5.7	6.2	2.5	3.9
Titrateable Peroxide Acidity (s-TPA)	0.02	% pyrite S	< 0.02	< 0.02	< 0.02	< 0.02
Titrateable Peroxide Acidity (a-TPA)	2	mol H+/t	< 2	< 2	< 2	< 2
Titrateable Sulfidic Acidity (a-TSA)	2	mol H+/t	< 2	< 2	< 2	< 2
Titrateable Sulfidic Acidity (s-TSA)	0.02	% pyrite S	< 0.02	< 0.02	< 0.02	< 0.02
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	< 0.005	< 0.005	< 0.005	< 0.005
Peroxide Extractable Sulfur	0.005	% S	0.030	0.054	0.050	< 0.005
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A	N/A
Potential Acidity (SPOS)						
Peroxide Oxidisable Sulfur (s-SPOS) (NLM 2.2)	0.005	% S	0.030	0.054	0.050	< 0.005
Peroxide Oxidisable Sulfur (a-SPOS) (NLM 2.2)	2	mol H+/t	19	34	31	< 2
Retained Acidity (S-NAS)						
Net Acid soluble sulfur (SNAS) NLM-4.1	0.005	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (s-SNAS) NLM-4.1 ^{S02}	0.005	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (a-SNAS) NLM-4.1	2	mol H+/t	N/A	N/A	N/A	N/A
HCl Extractable Sulfur Correction Factor	1	factor	2.0	2.0	2.0	2.0
Extractable Calcium						
Calcium - KCl Extractable	0.005	% Ca	0.082	0.10	0.099	0.012
Calcium - Peroxide	0.005	% Ca	0.063	0.046	0.11	0.014
Calcium - Acid Reacted	0.005	% Ca	< 0.005	< 0.005	< 0.005	< 0.005
Calcium - Acid Reacted (s-aCa)	0.005	% S	< 0.005	< 0.005	< 0.005	< 0.005
Calcium - Acid Reacted (a-aCa)	0.005	mol H+/t	< 0.005	< 0.005	< 0.005	< 0.005
Extractable Magnesium						
Magnesium - KCl Extractable	0.005	% Mg	0.007	0.007	0.012	< 0.005
Magnesium - Peroxide	0.005	% Mg	< 0.005	0.007	0.013	< 0.005
Magnesium - Acid Reacted	0.005	% Mg	< 0.005	< 0.005	< 0.005	< 0.005
Magnesium - Acid Reacted (s-aCa)	0.005	% S	< 0.005	< 0.005	< 0.005	< 0.005
Magnesium - Acid Reacted (a-aCa)	0.005	mol H+/t	< 0.005	< 0.005	< 0.005	< 0.005
Acid Neutralising Capacity (ANCE)						
Acid Neutralising Capacity - (ANCE)	0.02	% CaCO3	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCE)	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCE)	10	mol H+/t	n/a	n/a	n/a	n/a
Acid Neutralising Capacity (ANCbt)						
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (Including ANC)						
SPOCAS - Net Acidity - ASSMAC (Acidity Units)	10	mol H+/t	37	48	67	< 10
SPOCAS - Net Acidity - ASSMAC (Sulfur Units)	0.02	% S	0.06	0.08	0.11	< 0.02
SPOCAS - Liming rate - ASSMAC	1	kg CaCO3/t	2.7	3.6	5.0	< 1
Extraneous Material						
<2mm Fraction	0.005	g	88	140	98	130
>2mm Fraction	0.005	g	37	3.5	1.1	0.53
Analysed Material	0.1	%	70	98	99	100
Extraneous Material	0.1	%	30	2.4	1.1	0.4

Client Sample ID			TP07 - 0.0	TP07 - 1.0	TP08 - 0.0	TP08 - 1.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24- Ap0011763	L24- Ap0011764	L24- Ap0011765	L24- Ap0011766
Date Sampled			Mar 14, 2024	Mar 14, 2024	Mar 12, 2024	Mar 12, 2024
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	6.3	6.0	5.4	5.5
Titrateable Actual Acidity (NLM-3.2)	2	mol H+/t	2.4	< 2	7.9	5.7
Titrateable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.004	< 0.003	0.013	0.009
SPOCAS Suite - WA (Excluding ANC)						
SPOCAS - Liming rate - ASSMAC (Excluding ANC)		kg CaCO ₃ /t	3.2	< 1	1.7	1.1
SPOCAS - Net Acidity - ASSMAC (Excluding ANC)		mol H+/t	43	< 10	22	14
SPOCAS - Net Acidity - ASSMAC (Excluding ANC)		% S	0.069	< 0.02	0.035	0.023
Potential Acidity - Titrateable Peroxide						
pH-OX	0.1	pH Units	3.0	4.4	2.9	3.6
Titrateable Peroxide Acidity (s-TPA)	0.02	% pyrite S	< 0.02	< 0.02	< 0.02	< 0.02
Titrateable Peroxide Acidity (a-TPA)	2	mol H+/t	< 2	< 2	< 2	< 2
Titrateable Sulfidic Acidity (a-TSA)	2	mol H+/t	< 2	< 2	< 2	< 2
Titrateable Sulfidic Acidity (s-TSA)	0.02	% pyrite S	< 0.02	< 0.02	< 0.02	< 0.02
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	< 0.005	< 0.005	< 0.005	< 0.005
Peroxide Extractable Sulfur	0.005	% S	0.065	< 0.005	0.023	0.014
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A	N/A
Potential Acidity (SPOS)						
Peroxide Oxidisable Sulfur (s-SPOS) (NLM 2.2)	0.005	% S	0.065	< 0.005	0.023	0.014
Peroxide Oxidisable Sulfur (a-SPOS) (NLM 2.2)	2	mol H+/t	41	< 2	14	8.6
Retained Acidity (S-NAS)						
Net Acid soluble sulfur (SNAS) NLM-4.1	0.005	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (s-SNAS) NLM-4.1 ^{S02}	0.005	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (a-SNAS) NLM-4.1	2	mol H+/t	N/A	N/A	N/A	N/A
HCl Extractable Sulfur Correction Factor	1	factor	2.0	2.0	2.0	2.0
Extractable Calcium						
Calcium - KCl Extractable	0.005	% Ca	0.22	0.009	0.030	0.011
Calcium - Peroxide	0.005	% Ca	0.25	0.011	0.034	0.013
Calcium - Acid Reacted	0.005	% Ca	0.034	< 0.005	< 0.005	< 0.005
Calcium - Acid Reacted (s-aCa)	0.005	% S	0.027	< 0.005	< 0.005	< 0.005
Calcium - Acid Reacted (a-aCa)	0.005	mol H+/t	17	< 0.005	< 0.005	< 0.005
Extractable Magnesium						
Magnesium - KCl Extractable	0.005	% Mg	0.010	< 0.005	0.006	< 0.005
Magnesium - Peroxide	0.005	% Mg	0.010	< 0.005	0.007	< 0.005
Magnesium - Acid Reacted	0.005	% Mg	< 0.005	< 0.005	< 0.005	< 0.005
Magnesium - Acid Reacted (s-aCa)	0.005	% S	< 0.005	< 0.005	< 0.005	< 0.005
Magnesium - Acid Reacted (a-aCa)	0.005	mol H+/t	< 0.005	< 0.005	< 0.005	< 0.005
Acid Neutralising Capacity (ANCE)						
Acid Neutralising Capacity - (ANCE)	0.02	% CaCO ₃	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCE)	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCE)	10	mol H+/t	n/a	n/a	n/a	n/a
Acid Neutralising Capacity (ANCbt)						
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (Including ANC)						
SPOCAS - Net Acidity - ASSMAC (Acidity Units)	10	mol H+/t	43	< 10	22	14
SPOCAS - Net Acidity - ASSMAC (Sulfur Units)	0.02	% S	0.07	< 0.02	0.04	0.02
SPOCAS - Liming rate - ASSMAC	1	kg CaCO ₃ /t	3.2	< 1	1.7	1.1

Client Sample ID			TP07 - 0.0	TP07 - 1.0	TP08 - 0.0	TP08 - 1.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24- Ap0011763	L24- Ap0011764	L24- Ap0011765	L24- Ap0011766
Date Sampled			Mar 14, 2024	Mar 14, 2024	Mar 12, 2024	Mar 12, 2024
Test/Reference	LOR	Unit				
Extraneous Material						
<2mm Fraction	0.005	g	130	170	140	180
>2mm Fraction	0.005	g	0.62	0.35	0.10	0.42
Analysed Material	0.1	%	100	100	100	100
Extraneous Material	0.1	%	0.5	0.2	< 0.1	0.2

Client Sample ID			TP08 - 2.0	TP09 - 0.0	TP11 - 0.0	TP11 - 1.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24- Ap0011767	L24- Ap0011768	L24- Ap0011769	L24- Ap0011770
Date Sampled			Mar 12, 2024	Mar 12, 2024	Mar 14, 2024	Mar 14, 2024
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	5.5	5.4	5.9	6.3
Titrateable Actual Acidity (NLM-3.2)	2	mol H+/t	9.5	20	4.3	< 2
Titrateable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.015	0.032	0.007	< 0.003
SPOCAS Suite - WA (Excluding ANC)						
SPOCAS - Liming rate - ASSMAC (Excluding ANC)		kg CaCO3/t	3.5	4.3	2.3	< 1
SPOCAS - Net Acidity - ASSMAC (Excluding ANC)		mol H+/t	46	57	31	< 10
SPOCAS - Net Acidity - ASSMAC (Excluding ANC)		% S	0.074	0.091	0.049	< 0.02
Potential Acidity - Titrateable Peroxide						
pH-OX	0.1	pH Units	3.8	2.9	3.0	4.8
Titrateable Peroxide Acidity (s-TPA)	0.02	% pyrite S	0.05	< 0.02	< 0.02	< 0.02
Titrateable Peroxide Acidity (a-TPA)	2	mol H+/t	30	< 2	< 2	< 2
Titrateable Sulfidic Acidity (a-TSA)	2	mol H+/t	20	< 2	< 2	< 2
Titrateable Sulfidic Acidity (s-TSA)	0.02	% pyrite S	0.03	< 0.02	< 0.02	< 0.02
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	0.007	< 0.005	< 0.005	< 0.005
Peroxide Extractable Sulfur	0.005	% S	0.066	0.059	0.042	0.006
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A	N/A
Potential Acidity (SPOS)						
Peroxide Oxidisable Sulfur (s-SPOS) (NLM 2.2)	0.005	% S	0.059	0.059	0.042	0.006
Peroxide Oxidisable Sulfur (a-SPOS) (NLM 2.2)	2	mol H+/t	37	37	26	3.7
Retained Acidity (S-NAS)						
Net Acid soluble sulfur (SNAS) NLM-4.1	0.005	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (s-SNAS) NLM-4.1 ^{S02}	0.005	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (a-SNAS) NLM-4.1	2	mol H+/t	N/A	N/A	N/A	N/A
HCl Extractable Sulfur Correction Factor	1	factor	2.0	2.0	2.0	2.0
Extractable Calcium						
Calcium - KCl Extractable	0.005	% Ca	0.030	0.16	0.087	0.023
Calcium - Peroxide	0.005	% Ca	0.033	0.16	0.096	0.025
Calcium - Acid Reacted	0.005	% Ca	< 0.005	0.008	0.009	< 0.005
Calcium - Acid Reacted (s-aCa)	0.005	% S	< 0.005	0.006	0.007	< 0.005
Calcium - Acid Reacted (a-aCa)	0.005	mol H+/t	< 0.005	4.0	4.6	< 0.005

Client Sample ID			TP08 - 2.0	TP09 - 0.0	TP11 - 0.0	TP11 - 1.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24- Ap0011767	L24- Ap0011768	L24- Ap0011769	L24- Ap0011770
Date Sampled			Mar 12, 2024	Mar 12, 2024	Mar 14, 2024	Mar 14, 2024
Test/Reference	LOR	Unit				
Extractable Magnesium						
Magnesium - KCl Extractable	0.005	% Mg	0.007	0.008	0.007	< 0.005
Magnesium - Peroxide	0.005	% Mg	0.008	0.007	0.008	< 0.005
Magnesium - Acid Reacted	0.005	% Mg	< 0.005	< 0.005	< 0.005	< 0.005
Magnesium - Acid Reacted (s-aCa)	0.005	% S	< 0.005	< 0.005	< 0.005	< 0.005
Magnesium - Acid Reacted (a-aCa)	0.005	mol H+/t	< 0.005	< 0.005	< 0.005	< 0.005
Acid Neutralising Capacity (ANCE)						
Acid Neutralising Capacity - (ANCE)	0.02	% CaCO ₃	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCE)	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCE)	10	mol H+/t	n/a	n/a	n/a	n/a
Acid Neutralising Capacity (ANCbt)						
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (Including ANC)						
SPOCAS - Net Acidity - ASSMAC (Acidity Units)	10	mol H+/t	46	57	31	< 10
SPOCAS - Net Acidity - ASSMAC (Sulfur Units)	0.02	% S	0.07	0.09	0.05	< 0.02
SPOCAS - Liming rate - ASSMAC	1	kg CaCO ₃ /t	3.5	4.3	2.3	< 1
Extraneous Material						
<2mm Fraction	0.005	g	190	82	130	140
>2mm Fraction	0.005	g	0.62	< 0.005	0.40	2.3
Analysed Material	0.1	%	100	100	100	98
Extraneous Material	0.1	%	0.3	< 0.1	0.3	1.6

Client Sample ID			TP11 - 2.0	TP12 - 0.0	TP13 - 0.0	TP13 - 1.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24- Ap0011771	L24- Ap0011772	L24- Ap0011773	L24- Ap0011774
Date Sampled			Mar 14, 2024	Mar 13, 2024	Mar 13, 2024	Mar 13, 2024
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	5.0	6.0	6.7	5.4
Titrateable Actual Acidity (NLM-3.2)	2	mol H+/t	31	4.6	< 2	4.0
Titrateable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.049	0.007	< 0.003	0.006
SPOCAS Suite - WA (Excluding ANC)						
SPOCAS - Liming rate - ASSMAC (Excluding ANC)		kg CaCO ₃ /t	12	1.8	1.2	< 1
SPOCAS - Net Acidity - ASSMAC (Excluding ANC)		mol H+/t	160	24	17	< 10
SPOCAS - Net Acidity - ASSMAC (Excluding ANC)		% S	0.26	0.039	0.027	< 0.02
Potential Acidity - Titratable Peroxide						
pH-OX	0.1	pH Units	3.3	6.2	3.2	3.3
Titrateable Peroxide Acidity (s-TPA)	0.02	% pyrite S	0.41	< 0.02	< 0.02	< 0.02
Titrateable Peroxide Acidity (a-TPA)	2	mol H+/t	260	< 2	< 2	< 2
Titrateable Sulfidic Acidity (a-TSA)	2	mol H+/t	230	< 2	< 2	< 2
Titrateable Sulfidic Acidity (s-TSA)	0.02	% pyrite S	0.36	< 0.02	< 0.02	< 0.02
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	0.006	< 0.005	< 0.005	< 0.005
Peroxide Extractable Sulfur	0.005	% S	0.22	0.032	0.080	< 0.005
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A	N/A
Potential Acidity (SPOS)						
Peroxide Oxidisable Sulfur (s-SPOS) (NLM 2.2)	0.005	% S	0.21	0.032	0.080	< 0.005
Peroxide Oxidisable Sulfur (a-SPOS) (NLM 2.2)	2	mol H+/t	130	20	50	< 2

Client Sample ID			TP11 - 2.0	TP12 - 0.0	TP13 - 0.0	TP13 - 1.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24- Ap0011771	L24- Ap0011772	L24- Ap0011773	L24- Ap0011774
Date Sampled			Mar 14, 2024	Mar 13, 2024	Mar 13, 2024	Mar 13, 2024
Test/Reference	LOR	Unit				
Retained Acidity (S-NAS)						
Net Acid soluble sulfur (SNAS) NLM-4.1	0.005	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (s-SNAS) NLM-4.1 ^{S02}	0.005	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (a-SNAS) NLM-4.1	2	mol H+/t	N/A	N/A	N/A	N/A
HCl Extractable Sulfur Correction Factor	1	factor	2.0	2.0	2.0	2.0
Extractable Calcium						
Calcium - KCl Extractable	0.005	% Ca	0.014	0.11	0.35	0.007
Calcium - Peroxide	0.005	% Ca	0.016	0.060	0.43	0.008
Calcium - Acid Reacted	0.005	% Ca	< 0.005	< 0.005	0.072	< 0.005
Calcium - Acid Reacted (s-aCa)	0.005	% S	< 0.005	< 0.005	0.058	< 0.005
Calcium - Acid Reacted (a-aCa)	0.005	mol H+/t	< 0.005	< 0.005	36	< 0.005
Extractable Magnesium						
Magnesium - KCl Extractable	0.005	% Mg	< 0.005	< 0.005	0.031	< 0.005
Magnesium - Peroxide	0.005	% Mg	< 0.005	< 0.005	0.037	< 0.005
Magnesium - Acid Reacted	0.005	% Mg	< 0.005	< 0.005	0.006	< 0.005
Magnesium - Acid Reacted (s-aCa)	0.005	% S	< 0.005	< 0.005	0.008	< 0.005
Magnesium - Acid Reacted (a-aCa)	0.005	mol H+/t	< 0.005	< 0.005	4.7	< 0.005
Acid Neutralising Capacity (ANCE)						
Acid Neutralising Capacity - (ANCE)	0.02	% CaCO3	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCE)	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCE)	10	mol H+/t	n/a	n/a	n/a	n/a
Acid Neutralising Capacity (ANCbt)						
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (Including ANC)						
SPOCAS - Net Acidity - ASSMAC (Acidity Units)	10	mol H+/t	160	24	17	< 10
SPOCAS - Net Acidity - ASSMAC (Sulfur Units)	0.02	% S	0.26	0.04	0.03	< 0.02
SPOCAS - Liming rate - ASSMAC	1	kg CaCO3/t	12	1.8	1.2	< 1
Extraneous Material						
<2mm Fraction	0.005	g	240	100	100	150
>2mm Fraction	0.005	g	4.4	< 0.005	1.5	0.70
Analysed Material	0.1	%	98	100	99	100
Extraneous Material	0.1	%	1.8	< 0.1	1.4	0.5

Client Sample ID			TP13 - 2.0	TP14 - 0.0	TP14 - 0.25	TP15 - 0.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24- Ap0011775	L24- Ap0011776	L24- Ap0011777	L24- Ap0011778
Date Sampled			Mar 13, 2024	Mar 13, 2024	Mar 13, 2024	Mar 13, 2024
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	4.3	5.2	5.4	5.3
Titrateable Actual Acidity (NLM-3.2)	2	mol H+/t	110	14	5.5	14
Titrateable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.17	0.023	0.009	0.022
SPOCAS Suite - WA (Excluding ANC)						
SPOCAS - Liming rate - ASSMAC (Excluding ANC)		kg CaCO3/t	13	3.4	< 1	3.0
SPOCAS - Net Acidity - ASSMAC (Excluding ANC)		mol H+/t	180	45	13	40
SPOCAS - Net Acidity - ASSMAC (Excluding ANC)		% S	0.29	0.072	0.021	0.065

Client Sample ID			TP13 - 2.0	TP14 - 0.0	TP14 - 0.25	TP15 - 0.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24- Ap0011775	L24- Ap0011776	L24- Ap0011777	L24- Ap0011778
Date Sampled			Mar 13, 2024	Mar 13, 2024	Mar 13, 2024	Mar 13, 2024
Test/Reference	LOR	Unit				
Potential Acidity - Titratable Peroxide						
pH-OX	0.1	pH Units	2.2	2.7	3.1	2.9
Titrateable Peroxide Acidity (s-TPA)	0.02	% pyrite S	0.49	< 0.02	< 0.02	< 0.02
Titrateable Peroxide Acidity (a-TPA)	2	mol H+/t	310	< 2	< 2	< 2
Titrateable Sulfidic Acidity (a-TSA)	2	mol H+/t	200	< 2	< 2	< 2
Titrateable Sulfidic Acidity (s-TSA)	0.02	% pyrite S	0.32	< 0.02	< 0.02	< 0.02
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	< 0.005	< 0.005	< 0.005	0.012
Peroxide Extractable Sulfur	0.005	% S	0.11	0.049	0.012	0.055
HCl Extractable Sulfur	0.005	% S	< 0.005	N/A	N/A	N/A
Potential Acidity (SPOS)						
Peroxide Oxidisable Sulfur (s-SPOS) (NLM 2.2)	0.005	% S	0.11	0.049	0.012	0.043
Peroxide Oxidisable Sulfur (a-SPOS) (NLM 2.2)	2	mol H+/t	69	30	7.5	27
Retained Acidity (S-NAS)						
Net Acid soluble sulfur (SNAS) NLM-4.1	0.005	% S	0.006	N/A	N/A	N/A
Net Acid soluble sulfur (s-SNAS) NLM-4.1 ^{S02}	0.005	% S	< 0.005	N/A	N/A	N/A
Net Acid soluble sulfur (a-SNAS) NLM-4.1	2	mol H+/t	2.8	N/A	N/A	N/A
HCl Extractable Sulfur Correction Factor	1	factor	2.0	2.0	2.0	2.0
Extractable Calcium						
Calcium - KCl Extractable	0.005	% Ca	0.021	0.053	0.016	0.065
Calcium - Peroxide	0.005	% Ca	0.031	0.066	0.019	0.072
Calcium - Acid Reacted	0.005	% Ca	0.010	0.013	< 0.005	0.006
Calcium - Acid Reacted (s-aCa)	0.005	% S	0.008	0.011	< 0.005	0.005
Calcium - Acid Reacted (a-aCa)	0.005	mol H+/t	4.9	6.6	< 0.005	3.1
Extractable Magnesium						
Magnesium - KCl Extractable	0.005	% Mg	0.009	0.006	< 0.005	0.005
Magnesium - Peroxide	0.005	% Mg	0.010	0.007	< 0.005	< 0.005
Magnesium - Acid Reacted	0.005	% Mg	< 0.005	< 0.005	< 0.005	< 0.005
Magnesium - Acid Reacted (s-aCa)	0.005	% S	< 0.005	< 0.005	< 0.005	< 0.005
Magnesium - Acid Reacted (a-aCa)	0.005	mol H+/t	< 0.005	< 0.005	< 0.005	< 0.005
Acid Neutralising Capacity (ANCE)						
Acid Neutralising Capacity - (ANCE)	0.02	% CaCO ₃	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCE)	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCE)	10	mol H+/t	n/a	n/a	n/a	n/a
Acid Neutralising Capacity (ANCbt)						
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (Including ANC)						
SPOCAS - Net Acidity - ASSMAC (Acidity Units)	10	mol H+/t	180	45	13	40
SPOCAS - Net Acidity - ASSMAC (Sulfur Units)	0.02	% S	0.29	0.07	0.02	0.07
SPOCAS - Liming rate - ASSMAC	1	kg CaCO ₃ /t	13	3.4	< 1	3.0
Extraneous Material						
<2mm Fraction	0.005	g	160	160	160	150
>2mm Fraction	0.005	g	0.58	2.1	4.3	1.9
Analysed Material	0.1	%	100	99	97	99
Extraneous Material	0.1	%	0.4	1.3	2.6	1.3

Client Sample ID			TP15 - 0.75	TP15 - 1.0	TP17 - 0.0	TP17 - 0.25
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24- Ap0011779	L24- Ap0011780	L24- Ap0011781	L24- Ap0011782
Date Sampled			Mar 13, 2024	Mar 13, 2024	Mar 13, 2024	Mar 13, 2024
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	5.8	6.1	5.4	5.3
Titrateable Actual Acidity (NLM-3.2)	2	mol H+/t	3.6	3.2	11	5.6
Titrateable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.006	0.005	0.018	0.009
SPOCAS Suite - WA (Excluding ANC)						
SPOCAS - Liming rate - ASSMAC (Excluding ANC)		kg CaCO ₃ /t	< 1	< 1	2.5	< 1
SPOCAS - Net Acidity - ASSMAC (Excluding ANC)		mol H+/t	< 10	< 10	33	< 10
SPOCAS - Net Acidity - ASSMAC (Excluding ANC)		% S	< 0.02	< 0.02	0.053	< 0.02
Potential Acidity - Titrateable Peroxide						
pH-OX	0.1	pH Units	4.1	4.3	3.0	3.5
Titrateable Peroxide Acidity (s-TPA)	0.02	% pyrite S	< 0.02	< 0.02	< 0.02	< 0.02
Titrateable Peroxide Acidity (a-TPA)	2	mol H+/t	3.5	3.6	< 2	< 2
Titrateable Sulfidic Acidity (a-TSA)	2	mol H+/t	< 2	< 2	< 2	< 2
Titrateable Sulfidic Acidity (s-TSA)	0.02	% pyrite S	< 0.02	< 0.02	< 0.02	< 0.02
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	0.009	0.018	< 0.005	< 0.005
Peroxide Extractable Sulfur	0.005	% S	0.013	0.025	0.034	< 0.005
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A	N/A
Potential Acidity (SPOS)						
Peroxide Oxidisable Sulfur (s-SPOS) (NLM 2.2)	0.005	% S	< 0.005	0.007	0.034	< 0.005
Peroxide Oxidisable Sulfur (a-SPOS) (NLM 2.2)	2	mol H+/t	< 2	4.4	21	< 2
Retained Acidity (S-NAS)						
Net Acid soluble sulfur (SNAS) NLM-4.1	0.005	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (s-SNAS) NLM-4.1 ^{S02}	0.005	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (a-SNAS) NLM-4.1	2	mol H+/t	N/A	N/A	N/A	N/A
HCl Extractable Sulfur Correction Factor	1	factor	2.0	2.0	2.0	2.0
Extractable Calcium						
Calcium - KCl Extractable	0.005	% Ca	0.006	0.007	0.036	< 0.005
Calcium - Peroxide	0.005	% Ca	0.007	0.008	0.038	< 0.005
Calcium - Acid Reacted	0.005	% Ca	< 0.005	< 0.005	< 0.005	< 0.005
Calcium - Acid Reacted (s-aCa)	0.005	% S	< 0.005	< 0.005	< 0.005	< 0.005
Calcium - Acid Reacted (a-aCa)	0.005	mol H+/t	< 0.005	< 0.005	< 0.005	< 0.005
Extractable Magnesium						
Magnesium - KCl Extractable	0.005	% Mg	< 0.005	< 0.005	< 0.005	< 0.005
Magnesium - Peroxide	0.005	% Mg	< 0.005	< 0.005	< 0.005	< 0.005
Magnesium - Acid Reacted	0.005	% Mg	< 0.005	< 0.005	< 0.005	< 0.005
Magnesium - Acid Reacted (s-aCa)	0.005	% S	< 0.005	< 0.005	< 0.005	< 0.005
Magnesium - Acid Reacted (a-aCa)	0.005	mol H+/t	< 0.005	< 0.005	< 0.005	< 0.005
Acid Neutralising Capacity (ANCE)						
Acid Neutralising Capacity - (ANCE)	0.02	% CaCO ₃	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCE)	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCE)	10	mol H+/t	n/a	n/a	n/a	n/a
Acid Neutralising Capacity (ANCbt)						
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (Including ANC)						
SPOCAS - Net Acidity - ASSMAC (Acidity Units)	10	mol H+/t	< 10	< 10	33	< 10
SPOCAS - Net Acidity - ASSMAC (Sulfur Units)	0.02	% S	< 0.02	< 0.02	0.05	< 0.02
SPOCAS - Liming rate - ASSMAC	1	kg CaCO ₃ /t	< 1	< 1	2.5	< 1

Client Sample ID			TP15 - 0.75	TP15 - 1.0	TP17 - 0.0	TP17 - 0.25
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L24- Ap0011779	L24- Ap0011780	L24- Ap0011781	L24- Ap0011782
Date Sampled			Mar 13, 2024	Mar 13, 2024	Mar 13, 2024	Mar 13, 2024
Test/Reference	LOR	Unit				
Extraneous Material						
<2mm Fraction	0.005	g	140	150	150	160
>2mm Fraction	0.005	g	9.6	210	1.2	2.0
Analysed Material	0.1	%	94	41	99	99
Extraneous Material	0.1	%	6.3	59	0.8	1.2

Client Sample ID			TP18 - 0.0	TP19 - 0.0	TP19 - 0.50
Sample Matrix			Soil	Soil	Soil
Eurofins Sample No.			L24- Ap0011783	L24- Ap0011784	L24- Ap0011785
Date Sampled			Mar 14, 2024	Mar 14, 2024	Mar 14, 2024
Test/Reference	LOR	Unit			
Actual Acidity (NLM-3.2)					
pH-KCL (NLM-3.1)	0.1	pH Units	5.4	7.1	5.9
Titrateable Actual Acidity (NLM-3.2)	2	mol H+/t	11	< 2	2.4
Titrateable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.018	< 0.003	0.004
SPOCAS Suite - WA (Excluding ANC)					
SPOCAS - Liming rate - ASSMAC (Excluding ANC)		kg CaCO3/t	1.8	< 1	< 1
SPOCAS - Net Acidity - ASSMAC (Excluding ANC)		mol H+/t	24	< 10	< 10
SPOCAS - Net Acidity - ASSMAC (Excluding ANC)		% S	0.039	< 0.02	< 0.02
Potential Acidity - Titrateable Peroxide					
pH-OX	0.1	pH Units	3.9	3.2	3.1
Titrateable Peroxide Acidity (s-TPA)	0.02	% pyrite S	< 0.02	< 0.02	< 0.02
Titrateable Peroxide Acidity (a-TPA)	2	mol H+/t	< 2	< 2	< 2
Titrateable Sulfidic Acidity (a-TSA)	2	mol H+/t	< 2	< 2	< 2
Titrateable Sulfidic Acidity (s-TSA)	0.02	% pyrite S	< 0.02	< 0.02	< 0.02
Extractable Sulfur					
Sulfur - KCl Extractable	0.005	% S	0.018	< 0.005	< 0.005
Peroxide Extractable Sulfur	0.005	% S	0.039	0.042	0.007
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A
Potential Acidity (SPOS)					
Peroxide Oxidisable Sulfur (s-SPOS) (NLM 2.2)	0.005	% S	0.021	0.042	0.007
Peroxide Oxidisable Sulfur (a-SPOS) (NLM 2.2)	2	mol H+/t	13	26	4.2
Retained Acidity (S-NAS)					
Net Acid soluble sulfur (SNAS) NLM-4.1	0.005	% S	N/A	N/A	N/A
Net Acid soluble sulfur (s-SNAS) NLM-4.1 ^{S02}	0.005	% S	N/A	N/A	N/A
Net Acid soluble sulfur (a-SNAS) NLM-4.1	2	mol H+/t	N/A	N/A	N/A
HCl Extractable Sulfur Correction Factor	1	factor	2.0	2.0	2.0
Extractable Calcium					
Calcium - KCl Extractable	0.005	% Ca	0.026	0.26	0.031
Calcium - Peroxide	0.005	% Ca	0.030	0.30	0.034
Calcium - Acid Reacted	0.005	% Ca	< 0.005	0.046	< 0.005
Calcium - Acid Reacted (s-aCa)	0.005	% S	< 0.005	0.037	< 0.005
Calcium - Acid Reacted (a-aCa)	0.005	mol H+/t	< 0.005	23	< 0.005

Client Sample ID			TP18 - 0.0	TP19 - 0.0	TP19 - 0.50
Sample Matrix			Soil	Soil	Soil
Eurofins Sample No.			L24- Ap0011783	L24- Ap0011784	L24- Ap0011785
Date Sampled			Mar 14, 2024	Mar 14, 2024	Mar 14, 2024
Test/Reference	LOR	Unit			
Extractable Magnesium					
Magnesium - KCl Extractable	0.005	% Mg	< 0.005	0.010	< 0.005
Magnesium - Peroxide	0.005	% Mg	< 0.005	0.011	< 0.005
Magnesium - Acid Reacted	0.005	% Mg	< 0.005	< 0.005	< 0.005
Magnesium - Acid Reacted (s-aCa)	0.005	% S	< 0.005	< 0.005	< 0.005
Magnesium - Acid Reacted (a-aCa)	0.005	mol H+/t	< 0.005	< 0.005	< 0.005
Acid Neutralising Capacity (ANCE)					
Acid Neutralising Capacity - (ANCE)	0.02	% CaCO ₃	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCE)	0.02	% S	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCE)	10	mol H+/t	n/a	n/a	n/a
Acid Neutralising Capacity (ANCbt)					
ANC Fineness Factor		factor	1.5	1.5	1.5
Net Acidity (Including ANC)					
SPOCAS - Net Acidity - ASSMAC (Acidity Units)	10	mol H+/t	24	< 10	< 10
SPOCAS - Net Acidity - ASSMAC (Sulfur Units)	0.02	% S	0.04	< 0.02	< 0.02
SPOCAS - Liming rate - ASSMAC	1	kg CaCO ₃ /t	1.8	< 1	< 1
Extraneous Material					
<2mm Fraction	0.005	g	140	110	140
>2mm Fraction	0.005	g	8.5	0.84	0.66
Analysed Material	0.1	%	94	99	100
Extraneous Material	0.1	%	5.8	0.7	0.5

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
SPOCAS Suite - WA (Excluding ANC)			
SPOCAS Suite - WA (Excluding ANC) - Method: LTM-GEN-7050	Brisbane	Apr 11, 2024	6 Week
Extraneous Material - Method: LTM-GEN-7050/7070	Brisbane	Apr 11, 2024	6 Week



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ABN: 50 005 085 521

NZBN: 9429046024954

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Company Name: Stantec Australia Pty Ltd (WA)
Address: 6F 226, Adelaide Terrace
Perth
WA 6000

Project Name: BEENYUP WIND FARM

Order No.:
Report #: 1084649
Phone: 0458 839 200
Fax:

Received: Apr 3, 2024 5:46 PM
Due: Apr 11, 2024
Priority: 5 Day
Contact Name: Edvinder Singh

Eurofins Analytical Services Manager : Elden Garrett

Sample Detail						SPOCAS Suite - WA (Excluding ANC)	Moisture Set
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Brisbane Laboratory - NATA # 1261 Site # 20794 X X

External Laboratory

No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID		
1	TP01 - 0.0	Mar 14, 2024		Soil	L24-Ap0011751	X	X
2	TP01 - 1.0	Mar 14, 2024		Soil	L24-Ap0011752	X	X
3	TP01 - 2.0	Mar 14, 2024		Soil	L24-Ap0011753	X	X
4	TP02 - 0.0	Mar 14, 2024		Soil	L24-Ap0011754	X	X
5	TP02 - 0.75	Mar 14, 2024		Soil	L24-Ap0011755	X	X
6	TP02 - 1.0	Mar 14, 2024		Soil	L24-Ap0011756	X	X
7	TP03 - 0.0	Mar 12, 2024		Soil	L24-Ap0011757	X	X
8	TP03 - 1.0	Mar 12, 2024		Soil	L24-Ap0011758	X	X
9	TP04 - 0.0	Mar 12, 2024		Soil	L24-Ap0011759	X	X
10	TP05 - 0.0	Mar 13, 2024		Soil	L24-Ap0011760	X	X
11	TP06 - 0.0	Mar 13, 2024		Soil	L24-Ap0011761	X	X
12	TP06 - 0.50	Mar 13, 2024		Soil	L24-Ap0011762	X	X
13	TP07 - 0.0	Mar 14, 2024		Soil	L24-Ap0011763	X	X
14	TP07 - 1.0	Mar 14, 2024		Soil	L24-Ap0011764	X	X



ABN: 91 05 0159 898

ABN: 50 005 085 521

NZBN: 9429046024954

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Company Name: Stantec Australia Pty Ltd (WA)
Address: 6F 226, Adelaide Terrace
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WA 6000

Project Name: BEENYUP WIND FARM

Order No.:
Report #: 1084649
Phone: 0458 839 200
Fax:

Received: Apr 3, 2024 5:46 PM
Due: Apr 11, 2024
Priority: 5 Day
Contact Name: Edvinder Singh

Eurofins Analytical Services Manager : Elden Garrett

Sample Detail						SPOCAS Suite - WA (Excluding ANC)	Moisture Set
Brisbane Laboratory - NATA # 1261 Site # 20794						X	X
15	TP08 - 0.0	Mar 12, 2024		Soil	L24-Ap0011765	X	X
16	TP08 - 1.0	Mar 12, 2024		Soil	L24-Ap0011766	X	X
17	TP08 - 2.0	Mar 12, 2024		Soil	L24-Ap0011767	X	X
18	TP09 - 0.0	Mar 12, 2024		Soil	L24-Ap0011768	X	X
19	TP11 - 0.0	Mar 14, 2024		Soil	L24-Ap0011769	X	X
20	TP11 - 1.0	Mar 14, 2024		Soil	L24-Ap0011770	X	X
21	TP11 - 2.0	Mar 14, 2024		Soil	L24-Ap0011771	X	X
22	TP12 - 0.0	Mar 13, 2024		Soil	L24-Ap0011772	X	X
23	TP13 - 0.0	Mar 13, 2024		Soil	L24-Ap0011773	X	X
24	TP13 - 1.0	Mar 13, 2024		Soil	L24-Ap0011774	X	X
25	TP13 - 2.0	Mar 13, 2024		Soil	L24-Ap0011775	X	X
26	TP14 - 0.0	Mar 13, 2024		Soil	L24-Ap0011776	X	X
27	TP14 - 0.25	Mar 13, 2024		Soil	L24-Ap0011777	X	X
28	TP15 - 0.0	Mar 13, 2024		Soil	L24-Ap0011778	X	X
29	TP15 - 0.75	Mar 13, 2024		Soil	L24-Ap0011779	X	X
30	TP15 - 1.0	Mar 13, 2024		Soil	L24-Ap0011780	X	X



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Sample Detail					SPOCAS Suite - WA (Excluding ANC)	Moisture Set
Brisbane Laboratory - NATA # 1261 Site # 20794					X	X
31	TP17 - 0.0	Mar 13, 2024		Soil	L24-Ap0011781	X X
32	TP17 - 0.25	Mar 13, 2024		Soil	L24-Ap0011782	X X
33	TP18 - 0.0	Mar 14, 2024		Soil	L24-Ap0011783	X X
34	TP19 - 0.0	Mar 14, 2024		Soil	L24-Ap0011784	X X
35	TP19 - 0.50	Mar 14, 2024		Soil	L24-Ap0011785	X X
Test Counts					35	35

Internal Quality Control Review and Glossary

General

- Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follow guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013. They are included in this QC report where applicable. Additional QC data may be available on request.
- Unless otherwise stated, all soil/sediment/solid results are reported on a dry weight basis.
- Unless otherwise stated, all biota/food results are reported on a wet weight basis on the edible portion.
- For CEC results where the sample's origin is unknown or environmentally contaminated, the results should be used advisedly.
- Actual LORs are matrix dependent. Quoted LORs may be raised where sample extracts are diluted due to interferences.
- Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds where annotated.
- SVOC analysis on waters is performed on homogenised, unfiltered samples unless noted otherwise.
- Samples were analysed on an 'as received' basis.
- Information identified in this report with **blue** colour indicates data provided by customers that may have an impact on the results.
- This report replaces any interim results previously issued.

Holding Times

Please refer to the 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours before sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and despite any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the sampling date; therefore, compliance with these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether, the holding time is seven days; however, for all other VOCs, such as BTEX or C6-10 TRH, the holding time is 14 days.

Units

mg/kg: milligrams per kilogram	mg/L: milligrams per litre	ppm: parts per million
µg/L: micrograms per litre	ppb: parts per billion	%: Percentage
org/100 mL: Organisms per 100 millilitres	NTU: Nephelometric Turbidity Units	MPN/100 mL: Most Probable Number of organisms per 100 millilitres
CFU: Colony Forming Unit	Colour: Pt-Co Units (CU)	

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples, these are performed on laboratory-certified clean sands and in the case of water samples, these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria.
TBTO	Tributyltin oxide (<i>bis</i> -tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 6.0
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should only be used as a guide and may be different when site-specific Sampling Analysis and Quality Plan (SAQP) have been implemented.

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is ≤30%; however, the following acceptance guidelines are equally applicable:

Results <10 times the LOR:	No Limit
Results between 10-20 times the LOR:	RPD must lie between 0-50%
Results >20 times the LOR:	RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range, not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%, VOC recoveries 50 – 150%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

QC Data General Comments

- Where a result is reported as less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
- Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown are not data from your samples.
- pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
- Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery, the term "INT" appears against that analyte.
- For Matrix Spikes and LCS results, a dash "-" in the report means that the specific analyte was not added to the QC sample.
- Duplicate RPDs are calculated from raw analytical data; thus, it is possible to have two sets of data.

Quality Control Results

Test				Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
LCS - % Recovery										
Actual Acidity (NLM-3.2)										
pH-KCL (NLM-3.1)				%	101			80-120	Pass	
Titratable Actual Acidity (NLM-3.2)				%	93			80-120	Pass	
LCS - % Recovery										
Actual Acidity (NLM-3.2)										
pH-KCL (NLM-3.1)				%	103			80-120	Pass	
Titratable Actual Acidity (NLM-3.2)				%	94			80-120	Pass	
LCS - % Recovery										
Extractable Sulfur										
HCl Extractable Sulfur				%	105			80-120	Pass	
LCS - % Recovery										
Actual Acidity (NLM-3.2)										
pH-KCL (NLM-3.1)				%	103			80-120	Pass	
Titratable Actual Acidity (NLM-3.2)				%	102			80-120	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1				Acceptance Limits	Pass Limits	Qualifying Code
Duplicate										
Actual Acidity (NLM-3.2)										
pH-KCL (NLM-3.1)				pH Units	4.6	4.7	<1	20%	Pass	
Titratable Actual Acidity (NLM-3.2)				mol H+/t	47	48	4.1	20%	Pass	
Titratable Actual Acidity (NLM-3.2)				% pyrite S	0.075	0.078	4.1	30%	Pass	
Duplicate										
Potential Acidity - Titratable Peroxide										
pH-OX				pH Units	2.9	2.9	<1	20%	Pass	
Titratable Peroxide Acidity (s-TPA)				% pyrite S	0.13	0.14	2.4	30%	Pass	
Titratable Peroxide Acidity (a-TPA)				mol H+/t	84	86	2.4	20%	Pass	
Duplicate										
Extractable Sulfur										
Sulfur - KCl Extractable				% S	0.008	0.007	7.2	30%	Pass	
Peroxide Extractable Sulfur				% S	0.031	0.031	2.6	20%	Pass	
Duplicate										
Potential Acidity (SPOS)										
Peroxide Oxidisable Sulfur (s-SPOS) (NLM 2.2)				% S	0.024	0.024	1.3	30%	Pass	
Peroxide Oxidisable Sulfur (a-SPOS) (NLM 2.2)				mol H+/t	15	15	1.3	30%	Pass	
Duplicate										
Extractable Calcium										
Calcium - KCl Extractable				% Ca	0.021	0.021	<1	30%	Pass	
Calcium - Peroxide				% Ca	0.027	0.026	1.3	20%	Pass	
Calcium - Acid Reacted				% Ca	0.006	0.005	4.0	30%	Pass	
Calcium - Acid Reacted (s-aCa)				% S	< 0.005	< 0.005	<1	30%	Pass	
Calcium - Acid Reacted (a-aCa)				mol H+/t	2.8	2.6	4.0	30%	Pass	
Duplicate										
Extractable Magnesium										
Magnesium - KCl Extractable				% Mg	0.010	0.010	2.3	30%	Pass	
Magnesium - Peroxide				% Mg	0.011	0.011	1.8	20%	Pass	
Magnesium - Acid Reacted				% Mg	< 0.005	< 0.005	<1	30%	Pass	
Magnesium - Acid Reacted (s-aCa)				% S	< 0.005	< 0.005	<1	30%	Pass	
Magnesium - Acid Reacted (a-aCa)				mol H+/t	< 0.005	< 0.005	<1	30%	Pass	
Duplicate										
Acid Neutralising Capacity (ANCbt)										
ANC Fineness Factor				factor	1.5	1.5	<1	30%	Pass	

Duplicate								
Actual Acidity (NLM-3.2)				Result 1	Result 2	RPD		
pH-KCL (NLM-3.1)	L24-Ap0011761	CP	pH Units	4.8	4.8	<1	20%	Pass
Titrateable Actual Acidity (NLM-3.2)	L24-Ap0011761	CP	mol H+/t	36	36	<1	20%	Pass
Titrateable Actual Acidity (NLM-3.2)	L24-Ap0011761	CP	% pyrite S	0.058	0.058	<1	30%	Pass
Duplicate								
Potential Acidity - Titrateable Peroxide				Result 1	Result 2	RPD		
pH-OX	L24-Ap0011761	CP	pH Units	2.5	2.5	<1	20%	Pass
Titrateable Peroxide Acidity (s-TPA)	L24-Ap0011761	CP	% pyrite S	< 0.02	< 0.02	<1	30%	Pass
Titrateable Peroxide Acidity (a-TPA)	L24-Ap0011761	CP	mol H+/t	< 2	< 2	<1	20%	Pass
Duplicate								
Extractable Sulfur				Result 1	Result 2	RPD		
Sulfur - KCl Extractable	L24-Ap0011761	CP	% S	< 0.005	< 0.005	<1	30%	Pass
Peroxide Extractable Sulfur	L24-Ap0011761	CP	% S	0.050	0.050	1.4	20%	Pass
Duplicate								
Potential Acidity (SPOS)				Result 1	Result 2	RPD		
Peroxide Oxidisable Sulfur (s-SPOS) (NLM 2.2)	L24-Ap0011761	CP	% S	0.050	0.050	1.4	30%	Pass
Peroxide Oxidisable Sulfur (a-SPOS) (NLM 2.2)	L24-Ap0011761	CP	mol H+/t	31	31	1.4	30%	Pass
Duplicate								
Extractable Calcium				Result 1	Result 2	RPD		
Calcium - KCl Extractable	L24-Ap0011761	CP	% Ca	0.099	0.10	<1	30%	Pass
Calcium - Peroxide	L24-Ap0011761	CP	% Ca	0.11	0.12	4.4	20%	Pass
Calcium - Acid Reacted	L24-Ap0011761	CP	% Ca	< 0.005	< 0.005	<1	30%	Pass
Calcium - Acid Reacted (s-aCa)	L24-Ap0011761	CP	% S	< 0.005	< 0.005	<1	30%	Pass
Calcium - Acid Reacted (a-aCa)	L24-Ap0011761	CP	mol H+/t	< 0.005	< 0.005	<1	30%	Pass
Duplicate								
Extractable Magnesium				Result 1	Result 2	RPD		
Magnesium - KCl Extractable	L24-Ap0011761	CP	% Mg	0.012	0.012	<1	30%	Pass
Magnesium - Peroxide	L24-Ap0011761	CP	% Mg	0.013	0.014	3.2	20%	Pass
Magnesium - Acid Reacted	L24-Ap0011761	CP	% Mg	< 0.005	< 0.005	<1	30%	Pass
Magnesium - Acid Reacted (s-aCa)	L24-Ap0011761	CP	% S	< 0.005	< 0.005	<1	30%	Pass
Magnesium - Acid Reacted (a-aCa)	L24-Ap0011761	CP	mol H+/t	< 0.005	< 0.005	<1	30%	Pass
Duplicate								
Acid Neutralising Capacity (ANCbt)				Result 1	Result 2	RPD		
ANC Fineness Factor	L24-Ap0011761	CP	factor	1.5	1.5	<1	30%	Pass
Duplicate								
Actual Acidity (NLM-3.2)				Result 1	Result 2	RPD		
pH-KCL (NLM-3.1)	L24-Ap0011765	CP	pH Units	5.4	5.3	<1	20%	Pass
Titrateable Actual Acidity (NLM-3.2)	L24-Ap0011765	CP	mol H+/t	7.9	8.4	6.8	20%	Pass
Titrateable Actual Acidity (NLM-3.2)	L24-Ap0011765	CP	% pyrite S	0.013	0.013	6.8	30%	Pass
Duplicate								
Potential Acidity - Titrateable Peroxide				Result 1	Result 2	RPD		
pH-OX	L24-Ap0011765	CP	pH Units	2.9	2.9	<1	20%	Pass
Titrateable Peroxide Acidity (s-TPA)	L24-Ap0011765	CP	% pyrite S	< 0.02	< 0.02	<1	30%	Pass
Titrateable Peroxide Acidity (a-TPA)	L24-Ap0011765	CP	mol H+/t	< 2	< 2	<1	20%	Pass
Duplicate								
Extractable Sulfur				Result 1	Result 2	RPD		
Sulfur - KCl Extractable	L24-Ap0011765	CP	% S	< 0.005	< 0.005	<1	30%	Pass
Peroxide Extractable Sulfur	L24-Ap0011765	CP	% S	0.023	0.023	2.4	20%	Pass
Duplicate								
Potential Acidity (SPOS)				Result 1	Result 2	RPD		
Peroxide Oxidisable Sulfur (s-SPOS) (NLM 2.2)	L24-Ap0011765	CP	% S	0.023	0.023	2.4	30%	Pass
Peroxide Oxidisable Sulfur (a-SPOS) (NLM 2.2)	L24-Ap0011765	CP	mol H+/t	14	14	2.4	30%	Pass

Duplicate								
Extractable Calcium				Result 1	Result 2	RPD		
Calcium - KCl Extractable	L24-Ap0011765	CP	% Ca	0.030	0.029	3.9	30%	Pass
Calcium - Peroxide	L24-Ap0011765	CP	% Ca	0.034	0.033	1.3	20%	Pass
Calcium - Acid Reacted	L24-Ap0011765	CP	% Ca	< 0.005	< 0.005	<1	30%	Pass
Calcium - Acid Reacted (s-aCa)	L24-Ap0011765	CP	% S	< 0.005	< 0.005	<1	30%	Pass
Calcium - Acid Reacted (a-aCa)	L24-Ap0011765	CP	mol H+/t	< 0.005	< 0.005	<1	30%	Pass
Duplicate								
Extractable Magnesium				Result 1	Result 2	RPD		
Magnesium - KCl Extractable	L24-Ap0011765	CP	% Mg	0.006	0.006	5.8	30%	Pass
Magnesium - Peroxide	L24-Ap0011765	CP	% Mg	0.007	0.006	4.1	20%	Pass
Magnesium - Acid Reacted	L24-Ap0011765	CP	% Mg	< 0.005	< 0.005	<1	30%	Pass
Magnesium - Acid Reacted (s-aCa)	L24-Ap0011765	CP	% S	< 0.005	< 0.005	<1	30%	Pass
Magnesium - Acid Reacted (a-aCa)	L24-Ap0011765	CP	mol H+/t	< 0.005	< 0.005	<1	30%	Pass
Duplicate								
Acid Neutralising Capacity (ANCbt)				Result 1	Result 2	RPD		
ANC Fineness Factor	L24-Ap0011765	CP	factor	1.5	1.5	<1	30%	Pass
Duplicate								
Actual Acidity (NLM-3.2)				Result 1	Result 2	RPD		
pH-KCL (NLM-3.1)	L24-Ap0011770	CP	pH Units	6.3	6.3	<1	20%	Pass
Titrateable Actual Acidity (NLM-3.2)	L24-Ap0011770	CP	mol H+/t	< 2	< 2	<1	20%	Pass
Titrateable Actual Acidity (NLM-3.2)	L24-Ap0011770	CP	% pyrite S	< 0.003	< 0.003	<1	30%	Pass
Duplicate								
Potential Acidity - Titrateable Peroxide				Result 1	Result 2	RPD		
pH-OX	L24-Ap0011770	CP	pH Units	4.8	4.7	<1	20%	Pass
Titrateable Peroxide Acidity (s-TPA)	L24-Ap0011770	CP	% pyrite S	< 0.02	< 0.02	<1	30%	Pass
Titrateable Peroxide Acidity (a-TPA)	L24-Ap0011770	CP	mol H+/t	< 2	< 2	<1	20%	Pass
Duplicate								
Extractable Sulfur				Result 1	Result 2	RPD		
Sulfur - KCl Extractable	L24-Ap0011770	CP	% S	< 0.005	< 0.005	<1	30%	Pass
Peroxide Extractable Sulfur	L24-Ap0011770	CP	% S	0.006	0.005	16	20%	Pass
Duplicate								
Potential Acidity (SPOS)				Result 1	Result 2	RPD		
Peroxide Oxidisable Sulfur (s-SPOS) (NLM 2.2)	L24-Ap0011770	CP	% S	0.006	0.005	16	30%	Pass
Peroxide Oxidisable Sulfur (a-SPOS) (NLM 2.2)	L24-Ap0011770	CP	mol H+/t	3.7	3.1	16	30%	Pass
Duplicate								
Extractable Calcium				Result 1	Result 2	RPD		
Calcium - KCl Extractable	L24-Ap0011770	CP	% Ca	0.023	0.023	2.8	30%	Pass
Calcium - Peroxide	L24-Ap0011770	CP	% Ca	0.025	0.025	2.5	20%	Pass
Calcium - Acid Reacted	L24-Ap0011770	CP	% Ca	< 0.005	< 0.005	<1	30%	Pass
Calcium - Acid Reacted (s-aCa)	L24-Ap0011770	CP	% S	< 0.005	< 0.005	<1	30%	Pass
Calcium - Acid Reacted (a-aCa)	L24-Ap0011770	CP	mol H+/t	< 0.005	< 0.005	<1	30%	Pass
Duplicate								
Extractable Magnesium				Result 1	Result 2	RPD		
Magnesium - KCl Extractable	L24-Ap0011770	CP	% Mg	< 0.005	< 0.005	<1	30%	Pass
Magnesium - Peroxide	L24-Ap0011770	CP	% Mg	< 0.005	< 0.005	<1	20%	Pass
Magnesium - Acid Reacted	L24-Ap0011770	CP	% Mg	< 0.005	< 0.005	<1	30%	Pass
Magnesium - Acid Reacted (s-aCa)	L24-Ap0011770	CP	% S	< 0.005	< 0.005	<1	30%	Pass
Magnesium - Acid Reacted (a-aCa)	L24-Ap0011770	CP	mol H+/t	< 0.005	< 0.005	<1	30%	Pass
Duplicate								
Acid Neutralising Capacity (ANCbt)				Result 1	Result 2	RPD		
ANC Fineness Factor	L24-Ap0011770	CP	factor	1.5	1.5	<1	30%	Pass

Duplicate								
Actual Acidity (NLM-3.2)				Result 1	Result 2	RPD		
pH-KCL (NLM-3.1)	L24-Ap0011779	CP	pH Units	5.8	5.8	<1	20%	Pass
Titrateable Actual Acidity (NLM-3.2)	L24-Ap0011779	CP	mol H+/t	3.6	3.7	2.3	20%	Pass
Titrateable Actual Acidity (NLM-3.2)	L24-Ap0011779	CP	% pyrite S	0.006	0.006	2.3	30%	Pass
Duplicate								
Potential Acidity - Titrateable Peroxide				Result 1	Result 2	RPD		
pH-OX	L24-Ap0011779	CP	pH Units	4.1	4.2	<1	20%	Pass
Titrateable Peroxide Acidity (s-TPA)	L24-Ap0011779	CP	% pyrite S	< 0.02	< 0.02	<1	30%	Pass
Titrateable Peroxide Acidity (a-TPA)	L24-Ap0011779	CP	mol H+/t	3.5	3.2	<1	20%	Pass
Duplicate								
Extractable Sulfur				Result 1	Result 2	RPD		
Sulfur - KCl Extractable	L24-Ap0011779	CP	% S	0.009	0.008	5.1	30%	Pass
Peroxide Extractable Sulfur	L24-Ap0011779	CP	% S	0.013	0.014	6.2	20%	Pass
Duplicate								
Potential Acidity (SPOS)				Result 1	Result 2	RPD		
Peroxide Oxidisable Sulfur (s-SPOS) (NLM 2.2)	L24-Ap0011779	CP	% S	< 0.005	< 0.005	<1	30%	Pass
Peroxide Oxidisable Sulfur (a-SPOS) (NLM 2.2)	L24-Ap0011779	CP	mol H+/t	< 2	< 2	<1	30%	Pass
Duplicate								
Extractable Calcium				Result 1	Result 2	RPD		
Calcium - KCl Extractable	L24-Ap0011779	CP	% Ca	0.006	0.006	<1	30%	Pass
Calcium - Peroxide	L24-Ap0011779	CP	% Ca	0.007	0.007	2.1	20%	Pass
Calcium - Acid Reacted	L24-Ap0011779	CP	% Ca	< 0.005	< 0.005	<1	30%	Pass
Calcium - Acid Reacted (s-aCa)	L24-Ap0011779	CP	% S	< 0.005	< 0.005	<1	30%	Pass
Calcium - Acid Reacted (a-aCa)	L24-Ap0011779	CP	mol H+/t	< 0.005	< 0.005	<1	30%	Pass
Duplicate								
Extractable Magnesium				Result 1	Result 2	RPD		
Magnesium - KCl Extractable	L24-Ap0011779	CP	% Mg	< 0.005	< 0.005	<1	30%	Pass
Magnesium - Peroxide	L24-Ap0011779	CP	% Mg	< 0.005	< 0.005	<1	20%	Pass
Magnesium - Acid Reacted	L24-Ap0011779	CP	% Mg	< 0.005	< 0.005	<1	30%	Pass
Magnesium - Acid Reacted (s-aCa)	L24-Ap0011779	CP	% S	< 0.005	< 0.005	<1	30%	Pass
Magnesium - Acid Reacted (a-aCa)	L24-Ap0011779	CP	mol H+/t	< 0.005	< 0.005	<1	30%	Pass
Duplicate								
Acid Neutralising Capacity (ANCbt)				Result 1	Result 2	RPD		
ANC Fineness Factor	L24-Ap0011779	CP	factor	1.5	1.5	<1	30%	Pass

Comments
Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	N/A
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
S02	Retained Acidity is Reported when the pHKCl is less than pH 4.5

Authorised by:

Elden Garrett	Analytical Services Manager
Jonathon Angell	Senior Analyst-SPOCAS



Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

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Appendix D Acid Sulfate Soils Summary Tables

D.1 Field Analyses (pH_F & pH_{FOX}) Summary



Field Tests - pH(F) and pH (FOX) - Borehole Samples

Location	Soil Sample Depth (m)	pH-F (Field pH test)*	pH-FOX (Field pH Peroxide test)*	ΔpH	Reaction Ratings*SO5	Location	Soil Sample Depth (m)	pH-F (Field pH test)*	pH-FOX (Field pH Peroxide test)*	ΔpH	Reaction Ratings*SO5
WM01	0.00	5.2	3.9	1.3	2	WM02	5.00	5.2	2.9	2.3	4
WM01	0.25	5.2	3.9	1.3	2	WM02	5.25	5.5	3.1	2.4	4
WM01	0.50	5.5	3.7	1.8	2	WM02	5.50	5.4	3.2	2.2	4
WM01	0.75	5.5	3.5	2	2	WM02	5.75	6.5	2.8	3.7	4
WM01	1.00	5.4	3.5	1.9	2	WM02	6.00	6.5	2.7	3.8	4
WM01	1.25	5.3	3.6	1.7	2	WM02	6.25	5.7	2.4	3.3	4
WM01	1.50	5.2	3.9	1.3	2	WM02	6.50	6	2.9	3.1	4
WM01	1.75	5.3	3	2.3	2	WM02	6.75	4.6	2.5	2.1	4
WM01	2.00	5.2	2.9	2.3	2	WM02	7.00	7.7	2.5	5.2	4
WM01	2.25	5.4	2.9	2.5	2	WM02	7.25	4.5	2.3	2.2	4
WM01	2.50	5.9	3.4	2.5	2	WM02	7.50	4.8	2.3	2.5	4
WM01	2.75	5.7	3.3	2.4	2	WM02	7.75	5	2.7	2.3	4
WM01	3.00	5.9	3	2.9	2	WM02	8.00	4.8	2.6	2.2	4
WM01	3.25	5.8	3.1	2.7	2	WM02	8.25	6.1	2.3	3.8	4
WM01	3.50	6.2	2.7	3.5	2	WM02	8.50	5.3	2.7	2.6	4
WM01	3.75	6.2	2.5	3.7	2	WM02	8.75	4.9	2.7	2.2	4
WM01	4.00	6.1	2.6	3.5	2	WM02	9.00	5	2.8	2.2	4
WM01	4.25	6	2.6	3.4	2	WM02	9.25	5.2	2.6	2.6	4
WM01	4.50	6.2	2.5	3.7	2	WM02	9.50	4.9	3	1.9	4
WM01	4.75	6.3	2.2	4.1	2	WM02	9.75	5.2	2.9	2.3	4
WM01	5.00	6.3	2.4	3.9	2	WM02	10.00	4.8	2.9	1.9	4
WM01	5.25	6.1	2.4	3.7	4	WM03	0.00	5.6	3.1	2.5	3
WM01	5.50	6.3	2.3	4	2	WM03	0.25	6.8	4	2.8	2
WM01	5.75	6.3	1.9	4.4	4	WM03	0.50	6.2	4.3	1.9	2
WM01	6.00	6	2.3	3.7	4	WM03	0.75	5.5	4.6	0.9	2
WM01	6.25	6.1	2.3	3.8	4	WM03	1.00	5.2	4.4	0.8	2
WM01	6.50	6.1	2.4	3.7	4	WM03	1.25	5.3	4.7	0.6	2
WM01	6.75	6.1	2.4	3.7	4	WM03	2.00	5.2	4.6	0.6	2
WM01	7.00	6.1	2.3	3.8	4	WM03	2.25	5.5	4.4	1.1	2
WM01	7.25	6.7	2.3	4.4	4	WM03	2.50	5.7	4.6	1.1	2
WM01	7.50	6.3	2.2	4.1	4	WM03	2.75	5.5	4.7	0.8	2
WM01	7.75	6.3	2.4	3.9	4	WM03	3.00	5.8	4.1	1.7	2
WM01	8.00	6.4	2.4	4	4	WM03	3.25	6.1	3.3	2.8	4
WM01	8.25	6.4	2.3	4.1	4	WM03	3.50	6.7	3	3.7	4
WM01	8.50	6.3	2.1	4.2	4	WM03	3.75	6.2	3.1	3.1	4
WM01	8.75	6.1	2.3	3.8	4	WM03	4.00	7.3	2.7	4.6	4
WM01	9.00	6.2	2.5	3.7	4	WM03	4.25	6.7	3	3.7	4
WM01	9.25	6.4	2.3	4.1	4	WM03	4.50	6.6	3.1	3.5	4
WM01	9.50	5.8	2.3	3.5	4	WM03	4.75	7.1	3.2	3.9	4
WM01	9.75	6	2.3	3.7	4	WM03	5.00	7.2	3.2	4	4
WM01	10.00	5.4	2.3	3.1	4	WM03	5.25	7.8	2.5	5.3	4
WM02	0.00	5.5	3.6	1.9	2	WM03	5.50	7.7	2.5	5.2	4
WM02	0.25	6	3.2	2.8	2	WM03	5.75	7.7	2.5	5.2	4
WM02	0.50	6.4	4	2.4	2	WM03	6.00	7.9	2.5	5.4	4
WM02	0.75	6.3	4.1	2.2	2	WM03	6.25	7	2.9	4.1	4
WM02	1.00	6.4	4.5	1.9	2	WM03	6.50	5.4	3.1	2.3	4
WM02	1.25	5.7	4.7	1	2	WM03	6.75	4.9	2.8	2.1	4
WM02	1.50	6.9	4.4	2.5	2	WM03	7.00	6.4	3.7	2.7	4
WM02	1.75	5.7	4.3	1.4	2	WM03	7.25	5.2	3.1	2.1	4
WM02	2.00	6.2	5	1.2	2	WM03	7.50	5.6	2.9	2.7	4
WM02	2.25	7.2	3.2	4	2	WM03	7.75	5	2.9	2.1	4
WM02	2.50	6.9	4.4	2.5	2	WM03	8.00	4.7	3.4	1.3	4
WM02	2.75	5.7	4.3	1.4	2	WM03	8.25	6.6	3.2	3.4	4
WM02	3.00	6.2	5	1.2	2	WM03	8.50	6.6	3.2	3.4	4
WM02	3.25	7.2	3.2	4	2	WM03	8.75	6.7	3.2	3.5	4
WM02	3.50	6.6	3.2	3.4	3	WM03	9.00	6.2	3.2	3	4
WM02	3.75	6.1	2.7	3.4	4	WM03	9.25	5.5	2.9	2.6	4
WM02	4.00	7.2	2.8	4.4	4	WM03	9.50	5.5	3	2.5	4
WM02	4.25	5.8	3.1	2.7	4	WM03	9.75	6.4	3	3.4	4
WM02	4.50	5.7	3.2	2.5	4	WM03	10.00	5.6	3.2	2.4	4
WM02	4.75	5.8	2.9	2.9	4						

Field Tests - pH(F) and pH (FOX) - Test Pit Samples

Location	Soil Sample Depth (m)	pH-F (Field pH test)*	pH-FOX (Field pH Peroxide test)*	ΔpH	Reaction Ratings*SO5	Location	Soil Sample Depth (m)	pH-F (Field pH test)*	pH-FOX (Field pH Peroxide test)*	ΔpH	Reaction Ratings*SO5
TP01	0.00	4.6	3.1	1.5	2	TP08	2.00	5	2.8	2.2	2
TP01	0.25	4.6	3.2	1.4	2	TP09	0.00	5.1	4.2	0.9	2
TP01	0.75	4.8	3.7	1.1	2	TP09	0.25	5.1	4.4	0.7	2
TP01	1.00	4.8	3.8	1	2	TP09	1.00	5.6	4.9	0.7	2
TP01	1.25	4.6	3.8	0.8	2	TP09	1.50	6	5.2	0.8	2
TP01	1.50	4.5	3.8	0.7	2	TP10	0.00	6	4	2	2
TP01	1.75	4.7	3.6	1.1	2	TP10	1.00	6.1	4.1	2	2
TP01	2.00	4.7	3.5	1.2	2	TP10	0.00	5.9	3.8	2.1	2
TP02	0.00	4.8	3.4	1.4	2	TP11	0.25	6.1	4	2.1	2
TP02	0.25	4.8	3.9	0.9	2	TP11	0.50	6	3.7	2.3	2
TP02	0.50	4.8	3.9	0.9	2	TP11	0.75	6.5	5.1	1.4	2
TP02	0.75	4.8	3.9	0.9	2	TP11	1.00	6.6	5.2	1.4	2
TP02	1.00	4.8	3.9	0.9	2	TP11	1.25	6.2	4.3	1.9	2
TP03	0.00	6.4	5.1	1.3	2	TP11	1.50	6.3	4.3	2	2
TP03	0.25	6.5	5.1	1.4	2	TP11	1.75	5.9	3.1	2.8	2
TP03	1.00	5.8	3.5	2.3	2	TP11	2.00	5.3	3.4	1.9	4
TP04	0.00	5.4	3.2	2.2	2	TP12	0.00	6	4.1	1.9	2
TP04	0.50	6.1	3.9	2.2	2	TP13	0.00	5.9	5	0.9	2
TP04	1.00	6.1	4.2	1.9	2	TP13	0.25	4.7	4	0.7	2
TP04	1.25	6.1	4.6	1.5	2	TP13	0.50	4.6	4.3	0.3	2
TP04	1.75	5.7	3.9	1.8	2	TP13	0.75	4.7	4.2	0.5	2
TP05	0.00	5.6	2.7	2.9	2	TP13	1.00	4.7	4.2	0.5	2
TP05	0.25	6	3.1	2.9	2	TP13	1.25	4.7	4.1	0.6	2
TP05	0.50	6	3.9	2.1	2	TP13	1.50	4.7	4.2	0.5	2
TP05	0.75	6.2	4.2	2	2	TP13	1.75	4.8	3.9	0.9	2
TP06	0.00	5	3.9	1.1	2	TP13	2.00	4.8	3.6	1.2	2
TP06	0.25	4.9	4.1	0.8	2	TP14	0.00	5.5	3.5	2	2
TP06	0.50	4.9	4.4	0.5	2	TP14	0.25	5.8	3.7	2.1	2
TP07	0.00	6	5	1	2	TP15	0.00	5.3	3.5	1.8	2
TP07	0.25	6	5.1	0.9	2	TP15	0.25	5.6	4.1	1.5	2
TP07	0.50	6.2	5.2	1	2	TP15	0.50	5.7	4.8	0.9	2
TP07	0.75	6.3	5.4	0.9	2	TP15	0.75	5.9	5	0.9	2
TP07	1.00	6.7	5.7	1	2	TP15	1.00	6.2	5.1	1.1	2
TP07	1.25	6.7	5.6	1.1	2	TP16	0.00	5.8	3	2.8	2
TP07	1.50	6	2.2	3.8	2	TP17	0.00	5.3	2.8	2.5	2
TP08	0.00	5	3.8	1.2	2	TP17	0.25	5.3	3.1	2.2	2
TP08	0.25	5.3	4.6	0.7	2	TP17	0.50	5.3	3.1	2.2	2
TP08	0.50	5.2	4.3	0.9	2	TP18	0.00	5.9	3.8	2.1	2
TP08	0.75	5.3	4.4	0.9	2	TP19	0.00	6.5	5	1.5	2
TP08	1.00	6.1	4.6	1.5	2	TP19	0.25	5.2	4.3	0.9	2
TP08	1.25	6.3	4.8	1.5	2	TP19	0.50	5.2	4.7	0.5	2
TP08	1.50	5.2	4.4	0.8	2	TP20	0.00	5.2	4.6	0.6	2
TP08	1.75	5.9	4.4	1.5	2						

**Proposed Wind Farm in Scott River
Acid Sulfate Soils Summary Tables**

D.2 SPOCAS Summary



SPOCAS - Borehole Samples

Location	Soil Sample Depth (m bgl)	Titratable Actual Acidity %S	Titratable Peroxide Acidity %S	Titratable Sulfidic Acidity %S	Peroxide Oxidisable Sulfur %S	Net Acidity %S	Net Acidity Excluding Acid Neutralising Capacity %S	Exceeding Net Acidity Action Criteria (0.03 %S)
WM01	0.00	0.018	<0.02	<0.02	0.019	0.04	0.038	Yes
WM01	1.00	0.017	< 0.02	< 0.02	0.009	0.03	0.026	No
WM01	10.00	0.016	0.53	0.52	0.53	0.55	0.55	Yes
WM01	2.00	0.014	0.05	0.04	0.037	0.05	0.051	Yes
WM01	3.00	0.014	0.03	< 0.02	0.008	0.02	0.022	No
WM01	4.00	0.011	0.11	0.1	0.087	0.1	0.098	Yes
WM01	5.00	0.027	0.27	0.24	0.2	0.22	0.22	Yes
WM01	6.00	0.01	0.25	0.24	0.21	0.22	0.22	Yes
WM01	7.00	0.011	0.2	0.19	0.15	0.17	0.17	Yes
WM01	8.00	0.016	0.18	0.16	0.13	0.15	0.15	Yes
WM01	9.00	0.033	0.29	0.26	0.14	0.18	0.18	Yes
WM02	0.00	<0.003	<0.02	<0.02	0.025	<0.02	<0.02	No
WM02	1.00	0.011	0.03	< 0.02	0.01	0.02	0.021	No
WM02	10.00	0.12	1.4	1.3	1.3	1.4	1.4	Yes
WM02	2.00	0.009	< 0.02	< 0.02	0.012	0.02	0.022	No
WM02	2.75	0.01	0.15	0.14	0.099	0.11	68	Yes
WM02	3.00	0.019	0.2	0.18	0.12	0.14	0.14	Yes
WM02	4.00	0.021	0.39	0.37	0.27	0.29	0.29	Yes
WM02	5.00	0.054	0.81	0.76	0.65	0.7	0.7	Yes
WM02	6.00	0.03	0.64	0.61	0.57	0.6	0.6	Yes
WM02	7.00	0.017	0.32	0.27	0.27	0.29	0.29	Yes
WM02	8.00	0.041	0.54	0.44	0.44	0.48	0.48	Yes
WM02	9.00	0.18	2.2	1.9	1.9	2.1	2.1	Yes
WM02	0.00	0.048	1.2	0.086	0.086	0.13	0.13	Yes
WM03	0.25	0.05	0.32	0.27	0.15	0.2	0.2	Yes
WM03	1.00	0.026	0.06	0.03	0.012	0.04	0.039	Yes
WM03	10.00	0.06	0.69	0.63	0.5	0.56	0.56	Yes
WM03	3.00	0.018	0.09	0.07	0.046	0.06	0.064	Yes
WM03	3.50	0.033	0.33	0.3	0.23	0.26	0.26	Yes
WM03	5.00	0.014	0.16	0.15	0.11	0.13	0.13	Yes
WM03	6.00	0.016	0.24	0.22	0.18	0.2	0.2	Yes
WM03	7.00	0.16	1.4	1.2	0.86	1	1	Yes
WM03	8.00	0.14	1.1	0.95	0.76	0.9	0.9	Yes
WM03	9.00	0.055	0.61	0.55	0.44	0.5	0.5	Yes
WM03	4.00	0.041	0.45	0.41	0.35	0.39	0.39	Yes

SPOCAS - Test Pit Samples

Location	Soil Sample Depth (m bgl)	Titratable Actual Acidity %S	Titratable Peroxide Acidity %S	Titratable Sulfidic Acidity %S	Peroxide Oxidisable Sulfur %S	Net Acidity %S	Net Acidity Excluding Acid Neutralising Capacity %S	Exceeding Net Acidity Action Criteria (0.03 %S)
TP01	0.00	0.075	0.13	0.06	0.024	0.1	0.098	Yes
TP01	1.00	0.014	<0.02	<0.02	<0.005	<0.02	<0.02	No
TP01	2.00	0.06	0.1	0.04	0.037	0.1	0.097	Yes
TP02	0.00	0.034	0.03	<0.02	0.024	0.06	0.058	Yes
TP02	0.75	0.034	0.03	<0.02	0.009	0.04	0.043	Yes
TP02	1.00	0.076	0.14	0.06	0.013	0.09	0.089	Yes
TP03	0.00	<0.003	<0.02	<0.02	0.018	<0.02	<0.02	No
TP03	1.00	0.005	<0.02	<0.02	<0.005	<0.02	<0.02	No
TP04	0.00	0.028	<0.02	<0.02	0.03	0.06	0.059	Yes
TP05	0.00	0.022	<0.02	<0.02	0.054	0.08	0.076	Yes
TP06	0.00	0.058	<0.02	<0.02	0.05	0.11	0.11	Yes
TP06	0.50	0.006	<0.02	<0.02	<0.005	<0.02	<0.02	No
TP07	0.00	0.004	<0.02	<0.02	0.065	0.07	0.069	Yes
TP07	1.00	<0.003	<0.02	<0.02	<0.005	<0.02	<0.02	No
TP08	0.00	0.013	<0.02	<0.02	0.023	0.04	0.035	Yes
TP08	1.00	0.009	<0.02	<0.02	0.014	0.02	0.023	No
TP08	2.00	0.015	0.05	0.03	0.059	0.07	0.074	Yes
TP09	0.00	0.032	<0.02	<0.02	0.059	0.09	0.091	Yes
TP11	0.00	0.007	<0.02	<0.02	0.042	0.05	0.049	Yes
TP11	1.00	<0.003	<0.02	<0.02	0.006	<0.02	<0.02	No
TP11	2.00	0.049	0.41	0.36	0.21	0.26	0.26	Yes
TP12	0.00	0.007	<0.02	<0.02	0.032	0.04	0.039	Yes
TP13	0.00	<0.003	<0.02	<0.02	0.08	0.03	0.027	No
TP13	1.00	0.006	<0.02	<0.02	<0.005	<0.02	<0.02	No
TP13	2.00	0.17	0.49	0.32	0.11	0.29	0.29	Yes
TP14	0.00	0.023	<0.02	<0.02	0.049	0.07	0.072	Yes
TP14	0.25	0.009	<0.02	<0.02	0.012	0.02	0.021	No
TP15	0.00	0.022	<0.02	<0.02	0.043	0.07	0.065	Yes
TP15	0.75	0.006	<0.02	<0.02	<0.005	<0.02	<0.02	No
TP15	1.00	0.005	<0.02	<0.02	0.007	<0.02	<0.02	No
TP17	0.00	0.018	<0.02	<0.02	0.034	0.05	0.053	Yes
TP17	0.25	0.009	<0.02	<0.02	<0.005	<0.02	<0.02	No
TP18	0.00	0.018	<0.02	<0.02	0.021	0.04	0.039	Yes
TP19	0.00	<0.003	<0.02	<0.02	0.042	<0.02	<0.02	No
TP19	0.50	0.004	<0.02	<0.02	0.007	<0.02	<0.02	No

Appendix E Soil Analytical Results



	BTEX						Asbestos Identification in Soil		Asbestos							CRC Care TPH Fractions							
	Naphthalene (VOC)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Asbestos (Trace)	Asbestos Type	AF in Soil (as asbestos)*	Asbestos Detected	FA in Soil (as asbestos)*	Fibres Identified	Filterable Reactive Phosphorus	Total AF	Total Analytical Fraction	Total Dry Mass	C6-C10	C10-C16	C16-C34	C34-C40	C10 - C40 (Sum of total)	
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Comment	%	% w/w	Comment	% w/w	Comment	mg/kg	g	g	g	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
LOR	0.5	0.1	0.1	0.1	0.2	0.1	0.3		0.01	0.001		0.001		0.01	0.0005	0.1	0.1	20	50	100	100	100	
PFAS NEMP 2.0 Table 2 Health Industrial/Commercial																							
PFAS NEMP 2.0 Table 2 Health Public open space																							
CRCCARE 2011 Soil HSL for Direct Contact, HSL-C Rec/OP		120	18,000	5,300			15,000											5,100	3,800	5,300	7,400		
CRCCARE 2011 Soil HSL for Direct Contact, HSL-D Com/Ind		430	99,000	27,000			81,000											26,000	20,000	27,000	38,000		
CRCCARE 2011 Soil HSL for Direct Contact, Intrusive Maintenance Worker		1,100	120,000	85,000			130,000											82,000	62,000	85,000	120,000		
NEPM 2013 HIL recreational, Coarse Soil																							
NEPM 2013 HIL commercial/industrial, Coarse Soil																							
NEPM 2013 ESL Comm./Ind., Coarse Soil		75	135	165			180														1,700	3,300	
NEPM 2013 Soil HSL Commercial/Industrial D, for Vapour Intrusion, Sand		3	3	3			230																
NEPM 2013 Soil HSL Recreational C, for Vapour Intrusion, Sand																							
NEPM 2013 Management Limits, C/I, Coarse Soil																		700	1,000	3,500	10,000		
NEPM 2013 Management Limits, R/P&POS, Coarse Soil																		700	1,000	2,500	10,000		

Location Code	Date	Field ID	Sample Type	Lab Report Number	Naphthalene (VOC)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Asbestos (Trace)	Asbestos Type	AF in Soil (as asbestos)*	Asbestos Detected	FA in Soil (as asbestos)*	Fibres Identified	Filterable Reactive Phosphorus	Total AF	Total Analytical Fraction	Total Dry Mass	C6-C10	C10-C16	C16-C34	C34-C40	C10 - C40 (Sum of total)		
TP01	14 Mar 2024	TP01 - 0.0	Normal	1080155	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	1	<0.01	<0.001	1	<0.001	1	3.6	<0.0005	242	242	<20	150	1,600	380	2,130		
		TP01 - 0.25	Normal	1080155																								
		TP01 - 0.50	Normal	1080155									1	<0.01	<0.001	1	<0.001	1	<0.0005	278	278							
		TP01 - 0.75	Normal	1080155																								
		TP01 - 1.0	Normal	1080155	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3		1	<0.01	<0.001	1	<0.001	1	<1	<0.0005	336	336	<20	<50	<100	<100	<100	
		TP01 - 1.25	Normal	1080155																								
		TP01 - 1.50	Normal	1080155																								
		TP01 - 1.75	Normal	1080155																								
TP02	14 Mar 2024	TP02 - 0.0	Normal	1080155	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	1	<0.01	<0.001	1	<0.001	1	6.5	<0.0005	453	453	<20	<50	<100	<100	<100		
		TP02 - 0.25	Normal	1080155																								
		TP02 - 0.50	Normal	1080155									1	<0.01	<0.001	1	<0.001	1	<0.0005	333	333							
		TP02 - 0.75	Normal	1080155																								
		TP02 - 1.0	Normal	1080155	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3		1	<0.01	<0.001	1	<0.001	1	<1	<0.0005	585	585	<20	<50	<100	<100	<100	
TP03		TP03 - 0.0	Normal	1080155	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	1	<0.01	<0.001	1	<0.001	1	15	<0.0005	360	360	<20	<50	<100	<100	<100		
		TP03 - 0.25	Normal	1080155																								
		TP03 - 0.50	Normal	1080155									1	<0.01	<0.001	1	<0.001	1	<0.0005	314	314							
		TP03 - 1.0	Normal	1080155	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3		1	<0.01	<0.001	1	<0.001	1	<1	<0.0005	333	333	<20	<50	<100	<100	<100	
TP04		TP04 - 0.0	Normal	1080155	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	1	<0.01	<0.001	1	<0.001	1	1.7	<0.0005	364	364	<20	<50	550	160	710		
		TP04 - 0.50	Normal	1080155																								
		TP04 - 1.0	Normal	1080155	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3		1	<0.01				1	<1		96	96	<20	<50	<100	<100	<100	
		TP04 - 1.25	Normal	1080155																								
TP05	12 Mar 2024	TP04 - 0.0	Normal	1084649																								
		TP04 - 1.0	Normal	1084649																								
		TP05 - 0.0	Normal	1080155	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3		1	<0.01	<0.001	1	<0.001	1	<1	<0.0005	431	431	<20	<50	<100	<100	<100	
		TP05 - 0.25	Normal	1084649																								
TP06	13 Mar 2024	TP05 - 0.50	Normal	1080155								1	<0.01	<0.001	1	<0.001	1	<0.0005	365	365								
		TP05 - 0.75	Normal	1080155																								
		TP06 - 0.0	Normal	1080155	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3		1	<0.01				1	2.1		72	72	<20	<50	120	<100	120	
		TP06 - 0.25	Normal	1084649																<0.0005	256	256						
TP06		TP06 - 0.50	Normal	1080155																								
		TP06 - QC2	Normal	1080155	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3		1	<0.01	<0.001	1	<0.001	1	1.4	<0.0005	309	309	<20	<50	180	<100	180	
		TP06 - QC3	Normal	1080155	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3		1	<0.01	<0.001	1	<0.001	1	2.1	<0.0005	205	205	<20	<50	140	<100	140	
		TP07 - 0.0	Normal	1080155	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3		1	<0.01	<0.001	1	<0.001	1	3.3	<0.0005	281	281	<20	<50	<100	<100	<100	
TP07	14 Mar 2024	TP07 - 0.25	Normal	1084649																								
		TP07 - 0.50	Normal	1080155																								
		TP07 - 0.75	Normal	1080155									1	<0.01	<0.001	1	<0.001	1	<0.0005	303	303							
		TP07 - 1.0	Normal	1080155	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3		1	<0.01	<0.001	1	<0.001	1	<1	<0.0005	268	268	<20	<50	<100	<100	<100	
		TP07 - 1.25	Normal	1084649																								
		TP07 - 1.50	Normal	1080155																								
TP08		TP08 - 0.0	Normal	1080155	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3		1	<0.01	<0.001	1	<0.001	1	1.2	<0.0005	246	246	<20	<50	110	<100	110	
		TP08 - 0.25	Normal	1080155																								
		TP08 - 0.50	Normal	1080155									1	<0.01	<0.001	1	<0.001	1	<0.0005	271	271							
		TP08 - 0.75	Normal	1080155																								
		TP08 - 1.0	Normal	1080155	<1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3		1	<0.01	<0.001	1	<0.001	1	<1	<0.0005	260	260	<40	<50	<100	<100	<100	
		TP08 - 1.25	Normal	1080155																								

	BTEX							Asbestos Identification in Soil		Asbestos							CRC Care TPH Fractions									
	Naphthalene (VOC)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Asbestos (Trace)	Asbestos Type	AF in Soil (as asbestos)*	Asbestos Detected	FA in Soil (as asbestos)*	Fibres Identified	Filterable Reactive Phosphorus	Total AF	Total Analytical Fraction	Total Dry Mass	C6-C10	C10-C16	C16-C34	C34-C40	C10 - C40 (Sum of total)				
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Comment	%	% w/w	Comment	% w/w	Comment	mg/kg	g	g	g	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg				
LOR	0.5	0.1	0.1	0.1	0.2	0.1	0.3		0.01	0.001		0.001		0.01	0.0005	0.1	0.1	20	50	100	100	100				
PFAS NEMP 2.0 Table 2 Health Industrial/Commercial																										
PFAS NEMP 2.0 Table 2 Health Public open space																										
CRCCARE 2011 Soil HSL for Direct Contact, HSL-C Rec/OP		120	18,000	5,300			15,000											5,100	3,800	5,300	7,400					
CRCCARE 2011 Soil HSL for Direct Contact, HSL-D Com/Ind		430	99,000	27,000			81,000											26,000	20,000	27,000	38,000					
CRCCARE 2011 Soil HSL for Direct Contact, Intrusive Maintenance Worker		1,100	120,000	85,000			130,000											82,000	62,000	85,000	120,000					
NEPM 2013 HIL recreational, Coarse Soil																										
NEPM 2013 HIL commercial/industrial, Coarse Soil																										
NEPM 2013 ESL Comm./Ind., Coarse Soil		75	135	165			180													1,700	3,300					
NEPM 2013 Soil HSL Commercial/Industrial D, for Vapour Intrusion, Sand		3 3 3 3					230																			
NEPM 2013 Soil HSL Recreational C, for Vapour Intrusion, Sand																										
NEPM 2013 Management Limits, C/I, Coarse Soil																		700	1,000	3,500	10,000					
NEPM 2013 Management Limits, R/P&POS, Coarse Soil																		700	1,000	2,500	10,000					
WM02	28 Feb 2024	WM01-0.25	Normal	1075587																						
		WM01-0.75	Normal	1075587																						
		WM01-1.0	Normal	1075587	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	1	<0.01	<0.001	1	<0.001	1	<1	<0.0005	26	26	<20	<50	<100	<100	<100
		WM01 - 1.0	Normal	1084676																						
		WM01-1.5	Normal	1075587	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	1	<0.01	<0.001	1	<0.001	1	<1	<0.0005	50	50	<20	<50	<100	<100	<100
	28 Feb 2024	WM02-0.0	Normal	1075587	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	1	<0.01	<0.001	1	<0.001	1	<1	<0.0005	116	116	<20	<50	<100	<100	<100
		WM02 - 0.0	Normal	1084676																						
		WM02-0.5	Normal	1075587	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	1	<0.01	<0.001	1	<0.001	1	<1	<0.0005	43	43	<20	<50	110	<100	110
		WM02-1.0	Normal	1075587	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	1	<0.01	<0.001	1	<0.001	1	<1	<0.0005	79	79	<20	<50	<100	<100	<100
		WM02 - 1.0	Normal	1084676																						
WM03	29 Feb 2024	WM02-1.5	Normal	1075587	<0.5	<0.1	<0.1	<0.1	<0.2	<0.3	1	<0.01	<0.001	1	<0.001	1	<1	<0.0005	63	63	<20	<50	<100	<100	<100	
		WM03-0.0	Normal	1075587	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	1	<0.01	<0.001	1	<0.001	1	1.1	<0.0005	105	105	<20	<50	310	100	410
		WM03 - 0.0	Normal	1084676																						
		WM03-0.5	Normal	1075587	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	1	<0.01	<0.001	1	<0.001	1	<1	<0.0005	98	98	<20	<50	<100	<100	<100
		WM03 - 0.25	Normal	1084676																						
		WM03-1.0	Normal	1075587																						
		WM03 - 1.0	Normal	1084676																						
		WM03-1.5	Normal	1075587																						

Statistics	53	53	53	53	53	53	53	62	62	52	62	52	62	56	52	62	62	53	50	50	50	50
Number of Results	0	0	0	0	0	0	0	62	62	0	62	0	62	16	0	62	62	0	2	12	4	12
Number of Detects	0	0	0	0	0	0	0	62	62	0	62	0	62	16	0	62	62	0	2	12	4	12
Minimum Concentration	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	1	<0.01	<0.001	1	<0.001	1	<0.01	<0.0005	14	14	<20	<50	<100	100	<100
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	1	ND	ND	1	ND	1	1.1	ND	14	14	ND	120	110	100	110
Maximum Concentration	<1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	1	<0.01	<0.001	1	<0.001	1	15	<0.0005	585	585	<40	150	1,600	380	2,130
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	1	ND	ND	1	ND	1	15	ND	585	585	ND	150	1,600	380	2,130
Average Concentration *	0.26	0.05	0.05	0.05	0.1	0.05	0.15	1	0.005	0.0005	1	0.0005	1	1.6	0.00025	242	242	10	29	126	64	149
Geometric Average *	0.26	0.05	0.05	0.05	0.1	0.05	0.15	1	0.005	0.0005	1	0.0005	1	0.52	0.00025	190	190	10	27	72	56	74
Median Concentration *	0.25	0.05	0.05	0.05	0.1	0.05	0.15	1	0.005	0.0005	1	0.0005	1	0.5	0.00025	269.5	269.5	10	25	50	50	50
Standard Deviation *	0.048	0	0	0	0	0	0	0	0	0	0	0	0	2.8	0	137	137	1.9	22	255	58	349
Geometric Standard Deviation *	1.1	1	1	1	1	1	1	1	1	1	1	1	1	6.5	1	2.3	2.3	1.1	1.4	2.2	1.5	2.4
95% UCL (Student's-t) *	0.27	0.05	0.05	0.05	0.1	0.05	0.15	1	0.005	0.0005	1	0.0005	1	2.223	0.00025	271.3	271.3	10.82	34.61	186	78.2	232.1
% of Detects	0	0	0	0	0	0	0	100	0	0	100	0	100	29	0	100	100	0	4	24	8	24
% of Non-Detects	100	100	100	100	100	100	100	0	100	100	0	100	0	71	100	0	0	100	96	76	92	76

* A Non Detect Multiplier of 0.5 has been applied.

Sample ID	Date	Depth	Status	ID	Asbestos		Metals													Inorganics						
					F1: C6-C10 less BTEX	F2: >C10-C16 less Naphthalene	Mass Asbestos in FA	Arsenic	Beryllium	Boron	Cadmium	Chromium (hexavalent)	Cobalt	Copper	Lead	Manganese	Mercury	Nickel	Selenium	Zinc	Kjeldahl Nitrogen Total	Moisture Content (dried @ 103°C)	Nitrate (as N)	Nitrite (as N)	Nitrate & Nitrite (as N)	Nitrogen (Total)
					mg/kg	mg/kg	g	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%	mg/kg	mg/kg	mg/kg
LOR																										
PFAS NEMP 2.0 Table 2 Health Industrial/Commercial																										
PFAS NEMP 2.0 Table 2 Health Public open space																										
CRCCARE 2011 Soil HSL for Direct Contact, HSL-C Rec/OP																										
CRCCARE 2011 Soil HSL for Direct Contact, HSL-D Com/Ind																										
CRCCARE 2011 Soil HSL for Direct Contact, Intrusive Maintenance Worker																										
NEPM 2013 HIL recreational, Coarse Soil																										
NEPM 2013 HIL commercial/industrial, Coarse Soil																										
NEPM 2013 ESL Comm./Ind., Coarse Soil																										
NEPM 2013 Soil HSL Commercial/Industrial D, for Vapour Intrusion, Sand																										
NEPM 2013 Soil HSL Recreational C, for Vapour Intrusion, Sand																										
NEPM 2013 Management Limits, C/I, Coarse Soil																										
NEPM 2013 Management Limits, R/P&POS, Coarse Soil																										
TP09	12 Mar 2024	TP09 - 1.0	Normal	1080155	<20	<50		<2	<2	<10	<0.1	<1	<5	<1	<1	<5	<0.02	2.6	<2	<5	230	13	2.8	<1	3.0	230
		TP09 - 1.50	Normal	1080155																						
TP10	12 Mar 2024	TP09 - 0.0	Normal	1084649																						
		TP10 - 0.0	Normal	1080155	<20	<50		<2	<2	<10	<0.1	<1	<5	3.1	<1	<5	<0.02	<1	<2	<5	3,100	1.7	<1	<1	1.5	3,100
TP11	14 Mar 2024	TP10 - 1.0	Normal	1080155	<20	<50		<2	<2	<10	<0.1	<1	<5	<1	<1	<5	<0.02	<1	<2	<5	140	4.5	<1	<1	<1	140
		TP11 - 0.0	Normal	1080155	<20	<50	<0.0005	<2	<2	<10	<0.1	<1	<5	<1	<1	<5	<0.02	<1	<2	<5	1,700	14	11	<1	11	1,700
		TP11 - 0.25	Normal	1080155																						
		TP11 - 0.50	Normal	1080155			<0.0005																			
		TP11 - 0.75	Normal	1080155																						
		TP11 - 1.0	Normal	1080155	<20	<50	<0.0005	<2	<2	<10	<0.1	<1	<5	<1	<1	<5	<0.02	<1	<2	<5	210	11	1.8	<1	1.9	210
		TP11 - 1.25	Normal	1080155																						
		TP11 - 1.75	Normal	1080155																						
TP12	13 Mar 2024	TP11 - 2.0	Normal	1080155																						
		TP12 - 0.0	Normal	1080155	<20	<50		<2	<2	<10	<0.1	<1	<5	2.1	<1	<5	<0.02	<1	<2	<5	2,900	1.0	<1	<1	<1	2,900
TP13	13 Mar 2024	TP12 - 0.0	Normal	1084649																						
		TP13 - 0.0	Normal	1080155	<20	<50	<0.0005	<2	<2	<10	<0.1	<1	<5	2.4	<1	<5	<0.02	1.4	<2	6.0	3,700	5.4	4.2	<1	4.3	3,700
		TP13 - 0.25	Normal	1080155																						
		TP13 - 0.50	Normal	1080155			<0.0005																			
		TP13 - 0.75	Normal	1080155																						
		TP13 - 1.0	Normal	1080155	<20	<50	<0.0005	<2	<2	<10	<0.1	<1	<5	<1	<1	<5	<0.02	<1	<2	<5	160	6.7	1.6	<1	1.7	160
		TP13 - 1.25	Normal	1080155																						
TP14	13 Mar 2024	TP13 - 1.50	Normal	1080155																						
		TP13 - 1.75	Normal	1080155																						
TP14	13 Mar 2024	TP13 - 2.0	Normal	1080155																						
		TP14 - 0.0	Normal	1080155	<20	<50	<0.0005	<2	<2	<10	<0.1	<1	<5	1.2	2.0	<5	<0.02	<1	<2	<5	1,300	1.0	<1	<1	1.0	1,300
TP15	13 Mar 2024	TP14 - 0.25	Normal	1084649																						
		TP15 - 0.0	Normal	1080155	<20	<50	<0.0005	<2	<2	<10	<0.1	<1	<5	<1	<1	<5	<0.02	<1	<2	<5	2,100	2.0	<1	<1	1.1	2,100
		TP15 - 0.25	Normal	1080155																						
		TP15 - 0.50	Normal	1080155			<0.0005																			
		TP15 - 0.75	Normal	1080155																						
TP16	13 Mar 2024	TP15 - 1.0	Normal	1080155	<20	<50	<0.0005	<2	<2	<10	<0.1	<1	<5	<1	<1	<5	<0.02	<1	<2	<5	160	9.0	<1	<1	<1	160
		TP15 - QC1	Normal	1080155																						
		TP16 - 0.0	Normal	1080155	<20	<50		<2	<2	<10	<0.1	<1	<5	1.8	<1	15	<0.02	<1	<2	<5	1,300	1.2	2.7	<1	3.5	1,300
		TP16 - QC2	Normal	1080155	<20	<50		<2	<2	<10	<0.1	<1	<5	1.3	<1	15	<0.02	<1	<2	<5	730	3.0	<1	<1	1.2	730
TP17	13 Mar 2024	TP16 - QC3	Normal	1080155	<20	<50		<2	<2	<10	<0.1	<1	<5	<1	<1	11	<0.02	<1	<2	<5	730	3.1	6.3	<1	7.0	740
		TP17 - 0.0	Normal	1080155	<20	<50	<0.0005	<2	<2	<10	<0.1	<1	<5	1.2	<1	<5	<0.02	<1	<2	<5	1,600	<1	3.4	<1	3.7	1,600
		TP17 - 0.25	Normal	1080155																						
TP18	14 Mar 2024	TP17 - 0.50	Normal	1080155			<0.0005																			
		TP18 - 0.0	Normal	1080155	<20	<50	<0.0005	<2	<2	<10	<0.1	<1	<5	<1	1.2	6.3	<0.02	<1	<2	<5	980	4.4	3.8	<1	4.8	980
TP19	14 Mar 2024	TP18 - 0.0	Normal	1084649																						
		TP19 - 0.0	Normal	1080155	<20	<50	<0.0005	<2	<2	<10	<0.1	<1	<5	<1	<1	<5	<0.02	<1	<2	<5	3,000	7.9	2.5	<1	2.9	3,000
		TP19 - 0.25	Normal	1080155																						
TP20	14 Mar 2024	TP19 - 0.50	Normal	1080155			<0.0005																			
		TP20 - 0.0	Normal	1080155	<20	<50		<2	<2	<10	<0.1	<1	<5	<1	<1	<5	<0.02	<1	<2	<5	2,400	2.6	<1	<1	<1	2,400
		WM01	26 Feb 2024	WM01-0.0	Normal	1075587	<20	<50		<2	<2	<10	<0.1	<1	<5	<1	5.2	<0.02	<1	<2	<5	370	11	1.6	1.6	1.6
WM01	26 Feb 2024	WM01 - 0.0	Normal	1084676																						
		WM01-0.5	Normal	1075587	<20	<50	<0.0005	<2	<2	<10	<0.1	<1	<5	<1	4.6	<5	<0.02	<1	<2	<5	680	4.4	1.3	1.3	1.4	680

			Asbestos													Metals					Inorganics					
	F1: C6-C10 less BTEX	F2: >C10-C16 less Naphthalene	Mass Asbestos in FA	Arsenic	Beryllium	Boron	Cadmium	Chromium (hexavalent)	Cobalt	Copper	Lead	Manganese	Mercury	Nickel	Selenium	Zinc	Kjeldahl Nitrogen Total	Moisture Content (dried @ 103°C)	Nitrate (as N)	Nitrite (as N)	Nitrate & Nitrite (as N)	Nitrogen (Total)				
	mg/kg	mg/kg																					g	mg/kg	mg/kg	mg/kg
LOR	20	50	0.0005	2	2	10	0.1	1	5	1	1	5	0.02	1	2	5	10	1	1	1	1	10				
PFAS NEMP 2.0 Table 2 Health Industrial/Commercial																										
PFAS NEMP 2.0 Table 2 Health Public open space																										
CRCCARE 2011 Soil HSL for Direct Contact, HSL-C Rec/OP																										
CRCCARE 2011 Soil HSL for Direct Contact, HSL-D Com/Ind																										
CRCCARE 2011 Soil HSL for Direct Contact, Intrusive Maintenance Worker																										
NEPM 2013 HIL recreational, Coarse Soil				300	100	20000	100	240	300	20000	600	9000	400	800	700	30000										
NEPM 2013 HIL commercial/industrial, Coarse Soil				3000	500	300000	800	3000	4000	250000	1500	40000	4000	4000	10000	400000										
NEPM 2013 ESL Comm./Ind., Coarse Soil	215	170																								
NEPM 2013 Soil HSL Commercial/Industrial D, for Vapour Intrusion, Sand	260 370 630																									
NEPM 2013 Soil HSL Recreational C, for Vapour Intrusion, Sand																										
NEPM 2013 Management Limits, C/I, Coarse Soil																										
NEPM 2013 Management Limits, R/P&POS, Coarse Soil																										
WM02	28 Feb 2024	WM01-0.25	Normal	1075587																						
		WM01-0.75	Normal	1075587																						
		WM01-1.0	Normal	1075587	<20	<50	<0.0005	<2	<2	<10	<0.1	<1	<5	<1	7.8	5.9	0.02	<1	<2	<5	280	20	1.2	1.2	1.2	280
		WM01 - 1.0	Normal	1084676																						
		WM01-1.5	Normal	1075587	<20	<50	<0.0005	<2	<2	<10	<0.1	<1	<5	<1	6.1	<5	<0.02	<1	<2	<5	40	16	<1	<1	<1	40
		WM02-0.0	Normal	1075587	<20	<50	<0.0005	<2	<2	<10	<0.1	<1	<5	2.9	<1	<5	0.03	<1	<2	<5	1,200	<1	15	15	<1	1,200
		WM02 - 0.0	Normal	1084676																						
		WM02-0.5	Normal	1075587	<20	<50	<0.0005	<2	<2	<10	<0.1	<1	<5	<1	<1	<5	0.03	<1	<2	<5	700	2.6	13	13	<1	700
		WM02-1.0	Normal	1075587	<20	<50	<0.0005	<2	<2	<10	<0.1	<1	<5	<1	<1	<5	0.03	<1	<2	<5	86	20	2.2	2.2	2.4	88
		WM02 - 1.0	Normal	1084676																						
WM03	29 Feb 2024	WM02-1.5	Normal	1075587	<20	<50	<0.0005	<2	<2	<10	<0.1	<1	<5	<1	<1	<5	0.03	<1	<2	<5						
		WM03-0.0	Normal	1075587	<20	<50	<0.0005	<2	<2	<10	0.1	<1	<5	6.5	4.1	14	0.05	<1	<2	8.4	5,200	6.6	<1	<1	<1	5,200
		WM03 - 0.0	Normal	1084676																						
		WM03-0.5	Normal	1075587	<20	<50	<0.0005	11	<2	<10	<0.1	<1	<5	<1	20	<5	0.05	<1	<2	<5	1,100	25	3.1	3.1	3.2	1,100
		WM03 - 0.25	Normal	1084676																						
		WM03-1.0	Normal	1075587	<20	<50	<0.0005																			
		WM03 - 1.0	Normal	1084676																						
WM03-1.5	Normal	1075587	<20	<50	<0.0005																					

Statistics	53	50	52	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
Number of Results	0	2	0	3	0	0	3	0	0	21	16	10	7	2	0	6	50	47	29	9	32	50
Number of Detects	<20	<50	<0.0005	<2	<2	<10	0.1	<1	<5	<1	<1	<5	0.02	<1	<2	<5	40	1	<1	1	1	40
Minimum Concentration	ND	120	ND	2.4	ND	ND	0.1	ND	ND	1.2	1.1	5.9	0.02	1.4	ND	5.4	40	1	1.1	1	1	40
Minimum Detect	<40	150	<0.0005	11	<2	<10	0.8	<1	<5	12	20	27	0.05	2.6	<2	32	5,200	25	37	15	38	5,200
Maximum Concentration	ND	150	ND	11	ND	ND	0.8	ND	ND	12	20	27	0.05	2.6	ND	32	5,200	25	37	15	38	5,200
Maximum Detect	10	29	0.00025	1.3	1	5	0.067	0.5	2.5	1.5	1.6	4.7	0.013	0.56	1	3.9	1,493	5.9	3.4	1.2	3.1	1,494
Average Concentration *	10	27	0.00025	1.1	1	5	0.054	0.5	2.5	0.94	0.86	3.4	0.012	0.53	1	3	873	3.7	1.5	0.67	1.6	874
Geometric Average *	10	25	0.00025	1	1	5	0.05	0.5	2.5	0.5	0.5	2.5	0.01	0.5	1	2.5	1,250	3.35	1.35	0.5	1.55	1,250
Median Concentration *	1.9	22	0	1.4	0	0	0.11	0	0	2.1	3.1	5	0.0094	0.32	0	4.9	1,232	5.7	6	2.7	5.8	1,231
Standard Deviation *	1.1	1.4	1	1.5	1	1	1.5	1	1	2.3	2.5	2	1.5	1.3	1	1.7	3.5	2.7	3.2	2.1	3	3.5
Geometric Standard Deviation *	10.82	34.61	0.00025	1.596	1	5	0.0922	0.5	2.5	1.987	2.384	5.86	0.0156	0.636	1	5.016	1,786	7.221	4.816	1.848	4.498	1,786
95% UCL (Student's-t) *	0	4	0	6	0	0	6	0	0	42	32	20	14	4	0	12	100	94	58	18	64	100
% of Detects	100	96	100	94	100	100	94	100	100	58	68	80	86	96	100	88	0	6	42	82	36	0
% of Non-Detects																						

* A Non Detect Multiplier of 0.5 has been applied.

	Organochlorine Pesticides																						
	Phosphorus	2,4-DDT	4,4-DDE	a-BHC	Aldrin	b-BHC	Chlordane	d-BHC	DDD	DDT	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	Methoxychlor	Oxychlorane	Chlorpyrifos	
mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
LOR	1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	
PFAS NEMP 2.0 Table 2 Health Industrial/Commercial																							
PFAS NEMP 2.0 Table 2 Health Public open space																							
CRCCARE 2011 Soil HSL for Direct Contact, HSL-C Rec/OP																							
CRCCARE 2011 Soil HSL for Direct Contact, HSL-D Com/Ind																							
CRCCARE 2011 Soil HSL for Direct Contact, Intrusive Maintenance Worker																							
NEPM 2013 HIL recreational, Coarse Soil																							
NEPM 2013 HIL commercial/industrial, Coarse Soil																							
NEPM 2013 ESL Comm./Ind., Coarse Soil																							
NEPM 2013 Soil HSL Commercial/Industrial D, for Vapour Intrusion, Sand																							
NEPM 2013 Soil HSL Recreational C, for Vapour Intrusion, Sand																							
NEPM 2013 Management Limits, C/I, Coarse Soil																							
NEPM 2013 Management Limits, R/P&POS, Coarse Soil																							

Location Code	Date	Field ID	Sample Type	Lab Report Number	Phosphorus	2,4-DDT	4,4-DDE	a-BHC	Aldrin	b-BHC	Chlordane	d-BHC	DDD	DDT	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	Methoxychlor	Oxychlorane	Chlorpyrifos			
TP01	14 Mar 2024	TP01 - 0.0	Normal	1080155	34	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02		
				1084649																									
		TP01 - 0.25	Normal	1080155																									
		TP01 - 0.50	Normal	1080155																									
		TP01 - 0.75	Normal	1080155																									
		TP01 - 1.0	Normal	1080155	1.7	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	
				1084649																									
		TP01 - 1.25	Normal	1080155																									
TP01 - 1.50	Normal	1080155																											
TP01 - 1.75	Normal	1080155																											
TP01 - 2.0	Normal	1080155																											
				1084649																									
TP02	14 Mar 2024	TP02 - 0.0	Normal	1080155	32	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02		
				1084649																									
		TP02 - 0.25	Normal	1080155																									
		TP02 - 0.50	Normal	1080155																									
		TP02 - 0.75	Normal	1080155																									
TP02 - 1.0	Normal	1080155	8.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02			
				1084649																									
TP03		TP03 - 0.0	Normal	1080155	1,300	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02		
		TP03 - 0.25	Normal	1080155																									
		TP03 - 0.50	Normal	1080155																									
		TP03 - 1.0	Normal	1080155	5.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02		
TP03	12 Mar 2024	TP03 - 0.0	Normal	1084649																									
		TP03 - 1.0	Normal	1084649																									
TP04		TP04 - 0.0	Normal	1080155	170	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02		
		TP04 - 0.50	Normal	1080155																									
		TP04 - 1.0	Normal	1080155	2.8	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02		
		TP04 - 1.25	Normal	1080155																									
TP04	12 Mar 2024	TP04 - 1.75	Normal	1080155																									
		TP04 - 0.0	Normal	1084649																									
TP05	13 Mar 2024	TP05 - 0.0	Normal	1080155	45	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02		
				1084649																									
		TP05 - 0.25	Normal	1080155																									
		TP05 - 0.50	Normal	1080155																									
TP06	13 Mar 2024	TP06 - 0.0	Normal	1080155	29	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02		
				1084649																									
		TP06 - 0.25	Normal	1080155																									
		TP06 - 0.50	Normal	1080155																									
TP06		TP06 - QC2	Normal	1080155	29	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02		
		TP06 - QC3	Normal	1080155	26	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02		
				1084649																									
		TP07 - 0.0	Normal	1080155	36	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02		
				1084649																									
		TP07 - 0.25	Normal	1080155																									
TP07	14 Mar 2024	TP07 - 0.50																											

				Organochlorine Pesticides																						
				Phosphorus	2,4-DDT	4,4-DDE	a-BHC	Aldrin	b-BHC	Chlordane	d-BHC	DDD	DDT	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	Methoxychlor	Oxychlorane	Chlorpyrifos	
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
LOR				1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02
PFAS NEMP 2.0 Table 2 Health Industrial/Commercial																										
PFAS NEMP 2.0 Table 2 Health Public open space																										
CRCCARE 2011 Soil HSL for Direct Contact, HSL-C Rec/OP																										
CRCCARE 2011 Soil HSL for Direct Contact, HSL-D Com/Ind																										
CRCCARE 2011 Soil HSL for Direct Contact, Intrusive Maintenance Worker																										
NEPM 2013 HIL recreational, Coarse Soil																										
NEPM 2013 HIL commercial/industrial, Coarse Soil																										
NEPM 2013 ESL Comm./Ind., Coarse Soil																										
NEPM 2013 Soil HSL Commercial/Industrial D, for Vapour Intrusion, Sand																										
NEPM 2013 Soil HSL Recreational C, for Vapour Intrusion, Sand																										
NEPM 2013 Management Limits, C/I, Coarse Soil																										
NEPM 2013 Management Limits, R/P&POS, Coarse Soil																										
		TP09 - 1.0	Normal	1080155	4.4	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02
		TP09 - 1.50	Normal	1080155																						
	12 Mar 2024	TP09 - 0.0	Normal	1084649																						
TP10		TP10 - 0.0	Normal	1080155	42	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02
		TP10 - 1.0	Normal	1080155	2.0	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02
TP11	14 Mar 2024	TP11 - 0.0	Normal	1080155	70	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02
				1084649																						
		TP11 - 0.25	Normal	1080155																						
		TP11 - 0.50	Normal	1080155																						
		TP11 - 0.75	Normal	1080155																						
		TP11 - 1.0	Normal	1080155	9.6	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02
				1084649																						
		TP11 - 1.25	Normal	1080155																						
		TP11 - 1.50	Normal	1080155																						
		TP11 - 1.75	Normal	1080155																						
		TP11 - 2.0	Normal	1080155																						
				1084649																						
TP12	13 Mar 2024	TP12 - 0.0	Normal	1080155	100	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02
				1084649																						
TP13	13 Mar 2024	TP13 - 0.0	Normal	1080155	100	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02
				1084649																						
		TP13 - 0.25	Normal	1080155																						
		TP13 - 0.50	Normal	1080155																						
		TP13 - 0.75	Normal	1080155																						
		TP13 - 1.0	Normal	1080155	2.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02
				1084649																						
		TP13 - 1.25	Normal	1080155																						
		TP13 - 1.50	Normal	1080155																						
		TP13 - 1.75	Normal	1080155																						
		TP13 - 2.0	Normal	1080155																						
				1084649																						
TP14	13 Mar 2024	TP14 - 0.0	Normal	1080155	140	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02
				1084649																						
		TP14 - 0.25	Normal	1080155																						
				1084649																						
TP15	13 Mar 2024	TP15 - 0.0	Normal	1080155	80	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02
				1084649																						
		TP15 - 0.25	Normal	1080155																						
		TP15 - 0.50	Normal	1080155																						
		TP15 - 0.75	Normal	1080155																						
				1084649																						
		TP15 - 1.0	Normal	1080155	14	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02
				1084649																						
		TP15 - QC1	Normal	1080155																						
TP16	13 Mar 2024	TP16 - 0.0	Normal	1080155	160	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02
		TP16 - QC2	Normal	1080155	110	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02
		TP16 - QC3	Normal	1080155	140	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02
TP17	13 Mar 2024	TP17 - 0.0	Normal	1080155</																						

				Organochlorine Pesticides																								
				Phosphorus	2,4-DDT	4,4-DDE	a-BHC	Aldrin	b-BHC	Chlordane	d-BHC	DDD	DDT	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	Methoxychlor	Oxychlorane	Chlorpyrifos			
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg		
LOR				1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.2	0.01	0.02	
PFAS NEMP 2.0 Table 2 Health Industrial/Commercial																												
PFAS NEMP 2.0 Table 2 Health Public open space																												
CRCCARE 2011 Soil HSL for Direct Contact, HSL-C Rec/OP																												
CRCCARE 2011 Soil HSL for Direct Contact, HSL-D Com/Ind																												
CRCCARE 2011 Soil HSL for Direct Contact, Intrusive Maintenance Worker																												
NEPM 2013 HIL recreational, Coarse Soil																												
NEPM 2013 HIL commercial/industrial, Coarse Soil																												
NEPM 2013 ESL Comm./Ind., Coarse Soil																												
NEPM 2013 Soil HSL Commercial/Industrial D, for Vapour Intrusion, Sand																												
NEPM 2013 Soil HSL Recreational C, for Vapour Intrusion, Sand																												
NEPM 2013 Management Limits, C/I, Coarse Soil																												
NEPM 2013 Management Limits, R/P&POS, Coarse Soil																												
WM02	28 Feb 2024	WM01-0.25	Normal	1075587																								
		WM01-0.75	Normal	1075587																								
		WM01-1.0	Normal	1075587	4.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.2	<0.01	<0.02	
		WM01 - 1.0	Normal	1084676																								
		WM01-1.5	Normal	1075587	3.4	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.2	<0.01	<0.02
	28 Feb 2024	WM02-0.0	Normal	1075587	190	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.2	<0.01	<0.02
		WM02 - 0.0	Normal	1084676																								
		WM02-0.5	Normal	1075587	45	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.2	<0.01	<0.02
		WM02-1.0	Normal	1075587	5.3	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.2	<0.01	<0.02
		WM02 - 1.0	Normal	1084676																								
29 Feb 2024	WM03-0.0	Normal	1075587	610	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.2	<0.01	<0.02	
	WM03 - 0.0	Normal	1084676																									
	WM03-0.5	Normal	1075587	30	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.2	<0.01	<0.02	
	WM03 - 0.25	Normal	1084676																									
	WM03-1.0	Normal	1075587																									
		WM03 - 1.0	Normal	1084676																								
		WM03-1.5	Normal	1075587																								

Statistics																									
Number of Results	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	
Number of Detects	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Minimum Concentration	1.7	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.2	<0.01	<0.02	
Minimum Detect	1.7	ND																							
Maximum Concentration	1,300	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.2	<0.01	<0.02	
Maximum Detect	1,300	ND																							
Average Concentration *	91	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.1	0.005	0.01
Geometric Average *	31	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.1	0.005	0.01
Median Concentration *	35	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.1	0.005	0.01
Standard Deviation *	199	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Geometric Standard Deviation *	4.6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
95% UCL (Student's-t) *	137.6	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.1	0.005	0.01
% of Detects	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

	Organophosphorous Pesticides				Pesticides		Perfluorinated Compounds (Pe)																
	Diazinon	Ethion	Fenitrothion	Malathion	Bifenthrin	Bromophos	2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	Perfluoronane sulfonate (PFNS)	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecanesulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoropropanesulfonic acid (PFPS)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoate (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	UG	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR	0.2	0.05	0.1	0.1	0.2	0.05	0.005	5	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
PFAS NEMP 2.0 Table 2 Health Industrial/Commercial												20	20									50	
PFAS NEMP 2.0 Table 2 Health Public open space												1	1									10	
CRCCARE 2011 Soil HSL for Direct Contact, HSL-C Rec/OP																							
CRCCARE 2011 Soil HSL for Direct Contact, HSL-D Com/Ind																							
CRCCARE 2011 Soil HSL for Direct Contact, Intrusive Maintenance Worker																							
NEPM 2013 HIL recreational, Coarse Soil																							
NEPM 2013 HIL commercial/industrial, Coarse Soil																							
NEPM 2013 ESL Comm./Ind., Coarse Soil																							
NEPM 2013 Soil HSL Commercial/Industrial D, for Vapour Intrusion, Sand																							
NEPM 2013 Soil HSL Recreational C, for Vapour Intrusion, Sand																							
NEPM 2013 Management Limits, C/I, Coarse Soil																							
NEPM 2013 Management Limits, R/P&POS, Coarse Soil																							

Location Code	Date	Field ID	Sample Type	Lab Report Number	Diazinon	Ethion	Fenitrothion	Malathion	Bifenthrin	Bromophos	2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	Perfluoronane sulfonate (PFNS)	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecanesulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoropropanesulfonic acid (PFPS)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoate (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)			
TP01	14 Mar 2024	TP01 - 0.0	Normal	1080155	<0.2	<0.05	<0.1	<0.1	<0.2	<0.05																			
				1084649																									
		TP01 - 0.25	Normal	1080155																									
		TP01 - 0.50	Normal	1080155																									
		TP01 - 0.75	Normal	1080155																									
		TP01 - 1.0	Normal	1080155	<0.2	<0.05	<0.1	<0.1	<0.2	<0.05																			
				1084649																									
		TP01 - 1.25	Normal	1080155																									
TP01 - 1.50	Normal	1080155																											
TP01 - 1.75	Normal	1080155																											
TP01 - 2.0	Normal	1080155																											
				1084649																									
TP02	14 Mar 2024	TP02 - 0.0	Normal	1080155	<0.2	<0.05	<0.1	<0.1	<0.2	<0.05	<0.005	<5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
				1084649																									
		TP02 - 0.25	Normal	1080155																									
		TP02 - 0.50	Normal	1080155																									
		TP02 - 0.75	Normal	1080155																									
				1084649																									
TP03		TP03 - 0.0	Normal	1080155	<0.2	<0.05	<0.1	<0.1	<0.2	<0.05																			
		TP03 - 0.25	Normal	1080155																									
		TP03 - 0.50	Normal	1080155																									
		TP03 - 1.0	Normal	1080155	<0.2	<0.05	<0.1	<0.1	<0.2	<0.05																			
TP03	12 Mar 2024	TP03 - 0.0	Normal	1084649																									
		TP03 - 1.0	Normal	1084649																									
TP04		TP04 - 0.0	Normal	1080155	<0.2	<0.05	<0.1	<0.1	<0.2	<0.05	<0.005	<5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
		TP04 - 0.50	Normal	1080155																									
		TP04 - 1.0	Normal	1080155	<0.2	<0.05	<0.1	<0.1	<0.2	<0.05																			
		TP04 - 1.25	Normal	1080155																									
		TP04 - 1.75	Normal	1080155																									
TP04	12 Mar 2024	TP04 - 0.0	Normal	1084649																									
TP05	13 Mar 2024	TP05 - 0.0	Normal	1080155	<0.2	<0.05	<0.1	<0.1	<0.2	<0.05																			
				1084649																									
		TP05 - 0.25	Normal	1080155																									
		TP05 - 0.50	Normal	1080155																									
				1080155																									
TP06	13 Mar 2024	TP06 - 0.0	Normal	1080155	<0.2	<0.05	<0.1	<0.1	<0.2	<0.05	<0.005	<5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
				1084649																									
		TP06 - 0.25	Normal	1080155																									
		TP06 - 0.50	Normal	1080155																									
				1084649																									
				1080155	<0.2	<0.05	<0.1	<0.1	<0.2	<0.05	<0.005	<5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		
TP07	14 Mar 2024	TP07 - 0.0	Normal	1080155	<0.2	<0.05	<0.1	<0.1	<0.2	<0.05																			
				1084649																									
		TP07 - 0.25	Normal	1080155																									
		TP07 - 0.50	Normal	1080155																									
		TP07 - 0.75	Normal	1080155																									
		TP07 - 1.0	Normal	1080155	<0.2	<0.05	<0.1	<0.1	<0.2	<0.05																			
				1084649																									
				1080155</																									

Organophosphorous Pesticides				Pesticides		Pe																	
Diazinon	Ethion	Fenitrothion	Malathion	Bifenthrin	Bromophos	2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	Perfluorononane sulfonate (PFNS)	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoropropanesulfonic acid (PFPS)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoate (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)		
mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	UG	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
LOR	0.2	0.05	0.1	0.1	0.2	0.05	0.005	5	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	
PFAS NEMP 2.0 Table 2 Health Industrial/Commercial												20	20								50		
PFAS NEMP 2.0 Table 2 Health Public open space												1	1								10		
CRCCARE 2011 Soil HSL for Direct Contact, HSL-C Rec/OP																							
CRCCARE 2011 Soil HSL for Direct Contact, HSL-D Com/Ind																							
CRCCARE 2011 Soil HSL for Direct Contact, Intrusive Maintenance Worker																							
NEPM 2013 HIL recreational, Coarse Soil																							
NEPM 2013 HIL commercial/industrial, Coarse Soil																							
NEPM 2013 ESL Comm./Ind., Coarse Soil																							
NEPM 2013 Soil HSL Commercial/Industrial D, for Vapour Intrusion, Sand																							
NEPM 2013 Soil HSL Recreational C, for Vapour Intrusion, Sand																							
NEPM 2013 Management Limits, C/I, Coarse Soil																							
NEPM 2013 Management Limits, R/P&POS, Coarse Soil																							
WM02	28 Feb 2024	WM01-0.25	Normal	1075587																			
		WM01-0.75	Normal	1075587																			
		WM01-1.0	Normal	1075587	<0.2	<0.05	<0.1	<0.1	<0.2	<0.05													
		WM01 - 1.0	Normal	1084676																			
		WM01-1.5	Normal	1075587	<0.2	<0.05	<0.1	<0.1	<0.2	<0.05													
	29 Feb 2024	WM02-0.0	Normal	1075587	<0.2	<0.05	<0.1	<0.1	<0.2	<0.05													
		WM02 - 0.0	Normal	1084676																			
		WM02-0.5	Normal	1075587	<0.2	<0.05	<0.1	<0.1	<0.2	<0.05													
		WM02-1.0	Normal	1075587	<0.2	<0.05	<0.1	<0.1	<0.2	<0.05													
		WM02 - 1.0	Normal	1084676																			
WM03	29 Feb 2024	WM03-0.0	Normal	1075587	<0.2	<0.05	<0.1	<0.1	<0.2	<0.05													
		WM03 - 0.0	Normal	1084676																			
		WM03-0.5	Normal	1075587	<0.2	<0.05	<0.1	<0.1	<0.2	<0.05													
		WM03 - 0.25	Normal	1084676																			
		WM03-1.0	Normal	1075587																			

Statistics																					
Number of Results	50	50	50	50	50	50	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.2	<0.05	<0.1	<0.1	<0.2	<0.05	<0.005	<5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.2	<0.05	<0.1	<0.1	<0.2	<0.05	<0.005	<5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	0.1	0.025	0.05	0.05	0.1	0.025	0.0025	2.5	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Geometric Average *	0.1	0.025	0.05	0.05	0.1	0.025	0.0025	2.5	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Median Concentration *	0.1	0.025	0.05	0.05	0.1	0.025	0.0025	2.5	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Standard Deviation *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Geometric Standard Deviation *	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
95% UCL (Student's-t) *	0.1	0.025	0.05	0.05	0.1	0.025	0.0025	2.5	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

				fluorocarbons																		
				Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTriDA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FTS)	8:2 Fluorotelomer sulfonate (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Sum of PFAS	Sum of PFHxS and PFOS	Sum of PFOS + PFOA		
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
LOR				0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.01	0.01	0.005	0.01	0.005	0.005	0.05	0.005	0.005	0.005	
PFAS NEMP 2.0 Table 2 Health Industrial/Commercial																				20		
PFAS NEMP 2.0 Table 2 Health Public open space																				1		
CRCCARE 2011 Soil HSL for Direct Contact, HSL-C Rec/OP																						
CRCCARE 2011 Soil HSL for Direct Contact, HSL-D Com/Ind																						
CRCCARE 2011 Soil HSL for Direct Contact, Intrusive Maintenance Worker																						
NEPM 2013 HIL recreational, Coarse Soil																						
NEPM 2013 HIL commercial/industrial, Coarse Soil																						
NEPM 2013 ESL Comm./Ind., Coarse Soil																						
NEPM 2013 Soil HSL Commercial/Industrial D, for Vapour Intrusion, Sand																						
NEPM 2013 Soil HSL Recreational C, for Vapour Intrusion, Sand																						
NEPM 2013 Management Limits, C/I, Coarse Soil																						
NEPM 2013 Management Limits, R/P&POS, Coarse Soil																						
WM02	28 Feb 2024	WM01-0.25	Normal	1075587																		
		WM01-0.75	Normal	1075587																		
		WM01-1.0	Normal	1075587																		
		WM01 - 1.0	Normal	1084676																		
		WM01-1.5	Normal	1075587																		
	29 Feb 2024	WM02-0.0	Normal	1075587																		
		WM02 - 0.0	Normal	1084676																		
		WM02-0.5	Normal	1075587																		
		WM02-1.0	Normal	1075587																		
		WM02 - 1.0	Normal	1084676																		
WM03	29 Feb 2024	WM03-0.0	Normal	1075587																		
		WM03 - 0.0	Normal	1084676																		
		WM03-0.5	Normal	1075587																		
		WM03 - 0.25	Normal	1084676																		
		WM03-1.0	Normal	1075587																		
		WM03 - 1.0	Normal	1084676																		
		WM03-1.5	Normal	1075587																		

Statistics																				
Number of Results	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.005	<0.01	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND							
Maximum Concentration	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.005	<0.01	<0.005	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND							
Average Concentration *	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.005	0.005	0.0025	0.005	0.0025	0.005	0.0025	0.025	0.0025	0.0025	0.0025	0.0025
Geometric Average *	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.005	0.005	0.0025	0.005	0.0025	0.005	0.0025	0.025	0.0025	0.0025	0.0025	0.0025
Median Concentration *	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.005	0.005	0.0025	0.005	0.0025	0.005	0.0025	0.025	0.0025	0.0025	0.0025	0.0025
Standard Deviation *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Geometric Standard Deviation *	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
95% UCL (Student's-t) *	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.005	0.005	0.0025	0.005	0.0025	0.005	0.0025	0.025	0.0025	0.0025	0.0025	0.0025
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Appendix F Historic Desktop Report (2023)





**BEENUP WIND FARM
GEOTECHNICAL DESKTOP REPORT**

04 July 2023

Prepared for:
Synergy Renewable Energy Developments

Prepared by:
Stantec Australia Pty Ltd

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1	Issued for Use	B. Petracca	03/07/23	A. Petty	03/07/23

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1 Introduction

Synergy Renewable Energy Developments Pty Ltd (SynergyRED) is currently progressing through the planning and approvals phase for a proposed new wind energy project (currently titled the Beenup Wind Farm Project) approximately 15 km east of Augusta in WA's Margaret River region as shown on the site location plan below (*Figure 1-1*).

A confirmed site layout is not yet known, however, preliminary plans and information provided by SynergyRED suggest that the Beenup Wind Farm Project will likely comprise the installation of between 20 and 40 wind turbines as well as the associated supporting infrastructure. A preliminary site plan is provided in Appendix A.

This desktop study report presents the findings of a review of both published and publicly accessible preliminary information relating to the site and its surroundings. This preliminary information is provided to assist with future planning of subsequent phases of works from initial preliminary geotechnical and contamination assessments to tendering for 'design and construct'.

Figure 1-1: Site Location Plan



2 Publicly Available Information

The following publicly available sources of information were reviewed during for the desktop assessment:

- The Geological Survey of Western Australia (1967) Geological Series - 1:250,000 scale - Busselton and Augusta map sheet.
- The Geological Survey of Western Australia (2002) Regolith Landform Resources Series - 1:50,000 scale - Karridale–Tooker map sheet.
- The Geological Survey of Western Australia (2019) State Interpreted Bedrock Geology – 1:500,000 – Western Australia.
- Smyth, E. I. (1992). Beenup Mineral Sands Project. Augusta: BHP Engineering Geotechnical.
- Brockman South Pty Ltd. (2015). Alexandra Iron Ore Project, Combined Annual Report 2014. Perth: Brockman South Pty Ltd.
- Department of Primary Industries and Regional Development. (2022). Soil Landscape Mapping - Best Available. Perth.
- Landgate WA - Shire of Augusta. (1971, 2000, 2010, 2023). Landgate Map View. Retrieved May 25, 2023, from <https://map-viewer-plus.app.landgate.wa.gov.au/index.html>.
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- Nicholls, R. (2022). Digital Elevation Models. Perth: Landgate.
- Department of Primary Industries and Regional Development. (2020, May 13). Native Vegetation Extent (DPIRD-005). Retrieved from Data WA: https://services.slip.wa.gov.au/public/rest/services/SLIP_Public_Services/Environment/MapServer/18.
- Department of Water and Environmental Regulation. (13, May 2022). FPM Floodplain Area (DWER-020). Retrieved from Data WA: <https://catalogue.data.wa.gov.au/dataset/fpm-floodplain-area>.
- Department of Water and Environmental Regulation. (2017, December 19). Acid Sulfate Soil Risk Map - Lower Southwest (DWER-052). Retrieved from Data WA: <https://catalogue.data.wa.gov.au/dataset/acid-sulfate-soil-risk-map-lower-south-west-dwer-052>.



3 Desktop Assessment

3.1 Site Identification and Description

3.1.1 SITE DESCRIPTION

The proposed Beenup Wind Farm is located in the southwestern region of Western Australia, approximately 15 km northeast of the town of Augusta and within the Shire of Augusta-Margaret River. The site geometry can be identified by two areas, a rectangular prism-shaped section north of Gov Broome Road and an irregular shaped section south of Gov Broome Road.

Occupying an approximate area of 5,500 Hectares and located within an agriculturally active region, the site is bound by fence-lines which separate neighbouring properties. Beyond the fence-lines, the site is bound to the north and west largely by cleared farmland, to the east by forest land (northern segment) and cleared farmland (southern segment) and to the south by a lesser tributary of the Scott River as shown on the site plan (*Figure 3-1*).

Figure 3-1: Proposed Wind Farm Site Area



3.1.2 SITE TOPOGRAPHY

With the southern boundary of the site located approximately 4 km north of the Indian Ocean-Southwestern Australian coastline, the surface topography of the region abruptly rises in elevation, from 0 m AHD at the coastline to greater than 30 m (at the top of nearby sand dunes) only a few hundred meters north. From the east, the surface topography from the Scott River (approximately 4 km from the site's western boundary), also at 0 m AHD, gently increases in elevation to 20 m AHD where the western boundary is intersected in the south, and as great as 37 m in the north. Locally across the site itself, there exists a gradual increase in elevation from the southwest (as little as 9 m AHD) to the northeast (as great as 38 m AHD).

3.1.3 PRIMARY PHYSIOGRAPHIC FEATURES

Based on aerial imagery obtained through Landgate, the site looks to be primarily cleared for farming practices, although some forested (presumably re-forested) areas remain present, primarily proximate to the northwest, east, and southeastern boundaries.

Although surface drainage features are generally difficult to determine based on the broad-scale aerial imagery available, significant wetlands and ponds are visible sporadically across the site, not necessarily constrained to low lying areas. Furthermore, where available historic 'Street View' imagery was reviewed, significant waterlogged surface conditions were observed. It is likely that shallow groundwater (possibly localised perched conditions) is present across the site, possibly driven by the underlying low permeability geological conditions.

3.1.4 HISTORIC LAND USE

Aerial imagery, obtained through Landgate, a government land agency, dating back to 1971 shows that the site area has historically been primarily utilised for agricultural purposes. The 1971 imagery indicates the site was largely undeveloped, although, some clearing had already been undertaken. Imagery taken in 2000, shows farming-related homesteads, sheds and other farm related facilities, likely built during the late 1990s on the southwestern side of the plot. The latest satellite imagery shows these buildings remain on the site to date. A series of available images are shown as Figure 3-2 to Figure 3-5 below.



Figure 3-2: Aerial Imagery 1971 - Landgate

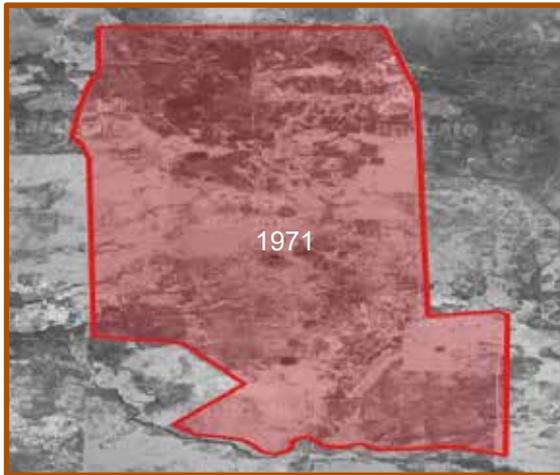


Figure 3-3: Aerial Imagery 2000 - Landgate

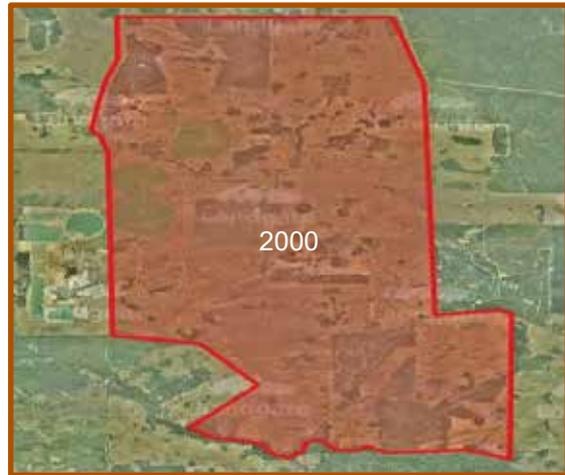


Figure 3-4: Aerial Imagery 2010 - Landgate

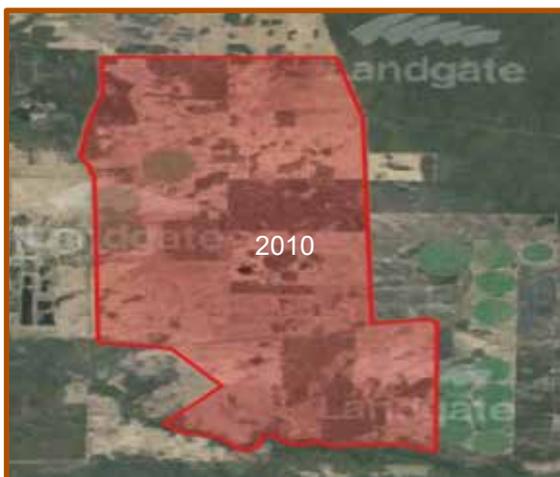


Figure 3-5: Aerial Imagery 2023 - Landgate



3.1.5 VEGETATION

Based on the vegetation map for WA from the Department of Agriculture and Food as well as a review of aerial and site-based imagery, the site comprises the following vegetation facets:

Forest and Woodland

Comprising namely Jarrah (*E. marginata*), Marri (*Corymbia calophylla*) and Wandoo (*E. wandoo*).

Low forest and Low woodland with Scattered Trees

Comprising a variety of Wattle (*Acacia rostellifera*), Rottnest pine (*Callitris preissii*), moort (*Eucalyptus platypus*) or mixed tropical forest with scattered Jarrah (*E. marginata*), banksia (*Banksia* spp.) or casuarina (*Allocasuarina* spp.).

Open Low Woodland



Comprising wattle (*Acacia* spp.), banksia (*Banksia* spp.), peppermint (*Agonis flexuosa*), cypress pine (*Callitris* spp.), casuarina (*Allocasuarina* spp.) and York gum (*E. loxophleba*)

Scrub, Open Scrub or Sparce Scrub

Comprising Wattle (*Acacia* spp.), Teatree (*Melaleuca* spp.) and other species.

3.2 Geotechnical Assessment

3.2.1 PUBLISHED GEOLOGY

Published geological, geomorphological and soil landscape information has been reviewed, where a summary of the applicable findings is presented below. Excerpts of the available maps have been cropped, with the site area superimposed as presented in the series of geological maps of Section 3.2.1.1 (Figure 3-6 to Figure 3-9).

Based on our own understanding of the site area and information presented within The Geological Survey of Western Australia (1967) 1:250,000 scale; Busselton and Augusta map sheet, it is anticipated that the site is primarily underlain by the following geological units:

- Quaternary Alluvium comprising quartz-rich sand dunes; and
- Cainozoic Laterite.

At greater resolution, the nearby 1:50,000 scale Karridale – Tooker map sheet also developed by The Geological Survey of Western Australia (2002) would suggest that the Leederville Formation, comprising interbedded sedimentary rock and associated units derived via weathering may be encountered underlying the dune deposits and laterite across the site.

Within the 1:500,000 linear structures' geological map, a fault or shear zone runs North to South in the western portion of the site, and a major fault (Busselton Fault) runs along, and parallel to, the eastern boundary of the site.

Based on the information presented within the soil landscape map (DPIRD-064), as shown on Figure 3-8 below, the site is located within the Scott Coastal Plain. The Scott Coastal Plain is flanked by the Blackwood Plateau to the North, separated by the Barlee Scarp, and the Leeuwin Naturaliste Ridge to the West. According to the published information, the coastal plain is comprised of alluvial, lake, swamp, estuarine and shoreline deposits unconformably overlying sediments and basalt flows of the Mesozoic or marine sediments of the Eocene. Whilst the site appears to be uniform, with its base siliceous sands according to geological maps, variability exists with the secondary inclusions within the geological profile. These secondary inclusions comprise organic stained siliceous sands, bleached siliceous sands and shallow sands overlying ferricrete ('Coffee Rock').

An investigation was undertaken between 2014 and 2015 by Brockman South for the Alexandra Iron Ore Project (C19/2014) where a more detailed lithology map pertaining to the Beenup Wind Farm site area was developed and presented within their report (Brockman South Pty Ltd, 2015). It was noted that there was no outcropping basement, and the site is covered extensively by surficial deposits of the Cainozoic age, which in turn is underlain by unconsolidated sediment from the early Cretaceous Warnbro group.



3.2.1.1 Published Series of Geological Maps

Figure 3-6: Beenup Wind Farm 250k Geological Setting

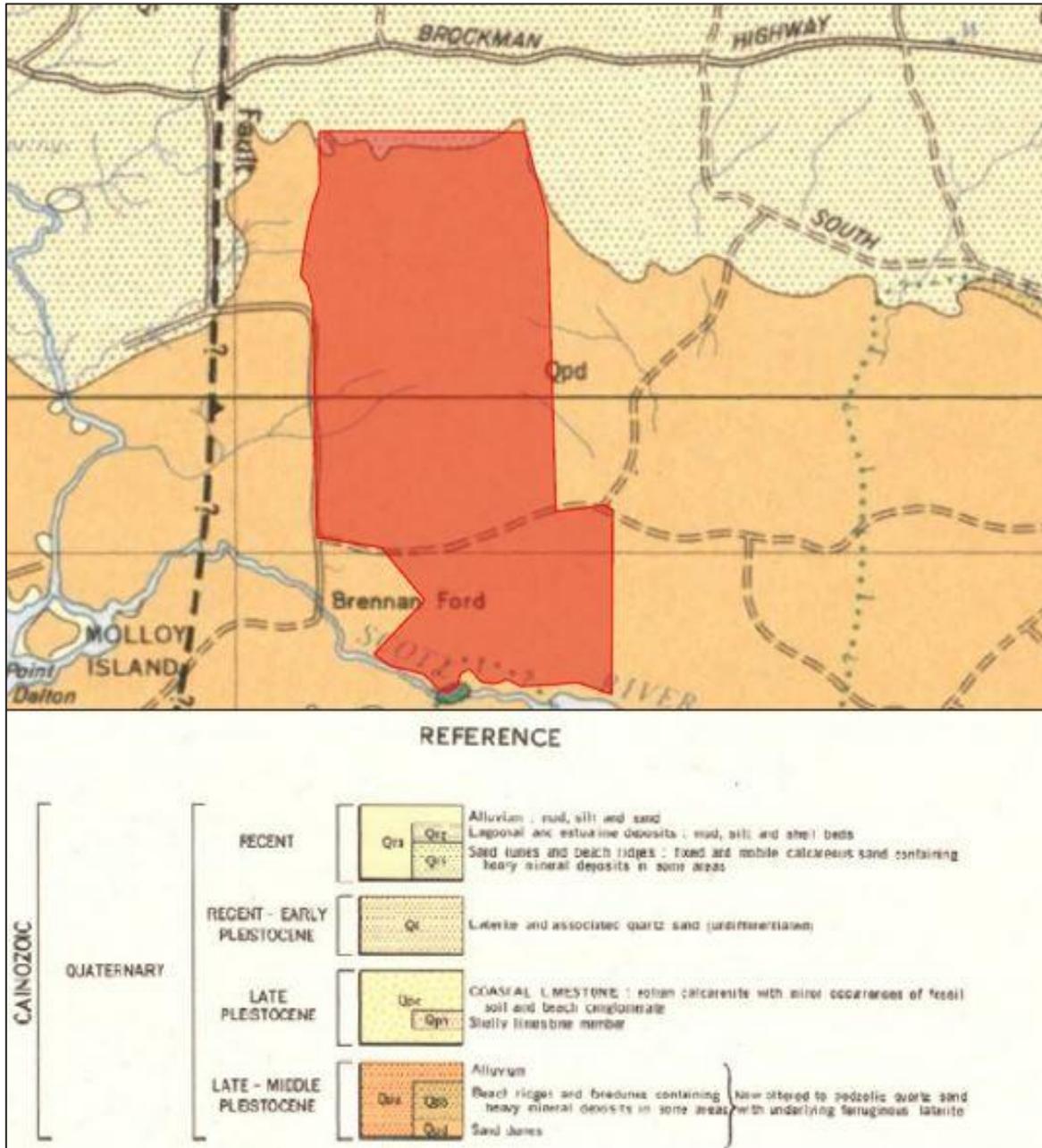


Figure 3-7: Beenup Wind Farm Site Linear Geological Structures

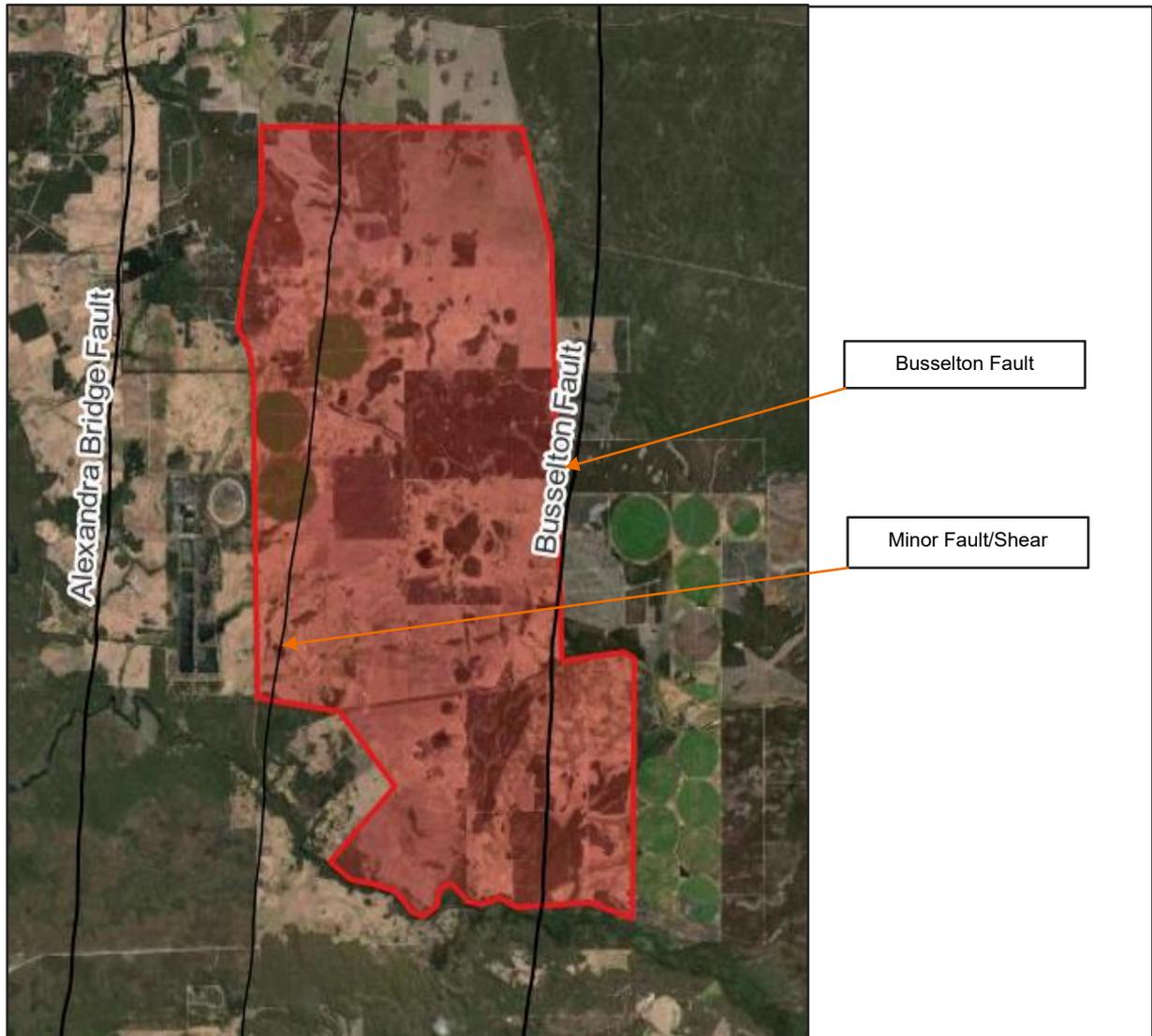


Figure 3-8: Soil Landscape Map

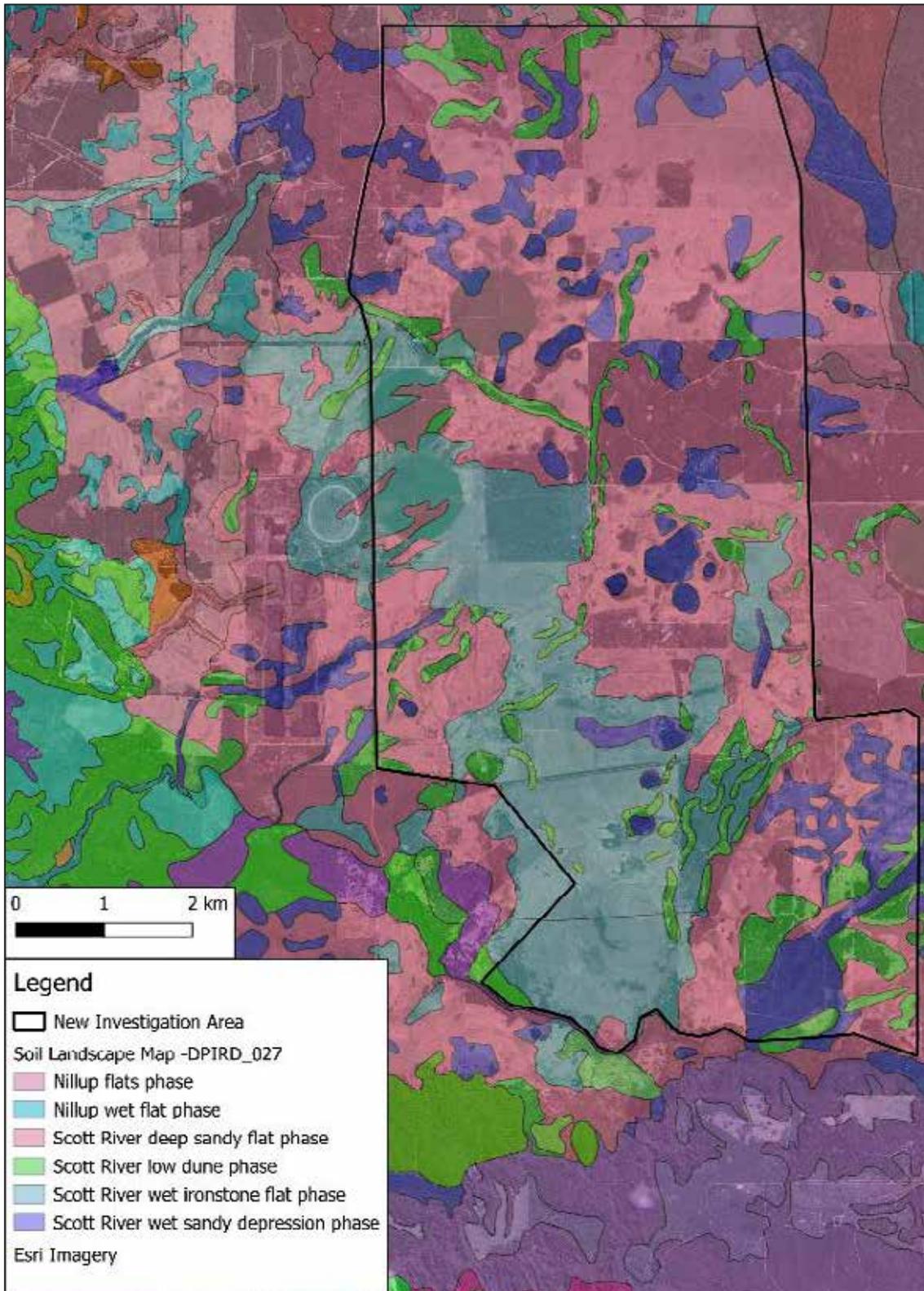
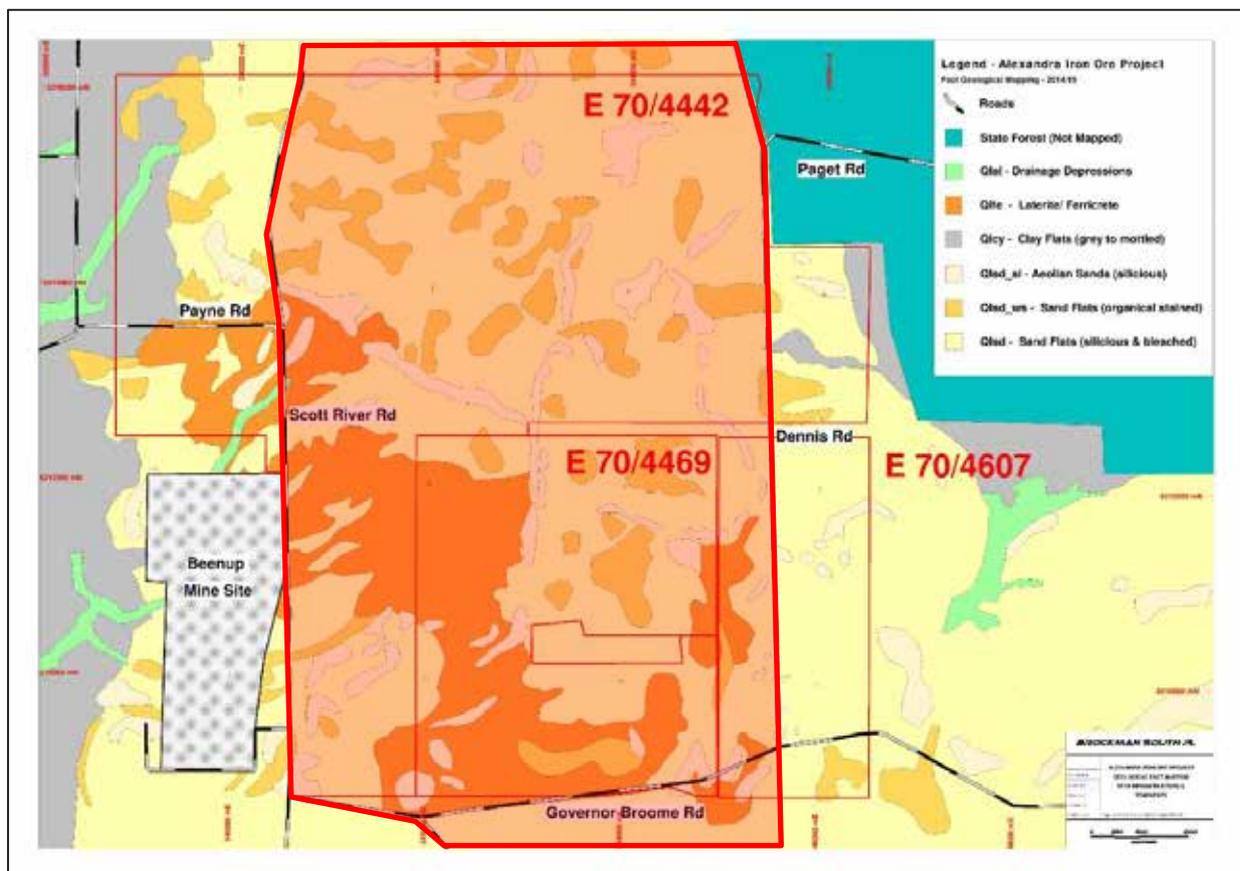


Figure 3-9: Geological Map of Investigation Area developed by Brockman South Pty Ltd



3.2.2 GEOTECHNICAL SETTINGS

As part of the nearby Beenup Mineral Sands project (M70/574-577), BHP Engineering Geotechnical have made available a number of borehole logs within their report, referenced (BHP Engineering Geotechnical - Smyth, 1992). Although not within the site bounds themselves, the historic borehole logs remain a useful source of geotechnical data recovered from the adjacent lot beyond the western boundary.

Considering both the broader geological context as well as the borehole logs from (BHP Engineering Geotechnical - Smyth, 1992), the following simplified profile is summarised below, presenting lithologies that are anticipated to be encountered across the site from surface level to depths of up to 25 m below ground level.

- **TOPSOIL: SAND:** Fine- to medium-grained; yellow brown; with low plasticity silty fines. (topsoil); overlies
- **FERRICRETE:** Fine- to coarse-grained, clast supported; pale brown; with gravel, fine to coarse (<25mm), sub-rounded, pisolitic laterite clasts; suspended within a clayey/sandy matrix. (Duricrust / 'Coffee Rock'); overlies



- **SAND (SP) & SILTY-CLAY SAND (SC):** Fine- to coarse-grained, sub-rounded, quartz; grey, mottled orange and red brown; with silt and clay, non-plastic to high plasticity; with gravel, fine to coarse. (Alluvium/Aeolian).

The above information is considered preliminary and additional variability is expected to be encountered during subsequent phases of geotechnical works. A ground model considering the above information as well as intrusive data recovered during geotechnical investigations across the site, and proposed infrastructure locations (once known) should be developed for the project.

3.2.3 GROUNDWATER

Accurate groundwater information proved difficult to acquire for the region, and in particular the site area. Based on information within, (BHP Engineering Geotechnical - Smyth, 1992) and the latest satellite imagery taken of the region. It is likely that shallow groundwater exists across the site (at least in areas where lower permeability soil or 'Coffee Rock' is present).

3.2.4 PRELIMINARY GEOTECHNICAL RISKS IDENTIFIED

Cementation 'Coffee Rock' – Constructability / Differential Settlements

The presence of locally cemented zones of 'Coffee Rock' throughout the shallow subsurface profile is likely, as is well documented within publicly accessible geological maps and historic geotechnical logs. It is noted that variability in strength and resistance to penetration was encountered across various depths during the reviewed historic drilling records.

In addition to the difficulties and cost increases arising during excavation works, well-cemented zones may also increase the risk of intolerable differential settlements where foundations are allowed to span across both cemented and uncemented zones.

A reduction of permeability should also be anticipated if large zones of cementation are present beneath drainage structures.

Low Permeability Soils Causing Flooding – Constructability and Trafficability

Based on a flooding study conducted in 1992 of the Scott River, for a 1 in 100-year flood event, it can be inferred that due to the distance from the river, the site will not be affected by overtopping of the Scott River. However, the flood risk map developed by DPIRD-007 that captures a small portion of the site (<10%) and suggests that a moderate to high flood risk exists.

As mentioned previously in this report, numerous wetlands and ponds were noted to exist across the site. In addition, surface/street view images taken during wetter periods were noted to show ponding water across vast areas of the site.

It is likely that low permeability soils or the presence of the aforementioned 'Coffee Rock' at shallow depths results in low infiltration of precipitation during the wetter months periods of the year. Perched groundwater which protrudes lower lying areas is likely also a contributing factor which should be anticipated and investigated further across the site.

Shallow groundwater or ponding surface water may be a risk during construction due to destabilising exposed slopes (risk to embankments and excavations), softening of soils relied upon for foundation,



and resulting in trafficability issues. The presence, extent, and likelihood of construction being impacted by such conditions should be investigated further and considered within design.

3.2.5 EARTHQUAKE DESIGN

Based on the location of the site with reference to Figure 3.2 (B) of AS1170.4-2007 Structural Design Action Part 4: Earthquake Actions, Section 3-Site Hazard, a Hazard Design Factor (Z) of 0.09 is appropriate for the site.

Based on the likely geological and geotechnical conditions inherent to the site and considering the depth limitations of the historic data on-hand (maximum drill depths of 25 m below surface), a site sub-soil classification of Ce – Shallow Soil or De – Deep Soil is likely applicable in accordance with Section 4 of AS1170.4-2007 Structural Design Action Part 4: Earthquake Actions. This should be further investigated and confirmed during subsequent phases of design.

3.3 Contamination and Acid Sulphate Soils

3.3.1 POTENTIAL CONTAMINATION

As identified, the site has been predominantly utilised for agricultural purposes dating back to at least 1971 with evidence of farming-related homesteads, sheds and other farm related facilities. Based on the agricultural activities that have been undertaken across the site there are a number of contaminants of potential concern (CoPC).

It is also noted that the previous mining lease to the west of the site has been classed within DWER-059 - contaminated sites as remediated, for restricted use. Although it is likely that contamination was the result of the land use.

Within Appendix B of the Department of Water and Environmental Regulation (DWER) Assessment and management of contaminated sites, November 2021 (DWER, 2021) is a list of CoPC associated with agriculture, including but not limited to:

- Carbamates.
- Organochlorine pesticides (e.g., Aldrin, Dieldrin, Endrin, Methoxychlor, Pentachlorophenol).
- Organophosphate pesticides.
- Herbicides (e.g., Triazine, Atrazine, 2,4,5-T 2,4-D, MCPA, Picloram).
- Insecticides DDT, DDE and DDD, Bifenthrin.
- Nitrates.
- Metals (e.g., aluminium, arsenic, cadmium, copper, iron, lead, magnesium, potassium).
- Nutrients (e.g., nitrogen, phosphorus).
- Toxaphene.



In addition, to the identified CoPC there is also the potential for the presence of asbestos containing materials (ACM) based on the nature and age of the buildings located across the site.

3.3.2 ACID SULPHATE SOILS

Based on Acid Sulphate Soils (ASS) risk maps developed by DWER, the proposed wind farm site is located on region which is mapped as Moderate to High ASS risk.

Acid Sulfate Soils (ASS) are iron sulphides residing within the soil and present no effects when left submerged and undisturbed in the environment. However, exposure to air via decreases in water levels or excavation can cause iron compounds to oxidise and form sulfuric acid. Sulfuric acid poses a potential structural threat due to its oxidising effect, in addition to the environmental implications of ASS.

As mentioned within the geotechnical assessment, ferruginous soils and iron cemented soils are likely present across the shallow subsurface of much of the site. It is likely that the published risk rating is a product of such ground conditions.

3.4 Recommended Investigations

It is understood that the project is currently in the approvals stage. As such, the location of proposed infrastructure is not yet confirmed. Preliminary geotechnical and contamination-based site investigation is presumably required to satisfy the approvals progression. This should comprise a geotechnical, groundwater, and contamination (including PASS) assessment across the entire site area in such a way as to capture, as much as practical, inherent variability and representative conditions of the site.

Three boreholes and twenty test pits are currently planned to be undertaken across the site with geotechnical and contamination-based sampling and laboratory testing proposed. Given the scale of the site (approximately 5,500 Hectares), these quantities are likely to provide high level information only to satisfy approvals. Significant variability is expected across such a large area; thus, extensive additional testing is recommended at subsequent phases to enable detailed design.

Based on a preliminary site layout provided by SynergyRED as shown in Appendix A, and considering the inherent variability likely present across the site as well as likely geotechnical hazards to construction, the following scope of works is recommended.

3.4.1 FIELDWORK

The following fieldworks are recommended to be undertaken at the locations shown in Appendix A. Based on the locations, it is recommended that clear access points and paths to each location be documented prior to site mobilisation to avoid unnecessary delays associated with accessibility constraints.

Test Pits

Twenty (20) test pits excavated to a target depth of 3 m bgl or prior practical refusal (due to rock refusal, inundation of groundwater, side-wall collapse, penetration limit or machine limit) at the locations shown on Appendix A. In order to provide a practical/realistic assessment of excavatability



across the site, the test pit excavation shall be undertaken utilising equipment which best represents likely construction equipment / methodologies (trenching and footing excavations using a >20 tonne excavator with appropriate bucket selection options).

Bulk and disturbed sampling shall be undertaken from the excavated materials as to best capture material variation across the site. Recovered materials and side walls shall be logged in accordance with AS1726-2017.

Upon completion, the test pits shall be backfilled with the excavated spoil and tamped in place utilising the excavator bucket and tracks (at surface). Any excess spoil is to be mounded over the test pit to allow for future settlement. Topsoil and vegetation is to be stripped and placed to the side of each test pit prior to excavating and shall be replaced upon the surface to assist with rehabilitation.

Penetrometer To assist with assessing soil strength, a Dynamic Cone Penetrometer (DCP) test shall be undertaken adjacent to each test pit location, advanced to a target depth of 1.5 m bgl or prior penetration refusal.

The locations have been positioned with the aim of providing a reasonable distribution of geotechnical information across the site, specifically where infrastructure is proposed as per the current site plan

Boreholes

Three (3) geotechnical boreholes shall be drilled to a depth of 25 m below ground level (bgl) at the locations shown on Appendix A. The boreholes shall be drilled using a truck or track mounted drill rig and is to be advanced by direct-push probing techniques in soil and where refusal is encountered, continued via HQ3 diamond drilling techniques.

In order to assess relative density and provide additional samples for laboratory testing, Standard Penetration Tests (SPT's) are to be undertaken at nominal 1.5 m intervals when drilling through granular soils.

Recovered soil and rock shall be placed inside of 1 m length metal core trays where they are to be logged in accordance with AS1726-2017 and subsequently photographed.

It is noted that the boreholes were positioned previously by SynergyRED however, they are distributed in such a way which will likely provide a reasonable spread of information across the site, albeit limited to three locations.

Standpipes

Upon completion of the boreholes a standpipe piezometer (groundwater well) is to be installed in each to a depth of 10 m bgl and following the well design as presented within Appendix B. The purpose of the standpipe is to allow for future shallow groundwater level monitoring which may impact construction at possible excavation depths.

A water level logger shall be installed within each of the wells to provide long-term hourly groundwater level information. A barometric logger shall also be installed at the site to allow for future groundwater / barometric compensation during data collation. Initial groundwater levels shall be recorded (at meters below ground level) upon logger installation. It is recommended that monthly groundwater



level monitoring be undertaken as well as the groundwater data downloaded from the loggers. It is understood that SynergyRED will undertake such monitoring.

Contamination Sampling

Environmental soil samples are to be recovered at 0.5 m intervals, where a change in lithology occurs and immediately above groundwater level (if encountered) to a minimum depth of 1.5 m bgl in both the boreholes and test pits. Screening for volatile organic compounds will be undertaken from each sample using a calibrated photoionisation detector (PID), and the readings are to be recorded on the logs. Samples shall be chilled, stored and transported in laboratory supplied coolers.

Acid Sulphate Soils (ASS) samples shall be recovered at 0.5 m intervals to allow for laboratory testing across the entire ground profile.

3.4.2 LABORATORY TESTING

Geotechnical

The quantities and types of laboratory testing will largely be determined by the recovered materials at the time of investigation. However, based on the anticipated lithologies at the site, the following testing is recommended:

- 6 nos. Particle Size Distribution;
- 6 nos. Atterberg Limits including Linear Shrinkage;
- 6 nos. Soil Aggressivity testing (SO₄, Cl and pH);
- 2 nos. Modified Maximum Dry Density (MMDD);
- 2 nos. 4-Day Soaked California Bearing Ratio;
- 2 nos. Emerson Class;
- 1 no. Thermal Resistivity dry out curve (4-stage);
- 6 nos. Natural Moisture Content;
- 2 nos. Direct Shear;
- 6 nos. Point Load Index;
- 2 nos. Uniaxial Compressive Strength; and
- 2 nos. Uniaxial Compressive Strength with modulus.

Environmental / Contamination

46 samples are to be submitted for the following:

- Benzene, Toluene, Ethylbenzene, Xylenes and Naphthalene (BTEXN);
- Total Recoverable Hydrocarbons (TRH) (NEPM 2013 fractions);



- Metals (As, Be, B, Cd, Ch(VI), Co, Cu, Pb, Mn, Hg, Ni, Se, Zn);
- Organochlorine (OC) and Organophosphate (OP) pesticides (basic suite);
- Nutrients (Ammonia-N, Nitrate-N, Nitrite-N, NOx-N, TKN, TN, reactive P, total P); and
- Asbestos (fibrous).

Acid Sulphate Soils

- Preliminary analysis of 240 samples for field pH (pHF) and oxidized field pH (pHFOX);
- QA/QC (preliminary analysis of 12 samples samples for field pH (pHF) and oxidized field pH (pHFOX); and
- Confirmatory analysis of 60 samples for either suspension peroxide oxidation combined acidity and sulfate (SPOCAS) or Chromium Reducible Sulfur (CRS) suite;
 - *Where the preliminary analysis indicates the absence of ASS the DWER regulations requires a minimum of 25% of samples to be submitted for confirmatory analysis. Where the preliminary analysis indicates the presence of potential ASS (PASS) or actual ASS (AASS) this frequency will need to be increased to between 25% and 100% depending on the magnitude of the preliminary results.*

3.4.3 REPORTING

The results of the investigation above shall be collated and provided in a geotechnical investigation report. The report shall document the investigation undertaken as well as the following:

- A site plan detailing the location of all testing locations;
- Provision of comprehensive graphical borehole and test pit logs;
- A summary of core tray photos and site photographs;
- A summary of field tests and results;
- A summarised description of the subsurface conditions across the study area;
- Soil/Rock descriptions, classifications and typical profile including any existing fill and groundwater levels at the time of the investigation;
- Development of an inferred subsurface cross section, composition and in-situ strength. I.e. a Ground Model;
- A summary of geotechnical and environmental laboratory test results;
- Comments and recommendations regarding suitable foundation systems and preliminary geotechnical parameters to be considered for tenderers prior to detailed investigations;
- Comments on potential reuse of materials and earthworks requirements; and



- Any other relevant geotechnical/environmental constraints and/or risks that are identified at the time of the field investigation.

4 Limitations

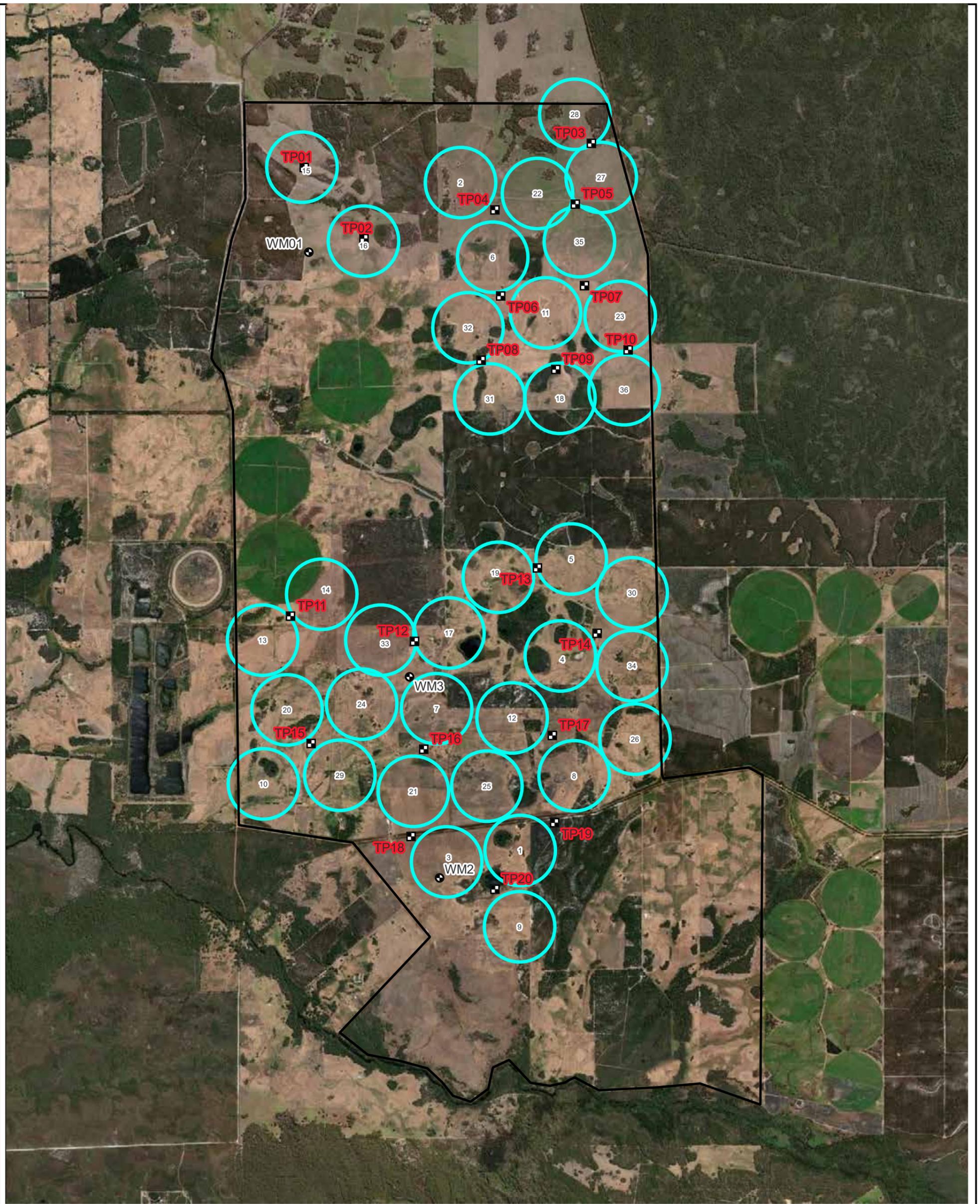
The findings within this report are the result of a review of desktop level published (and publicly available) information only which has been developed by others. The information should be considered as preliminary and not relied upon for design purposes. Under no circumstances, can it be considered that these findings represent the actual state of the ground conditions across the site.

It is recommended that geotechnical investigations be undertaken to a level that satisfies the relevant stage of the project throughout the approvals and design process.



Appendix A – Site Plans





Beenup Wind Farm - Geotechnical Investigation

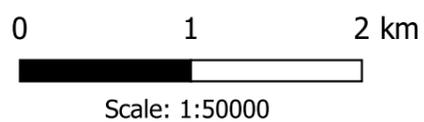
Scenario 2: Targeted Investigation Locations

Client: Synergy Red
 Project Code: 304501017
 Drawn By: Edvinder Singh, Checked By: BP
 Date: (2023-06-18)
 Figure No: 1.2 - Scenario 2

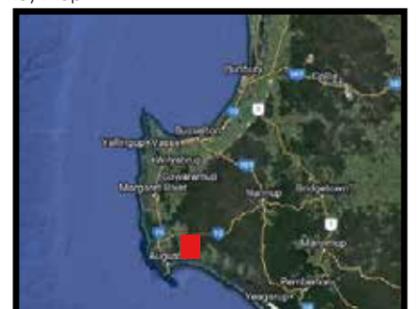


Legend

- Test Pit (TP) Locations
- Borehole (GW) Groundwater Monitoring Locations
- ▭ Proposed Windfarm Area
- Turbine Location



Key Map



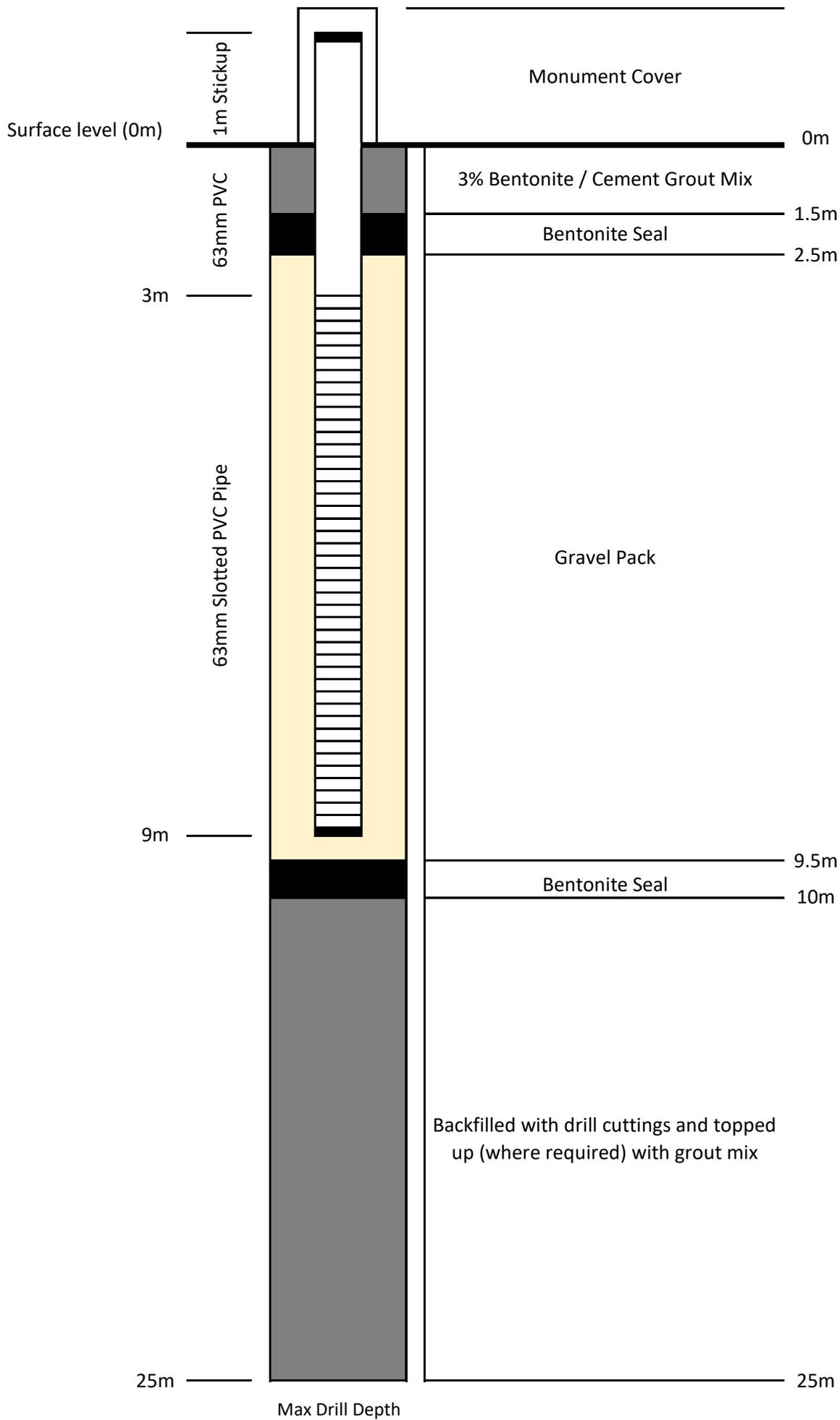
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Appendix B – Preliminary Well Design



Beenup Wind Farm - Proposed Well Designs

Not to Scale



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